

Dr. P.S. Shrivastava, renowned Homeopath and Clinical Psychologist from Madhya Pradesh. He has been in practice for more than 32 years. Dr. Shrivastava is a science graduate from RDV University, Jabalpur and completed his course in Homeopathy from Bhopal and advance diploma from British Institute of Homeopathy, London. He completed special course in Cerebral Palsy and post-graduation in Clinical Psychology from Delhi.



Believe it or not

(The story of an Unsung Inventor
of Color Cinematographic Process)

DR P S SHRIVASTAVA

Believe it or not

**(The story of an Unsung Inventor of
Color Cinematographic Process)**

Dr P S Shrivastava

Copyright© 2024 Dr P S Shrivastava

All rights reserved

No part of this publication may be reproduced, transmitted or stored in a retrieval system, in any form or by any means, electronics, mechanical, Photocopying, recording or otherwise, Without the prior permission of the publisher.

Photo Credits: From the authors' collection, unless otherwise stated. All original documents are in the custody of the author.

Cover Design: By the author

Note: This book was published as a bilingual book in Hindi and English, by Hahnemann Academy of Vital Science & Humanities, Bhopal, India for private circulation. This is an international edition in English only.

By professor toofaanii publishers, East Lansing, MI USA

BELIEVE IT OR NOT

DEDICATION

To my parents

Appreciation for the book



"Mano ya na Mano" is a labour of love by Dr. PS Shrivastava. It's a pleasant revelation for me that Shri Prem Adib pioneered the process of colour cine photography along with Shri SS Shrivastava way back in late forties. I am sure it was path breaking effort at the time. I am happy Dr. PS Shrivastava has compiled this important episode of our Indian film industry for the lovers of films. My hearty congratulations and good wishes to Dr. Shrivastava.

Chetanya Adib, Actor & Voice Artist
Grandson of Shri Prem Adib



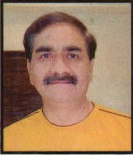
अत्यंत हर्ष का विषय है कि डॉ प्रेम स्वरूप श्रीवास्तव जी के द्वारा फोटोग्राफी पर किये गए कार्यों पर आधारित उनका संकलन 'मानो या न मानो' शीघ्र प्रकाशित होने जा रहा है। मैं इस उत्कृष्ट कार्य के लिए डॉ. श्रीवास्तव को बधाई और संकलन की सफलता हेतु शुभकामनाएं देता हूँ।

श्री शिशिर कृष्ण शर्मा
वरिष्ठ फिल्म इतिहासकार, मुम्बई



एक चिकित्सक के रूप में व्यस्त रहने के बावजूद आदरणीय डॉ. पी.एस. श्रीवास्तव जी ने फोटोग्राफी का अपना शौक न सिर्फ जीवित रखा बल्कि इसका गहन अध्ययन भी जारी रखा। फोटोग्राफी पर अनेक जानकारीयों से भरा ये संकलन निश्चित रूप से इस विद्या के जानकारों के लिए बहुत उपयोगी सिद्ध होगा, उनको इस प्रकाशन पर मैं उन्हें अनेकानेक शुभकामनाये प्रेषित करता हूँ।

बालेन्द्र सिंह "बालू"
वरिष्ठ नाट्य निर्देशक, रंगकर्मी एवं फिल्म कलाकार... "बुद्धन" फेम फिल्म पीकू



फोटोग्राफी एवं मोशन पिक्चर्स पर इस अद्भुत संकलन के प्रकाशन पर डॉ. पी.एस. श्रीवास्तव जी को बहुत बहुत बधाई।

हरिओम तिवारी, "प्रसिद्ध कार्टूनिस्ट एवं फिल्म कलाकार"



यह जानकर अत्यंत प्रसन्नता हुई है कि वरिष्ठ होम्योपैथिक चिकित्सक डॉ पी.एस.श्रीवास्तव की फोटोग्राफी पर लिखी एक महत्वपूर्ण पुस्तक का प्रकाशन होने जा रहा है। मुझे पूरा विश्वास है कि फोटोग्राफी की तकनीक को आत्मसात करने की दृष्टि से विद्यार्थियों के लिए यह पुस्तक मौल्य का पत्थर साबित होगी।

विवेक सावरीकर, "मृदुल" सुपरिचित रंगकर्मी और लेखक



आदरणीय डॉ. पी.एस.श्रीवास्तव को उनके फोटोग्राफी केंद्रित पुस्तक के प्रकाशन पर बहुत बहुत शुभकामनाएं।

अखिलेश जैन
फिल्म एवं रंगमंच कलाकार "लाल बहादुर शास्त्री फेम"

ACKNOWLEDGMENTS

I was working for almost two years to prepare this book. One day suddenly, I saw episode 39 of “Beete Hue Din” video of Shri Shishir Krishna Sharma on You Tube, so I immediately contacted him and told some information about the actor Shri Prem Adib. After about six months, when the work on the book was about to be completed, on my request, he sent his congratulatory message. Therefore I kept receiving his guidance and finally on 10 the March 2024, the book “Mano Ya Na Mano” was released in Mumbai in the presence of cine actor voice artist Shri Chaitanya Adib, film director Major Ashok Kaul and famous film historian Shri Shishir Krishna Sharma. After this, through him, I established communication with Professor Surjit Singh. I am always grateful for the guidance and affection of Shri Shishir Krishna Sharma.

Professor Surjit Singh is a well-known physicist whose many research papers and books have been published in India and abroad. He has a long experience of teaching in various universities. He has been honored by various governments institutions and is a person who has a special interest in the history of Indian cinema. His writing contain special mention of unknown facts and special events of Indian cinema. I am grateful to Professor Surjit Singh, who is a man of multi-faceted personality, for giving importance to the work done by me.

I am grateful to all my well-wishers.

Dr P S Shrivastava,

Bhopal, India

April 2024

CONTENTS

ACKNOWLEDGMENTS	5
FOREWORD	7
PREFACE	8
EPIGRAPH	9
Important Information, please read	10
Introduction	11
Color Films, a brief review	13
Prem Adib correspondence	15
The inventions, patents and their documentation	37
Communications with foreigners	71
More Patent Documentation	80
Communications with the Bombay Film Industry	102
Conclusion	108
More Images	111
ABOUT THE AUTHOR	116
OTHER BOOKS BY THE PUBLISHER	117

FOREWORD

I consider myself to be a well-read person about Indian cinema history. I have read practically all the books and articles written about it since the thirties.

So, it was a shock to learn about this young inventor from Jabalpur, who all by himself learned about color photography and cinematography. He communicated with the best color laboratories in the world in the 50s. He did enough independent work to get three patents awarded for this work by the Indian Patent Office. He even corresponded with Prem Adib about making commercial use of his process. Unfortunately, delays happened, Prem Adib passed away and the foreign companies with established processes and laboratories took over and dominated, specially from the mid-60s.

His story was been written in a book by the inventor's son Dr P S Shrivastava, who kindly sent me a copy of his book. After perusing the book, I could see how much hard work must have been involved in gathering all the information and putting it all together.

I suggested to him that it should be made available to a wider audience, to which he readily agreed.

I am honored to play a small part in this project and wish it all the success.

Professor Surjit Singh
East Landing, MI USA
May 2024

PREFACE

It is very difficult to bring forward the work done about 72- 73 years back because the authenticity and originality of this work has to be proved. The incidents mentioned in this compilation have been based on the documents of Government of India and other important letters, due to which both the authenticity and originality of the work is proven. Always, especially in India, most of people who do any scientific research, invention or artistic, creative work think that they are the best or that the work done before them is lesser to the work done currently. Whereas the truth is that the work that has been done earlier is the foundation, or the essence of the work being done in the present.

Earlier there was a severe shortage of resources in India. Due to economic problems and red-tapism many excellent works which were being done at that time remained incomplete. It is because of the hard work and dedication of the older generation that today's generation is relieved from many problems. Some important events neither find a place in history nor are they known to general public. This compilation has not been made to praise anyone but it make us realize that there are some incidents in life which force us to introspect.

By hard work and searching, you get resources, you get success in work, people appreciate your work but suddenly it happens that luck changes your path. Like a train is moving at a fast speed but suddenly when it is given another track, it start running on it. Similarly, in life, fate or destiny gives you another path or track even if you don't want to. Just think what resources could have been available to any youth in India in 1949, which are available today.

When we looked closely at the reality of this compilation, we found that nature shows you every period of change, but basic rules or provisions of nature do not change. Nature makes you agree to its basic rules or provisions. You tend to disagree with these basic rules at an early age but later at a mature age you start respecting them. This compilation contains an analysis of the behavior of a twenty two year old youth of that time, the behavior of a friend, the behavior of a film actor and working efficiency of an attorney.

This is the inspiring story of a young man with great ideas and his struggle to bring them to fruition.

EPIGRAPH

Three inventions patented by Shri Soami Sharan Shrivastava during 1948-1955:

1. **Improvement in or relating to coloured motion pictures.**
2. **A Colour photographic process for motion pictures, and device for carrying out the same.**
3. **A system to produce illusion of depth in the pictures obtained by photography and television.**

Important Information, please read

1. All the documents are reproduced from the originals, which are with the author.
2. Transcripts are provided where needed. They are set aside as block text in italics, so as to separate them from the main text.

Introduction

India had become independent in 1947, but after that the bird of freedom was not able to fly like it was supposed to fly, because the nets of the threads of partition, poverty, unemployment, illiteracy and social evils were wrapped in its claws. Politicians, leaders were engaged in building their pseudo public image, they had taken the meaning of independence as only, driving the British out of India. At that time, the general public was living with very limited resources. Young men had their own dreams but what to do? How to fulfil those dreams? Young mind is always full of creative and positive energy. Whether it is today's time or old time, every youth wants to do something. At that time a young man of eighteen or nineteen years was going with the flow of life. In the scenario of poverty, he who was older than all siblings in the house had all the responsibilities that he had to fulfill. He somehow bought two still cameras in 1948 and learned the art of photography. Between 1948 and 1949, he became proficient in the field of photography.

After December 1949, this young man started working on color cinema photography project. At same time, he began his own startup called MOVIE COLOR PROCESS. On this project, his childhood friend Shri Shanti Lal N. Soneji provided financial assistance and the super star hero of that time Mr. Prem Adib started helping in providing technical resources. His personal production house, PREM ADIB PICTURES, was located in Bijli Cottage, Andheri, in what was then Bombay. In fact, Mr. Prem Adib, a Kashmiri Brahmin "DHAR", when he entered the film industry and found himself among struggling actors like Dev Anand and Dilip Kumar. At that time, he got the lead role in the film "Romantic India" with actress Noorjahan. He became a star in his next film "Pratima". By that time Mr. Prem Adib had acted in film Bharat Milap, Ram Rajya, Chand, Anokhi Ada etc. He got immortality in the Indian film industries with the film "Ram Rajya". This was the only Indian film seen by Mahatma Gandhi in 1943. Later he made films for his production house, but these films did not do well. The main reason for this is that, in the film industry, from the very beginning, a filmmaker invest his money in making a film only when he is fully confident that the film will give him full financial benefits. This is how the star system started. On the contrary, most of the film actors, who became producers at that time got into huge debts because their films either failed or their quality varied due to delays in their making. Due to financial losses, such artists were forced to work in low-budget or second-grade productions. In the history of the Indian film industry, there is a long list of many such artists who could never recover from the financial losses incurred after becoming film producers and were completely ruined.

After establishing formal relations with Mr. Prem Adib Ji, this young innovator shared his vision of coloured cinema photography with him. On hearing the idea, Mr. Prem Adib was very impressed by the vision of this man. During this time, this young man had built a small firm called 'Movie Colours' in Jabalpur city. He also kept visiting Bombay in connection with his project and kept meeting Mr. Prem Adib. This young visionary was none other than my father Shri Soami Sharan Shrivastava Ji.



Figure 1: Shri Soami Sharan Shrivastava

Color Films, a brief review

Before reviewing this compilation we need to know briefly about photography, digital photography and cinematography in general.

Photography is an art combined with science. Photography literally means drawing with light but when we define it completely then it is the phenomenon when a shadow or image is captured with a photosensitive material that responds to light. Capturing silver on different sized grains is called Photography. The photosensitive material is generally made of silver. In digital photography, an electronic sensor responds to light and captures an image in uniform pixels. Digital photography has unlimited potential to manipulate images. Cinematography is an art combined with a science that involves capturing moving images on film negatives of digital media. There are three basic elements in cinematography: lighting, framing and camera movements. At present almost everyone adopts digital photography but, even today, some well-known film producers and directors from foreign countries shoot on film instead of digital format.

Even after the production of color films abroad, the production of color films in India started completely after a long time. Color films started being made in India after 1960. It has also happened between 1960 to 1965 that the producers who did not have sufficient budget of film production, produced black & white films even at that time. Bandni, Bharosa, Bluff Master, Dost etc. are many such films which were produced during this period. The main reason for the delay in the production of color films in India is lack of own technology, lack of budget, and delay in decision making. At that time, due to insufficiency or delay in taking decision in the plans of each field, the development of country lagged behind. People who were financially prosperous did not have any difficulty in meeting their needs.

The first color film in India, Kisan Kannya, was made in 1937. The film was colored using the Cinecolour process imported by Imperial Film Company. The film was produced by Ardeshir Irani of Imperial Film Company. The rights to this process were obtained by Ardeshir Irani from an American company. It is natural that technicians would also have come from abroad to provide training in the operation and technical aspects of this process. In what sense has it been named India's first indigenous color film? You yourself have to find the answer to this. V Shantaram had earlier produced a Marathi film Sairandhi in 1933, many of whose scenes were colour. Unlike the Technicolor two-color processes which photographed both color elements on the same piece of black and white negative, Cinecolour used two films in "bi-pack", meaning that two films were placed emulsion to emulsion. Each film was sensitized and/or filtered to record its

appropriate portion of the color spectrum, red or green. Essentially, any camera capable of handling bi-pack negatives could be used to photograph a Cinecolour film, though some special film movements were made specifically for the task. At that time it was very expensive to produce color films in India by this foreign process. One or two rich filmmakers produced a couple of film as experiment or a hobby. Later, some filmmakers shot their production films in Gevacolor with 16 mm cameras and sent them abroad to get 35 mm Technicolor prints prepared. Now the question arises whether the process of color film cinematography had developed in India after 1949? You will get the answer to this question after reviewing this compilation. To give a formal form to the compilation, original letters and documents have been used so that the originality of the compilation is maintained and real information can be obtained.



Figure 2: Reel Piece Exposed By Shri Shrivastava

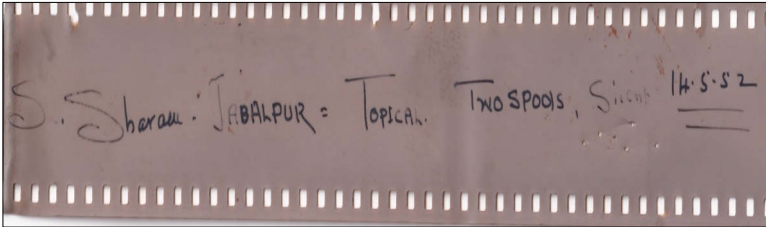


Figure 3: Reel Piece Exposed By Shri Shrivastava

Prem Adib correspondence

Now we will look at the entire sequence of events. After being introduced to actor Shri Prem Adib, on March 26, 1951, Shri Prem Adib sent an invitation to Shri Soami Sharan Shrivastava on the auspicious time of his production film, Production No. 3, "ManoYa Na Mano". Draft of which is given below.

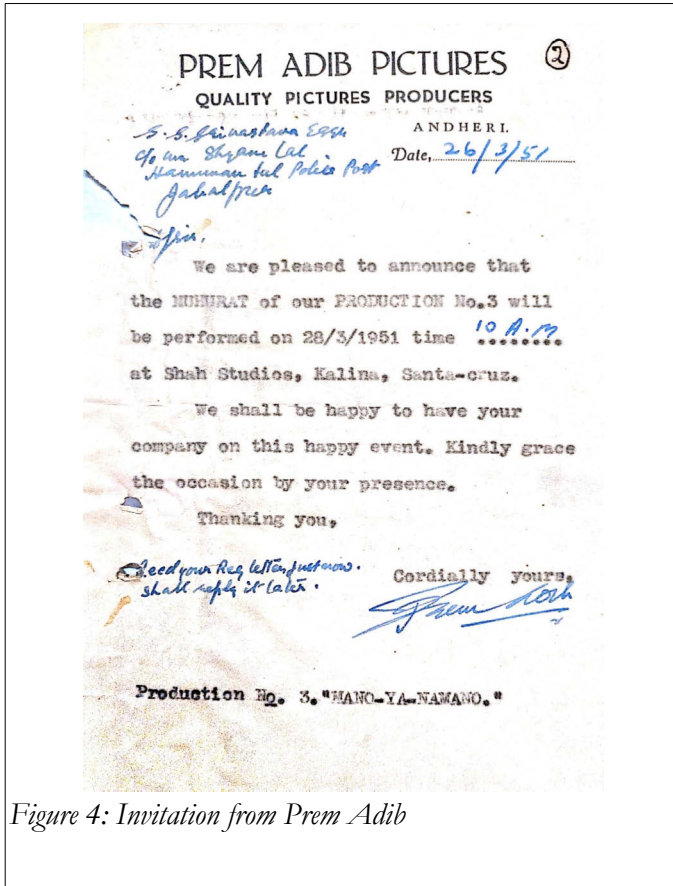


Figure 4: Invitation from Prem Adib

SHRIVASTAVA

On 30th May 1951, Shri Soami Sharan Shrivastava agreed give the first rights of his Colour process to Shri Prem Adib Pictures. The draft of which is given below.

Telephone :
Telegrams : "PREMADIB"
ANDHERI

Ref

BIJLI COTTAGE
ANDHERI
BOMBAY.

30th May 1951

PREMADIB PICTURES

MOTION PICTURES PRODUCERS & DISTRIBUTORS.

*Re Introduction of New Colour Process by Prismatic
filter for movies. See ill.*

This is to keep on record that I Soami Sharan Shyam Lal Shrivastava, am pleased to give the first right of my colour process for Movies and Pictures for exploitations and Distribution to M/s Prem Adib Pictures, Andheri, Bombay.

The discovery and experiment of my colour process is in progress for which M/s Prem Adib Pictures have extended their co-operation and assistance to me and in consideration of this fact that they are providing all Studio and technical facilities and promise to pay the expenses for this experiment and demonstration to their satisfaction, I give them the above rights.

In case I sell my formula then M/s Prem Adib Pictures, Andheri, Bombay will have first right over that.

After the experiment is completed and is a success then a Pucca Agreement will be signed on reasonable terms and conditions which will be settled mutually.

I agree and confirm
S. S. Shrivastava
S. S. Shrivastava

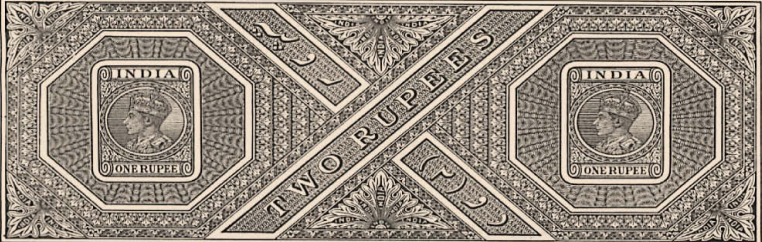
for Prem Adib Pictures,
C. S. Jais
Manager 30/5/1951

Figure 5: Letter to Prem Adib

BELIEVE IT OR NOT

Subsequently, as per the above agreed terms and conditions, an agreement was signed on 24th September 1951 between Shri Soami Sharan Shrivastava, owner of Movie Colour Process, head of the first part and Shri Prem Adib or Prem Adib Pictures, film producer and distributors, Andheri, for the second part. The agreement was made in following format on stamp paper issued by the General Stamp Office, Bombay.

Bombay Province 2 Rs.



दो रुपया

GENERAL STAMP OFFICE:
1378 Bombay, 21-7-1951

ISSUED TO Prem Adib Pictures
stamped paper of Rs. 2/-

September

This Agreement made on 24th day of September 1951 between Mr. Soami Sharan Shrivastava, Proprietor of Movie Colour Process, Jabalpur, the Principal of the first part, and Mr. Prem Adib or Prem Adib Pictures, Film Producers and Distributors, Andheri, Bombay, of the second part.

Witnesseth:

1. That the Principal of the first part agrees to allow the Producers of the second part to produce colour pictures by Movie Colour Process protected under Indian Patents and Designs Act 1911, vide No. 45654 of 13th August 1951, for a period of 7 (Seven) years from this date. This period of seven years may be extended to a further period of 7 (Seven) years with mutual consideration.
2. That the Producers of the second part shall take advantage of the Movie Colour Process for three pictures in a year per.
3. That the Producers of the second part shall pay 10 % (Ten per-cent) of the nett. gain from the pictures produced on Movie Colour Process, to the Principal of the first part. And the Principal of the first part shall make available all the fittings, filters, adjustments etc. which are required from time to time for coloured productions.
4. That the amount thus spent for the above said materials as stated in Clause No. 3 will be adjusted in the accounts.
5. That the Principal of the first part shall colour the prints and trailers as and when required, for which, the Producers of the second part shall pay at the rate of Rs. 1/6 (anna one pie six only) per foot, which will be over and above 10 % as mentioned in Clause No. 3.
6. That if the Principal of the first part is unable to colour the prints and trailers as and when required the Producers of the second part is at liberty to get the work done in any way they deem fit. In that case the Principal of the first part is not entitled to get remuneration whatsoever.

Soami Sharan Shrivastava P.T.O. Prem Adib
24-9-51 24-9-51

correction in clause 2. "to the extent of three pictures in a year"

Figure 6: Agreement with Prem Adib Part 1

- 2 -

7. That the Producers of the second part shall keep the Principal of the first part duly informed sufficiently earlier as and when he is required.
8. That the Producers of the second part shall submit monthly statement of accounts along with due remittances if any to the Principal of the first part.
9. That the Producers of the second part shall give due Publicity to the Movie Colour Process and its Inventor Mr. S. S. Shrivastava.
10. That in case any dispute arises out of this Agreement the same shall be settled in Bombay Jurisdiction.

In Witness whereof, the parties hereto have set their respective hands to the DEED on the day and year above written.

Signed and Delivered ~~xx~~ by the within named:

S. S. Shrivastava
 24-9-57.
 S. S. Shrivastava
 Proprietor
 Movie Colour Process,
 Jabalpur.
 C/o Shree Sham Lal,
 Near Manumantal Police Post,

Prem Adib
 24.9.57
 Prem Adib
 Proprietor
 Prem Adib Pictures
 Bijli Cottage,
 Andheri. Bombay

Witness:

Devi Lal
 24/9/57.

Witness:

G. S. Swani

Figure 7: Agreement with Prem Adib Part 2

BELIEVE IT OR NOT

The transcript of the above agreement follows.

Bombay Province

Two Rupees

GENERAL STAMP OFFICE

1378 Bombay 21-7-1947

ISSUED to Prem Adib Pictures

Stamped paper of 2 rupees

Sign

Stamp Vendor

This agreement made on 24th day of September between Mr. Soami Saran Shrivastava, Proprietor of Movie Colour Process, Jabalpore, the Principal of the first part, and Mr. Prem Adib or Prem Adib Pictures, Film Producer and distributors, Andheri, Bombay. Of the second part.

Witnesseth :

- 1. That the Principal of the first part agrees to allow the Producer of the second part to produce colour pictures by Movie Colour Process protected under Indian Patents and Design Act 1911, vide No. 45654 of 13th August 1951, for a period of 7 (Seven) years from this date. This period of seven years may be extended to a further period of 7 (Seven) years with mutual consideration.*
- 2. That the producers of the second part can take advantage of the Movie Colour Process to the extent of three pictures in a year.*
- 3. That the Producers of the second part shall pay 10% (Ten per-cent) of the net gain from the pictures produced on Movie Colour Process, to the Principal of the first part, and the principal of the first part shall make available all the fittings, filters, adjustments etc. which are required from time to time for*

coloured production.

4. *That the amount thus spent for the above said materials as stated in clause No. 3 will be adjusted in the accounts.*
5. *That the Principal of the first part shall colour the prints and trailers as and when required, for which, the producers of the second part shall pay at the rate of as 1/6 (anna one pie six only) per foot. Which will be over and above 10% as mentioned in clause No. 3.*
6. *That if the Principal of the first part is unable to colour the prints and trailers as and when required the Producers of the second part is at liberty to get work done in any way they deem fit. In that case the Principal of the first part is not entitled to get remuneration what so ever.*

P.T.O.

Sign

Sign

Soami Saran Shrivastava

Prem Adib

24-9-51

24-9-51

Correction in clause 2 "to the extent of three pictures in a year"

7. *That the Producers of the second part shall keep the principal of the first part duly informed sufficiently earlier as and when he is required.*
8. *That the Producers of the second part shall submit monthly statement of accounts along with due remittance if any to the Principal of the first part.*

BELIEVE IT OR NOT

9. *That the Producers of the second part shall give due Publicity of the Movie Colour Process and its inventor Mr.S.S.Shrivastava.*
10. *That in case any dispute arises out of this Agreement the same shall be settled in Bombay Jurisdiction.*

In Witness whereof, the parties hereto set their respective hands to the DEED on the day and year above written.

Signed and Delivered by the within named:

<i>Sign</i>	<i>Sign</i>
<i>Soami Saran Shrivastava</i>	<i>Prem Adib</i>
<i>24-9-51</i>	<i>24-9-51</i>
<i>S.S.Shrivastava</i>	<i>Prem Adib</i>
<i>Proprietor</i>	<i>Proprietor</i>
<i>Movie Colour Process</i>	<i>Prem Adib Pictures</i>
<i>Jabalpore</i>	<i>Bijli Cottage</i>
<i>c/o Shree shyamlal</i>	<i>Andheri, Bombay</i>
<i>Near Hanumantal Police Post</i>	
<i>Sign of Witness</i>	<i>Sign of Witness</i>

SHRIVASTAVA

After this agreement, Shri Prem Adib wrote a letter to Shri Soami Sharan Shrivastava regarding the supply of negative film raw material. In this letter it was written that quotations would be invited by Lakshmi Production. The details of the letter were as follows.

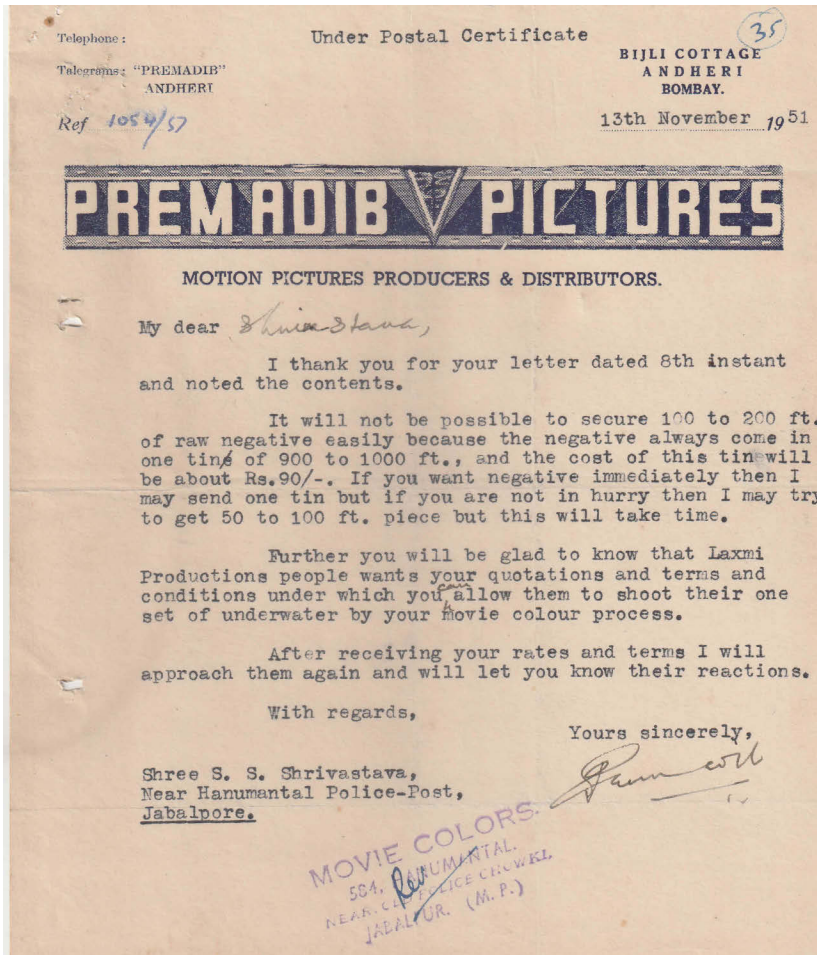


Figure 8: Letter from Prem Adib

BELIEVE IT OR NOT

Keeping in mind the terms and conditions written by Shri Soami Sharan Shrivastava, on 19/11/51, Shri Prem Adib wrote a letter dated 18th December 1951 in which he mentioned number of prints and from the business point of view the prize of the prints, commission. Gave his views and advice on it. The details of letter are as follows.

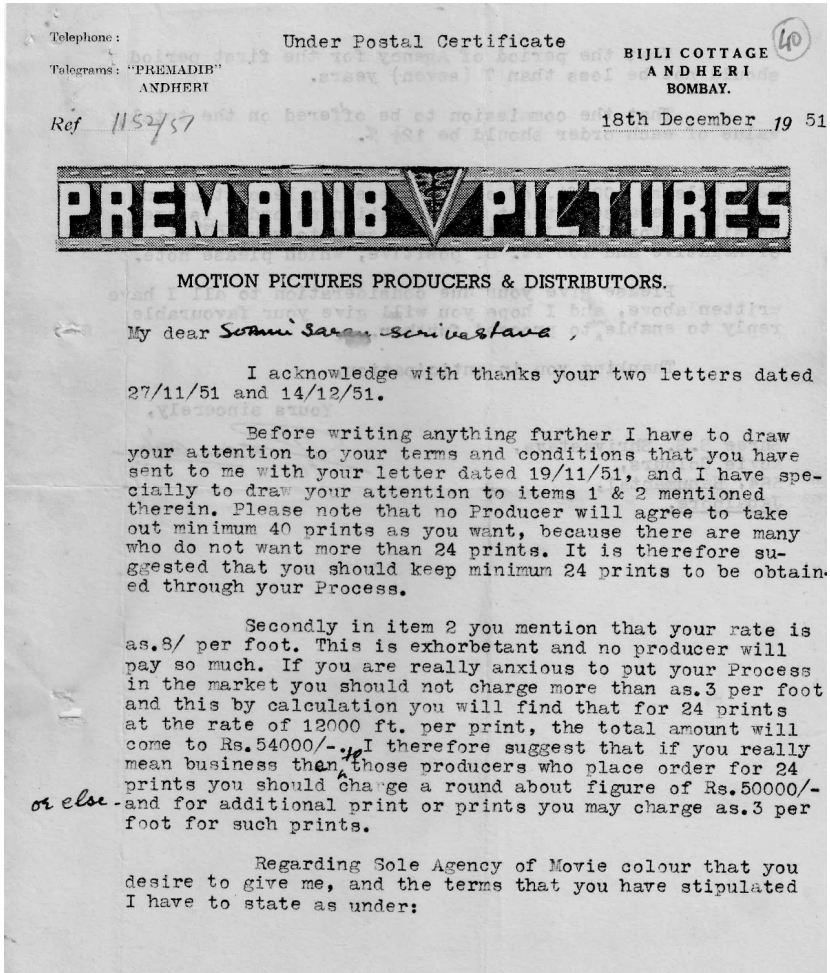


Figure 9: Letter from Prem Adib Page 1

That the period of Agency for the first period should not be less than 7 (seven) years.

That the commission to be offered on the total value of each order should be 12½ %.

If you agree to this then you will have to send here atleast 100 ft. of colour piece for Demonstration purpose, because without demonstration no order is ever possible. For this I am trying to send to you 100 ft. of negative and 100 ft. of positive, which please note.

Please give your due consideration to all I have written above, and I hope you will give your favourable reply to enable me to proceed further.

Thanking you in anticipation,

Yours sincerely,

Shree S.S. Shrivastava,
Movie Colours,
584, Hanumantal,
Jabalpore.

Prem Adib

Figure 10: Letter from Prem Adib Page 2

BELIEVE IT OR NOT

In response to the letter written by Shri Prem Adib, dated 18th December 1951, Shri Soami Sharan Shrivastava sent a letter on 23/01/52, writing his views in detail, keeping in mind various terms, conditions and points of the letter. The details are as follows.

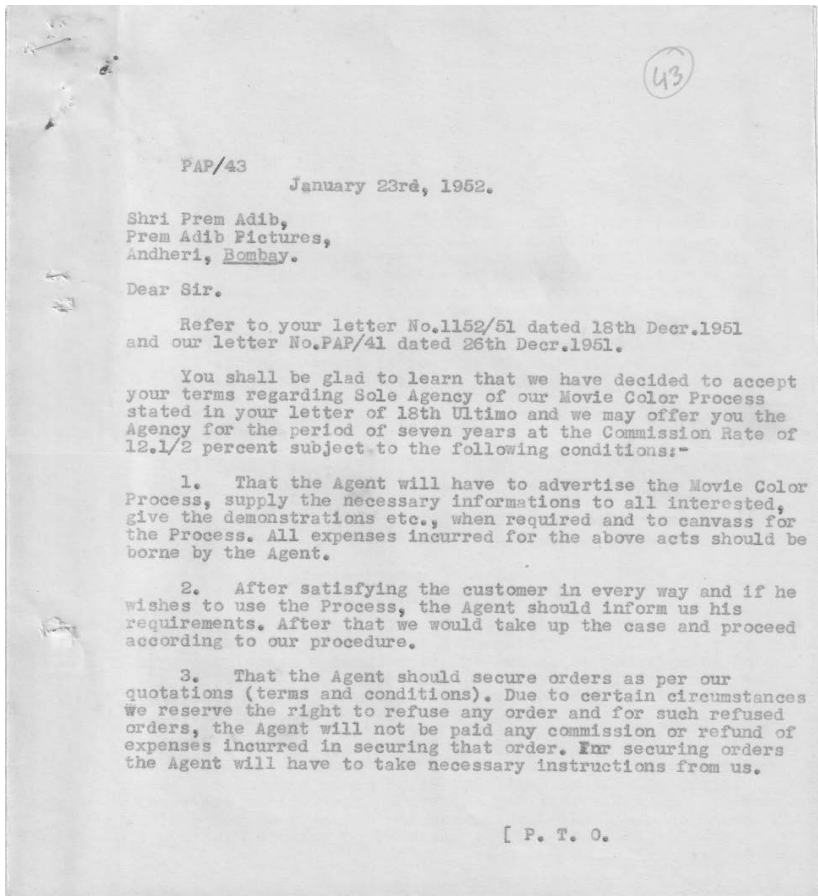


Figure 11: Letter to Prem Adib Page 1

- 2 -

4. That the purpose of this Agency is to popularise the Movie Color Process and make it a grand success in the Industry with the sincere cooperation of the Agent. Therefore if we are satisfied or the Agent satisfies us with the progress of Agency, then we are bound for seven years term and otherwise the Agency may be discontinued.

5. Regarding the progress of Agency, the Agent should submit monthly report indicating his activities during the month alongwith his remarks on the progress of the Agency.

6. The Agent shall not be authorised to deal with any money transaction on our behalf.

7. All the payments of Agent shall be made after the full settlement of the account of each order.

8. In case of any dissatisfaction in future, both the parties in consultation may discontinue the Agency.

9. This shall be the Sole Agency for India and overseas.

Further we would like to state that the above conditions are quite simple and are as a formality. In fact the success of our buisness depends upon the mutual cooperation of both the parties. Now we hope that the above conditions will meet your approval and you are requested to send confirmation immediately so as to proceed further in this respect.

Will you please refer to para 3 of your letter of 18th Ultimo ? For which we have to say that your statement regarding the charges seems to be too light because in India there are parties who colour the positive films and charge As.4/- per foot and as per general opinion their standard of colouring is quite poor. Meanwhile with the help of our

[P.T.O.

Figure 12: Letter to Prem Adib Page 2

- 3 -

Process, the pictures produced would be far better than those hand-coloured pictures though the same labour as employed for hand-colouring, will be employed by us as well. However, keeping in view your suggestion, we have fixed our minimum most charge at the rate of As.4/- per foot which may be increased under considerable circumstances.

As for the piece of the demonstration film, your kind attention is invited to our letter No1 PAP/41 of 26th Ultimo and subsequent reminder of 14th instant, for which your reply is still pending. Kindly furnish the same now.

Thanking you very much, and awaiting your kind reply, we are,

Very truly yours,

for Movie Colors,



(Soami Sharan)

Figure 13: Letter to Prem Adib Page 3

In response to the above letter, Shri Prem Adib wrote a letter on 28th January 1952 in which he described in detail on business transaction terms and conditions and other issues.

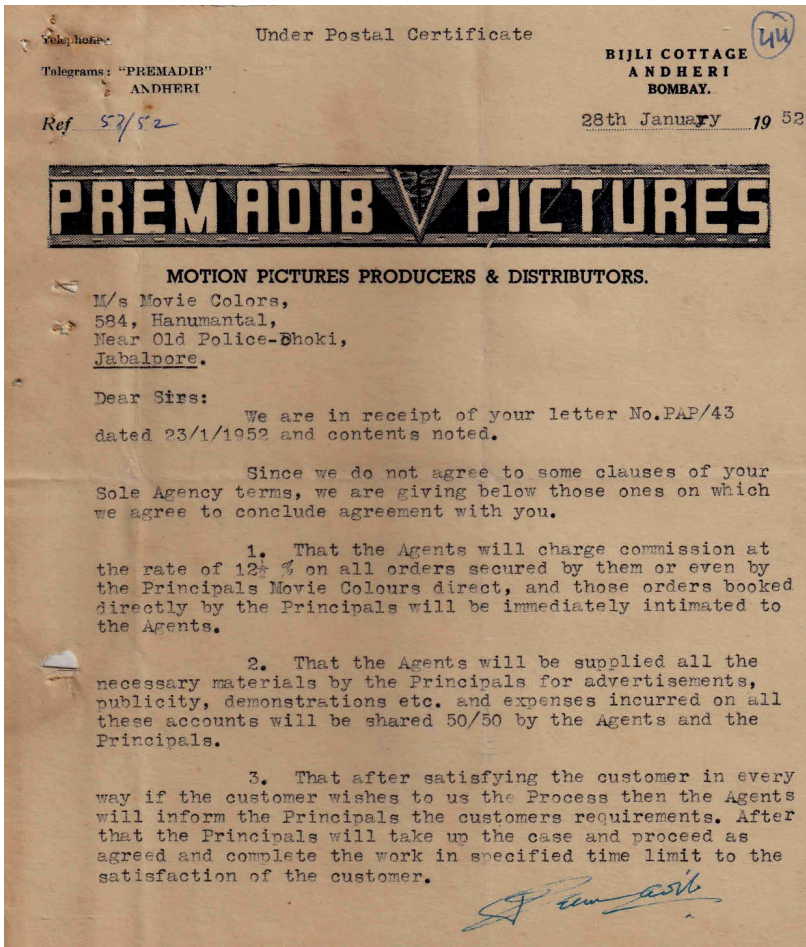


Figure 14: Letter from Prem Adib

WILLIOTT COTTAGE
ANDREWS
BOMBAY

- 3 -

Please send your confirmation to above terms so that needful may be done accordingly.

In reply to your letter dated 26/12/51 we have to inform you that one tin of Positive *of about one thousand* 1000 ft. will cost about Rs.85/- and one tin of negative raw film will cost about Rs.190/- and the developing and processing of 1000 ft. will come to about Rs.25/- *one reel*

MOTION PICTURES PRODUCERS & DISTRIBUTORS

Thanking you in anticipation,

Yours faithfully,
for Prem Adib Pictures,
Prem Adib

Figure 15: Letter from Prem Adib

SHRIVASTAVA

Shri Prem Adib's reply to the letter dated 28th January 1952, Shri Soami Sharan Shrivastava wrote his views in a letter dated 05/02/52, following are the details.

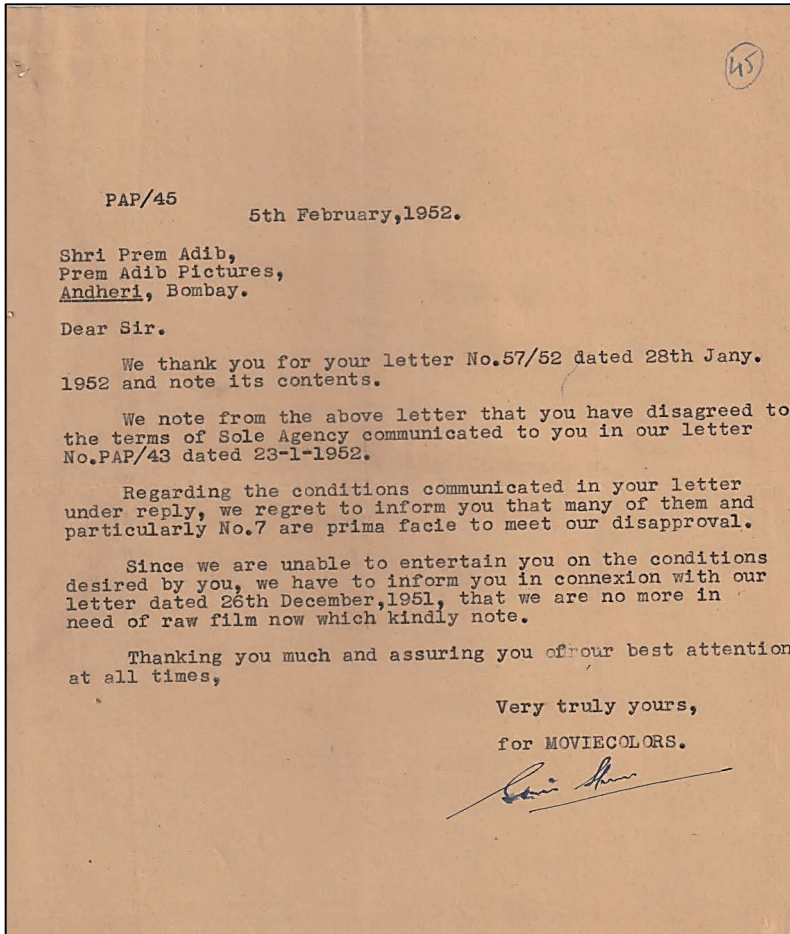


Figure 16: Letter to Prem Adib

BELIEVE IT OR NOT

Shri Prem Adib wrote a letter in form of a certificate dated 11th February 1952, in which he described Shri Soami Sharan Shrivastava as a good Cinematographer and rich inventor.

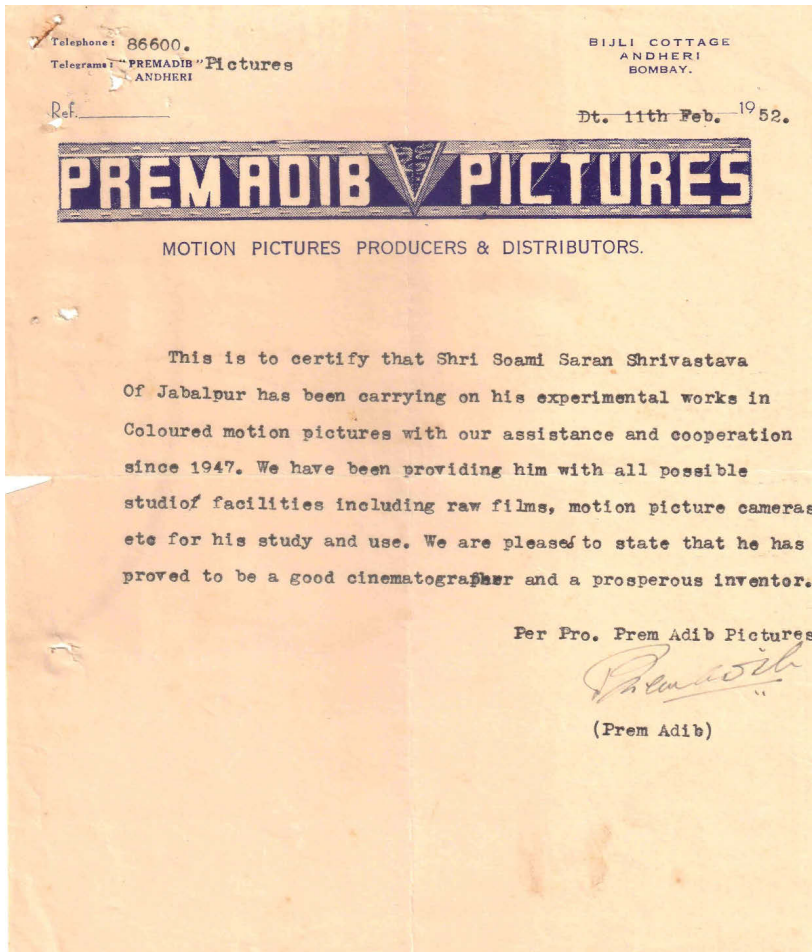


Figure 17: Letter from Prem Adib

SHRIVASTAVA

From this last letter dated 3/2/1958 which was written on a plain paper, it appears that after 1952 the activities of Prem Adib Production came to a sudden stop due to his declining health. About twenty months after this letter, Shri Prem Adib tragically passed away on 25/12/1958. The details of this letter are as follows.

P. Adib
3.2.58

My dear Suman Saran,

I am happy to learn all about your activities of research work which you have written in your letter of 23.1.58.

My production activities are stand still after 1952. Therefore I am sending the enclosed certificate for the time being and I am sure this will serve your purpose. The other certificate I will send in my next AS I am trying to get it from some of the other friend producers whose production continued during my silence.

This time when you come to Bombay I will try to introduce you to more people and producers of the line and this may of some

Figure 18: Letter from Prem Adib Page 1

help to you. you must
be encouraged this time
no doubt.

Please do keep me
informed about your welfare
and activities from time
to time.

With best wishes

Sincerely yours
Prem Adib

Figure 19: Letter from Prem Adib Page 2

SHRIVASTAVA

Copy of handwritten letter by Shri Prem Adib Ji.

*Bijli Cottage
Andheri
3-2-58*

My dear Soami saran,

I am happy to learn that all about your activities of research work which you have written in your letter of 23-1-58.

My production activities are stand still after 1952. Therefore I am sending the enclosed certificate the time being and I am sure this will serve your purpose. The other certificate I will send in my next post. I am trying to get it from some of the other friend producers which production continued during my silence.

This time when you come to Bombay I will try to introduce you to more people and producers of the time and this may of some help to you. You must be encouraged this time, no doubt.

*Please do keep me informed about your welfare and activities from time to time.
With best wishes*

*Sincerely yours
Prem Adib*

Next year, Prem Adib passed away.

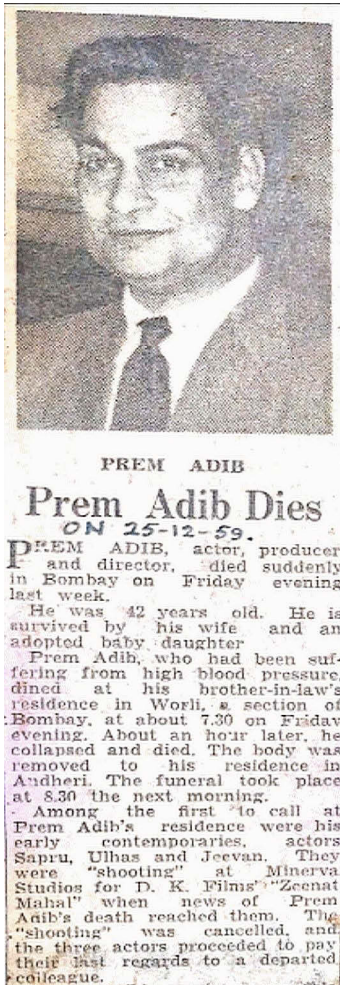


Figure 20: Prem Adib
Obituary Page 1

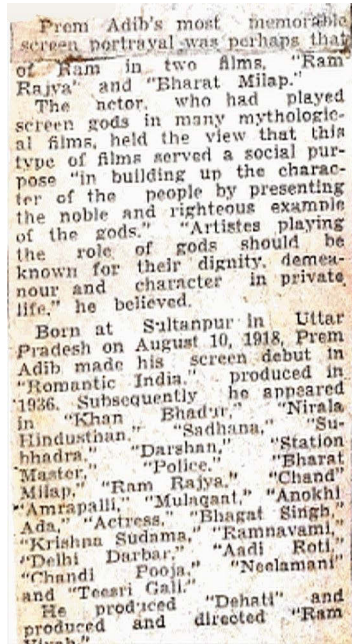


Figure 21: Prem Adib Obituary
Page 2

Copy of News Paper cutting

Prem Adib, actor, producer and director, died suddenly in Bombay on Friday last week. (25 December 1959)

He was 42 years old. He is survived by his wife and an adopted baby daughter.

Prem Adib, who had been suffering from high blood pressure, dined at his brother-in-law's residence in Worli, a section of Bombay, at about 7:30 on Friday evening. About an hour later, he collapsed and died. The body was removed to his residence in Andheri. The funeral took place at 8:30 the next morning.

Among the first to call at Prem Adib's residence were his early contemporaries, actors Sapru, Ulhas and Jeevan. They were "shooting" at Minerva Studios for D.K. Film "Zeenat Mahal" was cancelled, and the three actors proceeded to pay their last regards to a departed colleague.

Prem Adib most memorable screen gods in many mythological films, held the view that this type of films served a social purpose "in building up the character of the people by presenting the noble and righteous example of gods". "Artistic playing the role of gods should be known for their dignity, demeanour and character in private life". He believed.

Born at Sultanpur in Uttar Pradesh on August 10, 1918. Prem Adib made his screen debut in "Romantic India". Produced in 1936. Subsequently he appeared in Khan Bahadur, Nirala Hindustan, Sadhana, Subhadra, Darshan, Station Master, Police, Bharat Milap, Ram Rajya, Chand, Amrapali, Mulaqaat, Anokhi Ada, Actress, Bhagat Singh, Krishna Sudama, Ramnavami, Delhi Darbar, Adhi Roti, Chandi Pooja, Neelamani, and Teesri Gali.

He produced Dehati and produced and directed Ram Vivah.

The inventions, patents and their documentation

While working on Color Photography with Shri Prem Adib, Shri Soami Sharan Shrivastava had submitted formal application for his invention from time to time in the Patent Office of the Government of India. Which were not only approved by the Controller, Patent Office, Government of India but those inventions were also given patents. His close friend Shri Shanti Bhai Sone Ji helped him financially in this work. He belonged to a Gujarati family and was a big businessman of that time. After discussion, both the friends took the service of T. P. Dutta & Sons, Calcutta, the best trade mark, patent and design attorney of that time, to complete the patent work. From 1952 to end of 1955, the following inventions of Shri Soami Sharan Shrivastava were granted patents by Government of India.

- 1. Improvement in or relating to coloured motion pictures.**
- 2. A Colour photographic process for motion pictures, and device for carrying out the same.**
- 3. A system to produce illusion of depth in the pictures obtained by photography and television.**

The complete details of the process that followed at that time to get patents for these inventions is given below in the form of a document.

SHRIVASTAVA

Dated 6th November 1952, T.P. Dutta & Sons informed Shri S.S. Shrivastava that your Application number 45654 has been accepted by the Patent Office of Government of India on 29/10/1952.

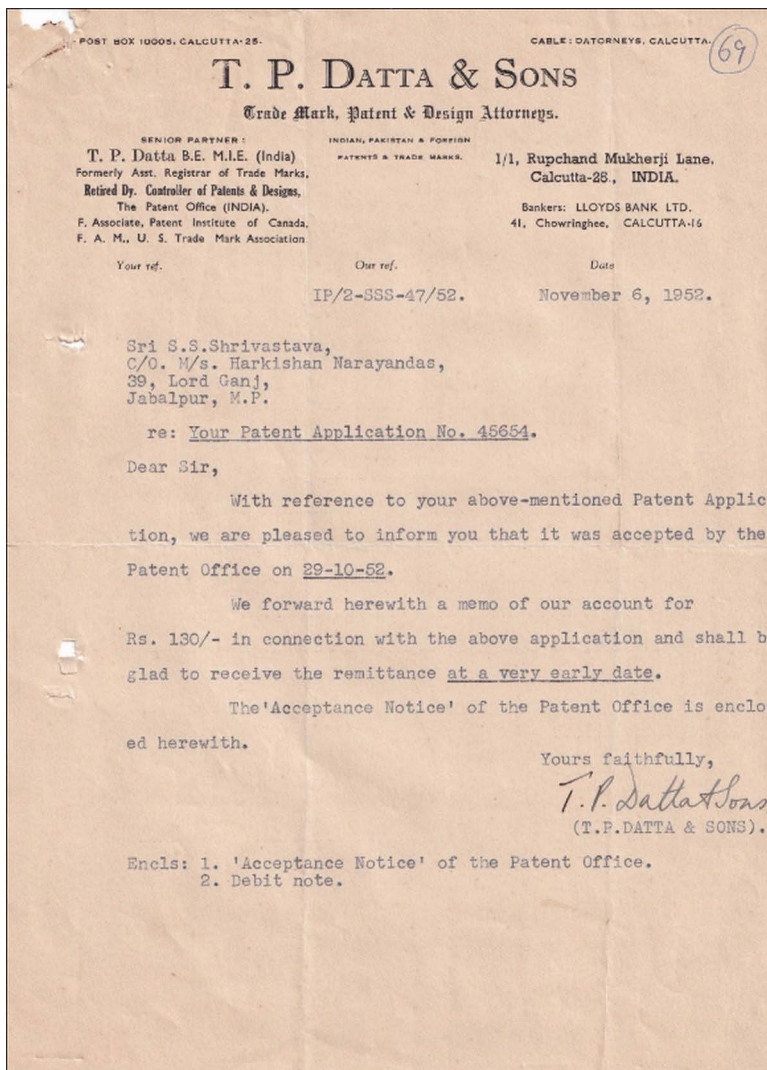


Figure 22: Letter from T P Dutta to the inventor

All communications should quote the number of this notice and should be addressed to— CONTROLLER OF PATENTS AND DESIGNS, The Patent Office, Calcutta—17.	GOVERNMENT OF INDIA THE PATENT OFFICE.
NOTICE OF ACCEPTANCE OF APPLICATION, Patent Application No. 45654.	
Under Section 6 of the Indian Patents and Designs Act (II of 1911) notice is hereby given that the application for a patent made by S. S. Shrivastava,	
and numbered as above was accepted on the application, specification, and drawings (if any) are open to public inspection. The acceptance will be advertised in the <i>Gazette of India</i> next issued after the date at the foot hereof and the printed specification and drawings (if any) will be available in due course at a price of Rs. 2 per copy. Within four months of the date of that advertisement any person may, under Section 9 of the Act, give notice of opposition to the grant of the patent. If there is no opposition, or in case of opposition, if the determination is in favour of the grant of a patent, due notice will be given to the applicant that if he desires a patent to be sealed, he should file his request on Form 8, a copy of which will be forwarded to the applicant in due course.	29th October 1952. The
Dated this 3rd To	day of November 1952.
Messrs. T. P. Datta & Sons, 1/1, Rupchand Mukherjee Lane, Bhowanipur, Calcutta-25. P. & D. 48. MGPC—S5—160 Patent—28-32—1,000.	
K. SESHAGIRI RAO, <i>Controller of Patents and Designs</i>	

Figure 23: Letter from the Patent Office

SHRIVASTAVA

Government of India.

THE PATENT OFFICE.

No. 45654

WHEREAS Swami Sharan Shrivastava, son of Shri
Shyam Lal, of 584, Hanumanthal Gabbhwa, Madhya
Pradesh, a subject of the Indian Republic

both declared that he is in possession of an invention for improvements
in or relating to coloured motion pictures

and that he is the true and first inventor thereof, and that the same is not in use in British India by any other person to the best of his knowledge, information and belief;

And whereas he hath humbly prayed that a patent might be granted to him for the said invention;

And whereas he hath by and in his complete specification (of which a printed copy is herewith annexed) particularly described and ascertained the nature of the invention and the manner in which the same is to be performed;

The Central Government is pleased to order by these presents that the above said petitioner (including his legal representatives and assigns or any of them) shall, subject to the provisions of the Indian Patents and Designs Act, 1911, as patentee have the exclusive privilege of making, selling and using the invention throughout ~~British India~~ and of authorising others so to do for the term of sixteen years from the 13th day of August, 1951, subject to the conditions that the validity of this patent is not guaranteed by Government and also provided that the fees prescribed for the continuation of this patent are duly paid.

In witness whereof the Central Government has caused this patent to be sealed
as of the 13th day of August 1945.

Signature of Controller.

Date of Sealing 25th March 1953

NOTE.—Renewal fees will be due on this patent, if it is to be maintained, on the 13th day of August 1955 and on the same day in each year thereafter.

P. & D. 49.

Figure 24: Letter from the Patent Office to the inventor

Applicants Copy.

INDIAN PATENTS AND DESIGNS ACT, 1911.

PAT. NO 45654

Complete Specification.

Section 4.

IMPROVEMENTS IN OR RELATING TO COLOURED MOTION PICTURES.

Soami Sharan Shrivastava, son of Shri Shyam Lal, of
534, Hanumantal, Jabalpur, Madhya Pradesh, a subject of
the Indian Republic.

The following specification particularly describes and
ascertains the nature of this invention and the manner in
which it is to be performed:-

Figure 25: Patent Application

2 :-

This invention relates to the Motion Picture Industry and more particularly to the field of colour photography for motion pictures by colour-filters.

The primary object of the invention is to provide a method for photographing the motion pictures and their projection in colours in such a manner as:-

- (i) to obtain true monochrome values of various colours through colour-filters in the pictures photographed, so as to enable the projection of different colours corresponding to the colours photographed; and
- (ii) to produce bright and shining pictures having a natural tone not producible heretofore by the use of colour-filter processes known.

The present invention is an improvement to the existing colour-filter process for motion pictures which was used in earlier days of motion pictures photography and has been discontinued since the introduction of colour-films and various chemical dye-processes which are being widely used now-a-days. This invention is intended to reform the old colour-filter process removing its draw-backs and defects; and to enable its use again.

The formerly known process referred to in above paragraph, was using non-panchromatic type of film (Panchromatic type of film was not available in those days) and the film had to expose with the help of two different colour-filters used in cyclic change i.e., each frame of the film was exposed through one colour-filter and thus all the frames of the film exposed alternately through both the colour-filters in a regularly recurring cycle. After exposing the film, it was processed and its positive projected with the help of colour-filters in the same way in which the film was photographed. Thus in the above manner the film used to be photographed and projected in different colours.

The greatest defect in the above process was that the action of colour-filters on the non-panchromatic film could not be recorded in the pictures, the main reason for which was non-availability of Panchromatic film as the same was not introduced

in

Figure 26: Patent Application Continued

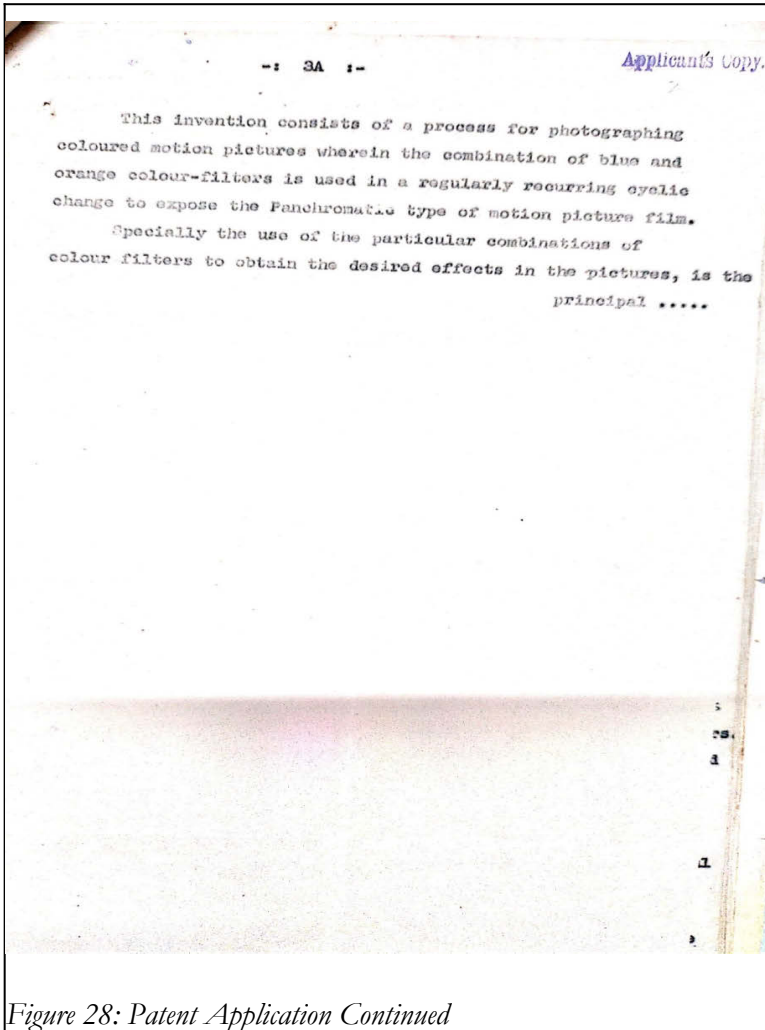
-: 3 :-

in the field of photography in those days. Non-panchromatic film is not sensitive to all the colours and the colours to which it is sensitive, it could not record them in their true monochrome values. More or less all types of non-panchromatic films are not sensitive to Red colour at all and due to this fact, the use of red colour-filter in the above process was not successful. In the same way, non-panchromatic films are too much sensitive to Blue, Violet and less sensitive to Yellow and Orange colours. If Blue and Orange colours are photographed on non-panchromatic film, the Blue would be photographed in White shade and Orange in Black shade although to the eye Blue appears darker than Yellow and thus the monochrome values of colours could not be recorded properly. Later on, Orthochromatic film was introduced to obtain monochrome values of colours but it too was not sensitive to Red colour. Due to the above difficulties no particular combination of colour-filters could be used in the existing process to obtain nice results as such due to this defect the use of the process was quite unsatisfactory.

The present invention removes the above defect by using the Panchromatic film which is a well known film in photography and easily available now-a-days. The Panchromatic film is a special type of film sensitive to all the colours and records their true monochrome values in black and white. Thus the use of Panchromatic film in the present invention meets with all the requirements of colour-filters employed in the process, ^{say} while photography. Moreover, the use of Panchromatic film has made possible further improvements in the colour motion picture photography by colour-filters and the one made by the present invention is the use of a particular combination of colour-filters to obtain the best results. Since the action of all the colour-filters can be recorded on Panchromatic film, it has become possible to select the best combination of colour-filters to photograph the bright and shining motion pictures having a natural tone. .

Specifically the use of the particular combinations of colour-filters to obtain the desired effects in the pictures, is the principal

Figure 27: Patent Application Continued



-: 4 :-

principal feature of this invention. By exposing the Panchromatic motion picture film through the certain recommended colour-filters in a prescribed way and then projecting its positive print through the same combination of colour-filters which was used at the time of photographing, the movies in brilliant colours having a natural tone will be obtained.

The combinations of colour-filters selected and recommended for use in the present process are the following:-

- | | | |
|--------------------------|---|--|
| (1) Blue and Orange | - | To obtain natural record of the object or scene photographed and to produce bright pictures. |
| (2) Bluish-Green and Red | } | - To obtain special colour effects in the pictures. |
| (3) Yellow and Violet | | |

The selection of the above mentioned combinations of the colour-filters to obtain the best pictures is on the basis of the conclusion derived from the results obtained by mixing of the two different light-rays of colours, resulting their combined effect. The resulting combined effect of both the colour-filters of each combination of filters mentioned above is white. While projecting as both the colour-filters used give their combined effect on the screen, the use of any of the above combinations of colour-filters would produce bright and shining pictures due to resulting ~~whiteness~~ occurred on account of the combined effect of both the colour-filters. This whiteness in its best form occurs only when the above mentioned combinations of filters are used.

The use of the combination (1) i.e., Blue and Orange colour-filters is recommended for general use in this process as these two colour-filters have been found the best to produce natural tone in the pictures which is not producible in any case with any other combination of colour-filters. However, to a certain extent combination (2) i.e., Bluish-green and Red may also serve the above purpose. The rest of the two combinations (2) and (3) i.e., Bluish-Green and Red; and Yellow and Violet can be used to produce special colour effects in the pictures. To produce various colour effects any combination of two colour-filters other than (2) and (3) mentioned

Figure 29: Patent Application Continued

-: 5 :-

mentioned above, may also be used since the Panchromatic film to be used in this invention records the action of any colour-filter in its monochrome value. The words "pictures having a natural tone" used in this specification mean the pictures which have a natural look like the original scene or object photographed.

The colour-filters to be used in this process can be made of any fine transparent medium or substance so that the light rays of the image when passed through them should remain sharp on the emulsion of the film at the time of photography and on the screen at the time of projection. The density of the colour in the filters may be according to desire to suit the exposing conditions of the scene or object to be photographed, but in any case both the colour-filters of a combination must have their colours equal in density with each other. Whether a colour-filter is incorporated with the film by staining it or as a separate medium it is intended to be covered by the term 'filter' used in this specification.

So as to explain the mode of operation of the invented process, it seems necessary first to mention the main points of the procedure of exposing the motion picture film in a movie camera and the same are described below in brief. In every movie camera, the film loaded gets exposed in such a way that when the camera starts, one frame of the film behind the camera lense gets exposed on opening the shutter due to camera mechanism and is again covered by the shutter in front of it simultaneously after getting exposed. As soon as the shutter completely covers that frame, the second unexposed frame comes behind the camera lense allowing the exposed frame to shift down. Then again the shutter opens by moving aside to get that second frame also exposed and in the same manner, continuously, all subsequent frames of the motion picture film loaded in the camera get exposed one after another at the rate of 16 or 24 frames per second.

According to this invented process, the motion picture film loaded in the camera should be Panchromatic type of film and it is to be exposed by the help of any of the recommended combination of colour-filters which are to be used in such a revolving or inter-changing

Figure 30: Patent Application Continued

- 6 -

changing position so that when the movie camera comes in motion and one frame of the film is going to be exposed, one colour-filter, say, Blue colour-filter should cover the camera lense either from front or back side of the lense, allowing the filtered light rays on the image to expose that frame. After that frame gets exposed, second frame next to it should be exposed in the same way by the light rays of the image filtered by Orange colour-filter. Accordingly, all the film loaded should be exposed by the same procedure repeatedly so that each frame of the film should be exposed through one colour-filter only and thus all the frames exposed alternately through both the colour-filters. The mechanical device for interchanging the colour-filters corresponding to the shifting of the frames in the movie camera can be adjusted in any particular way subject to suit the above described conditions of this process.

When that motion picture film is completely exposed in the above described way with the help of Blue and Orange colour-filters, or any other combination of colour-filters to be used in this invention, it should be processed in an ordinary way just like other motion picture films photographed in Black and White are processed; and then the positive print of the motion picture film photographed by this process will be ready for use.

Now for the purpose of screening the movies in colours with the film photographed by this process, the film should be screened by the projector through the same two colour-filters which were employed at the time of photography, in such a way that a frame photographed by one particular colour-filter is screened through that particular colour-filter only, e.g., if the film is photographed by using the Blue and Orange colour-filters, the frames of the film photographed through the Blue colour-filter should be screened through Blue colour-filter and similarly, the frames photographed through Orange colour-filter should be screened through the Orange colour-filter in their turn. Of-course, it is necessary that the colour-filters to be used at the time of screening the film should also interchange alternately corresponding to the shifting of each frame in the projector. Thus, when the positive film will be screened

Figure 31: Patent Application Continued

-: 7 :-

ed in the above way, due to the combined effect of both the colour-filters, the pictures having desired effect will be seen.

Another alternative way for screening the movies in colours without the use of the colour-filters at the time of projection or screening is that the positive print photographed by this process, itself, should be applied with colours artificially by staining the ^{frames with} colours with any manual or technical means, in such a way that the frames photographed by one particular colour-filter are applied with the colour corresponding to that particular colour-filter, e.g., if the film is photographed by using the Blue and Orange colour-filters, the frames exposed through Blue colour-filter should be applied with Blue colour and the frames exposed through Orange colour-filter should be applied with Orange colour; and thus the whole print coloured. When the positive is completely coloured it can be screened just like ordinary films without the aid of colour-filters and the movies in full colours will be seen on projection.

The attached drawing illustrates diagrammatically, the negative and positive motion picture films photographed according to the present invention.

Figure 1 - Shows a negative motion picture film (Panchromatic Type) photographed by using a combination of Blue and Orange colour-filters in such a way that one frame of the film (B) is exposed through the Blue colour-filter and second frame next to it (O) through the Orange colour-filter and subsequently all the frames exposed alternately through the same two colour-filters repeatedly in the same manner.

Figure 2 - Shows a positive motion picture film obtained by a negative film (Fig. 1) photographed according to the invention. This positive film is applied with colours by staining in such a way that the frames photographed through Blue colour-filter (B) are coloured Blue and similarly the frames photographed through Orange colour-filter (O) are applied with Orange colour and thus

Figure 32: Patent Application Continued

-: 8 :-

thus all the frames of the film coloured and the film ready for colour projection.

In this process although reproduction of all the colours corresponding to the colours of the original object or scene, is not possible but still natural tone produced by using Blue and Orange colour-filters gives satisfying results. Moreover, the results obtained by this process are far advanced than obtainable previously by the existing colour-filter process.

When compared with the modern chemical or dye-processes using colour-films, there is one unavoidable drawback in the colour-filter process which is as described. Individual frames are photographed through two colour-filters alternately, and while projecting every two frames photographed through each colour-filter give their combined effect on the screen producing coloured images but in modern chemical colour processes, this combined effect of both the colour-filters is recorded in every frame itself and as such the colour image producible by the projection of two frames in colour-filter process is producible by the projection of only one frame by Chemical colour-processes. This factor affects in brightness of the picture on the screen and is unavoidable in any case but with the help of the present invention the brightness of colours in the pictures have been increased to a great extent to give normal results on account of the use of selected combinations of colour-filters.

When compared with the modern chemical processes in respect to the cost of maintenance and simplicity, the great advantage arising out of the present invention is that the expenditure incurred in carrying out this invention is much lesser than that incurred in dye-processes. In the same way, this process is more simple when carried out in practice.

Figure 33: Patent Application Continued

- 1 B -

I claim:-

1. A process for photographing coloured motion pictures wherein the combination of Blue and Orange colour-filters is used in a regularly recurring cyclic change to expose the Panchromatic type of motion picture film.
2. A process for photographing coloured motion pictures according to claim 1 wherein the combination of either ^{Page 18} Bluish-Green and red or Yellow and Violet filter, ^{many other such combination} is used for the purpose described.
3. A process for photographing coloured motion pictures wherein the positive print of the motion picture film photographed according to claim 1 or 2, is applied with colours by staining them artificially in such a way that all the frames photographed through the respective colour-filters are applied with colours corresponding to those of the colour-filters, respectively and thus the whole positive print coloured for the purpose described.
4. A process for photographing and ^{Page 18} ~~perfecting~~ coloured motion pictures substantially as described.

Dated this 7th day of August, 1951.

T. P. Datta & Sons.
(Agents for the Applicants).

Figure 34: Patent Application last page

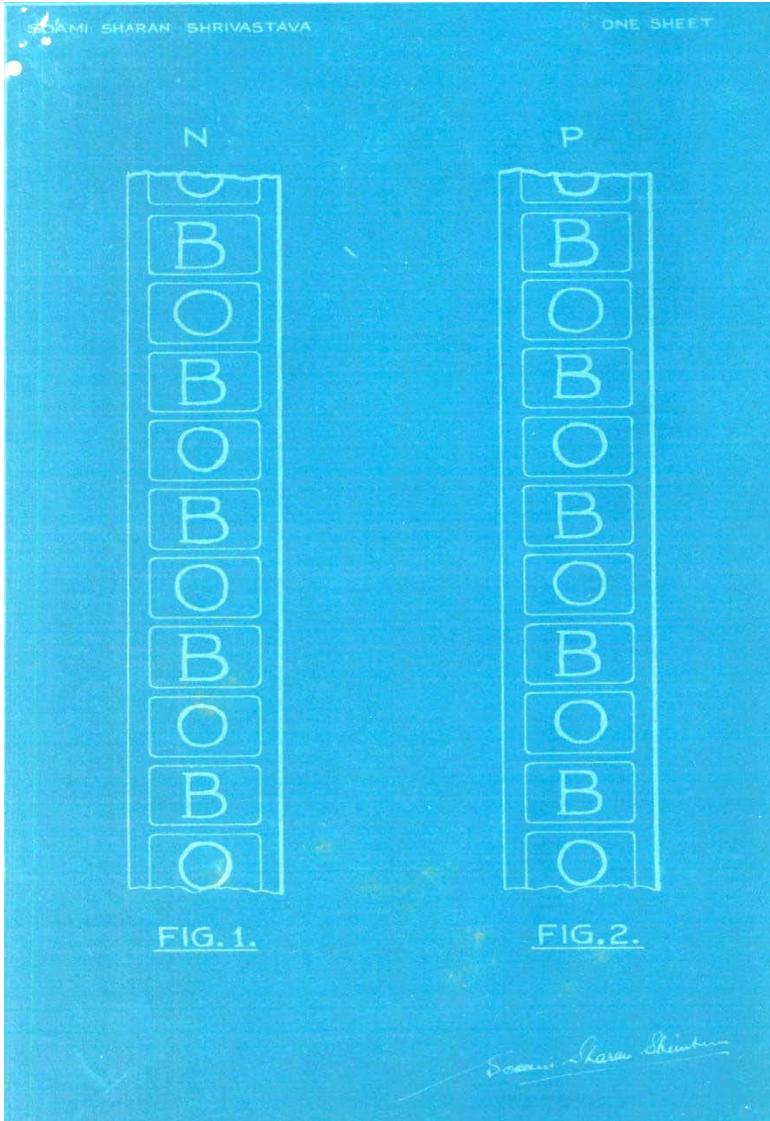


Figure 35: Image related to the patent

Copy of Complete Specification of Pat.No.45654
INDIAN PATENTS AND DESIGNS ACT, 1911.
PAT.NO.45654
Complete Specification.

Section 4.

IMPROVEMENTS IN OR RELATING TO COLOURED MOTION
PICTURE.

Soami Sharan Shrivastava, son of Shri Shyam Lal, of 584, Hanumantal, Jabalpur, Madhya Pradesh, a subject of the Indian Republic.

The following specification particularly describes and ascertains the nature of this invention and the manner in which it is to be performed:-

This invention relates to the Motion Picture Industry and more particularly to the field of colour photography for motion pictures by colour-filters.

The primary object of the invention is to provide a method for photographing the motion pictures and their projection in colours in such a manner as:-

- 1 To obtain true monochrome values colours through colour-filters in the pictures photographed, so as to enable the projection of different colours corresponding to the colours photographed; and*
- 2 To produce bright and shining pictures having a natural tone not producible hitherto by the use of colour-filter processes known.*

The present invention is an improvement to the existing colour-filter process for motion pictures which was used in earlier days of motion pictures photography and has been discontinued since the introduction of colour-films and various chemical dye-processes which are being widely used now-a-days. This invention is intended to reform the old colour-filter process removing its draw-backs and defects; and to enable its use again.

The formerly known process referred to in above paragraph, was using non-panchromatic type of film (Panchromatic type of film was not available in those days) and the film had to expose with the help of two different colour-filters used in cyclic change i.e.,

each frame of the film was exposed through one colour-filter and thus all the frames of the exposed alternately through both the colour-filters in a regularly recurring cycle. After exposing the film, it was processed and its positive projected with the help of colour-filters in the same way in which the film was photographed. Thus in the above manner the film used to be photographed and projected in different colours.

The greatest defect in the above process was that the action of colour-filters on the non-panchromatic film could not be recorded in the pictures, the main reason for which was non-availability of panchromatic film as the same was not introduced in.....

In the field of photography in those days. Non-panchromatic film is not sensitive to all the colours and the colours to which it is sensitive, it could not record them in their true monochrome values. More or less all type of non-panchromatic films are not sensitive to Red colour at all and due to this fact, the use of red colour-filter in the above process was not successful. In the same way, non-panchromatic films are too much sensitive to Blue, Violet and less sensitive to Yellow and Orange colours. If Blue would be photographed in White shade and Orange in Black shade although to the eye Blue appears darker than Yellow and thus the monochrome values of colours could not be recorded properly. Later on, orthochromatic film was introduced to obtain monochrome values of colours but it too was not sensitive to Red colour. Due to the above difficulties no particular combination of colour-filters could be used in the existing process to obtain nice results as such due to this defect the use of the process was quite unsatisfactory.

The present invention removes the above defect by using Panchromatic film which is well known film in photography and easily available now-a-days. The Panchromatic film is a special type of film sensitive to all the colours and records their true monochrome values in black and white. Thus the use of Panchromatic film in the present invention meets with all the requirements of colour-filters employed in the process. Moreover, the use of panchromatic film has made possible further improvements in the colour motion picture photography by colour-filters and the one made by the present invention is the use of a particular combination of colour-filters to obtain the best results. Since the action of all the colour-filters can be recorded on panchromatic film, it has become possible to select the best combination of colour-filters to photograph the bright and shining motion pictures having a natural tone.

Specifically the use of the particular combination of colour-filters to obtain the desired effects in the pictures, is this invention consists of a process for photographing coloured motion pictures where in the combination of blue and orange colour-filters is used in a regularly recurring cyclic change to expose the panchromatic type of motion picture film.

Specially the use of the particular combinations of colour filters to obtain the desired effects in the pictures, is the principal.....

This invention consist of a process for photographing coloured motion pictures wherein

the combination of the blue and orange colour-filters is used in a regularly recurring cyclic change to expose the Panchromatic type of motion picture film.

Principal feature of this invention. By exposing the panchromatic motion picture film through the certain recommended colour-filters in a proscribed way and then projecting its positive print through the same combination of colour-filters which was used at the time of photographing, the movies in brilliant colours having a natural tone will be obtained.

The combinations of colour-filters selected and recommended for use in the present process are the following:-

- (1) Blue and Orange - To obtain natural record of the object or scene photographed and produce bright pictures.
- (2) Bluish-Green and Red- To obtain special colour effects
- (3) Yellow and Violet - in the pictures.

The selection of the above mentioned combinations of the colour-filters to obtain the best pictures is on the basis of the conclusion derived from the results obtained by mixing of the two different light-rays of colours. The resulting combined effect of both the colour-filters of each combination of filters mentioned above is white. While projecting as both the colour-filter used give their combined effect on the screen, the use of any of the above combinations if colour-filters would produce bright and shining pictures due to resulting whiteness occurred on account of the combined effect of both the colour-filters. The use of the combination (1) i.e., Blue and Orange colour-filters is recommended for general use in this process as these two colour-filters have been found the best to produce natural tone in the pictures which is not producible in any case with any other combination of colour-filters. However, to a certain extent combination (2) i.e., Bluish-green and Red can also serve the above purpose. The rest of the two combinations (2) and (3) i.e., Bluish-Green and Red; and Yellow and Violet can be used to produce special colour effects in the pictures. To produce various colour effects any combination of two colour-filters other than (2) and (3)

Motioned above, may also be used since the panchromatic film to be used in this invention records the action of any colour-filter in its monochrome value. The words "pictures having a natural tone" used in this specification mean the pictures which have a natural look like the original scene or object photographed.

The colour-filters to be used in this process can be made of any fine transparent medium or substance so that the light rays of the image when passed through them should remain sharp on the emulsion of the film at the time of photography and on the screen at the time of projection. The density of the colour in the filters may be according to desire to suit the exposing conditions of the scene or object to be photographed, but in any case both the colour-filters of a combination must have their colours equal in density with each other. Whether a colour-filter is incorporated with the film by staining it or as a separate medium it is intended to be covered by the term 'filter' used in this specification.

So as to explain the mode of operation of the invented process, it seems necessary

first to mention the main points of the procedure of exposing the motion picture film in a movie camera and the same are described below in brief. In every movie camera, the film loaded gets exposed in such a way that when the camera starts, one frame of the film behind the camera lense gets exposed on opening the shutter due to camera mechanism and is again covered by the shutter in front of it simultaneously after getting exposed. As soon as the shutter completely covers that frame, the second unexposed frame comes behind the camera lense allowing the exposed frame to shift down. Then again the shutter opens by moving aside to get that second frame also exposed and in the same manner, continuously, all subsequent frames of the motion picture film loaded in the camera get exposed one after another at the rate of 16 or 24 frames per second.

According to this invented process, the motion picture film loaded in the camera should be Panchromatic type of film and it is to be exposed by the help of any of the recommended combination of colour-filters which are to be used in such a revolving or interchanging.....

Changing position so that when the movie camera comes in motion and one frame of the film is going to be exposed, one colour-filter, say, Blue colour-filter should cover the camera lense either from front or back side of the lense, allowing the filtered light rays on the image to expose that frame. After that frame gets exposed, second frame next to it should be exposed in the same way by the light rays of the image filtered by Orange colour-filter. Accordingly, all the film loaded should be exposed by the same procedure repeatedly so that each frame of the film should be exposed through one colour-filter only and thus all the frames exposed alternately through both the colour-filters. The mechanical device for interchanging the colour-filters corresponding to the shifting of the frames in the movie camera can be adjusted in any particular way subject to suit the above described conditions of this process

When that motion picture film is completely exposed in the above described way with the help of Blue and Orange colour-filters, or any other combination of colour-filters to be used in this invention, it should be processed in an ordinary way just like other motion picture films photographed in Black and White are processed; and then the positive print or the motion picture film photographed by this process will be ready for use.

Now for the purpose of screening the movies in colours with the film photographed by this process, the film should be screened by the projector through the same two colour-filters which were employed at the time of photography, in such a way that a frame photographed by one particular colour-filter is screened through that particular colour-filter only, e.g., if the film is photographed by using the Blue and Orange colour-filters, the frames of the film photographed through the Blue colour-filter should be screened through Blue colour-filter and similarly, the frames photographed through Orange colour-filter should be screened through the Orange colour-filter in their turn. Of-course, it is necessary that the colour-filters to be used at the time of screening the film should also interchange alternately corresponding to the shifting of each frame in the projector. Thus, when the positive film will be screened.....

Another alternative way for screening the movies in colours without the use of the colour-filters at the time of projection or

screening is that the positive print photographed by this process, itself should be applied with colours artificially by staining the frames with any manual or technical means, in such a way that the frames photographed by one particular colour-filter are applied with the colour corresponding to that particular colour-filter, e.g., if the film is photographed by using the Blue and Orange colour-filters, the frames exposed through Blue colour-filter should be applied with Blue colour and the frames exposed through Orange colour-filter should be applied with Orange colour; and thus the whole print coloured. When the positive is completely coloured it can be screened just like ordinary films without the aid of colour-filters and the movies in full colours will be seen on projection.

The attached drawing illustrates diagrammatically, the negative and positive motion picture films photographed according to the present invention.

Figure 1-

Shows a negative motion picture film (Panchromatic Type) photographed by using a combination of Blue and Orange colour-filters in such a way that one frame of film (B) is exposed through the Blue colour-filter and second frame next to it (O) through the Orange colour-filter and subsequently all the frames exposed alternately through the same two colour-filters repeatedly in the same manner.

Figure2-

Shows a positive motion picture film obtained by a negative film (Fig.1) photographed according to the invention. This positive film is applied with colours by staining in such a way that the frames photographed through Blue colour-filter (B) are coloured Blue and similarly the frames photographed through Orange colour-filter (O) are applied with Orange colour and thus.....

Thus all the frames of the film coloured and the film ready for colour projection.

In this process although reproduction of all the colours corresponding to the colours of the original object or scene, is not possible but still natural tone produced by using Blue and Orange colour-filters gives satisfying results. Moreover the results obtained by this process are far advanced that obtainable previously by the existing colour-filter process.

When compared with the modern chemical or dye-process using colour-film, there is one unavoidable drawback in the colour-filter process which is as described. Individual frames are photographed through two colour-filters alternately, and while projecting every two frames photographed through each colour-filter give their combined effect on the screen producing coloured images but in modern chemical colour processes, this combined effect of both the colour-filters is recorded in every frame itself and as such the colour image producible by the projection of two frames in colour-filter process is producible by the projection of only one frame by Chemical colour-processes. This factor affects in brightness of the picture on the screen and is unavoidable in any case but with the help of the present invention the brightness of colours in the pictures have been increased to a great extent to give normal results on account of the use of selected combinations of colour-filters.

When compared with the modern chemical processes in respect to the cost of maintenance and simplicity, the great advantage arising out of the present invention is that the expenditure incurred in carrying out this invention is much lesser than that

incurred in dye-processes. In the same way, this process is more simple when carried out in practice.

I claim:-

- 1 A process for photographing coloured motion pictures wherein the combination of Blue and Orange colour-filters is used in a regularly recurring cyclic change to expose the panchromatic type of motion picture film.*
- 2 A process for photographing coloured motion pictures according to claim 1 wherein the combination of either Bluish-Green or red or Yellow and Violet filter or any other such combination used for the purpose described.*
- 3 A process for photographing coloured motion pictures wherein the positive print of the motion picture film photographed according to claim 1 or 2, is applied with colours by staining them artificially in such a way that all the frames photographed through the respective colour-filters are applied with colours corresponding to those of the colour-filters, respectively and thus the whole positive print coloured for the purpose described.*
- 4 A process for photographing coloured motion pictures substantially as described.*

Dated this 7th day of August, 1951.

*T.P Datta & Sons
(Agents for the Applicants).*

.....

SHRIVASTAVA

Dated 6 December 1952, T. P. Dutta & Sons informed Shri S. S. Shrivastava that his patent application number 45549 has been accepted by Patent Office of India Government.

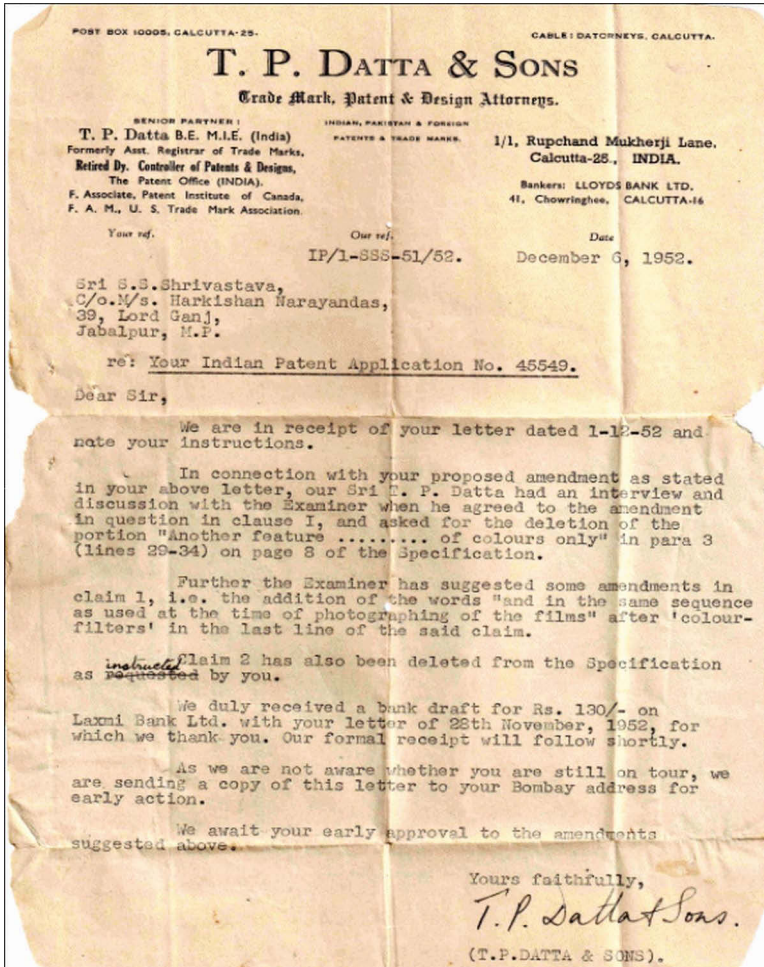


Figure 36: Letter from T P Dutta to the inventor

BELIEVE IT OR NOT

Dated 22 January 1953, T.P.Dutta & Sons informed Shri S.S.Shrivastava that your patent application number 45549 has been accepted by Patent Office of India Government on 14/1/53.

POST BOX 10005, CALCUTTA-25. CABLE: DATORNEYS, CALCUTTA.

T. P. DATTA & SONS (79)

Trade Mark, Patent & Design Attorneys.

SENIOR PARTNER : T. P. Datta B.E. M.I.E. (India)
Formerly Asst. Registrar of Trade Marks,
Retired Dy. Controller of Patents & Designs,
The Patent Office (INDIA).
F. Associate, Patent Institute of Canada,
F. A. M., U. S. Trade Mark Association

INDIAN, PAKISTAN & FOREIGN
PATENTS & TRADE MARKS.

1/1, Rupchand Mukherji Lane,
Calcutta-25, INDIA.

Bankers: LLOYDS BANK LTD.
41, Chowringhee, CALCUTTA-16
Phone: South 2819

Your ref. Our ref. Date

IP/1-33-59/53. January 22, 1953.

Sri S. S. Shrivastava,
C/o. M/s. Harkishan Narayandas,
39, Lordganj,
Jabalpur-1, M.P.

re: Your Patent Application No. 45549.

Dear Sir,

With reference to your above-numbered patent application, we are pleased to inform you that it was accepted by the Patent Office on 14-1-53.

We may advise you that the Title has been amended to read "A Colour photographic process for motion pictures and device for carrying out the same".

We are forwarding herewith the 'Acceptance Notice' of the Patent Office.

We enclose herewith a memo of our account for Rs. 155/- in the matter.

Yours faithfully,
T. P. Datta & Sons.
(T.P.DATTA & SONS).

Encls: 1. 'Acceptance Notice'.
2. Debit note.

P.S. We wish to add for your information that our Adviser and Senior Partner, has now gone to Bombay to attend the Annual General Meeting of the Institution of Engineers (India) to be held there. He is putting up in Hotel Majestic (near Museum),
D.T.O.

Figure 37: Letter from T P Datta to the inventor

All communications should note the number of this notice should be addressed to— CONTROLLER OF PATENTS AND DESIGNS The Patent Office, Calcutta-17.	GOVERNMENT OF INDIA THE PATENT OFFICE.
NOTICE OF ACCEPTANCE OF APPLICATION. <i>Patent Application No. 45549.</i>	
Under Section 6 of the Indian Patents and Designs Act (II of 1911) notice is hereby given that the application for a patent made by Soemi Sharan Shrivastava,	
14th January 1953.	
and numbered as above was accepted on the application, specification, and drawings (if any) are open to public inspection. The acceptance will be advertised in the <i>Gazette of India</i> next issued after the date at the foot hereof and the printed specification and drawings (if any) will be available in due course at a price of Rs. 2 per copy. Within four months of the date of that advertisement any person may, under Section 9 of the Act, give notice of opposition to the grant of the patent. If there is no opposition, or in case of opposition, if the determination is in favour of the grant of a patent, due notice will be given to the applicant that if he desires a patent to be sealed, he should file his request on Form 8, a copy of which will be forwarded to the applicant in due course.	
Dated this 19th day of January 1953. To	Messrs. T.P. Datta & Sons, 1/1, Rupchand Mukherjee Lane, P. & D. 48. Bhowanipur, Calcutta-25. MGPO-S5-160 Patent-28-3-52-1,000.
K. SESHAGIRI RAO, <i>Controller of Patents and Designs</i>	

Figure 38: Letter from the Patent Office

GOVERNMENT OF INDIA.
THE PATENT OFFICE.

After this, on June 10th, 1953, this invention of Shri Soami Sharan Shrivastava was sealed and patented by Government of India.

GOVERNMENT OF INDIA.
THE PATENT OFFICE.
No. 45549

WHEREAS Soami Sharan Shrivastava, son of Shri Shyam Lal, of 584, Hanumantal, Jabalpur, Madhya Pradesh, a subject of the Indian Union,
hath declared that he is in possession of an invention for a colour photographic process for motion pictures, and device for carrying out the same

and that he is the true and first inventor thereof, and that the same is not in use in ~~British~~ India by any other person to the best of his knowledge, information and belief;

And whereas he hath humbly prayed that a patent might be granted to him for the said invention;

And whereas he hath by and in his complete specification (~~of which a printed copy is herewith annexed~~) particularly described and ascertained the nature of the invention and the manner in which the same is to be performed;

The Central Government is pleased to order by these presents that the above said petitioner (including his legal representatives and assigns or any of them) shall, subject to the provisions of the Indian Patents and Designs Act, 1911, as patentee have the exclusive privilege of making, selling and using the invention throughout ~~all the Provinces of~~ India and of authorising others so to do for the term of sixteen years from the 24th day of July 1951 subject to the conditions that the validity of this patent is not guaranteed by Government and also provided that the fees prescribed for the continuation of this patent are duly paid.

In witness whereof the Central Government has caused this patent to be sealed as of this 24th day of July 1951.

Signature of Controller E. Seeshagiri Rao

Date of Sealing 10th June 1953

NOTE.—Renewal fees will be due on this patent, if it is to be maintained, on the 24th day of July 1955 and on the same day in each year thereafter.

P. & D. 49. [P. T. O.]

Figure 39: Letter from the Patent Office

GOVERNMENT OF INDIA : THE PATENT OFFICE, 214, LOWER CIRCULAR ROAD, CALCUTTA-17.

Specification No. 45549, 24th July 1951. (Accepted 14th January 1953).

A COLOUR PHOTOGRAPHIC

CARRYING OUT THE SAME, PICTURES AND DEVICE FOR

BOAMI SHARAN SHRIVASTAVA, SON OF SHRI SHYAM LAL, of 684, HANUMANTAL, JABALPUR, MADHYA PRADESH, A SUBJECT OF THE INDIAN UNION.

The following specification particularly describes and ascertains the nature of this invention and the manner in which it is to be performed.

This invention relates to the Motion Picture Industry and more particularly to the field of colour photography for motion pictures.

The primary object of the present invention is to provide a process for motion picture photography in natural colours so as to enable the reproduction of all the colours in the pictures corresponding to the colours of the original object or scene photographed and to obtain particularly good results unobtainable heretofore by the use of colour-filter processes known.

The principal objects of the present invention are:—
(i) the use of a selected combination of three colour-filters to expose the film,
(ii) the use of Panchromatic emulsified motion picture film for photographing; and
(iii) the particular way to expose and project the film with the use of colour-filters.

In the absence of any of the above conditions this invention cannot be carried out. When a selected combination of three colour-filters is used to expose the Panchromatic type of motion picture film in a particular way as described forward in this specification, colour record images in negative form are obtained on the film; and when the positive of the same negative film is projected with the help of the same combination of colour-filters which was used at the time of photographing, the movies in natural colours are obtained.

The present invention supercedes all the existing colour-filter processes in which also three colour-filters were used for coloured motion picture photography. These processes were employed before the introduction of colour films and various chemical dye-processes. As the colour films and dye processes give very fine results unobtainable with the use of colour-filters processes, the use of filter processes have now been totally stopped.

The great drawback in the colour-filter process referred to above was that it could not be carried out on standard apparatus of photography and projection. As the three colour-filters were used to take colour record images partly in succession and partly simultaneously, the negative film to be used for photographing had to be of double breadth than the standard size or two standard size negative films were employed at a time. In the above conditions, a special apparatus for photographing was necessary. In the same way, for the projection of the films photographed with the above process, a special projector in which three projectors were combined into one mechanism was required. Similarly while making positive prints great inconvenience was felt in rearranging the images of both the negative films (or double size negative film) on transferring them to one standard size positive film by interpolating the colour record images of one group between the colour record images of another group. Thus, the above process required each apparatus of special kind which was quite complicated for general use. In the present invention there is no such trouble at all and it can be easily carried out on any standard apparatus of photographing and projection. The way of using the colour-filters in the process according to this invention is very simple and conveniently practicable by making a small replacement in any standard apparatus of photography.

Another defect in the existing colour-filter processes was that the results obtained by them were not satisfactory. Although pictures in different colours were obtained but the reproduction of all the colours corresponding to the colours of the original object or scene photographed, was not possible. The above defect was due to the use of non-panchromatic type of films while photographing as the Panchromatic emulsified films were not available in those days. As the action of colour-filters on the non-panchromatic films could not be recorded in correct monochrome values, the reproduction of colours was affected. In this connection it should be remembered that only Panchromatic type of emulsion is sensitive to all the colours and records them in their true monochrome values. In the present invention this defect has been removed by introducing the use of Panchromatic emulsified film.

My invention comprises a colour photographic process for the motion pictures wherein panchromatic film is loaded in movie camera and is exposed by using the Violet, Green and Orange colour-filters in any sequence in such a way that one frame of the film gets exposed through the Violet colour-filter, another frame through the Green colour-filter, then the next one through the Orange colour-filter, and subsequently all the frames of

the film exposed through the same three colour-filters and in the same sequence repeatedly, in the same manner.

The accompanying drawing illustrates a preferred constructional form of a device for carrying out the process according to the invention, in which:

Figure 1 shows the shutter assembly of a known movie camera. In a motion picture camera the film gets exposed in such a way that when the camera starts working one frame of the film at the gate 4 on which the image of object through the lenses falls, gets exposed and is covered by a shutter plate 3 in front of it simultaneously. When the shutter plate 3 completely covers the gate 4, the next unexposed frame comes at the gate 4 and the exposed frame shifts down. During the shifting of frames, the shutter plate 3 which although goes on moving, remains before the gate keeping it fully covered and as soon as the unexposed frame rests at the gate 4, it moves down to get that second frame also exposed and subsequently all the frames of the motion picture film loaded in the camera get exposed one after another in the same way. The shutter plate 3 takes round on shutter axle 5 which is connected with the frame-shifting mechanism of the camera. The whole shutter mechanism except the gate 4, is covered in a box 2 which is called the shutter box of a camera.

Figure 2 shows a selected combination of three colour-filters, viz., V, G and O correspondingly to Violet, Green and Orange filters respectively, arranged on a disc 1.

Figure 3 shows the shutter assembly of the camera replaced according to the invention. Shutter plate 3 has been replaced by the filter disc 1 which is fitted on shutter axle 5 so as to take rounds with the axle. The speed of the axle should also be reduced to 1/3rd of the original speed.

Figure 4 shows a negative film photographed according to the process of the invention.

Figure 5 shows a positive film obtained according to the process of the invention.

In order to produce the negative film according to the invention as shown in Figure 4 of the drawing, the motion picture film loaded in the camera should be Panchromatic type and is to be exposed by the help of recommended combination of colour-filters selected for use in this process. The three colour-filters, e.g., V, G and O should be used in such a revolving or interchanging position so that when the movie film is in motion and one frame of the film is going to be exposed, one colour-filter, say, V should cover the gate allowing the filtered light rays of the image to expose that frame. After that frame has been exposed, second frame next to it should be exposed by the help of second colour-filter G and similarly the third frame should be exposed by the help of third colour-filter O in the same way. Accordingly, all the frames of the film loaded should be exposed by the same procedure in a regularly recurring cycle so that all the three colour-filters should respectively expose one frame each, V, G and O as shown in the Figure 4 of the drawing and thus the negative film produced.

One of the mechanical devices for changing the colour-filters corresponding to the shifting of the frames in a movie camera has been illustrated in Figures 2 and 3 of the attached drawing. Almost every movie camera has the shutter assembly similar to that of Figure 1 with the exception of different sizes. In all such types of shutter assemblies as shown in Figure 1, the shutter plate 3 takes one complete round on axle 5 during the shift and exposure of each frame. During the half round the shutter plate 3 remains moving before the gate 4 and the exposed frame shifts down and unexposed frame comes at the gate 4 for exposure. During the next half round, the shutter plate 3 moves away from the gate 4 thus allowing the frame to get exposed. Figure 2 of the drawing shows the three colour-filters V, G and O arranged on a disc. This disc should be of some lightest leaf of iron and its diameter should be equal to the diameter of the shutter plate 3 so that it may freely rotate inside the shutter box. Then the disc should be divided into six equal sectors out of which in any three sectors alternately, holes should be made to cover the entire sector and in these three holes three colour-filters should be fitted as shown in the Figure 2. The three filters may be fitted in any sequence. When the disc is ready as shown in Figure 2 of the drawing, it should be fitted on the axle 5 of the shutter assembly as shown in Figure 3. The speed of the axle 5 should also be reduced to 1/3rd of its original speed but the speed of frame shift-

Price: TWO RUPEES.

Figure 40: Invention specifications

the mechanism of the camera should not be disturbed. The reduction in the speed may be done by using various sizes gears other than already used, which connect the axle 5 to the frame shifting mechanism of the camera. When filter disc 1 has been fixed with axle 5, and the speed of the axle 5 reduced to 1/3rd, during every 1/3rd movement of axle 5 each colour-filter will expose individual frame and this process will be repeated till the film remains in motion. It is to be understood that the details of the construction as described and illustrated may be elaborated, varied and combined in many ways without departing from the scope of the invention.

After the negative film is completely exposed in the above described way, it should be developed and printed in ordinary way just like other motion pictures films photographed in Black and White; and then the positive print of that motion picture film photographed by this invented process will be ready for use.

Now for the purpose of the reproduction of colours, that positive film should be projected on a screen through the same three colour-filters which were used at the time of photographing in such a way that a frame photographed by V colour-filter is projected through V colour-filter and similarly the frames photographed through G and O colour-filters are projected through the G and O colour-filters respectively. These colour-filters should interchange alternately according to the shifting of the frames in the projector. Thus, when the positive film will be projected in the above way, the true reproduction of all the colours will be observed on the screen which will be the net result of this invention.

Another way for enabling the reproduction of colours without the use of the colour-filters at the time of projection is that the positive film produced from a negative film photographed by this process, itself, should be tinted with colours artificially by dyeing the frames with any manual or technical means in such a manner that the frames photographed through the V colour-filter are tinted in V colour and similarly the frames photographed through G and O colour-filters are tinted in G and O colours respectively, and thus all the frames of the film are tinted in the same way. After the positive print is completely tinted in the above described way (as shown in Figure 5 of the attached drawing) it can be projected on a screen just like ordinary films. On projecting that positive film all the colours of the original object or scene photographed will be reproduced.

The recommended combination of three colour-filters selected for use while photographing and projecting in this process to obtain movies in full original colours, is of Violet, Green and Orange colour-filters which may be used in any sequence. The selection of Violet, Green and Orange colour-filters for use in this process is based on the observations and facts described in the following paragraphs. The colour-filters can be made by staining the particular dye on any fine transparent medium or substance, e.g., Glass, Gelatine etc., so that the light rays of the image when passed through them should remain sharp on the emulsion of the film at the time of photographing and on the screen at the time of projecting. The density of colours in the colour-filters may suit the exposing conditions of the scene or object to be photographed, but in any case all the three colour-filters of a combination must have their colours equal in density with each other.

The action of colour-filters dyed with Violet, Green and Orange dyes respectively, when employed for photographing the various colours of a scene or object in accordance with the process of the present invention, is that the Violet filter allows only Blue, Red, and Violet light rays. Green filter allows only Blue, Yellow and Green light rays and Orange filter allows only Red, Yellow and Orange light rays of colours to pass through them. All the three colour-filter will also transmit white light rays through them. Thus, it is seen that all the main colours of the Spectrum can pass through these three colour-filters and as such can be recorded in Black and white shades on Panchromatic film in three individual frames as per the present invention.

When Violet, Green and Orange colour-filters are employed at the time of projecting the positive film produced from a negative film photographed according to the present invention, the combined effect of the light

rays passing through Violet and Green filters is Blue, Green and Orange filters is Yellow, Orange and Violet filters is Red, and Violet, Green and Orange filters is white. Apart from this, each colour-filter individually produces Violet, Green and Orange colours respectively. Therefore, while projection all the colours will be obtained with Violet, Green and Orange colour-filters, and as such from the above facts it is clear that the best and correct reproduction of colours can be obtained with these colour-filters only when used according to the process of the present invention.

When the film photographed as above will be projected through Violet, Green and Orange colour-filters, necessary colour effect will be produced in the pictures. The different combinations of colour-filters used while photographing will produce the different colour effects in the pictures while in projection. The colour effects in the pictures greatly affect the originality of the scene in respect of colours, and if this action is tolerable then these special effects are pleasing. The selection of particular combination of three colour-filters to produce specific colour effect in the pictures, can be made only after studying the requirements and the actual scene to be photographed.

The terms "Violet", "Green" and "Orange" etc., used in this specification for the indication of various colours and dyes are most common terms used for distinguishing the colours and the dyes. Whether a colour-filter is incorporated with the film by staining it or as a separate medium it is intended to be covered by the term "filter" used in this specification.

The great advantage arising out of the present invention is that the production of pictures in full natural colours has become easier like the production of ordinary Black and White pictures and any standard apparatus of photographing or projecting may be used to meet the requirements of the process. Secondly, the cost in production of the pictures with this invention has also been much reduced in comparison to colour-films and other dye transferring processes which are greatly used in these days.

I claim:

1. A colour photographic process for the motion pictures wherein panchromatic film is loaded in movie camera, and is exposed by using the Violet, Green and Orange colour-filters in any sequence in such a way that one frame of the film gets exposed through the Violet colour-filter, another frame through the Green colour-filter, then the next one through the Orange colour-filter, and subsequently all the frames of the film exposed through the same three colour-filters and in the same sequence repeatedly in the same manner.

2. A colour photographic process for the motion pictures, wherein the positive print of motion picture film produced from a negative film photographed according to Claim 1 is applied with colours by staining them artificially in such a way that all the frames photographed through the respective colour-filters are applied with the colours corresponding to those of the colour-filters, respectively and thus the whole positive print coloured for the purpose described.

3. A device for carrying out the process according to Claim 1, wherein three colour-filters namely Violet, Green and Orange colour-filters are mounted on a disc which is fitted on the shutter axle of a movie camera, in such a way that one frame of the film gets exposed through the Violet colour-filter, another frame through the Green colour-filter, then the next one through the Orange colour-filter and subsequently all the frames of the film exposed through the same three colour-filters and in the same sequence repeatedly in the same manner.

4. A colour photographic process for the motion pictures, substantially as described.

T. P. DATTA & SONS,

Agents for the Applicant.

Dated this 18th day of July 1952.

Figure 41: Invention specifications Page 2

GOVERNMENT OF INDIA: THE PATENT OFFICE, 214, LOWER CIRCULAR ROAD, CALCUTTA-17.

Specification No. 45549, 24th July 1951. (Accepted 14th January 1953).

A COLOUR PHOTOGRAPHIC PROCESS FOR MOTION PICTURES AND DEVICE FOR CARRYING OUT THE SAME.

SOAMI SHARAN SHRIVASTAVA, SON OF SHRI SHYAM LAL, OF 584, HANUMANTAL, JABALPUR, MADHYA PRADESH, A SUBJECT OF THE INDIAN UNION.

The following specification particularly describes and ascertains the nature of this invention and the manner in which it is to be performed.

This invention relates to the Motion Picture Industry and more particularly to the field of colour photography for motion pictures.

The primary object of the present invention is to provide a process for motion picture photography in natural colours so as to enable the reproduction of all the colours in the pictures corresponding to the colours of the original object or scene photographed and to obtain particularly good results unobtainable heretofore by the use of colour-filter processes known.

The principal objects of the present invention are: - (i) the use of a selected combination of three colour-filters to expose the film, (ii) the use of Panchromatic emulsioned motion picture film for photographing; and (iii) the particular way to expose and project the film with the use of colour-filters

In the absence of any of the above conditions this invention cannot be carried out. When a selected combination of three colour-filters is used to expose the Panchromatic type of motion picture film in a particular way as described forward in this specification, colour record images in negative are obtained on the film; and when the positive of the same negative film is projected with the help of the same combination of colour-filters which was used at the time of photographing, the movies in natural colours are obtained,

The present invention supersedes all the existing colour-filter processes in which also three colour-filters used for coloured motion picture photography. These processes were employed before the introduction of colour films and various chemical dye-processes. As the colour films and dye processes give very fine results un-obtainable with the use of colour-filters processes, the use of filter processes have now been totally stopped, the great drawback in the colour-filter process referred to above was that it could not be carried out on Standard apparatus of photography and projection. As the three colour-filters were used to take colour record images partly in succession and partly simultaneously, the negative film to be used for photographing had to be of double breadth than the standard size or two standard size negative films were employed at a time. In the above conditions, a special apparatus for photographing was necessary. In the same way, for the projection of the films photographed with the above process, a special projector which three projectors were combined into in one mechanism was required. Similarly while making positive prints great inconvenience was felt in rearranging the images of both the negative films (or double size negative film) on transferring them to one standard size positive film by

interpolating the colour record images of one group between the colour record images of another group. Thus, the above process required each apparatus of special kind which was quite complicated for or general use. In the present invention there is no any trouble at all and it can be easily carried out on any standard apparatus of photographing and projection. The way of using the colour-filters in the process according to this invention is very simple and conveniently practicable by making a small replacement in any standard apparatus of photographing. Another defect in the existing colour-filter processes was that that the results obtained by them were not satisfactory. Although pictures in different colours were obtained but the reproduction of all the colours corresponding to the colours of the original object or scene photo-graphed, was not possible. The above defect was due to the use of non-panchromatic type of films while photographing the Panchromatic emulsioned films were not available in those days. As the action of colour-filters on the non-panchromatic films could not be recorded in correct monochrome values, the reproduction of colours was affected. In this connection it should be remembered that only panchromatic type of emulsion is sensitive to the colours and records them in their true mono-chrome values in the present invention this defect has been removed by introducing the use of Panchromatic emulsioned film.

My invention comprises a colour photographic process for the motion pictures wherein panchromatic film is for loaded in movie camera and is exposed by using the Violet, Green and Orange colour-filters in any sequence in such way that one frame of the film gets exposed through the Violet colour-filter, another frame through the Green colour-filter, then the next one through the Orange colour-filter, and subsequently all the frames of the film exposed through the same three colour-filters and in the same sequence repeatedly, in the same manner. The accompanying drawing illustrates a preferred constructional form of a device for carrying out the process according to the invention, in which:

Figure 1 shows the shutter assembly of a known movie camera. In a motion picture camera the film gets exposed in such a way that when the camera starts working one frame of the film at the gate 4 on which the image of object through the lense falls, gets exposed and is covered by a shutter plate 3 in front of it simultaneously. When the shutter plate 3 completely covers the gate 4, the next unexposed frame comes at the gate 4 and the exposed frame shifted down. During the shifting of frames, the shutter plate 3 which although goes on moving, remains before the gate keeping it fully covered and as soon as the unexposed frame rests at the gate 4, it moves down to get that second frame also exposed and subsequently all the frames of frames of the motion picture film loaded in the camera get exposed one after another in the same way. The shutter plate 3 takes round on shutter axle 5 which is connected with the frame-shifting mechanism of the camera. The whole shutter mechanism except the gate 4, is covered in a box 2 which called the shutter box of camera.

Figure 2- shows as selected combination of three colour filters viz V, G and O correspondingly to Violet, Green and Orange filters respectively, arranged on a disc 1. Figure 3 shows the shutter assembly of the camera replaced according to the invention. Shutter plate 3 has been replaced by the filter disc 1 which is fitted on shutter axle 5 so

as to take rounds with the axle. The speed of the axle should also be reduced to $1/3$ rd of the original speed.

Figure 4- shows negative film photographed according to the process of the invention.

Figure 5 - shows a positive film obtained according to the process of the invention.

In order to produce the negative film according to the invention as shown in Figure 4 of the drawing, the motion picture film loaded in the camera should be Panchromatic type and is to be exposed by the help of recommended combination of colour-filters selected for use in this process. The three colour-filters, V, G e.g., and O should be used in such a revolving or interchanging position so that when the movie film is in motion and one frame of the film is going to be exposed, one colour-filter, say, V should cover the gate allowing the filtered light rays of the image to expose that frame. After that frame has been exposed, second frame next to it should be exposed by the help of second colour filter G and similarly the third frame should be exposed by the help of third colour-filter O in the same way Accordingly, all the frames of the film loaded should be exposed by the same procedure in a regularly recurring cycle so that all the three colour-filters should respectively expose one frame each, V, G and O as shown in the Figure 4 of the drawing and thus the negative film produced. One of the mechanical devices for changing the colour filters corresponding to the shifting of the frames in movie camera has been illustrated Figure 2 and 3 of the attached drawing. Almost every movie camera has the shutter assembly similar to that of Figure 1 with the exception of different sizes. In all such types of shutter assemblies as shown in Figure 1, the shutter plate 3 takes one complete round on axle 5 during the shift and exposure of each frame. During the half round the shutter plate 3 remains moving before the gate 4 and the exposed frame shifts down and unexposed frame 70 comes at the gate 4 for exposure. During the next half round, the shutter plate. 3 moves away from the gate 4 thus allowing the frame to get exposed. Figure 2 of the drawing shows the three colour-filters V, G, O arranged on a disc. This disc should be of some lightest leaf of iron and its diameter should be equal to the diameter of the shutter plate 3 so that it may freely rotate inside the shutter box. Then the disc should be divided into six equal sectors out of which in three sectors alternately, holes should be made to cover the entire sector and in these three holes three colour-filters should be fitted as shown in the Figure 2. The three filters may be fitted in any sequences. When the disc is ready shown in Figure 2 of the drawing, it should be fitted on the axle 5 of the shutter assembly as shown in Figure 3. The speed of the axle 5 should also be reduced to of its original speed but the speed of frame

Page- 2 of Specification No. 45549

Shifting mechanism of the camera should not be disturbed. The reduction in the speed may be done by using various sizes gears other than already used, which connect the axle 5 to the frame shifting mechanism of the camera. When filter disc 1 has been fixed with axle 5 and the speed of the axle 5, reduced to $1/3$ rd, during every $1/3$ rd movement of axle 5 each colour-filter will expose individual frame and this process will be repeated till the film remains in motion. It is to be understood that the details of the construction as described and illustrated may be elaborated, varied and combined in many ways

without departing from the scope of the invention.

After the negative film is completely exposed in the above described way, it should be developed and printed in ordinary way just like other motion pictures films photographed in Black and White; and then the positive print of that invented process motion picture film photographed by this will be ready for the use. Now for the purpose of the reproduction of colours, that positive film should be projected on screen through the same three colour-filters which were used at the time of photographing in such a way that a frame photographed by V colour-filter is projected through V colour-filter and similarly the frames photographed through G and O colour-filters are projected through the G and O colour-filters respectively. These colour-filters should interchange alternately according to the shifting of the frames in the projector. Thus, when the positive film will be projected in the above way, the true reproduction of all the colours will be observed on the screen which will be the net result of this invention, Another way for enabling the reproduction of colours without the use of the colour-filters at the time projection is that the positive film produced from a negative photographed by this process, itself, should be tinted with colours artificially by dyeing the frames with any manual or technical means in such a manner that the frames photographed through the V colour-filter are tinted in V colour and similarly the frames photographed through G and O colour-filters tinted in G and O colours respectively; and thus the frames of the film tinted in the same way. After the positive print is completely tinted in the above described way (as shown in Figure 5 of the attached drawing) it can be projected on a screen just like ordinary films. On projecting that positive film all the colours of the original object or scene photographed will be reproduced.

The recommended combination of three-colour filters selected for use while photographing and projecting in this process to obtain movies in full original colours, is of Violet, Green and Orange colour-filters which may be used in any sequence. The selection of Violet, Green and Orange colour-filters for use in this process is based the observations and facts described in the following paragraphs. The colour-filters can be made can be made by staining particular dye on any fine transparent medium or substance, e.g., Glass. Gellatino etc., so that the light rays of the image when passed through them should remain sharp on the emulsion of the film at the time of photographing and on the screen at the time of projecting. The density of colours in the colour-filters may suit the exposing conditions of the scene or object to be photographed, but any case all the three colour-filters of a combination must have their colours equal density with each other.

The action of colour-filters dyed with Violet, Green and Orange dyes respectively, when employed for photographing the various colours of scene or object in accordance with the process of the present invention, is that the Violet filter allows only Blue, Red and Violet light rays Green filter allows only Blue, Yellow and Green light rays and Orange filter allows only Red, Yellow and Orange light rays of colours to pass through them All the three colour-filter will also transmit white light rays through them. Thus, it is seen that all the main colours of the Spectrum can pass through these three colour-filters and as such can be recorded in Black and white shades on panchromatic film in three individual frames as per the present invention

When Violet, Green and Orange colour-filters are employed at the time of projecting the positive film produced from a negative film photographed according to the present invention, the combined effect of the light rays passing through Violet and Green filters is Blue, Green and Orange filters is Yellow, Orange and Violet filters is Red, and Violet, Green and Orange filters white. Apart from this, each colour-filter individually produces Violet, Green and Orange colours respectively. Therefore, while projection all the colours will be obtained with Violet, Green and Orange colour-filters, and such from the above facts it clear that the best and tis correct reproduction of colours can be obtained with these colour-filters only when used according to the process of the present invention.

When the film photographed as above will be projected through Violet, Green and Orange colour-filters, necessary colour effect will be produced in the pictures. The different combinations of colour-filters used while photographing will produce the different colour effects in the picture while in projection. The colour effects in pictures greatly affect the originality of the scene in respect of colours, and if this affection is tolerable then these special effects are pleasing. The selection of particular combination of three colour-filters to produce specific colour effect in the pictures, can be made only after studying the requirements and the actual scene to be photographed.

The term "Violet", "Green" and "Orange" etc., used in this specification for the indication of various colours and dyes are most common terms used for distinguishing the colours and the dyes. Whether a colour- filter is incorporated with the film by staining it or as separate medium it is intended to be covered by term " filter" use in this specification.

The great advantage arising out of the present invention is that the production of pictures in full natural colours has become easier like the production of ordinary Black and White pictures and any standard apparatus of photographing or projecting may be used to meet the requirements of the process. Secondly, the cost in production of the pictures with this invention has also been much reduced in comparison to colour-films and other dye transferring processes which are greatly used in these days.

I claim

1. A colour photographic process for the motion pictures wherein panchromatic film is loaded in movie camera, and is exposed by using the Violet, Green and Orange colour-filters in any sequence in such way that one frame of the film gets exposed through the Violet colour-filter, another frame through then the next h the Green colour-filter, one through the Orange colour-filter, and subsequently all the frames of the film exposed through the same three colour-filters and in the same sequence repeatedly in the same manner.

2. A colour photographic process for the motion Pictures, wherein the positive print of motion picture. Film produced from a negative film photographed according to Claim 1 is applied with colours by staining them artificially in such a way that all the frames photographed through the respective colour-filters are applied with the colours corresponding to those of the colour-filters, respectively and thus the whole positive print coloured for the purpose described.

3. *A device for carrying out the process s according to Claim 1. wherein three colour-filters namely Violet, Green and Orange colour-filters are mounted on disc which is fitted on the shutter axle of a movie camera, in which panchromatic film is loaded, the axle being rotated in such a way that one frame of the film gets exposed through the Violet colour-filter, another frame through the Green colour-filter, then the next through the Orange colour-filter and subsequently one all the frames of film exposed through same three colour-filters and in the same sequence repeatedly in the same manner.*

4. *A colour photographic process for the motion pictures, substantially as described.*

T. P. DATTA & SONS,
Dated this 18th day of July 1951.
Agents for the Applicant.

MGIPO-L-95 Patent-18-1-54-40.

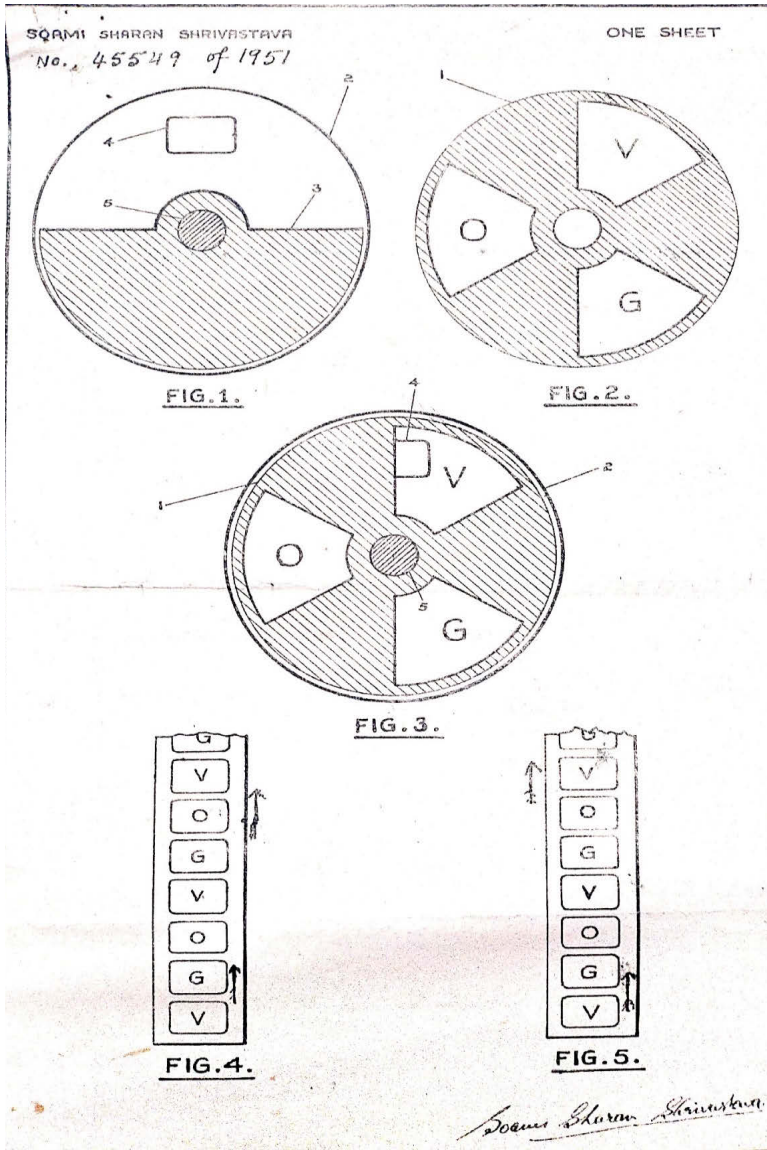


Figure 42: Images from the above document

Communications with foreigners

In 1953, Shri Soami Sharan Shrivastava got membership of the Royal Photographic Society of Great Britain, London. At that time, it was a matter of pride to get membership of such an organization. This membership was given to those people who had done some special work in photography field.

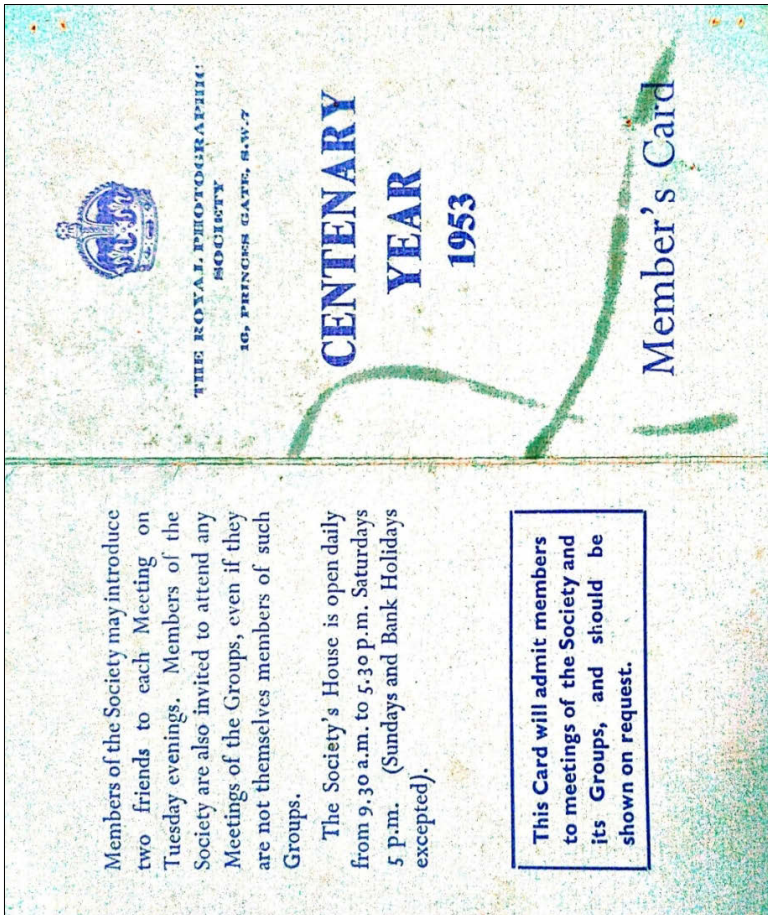


Figure 43: Membership card

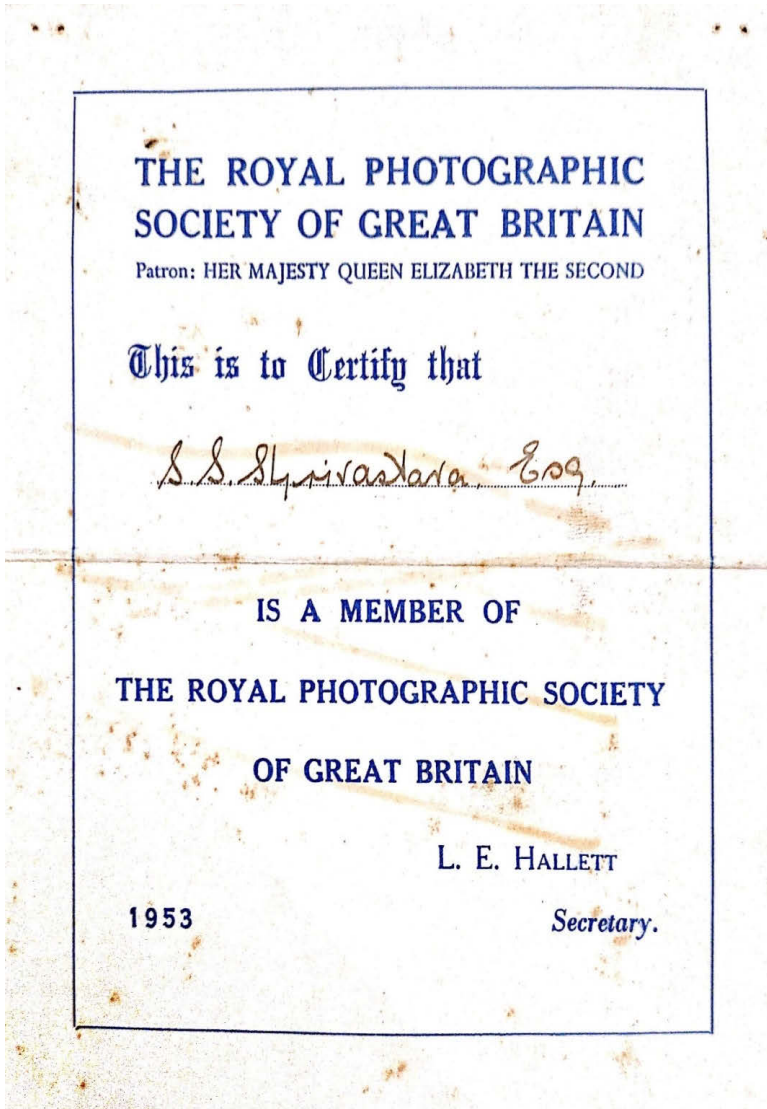


Figure 44: Membership card continued

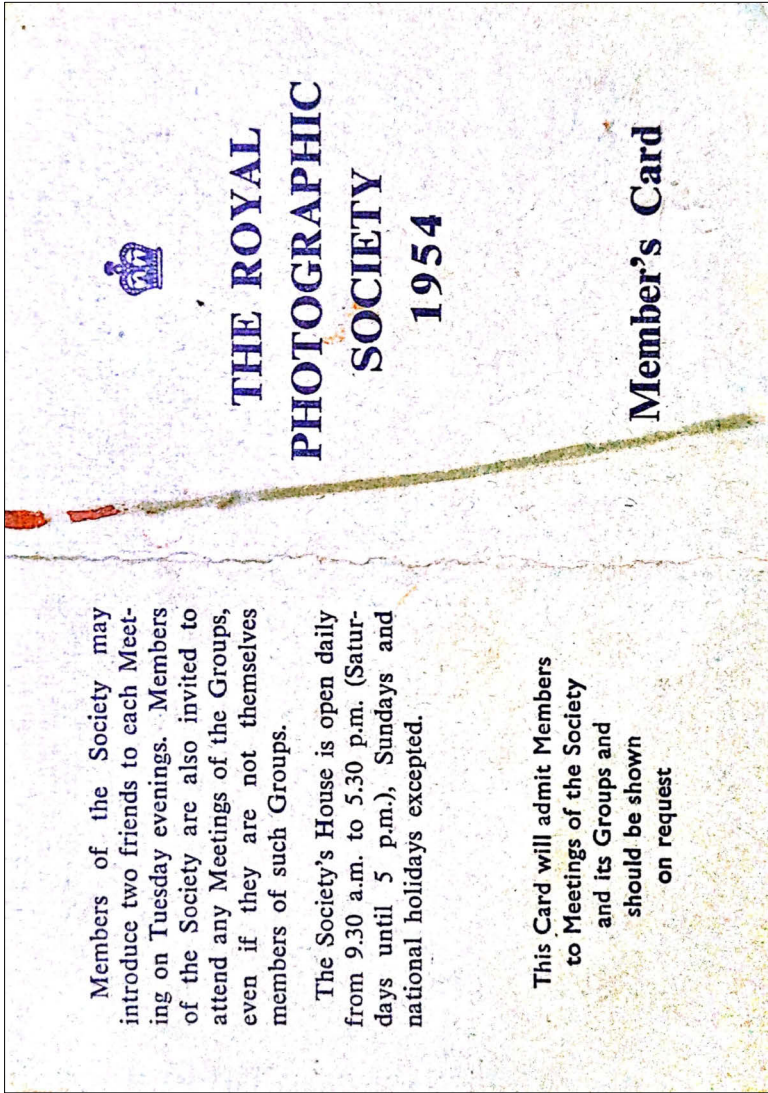


Figure 45: Membership card continued

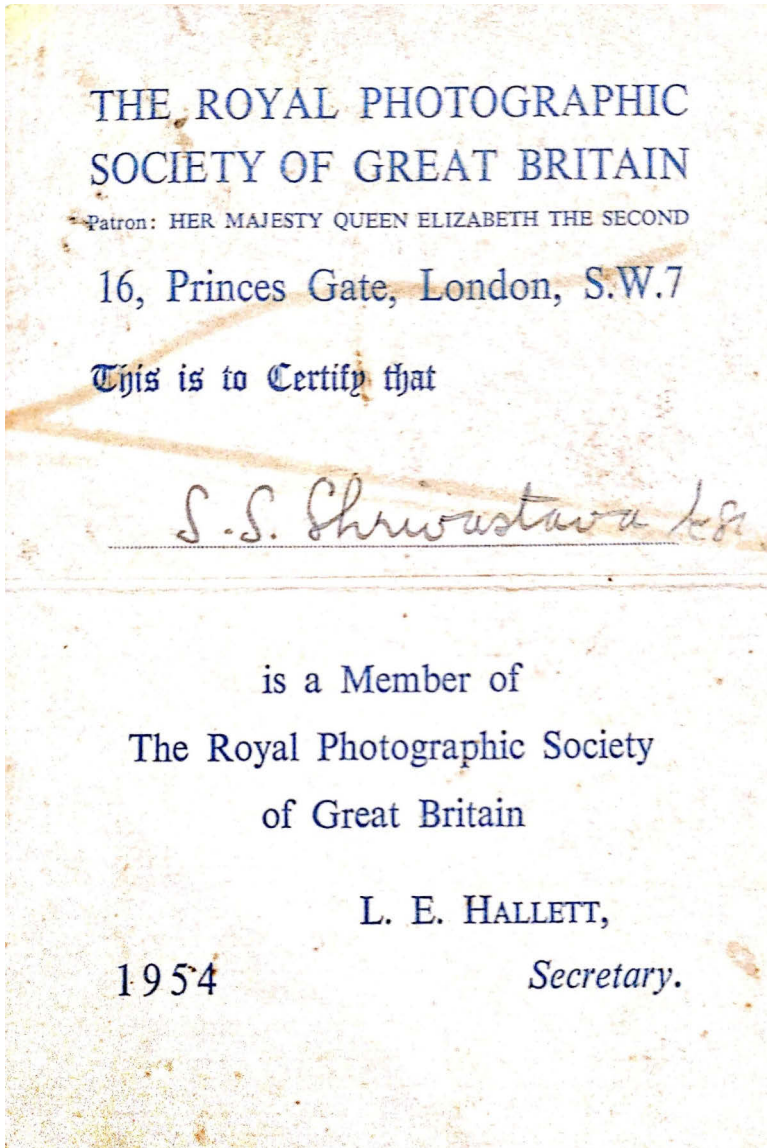


Figure 46: Membership card continued

BELIEVE IT OR NOT

When the work progressed, Shri Soami Sharan Shivastava tried to know whether the work he had done in color cine photography had been done anywhere else also. Therefore, he obtained information from the best experts of that time and in this regard wrote a letter to Mr. John Poynton, Secretary of the British Cinematograph Society, London.

16

From: Soami Sharan Shrivastava,
Member R.P.S.
Block 13,
Mohan Bai Buildings,
Near Ghamapur Crossing,
JABALPUR 3.(M.P.)
India.

To: The Secretary,
Royal Photographic Society,
London S.W.7.

Jabalpur 3.
April 2, 1954.

Dear Sir,

Will you please do me a favour by furnishing the following information per return post?

I am interested to know whether there is any system or technique of photography by which the entire field before a camera - right from the surface-plane of the camera lense to the infinity - may be photographed with high definitions.

If there is any such system in the field of photography, you are requested to please let me have brief particulars of the same. However, you may please cite the publication or party from where I may get the full details of the same.

Thanking you,

Yours faithfully,

(Soami Sharan Shrivastava)

Figure 47: Letter to the Royal Society

SHRIVASTAVA

In response to the letter, Mr. John Poynton, Secretary of the British Cinematograph Society, London, advised that you should contact Mr. G.J. Craig Esq., O.B.E. Kodak Limited in this regard.

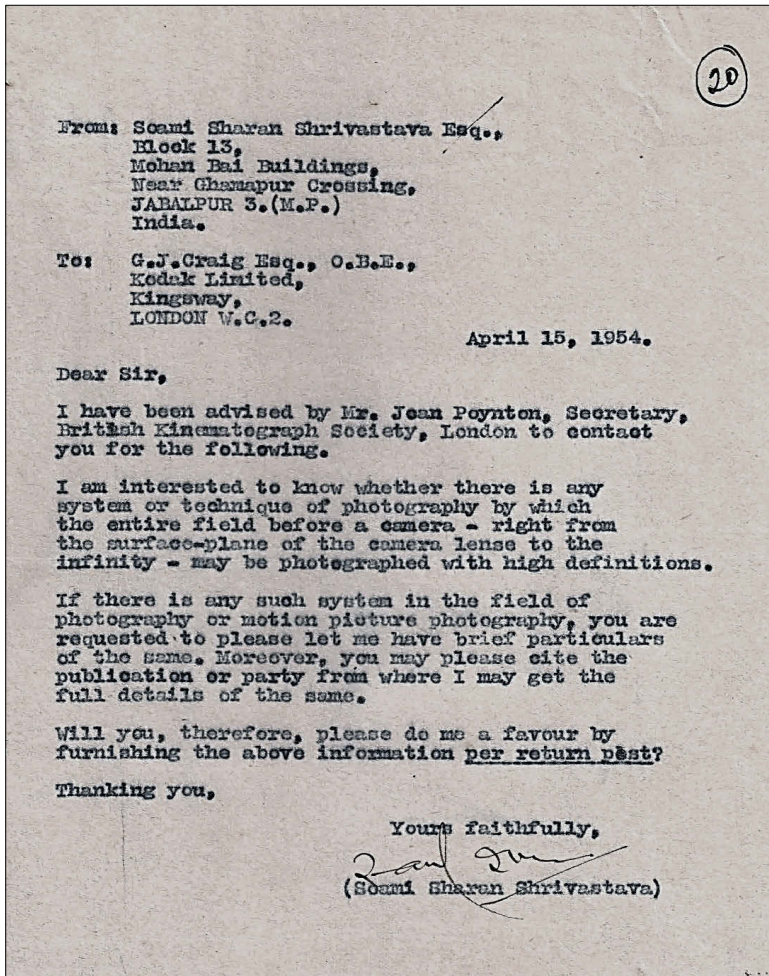


Figure 48: Another Letter to the Royal Society

BELIEVE IT OR NOT

After this, Mr. G.J. Craig Esq., O.B.E. Kodak Limited gave this reply in the letter dated 21 April 1954.

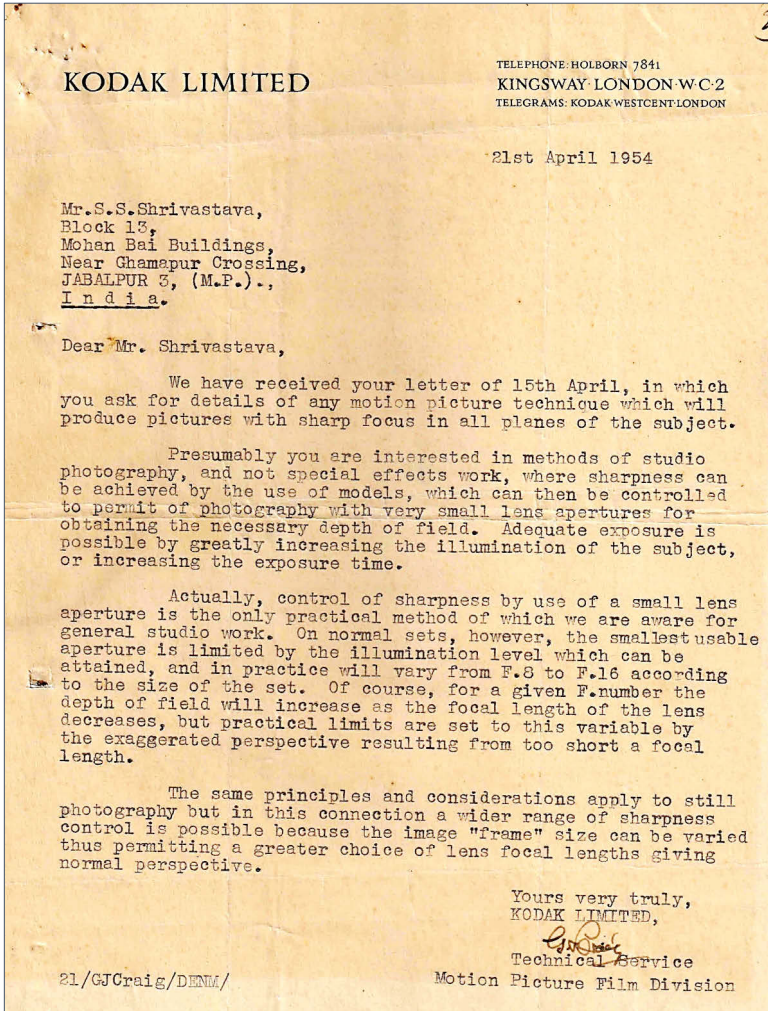


Figure 49: Letter from the Kodak Limited

SHRIVASTAVA

After this, Shri Soami Sharan Shrivastava received a letter dated 21 April 1954 written by Mr. L. E. Hallett, Secretary of the Royal Photographic Society of Great Britain.

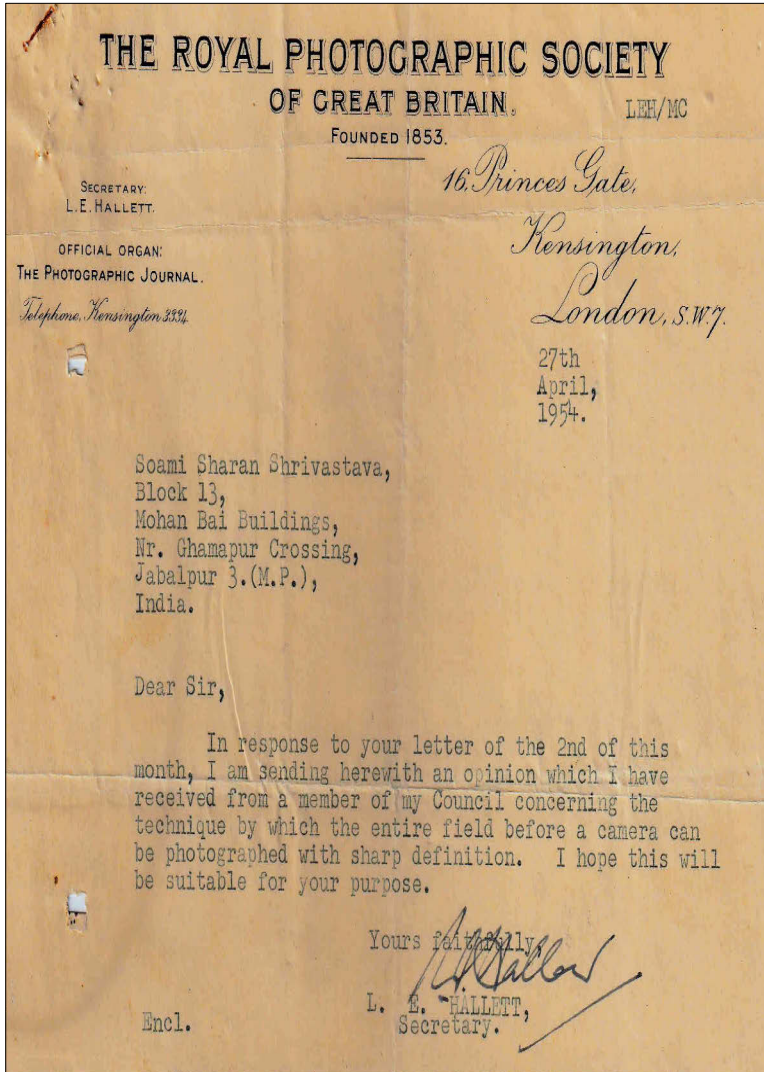


Figure 50: Letter from the Royal Society

COPY.

"With the present state of our knowledge of photography there is no method either theoretical or practical by which the entire field before the camera to infinity can be photographed with high definition. The best that can be done is to focus upon the hyperfocal distance for the particular lens and then stop the lens down as small as possible giving the appropriate exposure. This will give the maximum depth of focus, or more properly depth of field, possible with our existing knowledge.

"To find the hyperfocal distance of a particular lens it is only necessary to take the focal length of the lens and square it, and then divide the figure so found by the "f" number of the smallest stop he can use multiplied by the diameter of the "circle of confusion" which will give a reasonably sharp definition. This is usually taken as $1/100$ th of an inch for if the circle of confusion is as small as this the image will appear quite sharp with a normal viewing distance of about ten inches. Thus if for example the focal length of the lens is six inches this when squared becomes 36. With a stop of $f/32$ multiplied by a circle of confusion of $1/100$ th we get when dividing this into 36 a distance of about ten feet or to be more accurate, 9ft 5 inches. If then the camera is focussed on this distance everything will be sharp (for this particular degree of sharpness) from half the hyperfocal distance, in this case about five feet, to infinity. However, this standard of definition while perfectly satisfactory for contact printing is not generally considered good enough for work which has to be enlarged and if you take the standard of definition accepted by makers of miniature camera lenses the hyper-focal distance for a 6-inch lens would be about 20 feet and everything would be reasonably sharp even on a fair degree of enlargement from ten feet to infinity. Of course with the optical at present known any focusing must be a compromise for only one plane of the subject is giving the maximum sharpness and the falling away on each side can go on without visible loss of definition until we get to a point where we just notice it is not sharp."

Figure 51: Opinion from the Royal Society

More Patent Documentation

After the above correspondence, Dated 8 January 1955, T.P. Dutta & Sons informed Shri S.S. Shrivastava, that your patent Application number 50444 has been accepted by Patent Office of the Government of India.

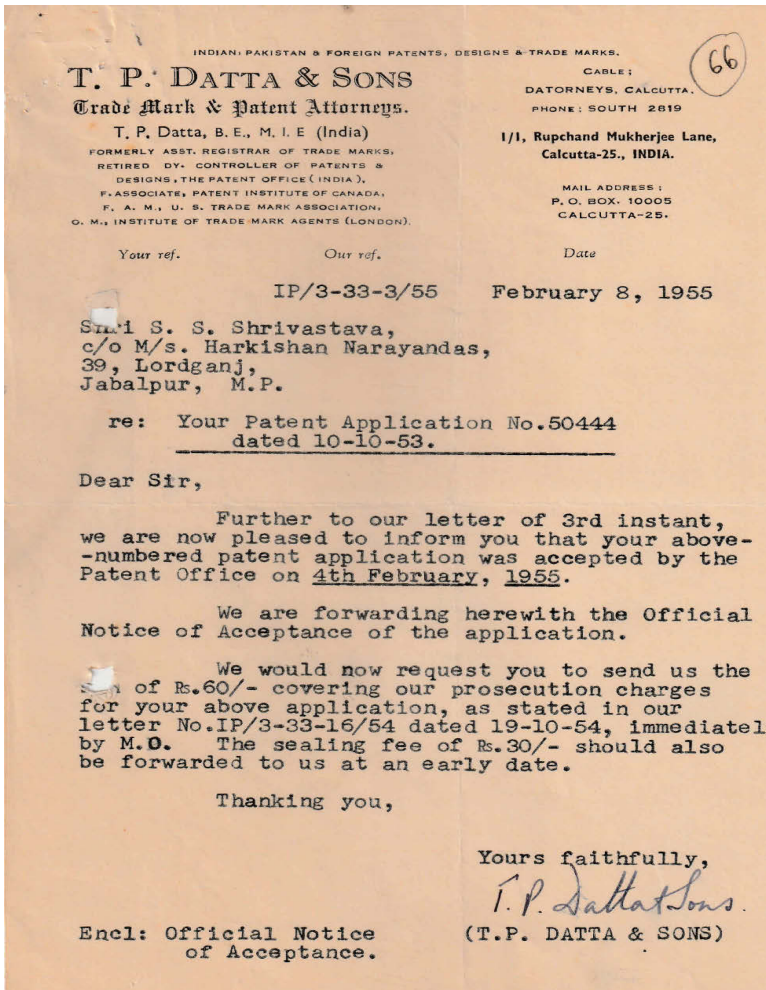


Figure 52: Letter from T P Datta

**GOVERNMENT OF INDIA.
THE PATENT OFFICE.**

NOTICE OF ACCEPTANCE OF APPLICATION.

Patent Application No. 50444.

Under Section 6 of the Indian Patents and Designs Act (II of 1911) notice is hereby given that the application for a patent made by **S.S. Shrivastava,**

and numbered as above was accepted on the **4th February 1955.** The acceptance will be advertised in the *Gazette of India* next issued after the date at the foot hereof and the printed specification and drawings (if any) will be available in due course at a price of **Rs. 2** per copy. Within four months of the date of that advertisement any person may, under Section 9 of the Act, give notice of opposition to the grant of the patent. If there is no opposition, or in case of opposition, if the determination is in favour of the grant of a patent, due notice will be given to the applicant that if he desires a patent to be sealed, he should file his request on Form 8, a copy of which will be forwarded to the applicant in due course.

Dated this **5th** day of **February** 19 **55.**

To **Messrs. T.P. Datta & Sons,**
1/1, Rupchand Mukherjee Lane,
P. & D. 48. Calcutta-25.

H.N. GHOSH,
K. KESHAGIRI KAKK,
Controller of Patents and Designs.

MGPCO-86-II-3-96-II-4-49-5,000.

All communications should be addressed to the Controller of Patents and Designs, The Patent Office, Calcutta, W.

Figure 53: Letter from the Patent Office

After this, on July 6, 1955, this invention of Soami Sharan Shrivastava was sealed and patented.

SHRIVASTAVA

GOVERNMENT OF INDIA.
THE PATENT OFFICE.
No. 50444

WHEREAS *Soami Sharan Shrivastava, of Block 13, Mohan Bai Buildings, near Ghamapur Crossing, Jabalpur-3, Madhya Pradesh, a subject of the Indian Union,* hath ~~have~~ declared that he is ~~they are~~ in possession of an invention for *a system to produce illusion of depth in the pictures obtained by photography and television*

and that he is ~~they are~~ the true and first inventor thereof, and that the same is not in use in India by any other person to the best of his ~~their~~ knowledge, information and belief;

And whereas he hath ~~they have~~ humbly prayed that a patent might be granted to him ~~them~~ for the said invention;

And whereas he hath ~~they have~~ by and in his ~~their~~ complete specification (of which a printed copy is herewith annexed) particularly described and ascertained the nature of the invention and the manner in which the same is to be performed;

The Central Government is pleased to order by these presents that the above—said petitioner (s) (including his ~~their~~ legal representatives and assigns or any of them) shall, subject to the provisions of the Indian Patents and Designs Act, 1911, as patentee(s) have the exclusive privilege of making, selling and using the invention throughout India and of authorising others so to do for the term of sixteen years from the *10th* day of *October* 1953, subject to the conditions that the validity of this patent is not guaranteed by Government and also provided that the fees prescribed for the continuation of this patent are duly paid.

In witness whereof the Central Government has caused this patent to be sealed as of the *10th* day of *October* 1953.

Signature of Controller *[Signature]*

Date of Sealing *6th July 1955.*

Note.—Renewal fees will be due on this patent, if it is to be maintained, on the *10th* day of *October* 19*57*, and on the same day in each year thereafter.

P. & D. 49.

[P.T.O.]

Figure 54: Patent granted

GOVERNMENT OF INDIA : THE PATENT OFFICE, 214, LOWER CIRCULAR ROAD, CALCUTTA-17.
Specification No. 50444, filed 10th October, 1953. (Accepted 4th February, 1955.)
A SYSTEM TO PRODUCE ILLUSION OF DEPTH IN THE PICTURES OBTAINED BY PHOTOGRAPHY AND TELEVISION.

SOAMI SHARAN SHRIVASTAVA, SON OF SHRI SHYAM LAL SHRIVASTAVA, RESIDENT OF BLOCK 13, MOHAN BUILDINGS, NEAR GHAMATIA CROSSING, JABALPUR-3, MADHYA PRADESH, A SUBJECT OF THE INDIAN UNION.
The following specification particularly describes and ascertains the nature of this invention and the manner in which it is to be performed.

This invention relates to photography and television. The main object of this invention is to obtain photographic and television pictures representing illusion of the entire depth of the field photographed or televised by means of such a system which gives particularly good results not obtainable heretofore by other systems of photography and television so far known. The distance between the nearest and the farthest plane of a field being observed, photographed or televised, is the entire depth of field to which this invention deals with.

Any camera having even the best quality of lens cannot sharply focus the entire field before it without making the use of some additional optical system with it. For the purpose of obtaining the entire field in sharp focus, one known system suggests the use of an attachment which consists of a light gate iris and arrangements of refractor strips. The attachment is used at the camera lens. Light rays from the field before the camera, which pass through the attachment, are sub-divided through the aperture leaves of the light gate iris and each segregated beam of light passes through the matched pairs of vertical refractor strips which modify beam's focus. Since there are several independently adjustable refractor strips, all the light rays are sharply focused and then received at the photographic film or television iconoscope. The drawbacks in the attachment of the above system are that the construction of the attachment is lacking in simplicity; the use of attachment requires adjustment; and when the entire field is intended to be sharply focused, there is some loss of light due to aperture leaves and refractor strips on account of which the brightness of images is affected.

For obtaining the illusion of depth and reality in the pictures, various wide screen and stereoscopic systems have come forward in the field of photography and television. But none of these systems can photograph or televise the entire depth of field existing before the camera. Moreover, all these systems have their own ways of application which involve various changes in the standard motion picture and television equipments. In addition to the changes in the equipments, the pictures obtained by the stereoscopic systems require use of viewing aids before the eyes.

Elimination of the drawbacks and difficulties experienced in the above described systems has been particularly stressed upon in the present invention. The attachment suggested by this invention, for use at the camera lens, is quite simple in construction and it does not require any kind of adjustments after it has been fitted before the camera lens. There is no loss of light due to the attachment of the present system, and as such, the brightness of images is not at all affected. The attachment of the present system can be used with all the standard motion picture and television cameras without incorporating any kind of changes in them. Similarly, for viewing the pictures obtained by the present invention, no viewing aids of any type, whatsoever, are required to be used at all before the eyes.

The working principle and the function of the attachment of the present invention are based upon the image forming properties of the lenses by the help of which the entire depth of field existing before a lens can be reduced to such an extent so as to come within the limited space (hereafter referred to as 'image field' of the lens) which can be easily covered up by the depth of field of the camera lens and thus rendered in sharp focus at the same time.

The principal feature of the present invention resides in the use of an additional (convex or concave) lens before any still picture, motion picture or television camera lens in such a manner that the entire depth of field (in case of convex lenses, the entire depth of field beyond the distance equal to twice the focal length of the lens) produced by the additional lens in the form of 'image field' is coincided by the depth of field of camera lens so that when the camera lens is focused to the image field, entire image field which actually represents the entire depth of original field, is sharply photographed or televised by the camera.

The form of the attachment of additional lens as described in the subsequent paragraphs greatly varies with that of a conventional telephoto lens arrangement used with a camera lens. The constructional details and the working principles involved with the present invention and telephoto lenses differ with each other in the following respects.

The additional lens in the telephoto lens attachment, which is usually of a negative component, is used behind the camera lens, i.e., near the focal plane of the camera in order to achieve the required magnification due to increase in focal length of the camera lens with the advantage that the hollow extension required to focus the image upon the film is less than that required to focus an ordinary camera lens of the same focal length.

Contrary to the above is the attachment of the present invention wherein an additional lens which may either be of negative or positive component is used before the camera lens in order to obtain the reduced depth of the entire field before it.

Further, in any way, obtainments of the entire depth of field is neither possible nor concerned with the telephoto lenses.

Other main points of differences between a presently known camera with auxiliary or supplementary lens and the present invention are as follows:

(i) The supplementary lenses have so far been used only to increase or decrease the effective focal length of the camera lens, whereas according to the present invention, additional lens has no concern with the focal length of the camera lens, but the same concerns with the 'depth of field' of the camera lens at a certain distance, which is coincided by the 'image field' of the additional lens.

(ii) The known auxiliary lenses are used quite close to the camera lens, wherein according to this invention, the additional lens is to be used at a particular distance so that the same are to be used at a particular distance so that 'depth of field' of the camera lens may be coincided by the 'image field' of the additional lens. Thus the auxiliary and/or supplementary lenses so far used constitute a part of the camera's lens; but in my present invention, the additional lens is to be used as a separate unit being photographed by the camera lens.

(iii) The size of the supplementary lenses so far used mainly depends upon the size of the camera lens since they have merely to cover the camera lens; whereas the size of the additional lens of the present invention depends on the distance on the distance of the camera lens, the focal length of the camera lens and the size of the negative film used.

So far the additional lens with a camera have been used only to increase or decrease the effective focal length of the camera lens. But with the presently known usages of the supplementary lenses objects at 0.5', 2' and 5000' distances respectively, before the combined optical system of the camera, cannot be sharply photographed in one picture only without altering the lens-to-film distance. Although, by stopping down the camera lens to the smallest aperture, objects beyond the distance of infinity can be sharply photographed, but the objects at a closer range than ∞ yet cannot be brought into focus and if objects nearer than ∞ are brought into focus, the objects at distances fade out in the picture. The loss of additional lens according to the present invention does not change the focal length of the camera lens and enables the combined optical system of camera lens and additional lens to photograph all the objects at the closest distance from the attachment to infinity, to be photographed sharply in one picture only, even at the maximum aperture of the camera lens.

Two preferred constructional forms of the attachment to carry out the system according to the present invention are illustrated by way of examples in the accompanying drawings, in which:

Figure 1 is a schematic view of the attachment in which convex type of additional lens is used, and
Figure 2 is a schematic view of the attachment in which concave type of additional lens is used.

In Figure 1 of the accompanying drawing, O is the camera lens whose depth of field at the maximum aperture when focused point Q, lies between the planes DE and FG, i.e., the lens O can sharply focus all the objects between the planes DE and FG, at the same time. L is an additional convex type of lens for use at the form of attachment, which has been so selected that its focal length is equal to the depth of field of the camera lens C, between the planes DE and FG. Additional lens L has been placed in such a position before the camera lens C that the plane behind the lens L at the distance equal to twice the focal length of the lens L, coincides the plane FG of the camera lens C. As the distance between the plane GF and the additional lens L is equal to twice the focal length of the lens L, and since the focal length of the lens L is equal to the distance between the planes DE and FG, the focus M of the additional lens L will fall on the plane DE. After placing the additional lens L before the camera lens C in the position as described, it has been permanently fitted before the camera lens C. For the protection of unnecessary light rays which may fall upon the camera lens C, covering P in the form of a cylinder has been provided between the camera lens C and the additional lens L.

As per the properties of the convex lenses, in Figure 1, the real image M of the object A which is at the farthest distance from the lens L, will be formed at the focus M of the lens L which lies on the plane DE. Similarly, the real image N of the object B which is at the nearest distance from the lens L, will be formed at the focus M of the lens L, at the distance equal to twice the focal length of the lens L, will be formed at the focus M of the lens L, at the distance equal to twice the focal length of the lens L.

Price : TWO RUPEES.

Figure 55: Patent specifications

He has been informed by the legal representative of Shri Soami Sharan Shrivastava that your patent application No. 50444 Improvement in or relating to a system to produce illusion of depth in pictures obtained by photography and television has been granted by the Patent Office of the Government of India, for this, the date of sealing of this patent to Shri Soami Sharan Shrivastava was made on 8th October, 1955.

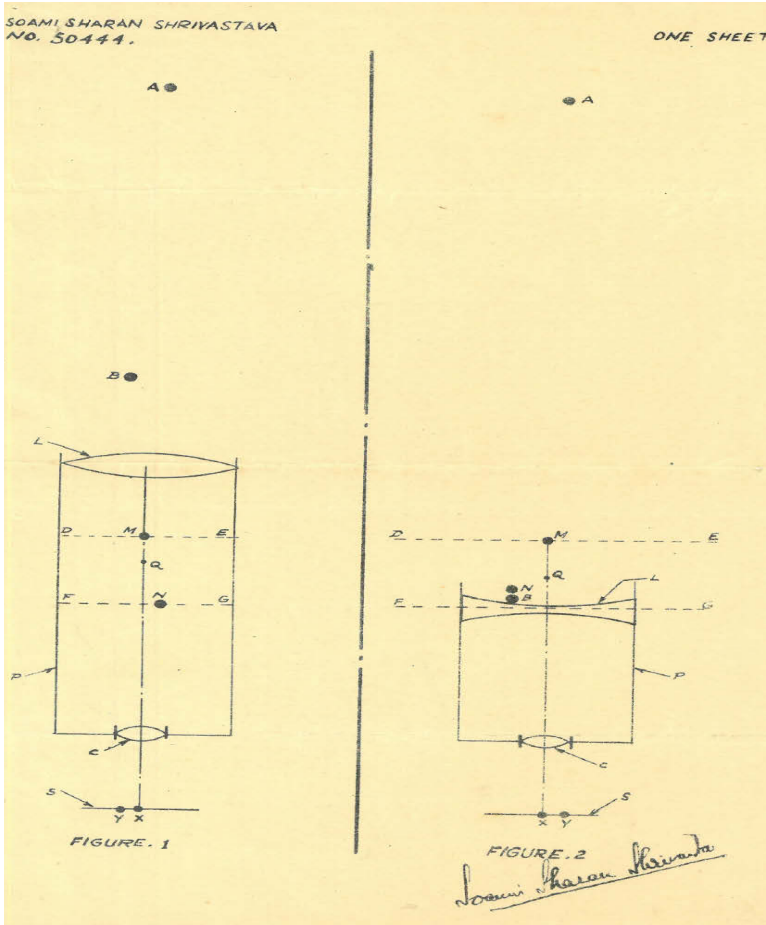


Figure 57: Images from the patent

**GOVERNMENT OF INDIA.
THE PATENT OFFICE.**

NOTICE OF ACCEPTANCE OF APPLICATION.

Patent application No. 50445.
Patent of Addition to No. 50444.

Under Section 6 of the Indian Patents and Designs Act (II of 1911) notice is hereby given that the application for a patent made by **S. S. Shrivastava,**

5th April 1955.

and numbered as above was accepted on the application, specification, and drawings (if any) are open to public inspection. The acceptance will be advertised in the *Gazette of India* next issued after the date at the foot hereof and the printed specification and drawings (if any) will be available in due course at a price of **Rs. 2** per copy. Within four months of the date of that advertisement any person may, under Section 9 of the Act, give notice of opposition to the grant of the patent. If there is no opposition, or in case of opposition, if the determination is in favour of the grant of a patent, due notice will be given to the applicant that if he desires a patent to be sealed, he should file his request on Form 8, a copy of which will be forwarded to the applicant in due course.

Dated this **11th** day of **April** 19**55**.

To **Sri S. S. Shrivastava,**
P. & D. Bldg. Block 13, Mohan Bai Bldgs.
MGRC-85-132 Patent-28150-2,000. Near Chhapapur Crossing,
Jabalpur-3 (M.P.)

V. N. GHOSH
Controller of Patents & Designs.

All communications should
specify the number of this notice
and should be addressed to—
**CONTROLLER OF PATENTS AND
DESIGNS**
The Patent Office, Calcutta-17.

Figure 58: Notice from the Patent Office

SHRIVASTAVA

Government of India.

THE PATENT OFFICE.

No. 50445

WHEREAS Soami Sharan Shrivastava son of Shri Khyamal Shrivastava of Block 13, Mohan Bai Buildings, Near Ghaumpur Crossing Jabalpur-3, Madhya Pradesh, a subject of the Indian Union,

hath declared that he is ~~they are~~ in possession of an invention for improvements in or relating to a system to produce illusion of depth in the pictures obtained by photography and television

and that he is ~~they are~~ the sole true and first inventor thereof, and that the same is not in use in India by any other person to the best of his ~~their~~ knowledge, information and belief, and that the said invention is an improvement in or a modification of the invention for which a patent was applied for on the 10th October 1953 and numbered 50444 and on which a patent (hereinafter called the original patent) has been granted unto him ~~them~~ ;

And whereas he hath ~~they have~~ humbly prayed that a patent might be granted to him ~~them~~ for the said invention ;

And whereas he hath ~~they have~~ by and in his ~~their~~ complete specification (of which a printed copy is hereunto annexed) particularly described and ascertained the nature of the invention and the manner in which the same is to be performed and has requested that the term limited in such patent for the duration thereof be the same as that of the original patent or so much of that term as is unexpired ;

The Central Government is pleased to order by these presents that the above said petitioner ~~(s)~~ (including his ~~their~~ legal representatives and assigns or any of them) shall, subject to the provisions of the Indian Patents and Designs Act, 1911, as patentee ~~(s)~~ have the exclusive privilege of making, selling and using the invention throughout India and of authorizing others so to do for the term of sixteen years from the 10th day of October 1953 being the date of the said original patent No. 50444 or for so much of that term as is unexpired, subject to the conditions that the validity of this patent is not guaranteed by Government and also provided that the fees prescribed for the continuation of the said original patent are duly paid.

In witness whereof the Central Government has caused this patent to be sealed as of the 10th day of October 1953

Signature of Controller [Signature]

Date of Sealing 8th October 1955

Figure 59: Notice from the Patent Office

BELIEVE IT OR NOT

GOVERNMENT OF INDIA : THE PATENT OFFICE, 214, LOWER CIRCULAR ROAD, CALCUTTA-17.
Specification No. 50445, Application No. 50445 dated 10th October 1953. Complete Specification left on 8th July 1954. (Application accepted 5th April 1955.)

PROVISIONAL SPECIFICATION.

IMPROVEMENTS IN OR RELATING TO A SYSTEM TO PRODUCE ILLUSION OF DEPTH IN THE PICTURES OBTAINED BY PHOTOGRAPHY AND TELEVISION.

SOAMI SHARAN SHRIVASTAVA SON OF SHRI SHYAMAL SHRIVASTAVA, RESIDENT OF BLOCK 13, MOHAN BAI BUILDINGS, NEAR GHAMATPUR CROSSING, JABALPUR-3, MADHYA PRADESH, A SUBJECT OF THE INDIAN UNION.

The following specification describes the nature of this invention.

This invention relates to a system to produce illusion of depth in the pictures obtained by photography and television wherein an additional convex or concave lens is used before any still picture, motion picture or television camera in such a manner that the entire depth of field (in case of convex lens, the entire depth of field beyond the distance equal to twice the focal length of the lens) produced by the additional lens in the form of image field is coincided by the depth of field of camera lens so that when the camera lens is focussed to the image field, entire image field which actually represents the entire depth of original field, is sharply photographed or televised by the camera.

In the above system it is found that in some cameras having big size of image area, the use of big size of additional lenses cannot be avoided. Specially, in television cameras since the size of the mosaic screen on which the images by the camera lenses are formed, is generally about 4x5 inches, the big size of additional lenses will have to be used. Hence, in cases where the use of big size of additional lenses becomes necessary, it may not be possible to have an additional lens of sufficiently big size with comparatively small focal length. Moreover, generally big size lenses are not free from lens aberrations and are likely to produce distorted images.

The main object of the present invention is to eliminate the inadequacies of the above system and to produce illusion of depth in the pictures obtained by photography and television, by introducing the use of spherical mirrors in place of the additional lenses used in the above described system.

The spherical mirrors are easy to manufacture in big sizes and since having a single surface and based on the

laws of reflection, the spherical mirrors even in big sizes, are free from most of the optical defects. Since the properties of the concave mirrors as far as the formation and the nature of the images are concerned, are similar to those of convex lenses; and the properties of the convex mirrors are alike the properties of concave lenses, the entire depth of field before the mirrors (in case of concave mirrors, the entire depth of field beyond the centre of curvature) is obtained in the form of image field which can be covered up by the depth of field of the camera lens in the same way as the image field produced by the lenses is covered up. Thus, additional convex and concave lenses can be conveniently replaced by the concave and convex spherical mirrors, respectively.

The concave or convex types of spherical mirror is to be used in the form of an attachment before the lens of any still picture, motion picture or television camera, in such a position so that the image field produced by the mirror is coincided by the depth of field of camera lens when focussed to the image field of the lens. Thus, the distance at which the spherical mirror should be placed before the camera lens, same directions as applied for ascertaining the details of lenses, should be followed.

SOAMI SHARAN SHRIVASTAVA

Dated this 1st day of October, 1953.

COMPLETE SPECIFICATION

IMPROVEMENTS IN OR RELATING TO A SYSTEM TO PRODUCE ILLUSION OF DEPTH IN THE PICTURES OBTAINED BY PHOTOGRAPHY AND TELEVISION.

SOAMI SHARAN SHRIVASTAVA SON OF SHRI SHYAMAL SHRIVASTAVA, RESIDENT OF BLOCK 13, MOHAN BAI BUILDINGS, NEAR GHAMATPUR CROSSING, JABALPUR-3, MADHYA PRADESH, A SUBJECT OF THE INDIAN UNION.

The following specification particularly describes and ascertains the nature of this invention and the manner in which it is to be performed.

This invention which is an improvement to the invention claimed in the specification of the main patent No. 60444, dated 10-10-53, relates to the field of photography and television wherein the illusion of depth in the pictures is obtained by a system wherein additional convex or concave lens is used before any still picture, motion picture or television camera in such a manner that the entire depth of field (in case of a convex lens the entire depth of the field beyond the distance equal to twice the focal length of the lens) produced by the additional lens in the form of image field is coincided by the depth of field of camera lens so that when the camera lens is focussed to the image field, entire image field produced by the lens which actually represents the entire depth of original field, is sharply photographed or televised by the camera.

In the above described system wherein additional lenses are used, it is found that in the cameras having big size of image area (negative or mosaic screen), use of big size of additional lenses becomes essential. Specially in television cameras since the size of mosaic screen on which the images by the camera lenses are formed, is generally about 4x5 inches, big size of additional lens is required to be used. Hence, in all the above cases where the use of big size of additional lens becomes necessary, it may not be possible to have an additional lens of sufficiently big size with comparatively small focal length. Moreover, ordinary lenses in big sizes are not free from lens aberrations and thus there is every possibility of image distortion.

The main object of the present invention is to obtain photographic and television pictures representing the illusion of the entire depth of the field photographed or televised, by means of such a system which may be used specially with the photographic and television cameras having big size image areas and thereby eliminating the inadequacies arising due to the use of big size additional lenses.

Since the properties of the spherical mirrors are similar to those of lenses, spherical mirrors are also capable of rendering the entire depth of field before them which can be reduced to such an extent so as to come within the limited space (hereafter referred to as 'image field of

the mirror) and then conveniently covered up by the depth of field of the camera lenses and thus rendered in sharp focus by the camera. The working principle and the function of the system characterized by the present invention are, therefore, similar to those of a system wherein additional lenses are used to obtain the necessary results. In the cameras where the use of big size additional lenses becomes necessary, the present invention introduces the use of spherical mirrors in place of additional lenses. The spherical mirrors are easy to manufacture in big sizes and since having a single surface and based on the laws of reflection, the spherical mirrors even in big sizes are free from most of the optical defects.

The principal feature of the present invention resides in the use of spherical mirrors (concave or convex) before any still picture, motion picture or television camera in such a manner that the entire depth of field existing before the mirror (in case of concave mirrors the entire depth of field beyond the centre of curvature) produced by the spherical mirrors in the form of image field is coincided by the depth of field of the camera lens so that when the camera lens is focussed to the image field of the mirror, the entire image field which actually represents the entire depth of original field, is sharply photographed or televised by the camera.

Mainly, there are two types of spherical mirrors viz., Concave and Convex. The properties of concave mirrors as far as the formation and nature of the images are concerned, are similar to those of Convex lenses. In the same way properties of the convex mirrors are alike the properties of concave lenses. The important difference between the lenses and the above spherical mirrors is that former are based on the laws of refraction while the latter are based on the laws of reflection and as such the images by the mirrors can be viewed only from the same side of the mirror where the object is situated whereas the images of the objects before the lenses are viewed from the opposite side of the lenses.

It is, therefore, felt that when considering for the arrangements to carry out the present invention by using the spherical mirrors, the above difference between the properties of the lenses and spherical mirrors necessitates

Price : TWO RUPEES.

Figure 60: Patent specifications

2

50145

a different type of arrangement which would differ than that made in a system using the additional lenses. Moreover, the problems arising due to the following properties of the spherical mirrors, are of particular mention in this connection.

(i) *Laterally compressed images:* In order that the camera lens can photograph the image field produced by the mirror, it is essential that the mirror should be placed on the vertical plane facing the camera lens so that the mirror remains in the viewing field of the camera lens. But according to the laws of reflection when a mirror will be used in such a position before the camera lens, only the image of camera will be produced by the mirror since in this case the camera would obstruct the viewing field of the mirror. Although this could be avoided by turning the face of the mirror to such an angle that the camera does not obstruct the viewing field of the mirror but in such a position, the spherical mirrors will produce laterally compressed images. The increase in the angle of turning the face of the mirror will increase the lateral compression of the images produced by the mirror.

(ii) *Laterally inverted images:* Since the images are formed due to reflection, all the mirrors produce laterally inverted images which if photographed by the camera, will be photographed laterally inverted in the final picture.

Lateral inversion in the pictures gives an unnatural look. (iii) *Inverted images:* Concave type of spherical mirrors produce inverted images of all the objects before it, beyond the centre of curvature; and these images if photographed become erect which although have no effect in still picture photography but are highly objectionable in motion picture photography and television transmission where this defect can only be removed by using the camera up side down. However, convex mirrors are free from this trouble.

The accompanying drawing illustrates a preferred constructional form of a device for carrying out the present invention.

In the figure of the attached drawing, L is a camera lens whose depth of field when focussed to a certain distance, lies between the planes AB and CD, i.e., the lens L can sharply focus all the objects between the planes AB and CD. MN is a Convex type of spherical mirror to be used before the camera lens L, which has been so selected that its focal length PF is equal to the depth of field of the camera lens L existing between the planes AB and CD. Convex mirror MN has been placed in such a position before the camera lens L that the focal plane of the mirror MN coincides the plane AB of the camera lens L. As the focal length PF of the mirror MN is equal to the distance between the planes AB and CD, the pole P of the mirror MN would fall on the plane CD of the camera lens L. After ascertaining the exact position of the mirror as described above, it has been permanently fitted on the vertical plane facing the camera lens L. Then one "semitransparent" plain type of mirror ON has been placed before the Convex mirror MN in such a position that the reflecting surface of the mirror ON is facing towards the reflecting surface of the convex mirror MN. The angle between the planes of the mirrors MN and ON is at 45° . For the protection of unnecessary light rays which may fall over the mirrors and camera lens, covering it has been provided. There is an opening in the covering R between the mirrors MN and ON through which the light rays from the field to be photographed or televised, enter in and strike right on the reflecting surface of the mirror ON.

According to the laws of reflection, in the figure since ON is a plain type of mirror placed at an angle of 45° to the Convex mirror MN and therefore, facing the subject field at an angle of 45° , the light rays from the subject field striking the reflecting surface of the mirror ON would be reflected so as to fall upon the reflecting surface of the Convex mirror MN at right angles. In other words, the plain type of mirror ON enables the actual field (which is out of the vision field of the mirror MN) established in front of the Convex mirror MN in the form of an image field of the mirror ON, which is exacting in nature to the original field except the fact that it is laterally inverted. The image field of the original field place before the Convex mirror MN by the mirror ON is subsequently transformed into the image field of the Convex mirror MN as per the properties of the Convex mirrors. Due to reflection taking place on the surface of the convex mirror MN, the image field produced by the mirror ON which is laterally inverted, once again undergoes lateral inversion and becomes in original form. Therefore, the image field produced by the Convex mirror MN remains free from lateral inversion; and can be photographed or televised without affecting the natural look of the pictures.

The lateral compression of the images is also avoided by the use of "semi-transparent" plain type of mirror ON which places the entire field to be photographed or televised, before the convex mirror MN in such a way that the convex mirror MN although remains in the position facing the camera lens L, produces the entire field in the form of image field which is free from lateral compression.

Since the Convex mirror MN is used in the attachment there is no possibility of inverted images.

To photograph or televise the pictures representing the illusion of the entire depth of the field photographed or televised, with the help of the present invention, the function of the attachment as described above and illustrated in the attached drawing is described below.

In the figure of the attached drawing, the light rays from the object X which is at the farthest distance from the camera will fall upon the reflecting surface of the mirror ON wherefrom they will be reflected upon the mirror MN at right angles. As per the properties of the Convex mirrors, the image of the object X will be formed at the focus F of the mirror MN which lies on the plane AB of the camera lens L. Similarly, the light rays from the object Y which is at the closest distance from the camera, will fall upon the reflecting surface of the mirror ON wherefrom they will be reflected upon the Convex mirror MN at right angles. The image of the object Y will, therefore, be formed at the point G which is within the planes AB and CD of the camera lens L. As in cases of Convex mirrors, the entire field before them is reproduced in the form of virtual image field, between the plane of the mirrors and the reflecting surface of the mirrors, in the figure, the image field of the convex mirror MN will lie between the points F and G which are on the planes CD and AB respectively, between which the field of the camera lens L also lies. Hence, the image field of the Convex mirror MN is coincided by the depth of field of the camera lens L.

As the camera lens L can sharply focus the field between the planes AB and CD at the same time, the image field of Convex mirror MN lying between these planes, which actually represents the entire depth of original field, will be sharply focussed on the surface S. Hence, the images of the objects X and Y produced by the Convex mirror MN at F and G respectively which lie between the planes AB and CD of the camera lens L, will be sharply focussed on the surface S in the form of images X' and Y' respectively. In case of a photographic camera, surface S represents the film or plate; and in the case of television camera, surface S represents the mosaic screen of iconoscope.

If desired, the attachment of Convex type of spherical mirror can also be used on the same lines and principles as laid down for Convex mirrors; but particular attention will have to be given to the image forming properties of the Convex mirrors which greatly vary with those of Convex mirrors. However, the principle of the present invention is applicable to both the types of spherical mirrors.

It is to be understood that the details of the construction of the attachment as described in this specification and illustrated in the drawing, may be elaborated, varied and combined in many ways without departing from the scope of the present invention.

In order to avoid any inaccuracies resulting from the use of improper spherical mirrors with a particular camera, details of the spherical mirrors viz., its focal length, the distance at which it would be placed before the camera lens and the size of the mirror, should be first ascertained theoretically, and then the required type of spherical mirror used. In this connection, same directions as laid down for the use of additional lenses, are applicable.

Thus, with the help of the attachment of spherical mirrors, the photographic or television pictures containing the sharp images of all the objects extending between the nearest and the farthest planes of a field to be photographed or televised, are obtained, just like the pictures obtained with the help of additional lens attachment. Moreover, the wide angle views of a field can be obtained with the attachment of the present invention which could be used with any wide angle view photographing camera. The photographic pictures obtained according to the present invention, as far as processing, projection and viewing is concerned, are treated in the same manner as the pictures obtained by the additional lens attachments are used. The above consideration also applies to the Television pictures and wide angle view's pictures.

The chief advantage of the improvement suggested by the present invention is that the pictures of big size representing the illusion of the entire depth of the field photographed or televised, can be obtained by using the spherical mirrors since the spherical mirrors can be conveniently obtained in big dimensions which is rather quite difficult with the lenses.

I claim:

1. A system to produce illusion of depth in the pictures obtained by photography and television wherein Concave or Convex type of spherical mirror is used before any still picture, motion picture or television camera in such a manner that the entire depth of field existing before the mirror (in case of concave mirrors the entire depth of field beyond the centre of curvature) produced by the spherical mirror in the form of image field is coincided by the depth of field of the camera lens so that when the camera lens is focussed to the image field of the mirror.

Figure 61: Patent specifications continued

50445

5

the entire image field which actually represents the entire depth of original field, is sharply photographed or televised by the camera.

2. A system to produce illusion of depth in the pictures obtained by photography according to Claim 1 wherein the attachment of spherical mirrors is used before the lens of any camera used for photographing wide angle views and an optical projector to project the pictures so obtained.

3. A device to carry out the invention according to Claim 1 wherein Convex type of spherical mirror is used in the form of an attachment before the camera lens in such a position that the mirror is fitted on the vertical

plane facing the camera lens and one "semi-transparent" plain type of mirror placed before the Convex mirror in such a position that the reflecting surfaces of both the mirrors are facing each other and the angle between the surfaces of the mirrors being at 45°.

4. A system to produce illusion of depth in the pictures obtained by photography and television, substantially as described.

SOAMI SHARAN SHRIVASTAVA,

Dated this 25th day of July 1954,

Figure 62: Patent specifications continued

GOVERNMENT OF INDIA: THE PATENT OFFICE, 214, LOWER CIRCULAR ROAD, CALCUTTA-17, *Specification No. 50445, Application No. 50445 dated 10th October 1953. Complete Specification left on 8th July 1954. (Application accepted 5th April 1955.)*

PROVISIONAL SPECIFICATION,

IMPROVEMENTS IN OR RELATING TO A SYSTEM TO PRODUCE ILLUSION OF DEPTH IN THE PICTURES OBTAINED BY PHOTOGRAPHY AND TELEVISION.

SOAMI SHARAN SHRIVASTAVA SON OF SHRI SHYAMAL SHRIVASTAVA, RESIDENT OF BLOCK 13, MOHAN BAI BUILDINGS, NEAR GHAMAPUR CROSSING, JABALPUR-3, MADHYA PRADESH, A SUBJECT OF THE INDIAN UNION,

The following specification describes the nature of this invention.

This invention relates to a system to produce illusion of depth in the pictures obtained by photography and television wherein an additional convex or concave lens is used before any still picture, motion picture or television camera in such a manner that the entire depth of a field (in case of convex lens, the entire depth of field beyond the distance equal to twice the focal length of the lens) produced by the additional lens in the form of image field is coincided by the depth of field of camera lens so that when the camera lens is focused to the image field, entire image field which actually represents the entire depth of original field, is sharply photographed televised by the camera.

In the above system it is found that in some cameras having big size of image area, the use of big size of additional lenses cannot be avoided. Specially, in Television cameras since the size of the mosaic screen on which the images by the camera lenses are formed, is generally about 4x5 inches, the big sizes of additional lenses will have to be used. Hence, in cases where the use of big size of additional lens becomes necessary, it may not be possible to have an additional lens of sufficiently big size with comparatively small focal length. Moreover, generally big size lenses are not free from lens aberrations and are likely to produce distorted images.

The main object of the present invention is to eliminate the inadequacies of the above system and to produce illusion of depth in the pictures obtained by photography and television, by introducing the use of spherical mirrors in place of the additional lenses used in the above described system.

The spherical mirrors are easy to manufacture in big sizes and since having a single surface and based on the laws of reflection, the spherical mirrors even in big sizes, are free from most of the optical defects. Since the properties of the concave mirrors as far as the formation and the nature of the images are concerned, are similar to those of convex lenses; and the properties of the convex mirrors are alike the properties of concave lenses, the entire depth of field before the mirrors (in case of concave mirrors, the entire depth of field beyond the center of curvature) is obtained in the form of image field which can be

BELIEVE IT OR NOT

covered up by the depth of field of the camera lens in the same way as the image field produced by the lenses is covered up. Thus, additional convex and concave lenses. Can be conveniently replaced by the concave and convex spherical mirrors, respectively.

The concave or convex types of spherical mirror is to be used in the form of an attachment before the lens of any still picture, motion picture or television camera, in such a position so that the image field produced by the mirror is coincided by the depth of field of camera lens when focused to the image field of the lense. Thus, the or televised by the camera.

In order to ascertain the size, focal length and the distance at which the spherical mirror should be placed before the camera lense, same directions as applied for ascertaining the details of lenses, should be followed.

SOAMI SHARAN SHRIVASTAVA

Dated this 1st day of October, 1953

COMPLETE SPECIFICATION

IMPROVEMENTS IN OR RELATING TO A SYSTEM TO PRODUCE ILLUSION OF DEPTH IN THE PICTURES OBTAINED BY PHOTOGRAPHY AND TELEVISION.

SOAMI SHARAN SHRIVASTAVA SON OF SHRI SHYAMAL SHRIVASTAVA, RESIDENT OF BLOCK 13, MOHAN BAI BUILDINGS, NEAR GHAMAPUR CROSSING, JABALPUR-3, MADHYA PRADESH, A SUBJECT OF THE INDIAN UNION

The following specification particularly describes and ascertains the nature of this invention and the manner in which it is to be performed,

This invention which is an improvement to the invention claimed in the specification of the main patent No. 60444, dated 10-10-53, relates to the field of photography and television wherein the illusion of depth in the pictures is obtained by a system wherein additional convex or concave lens is used before any still picture, motion picture or television camera in such a manner that the entire depth of field (in case of a convex lens the entire depth of the field beyond the distance equal to twice the focal length of the lens) produced by the additional lens in the form of image field is coincided by the depth of field of camera lens so that when the camera lens is focused to the image field, entire image field produce by the lens which actually represents the entire depth of original field, is sharply photographed or televised by the camera.

In the above described system wherein additional lenses are used, it is found that in the cameras having big size of image area (negative or mosaic screen), use of big size of additional lenses becomes essential. Specially in television cameras since the size of mosaic screen on which the images by the camera lens are formed, is generally about 4x5 inches, big size of additional lens is required to be used. Hence, in all the above cases where the use of big size of additional lens becomes necessary, it may not be possible to have an

additional lens of sufficiently big size with comparatively small focal length. Moreover, ordinary lenses in big sizes are not free from lens aberrations and thus there is every possibility of image distortion.

The main object of the present invention is to obtain photographic and television pictures representing the illusion of the entire depth of the field photographed or televised, by means of such a system which may be used specially with the photographic and television cameras having big size image areas and thereby eliminating the inadequacies arising due to the use of big size additional lenses.

Since the properties of the spherical mirrors are similar to those of lenses, spherical mirrors are also capable of rendering the entire depth of field before them which can be reduced to such an extent so as to come within the limited space (hereafter referred to as 'image field' of the mirror) and then conveniently covered up by the depth of field of the camera lenses and thus rendered in sharp focus by the camera. The working principle and the function of the system characterized by the present invention are, therefore, similar to those of a system wherein additional lenses are used to obtain the necessary results. In the cameras where the use of big size additional lens becomes necessary, the present invention introduces the use of spherical mirrors in place of additional lenses as the spherical mirrors are easy to manufacture in big sizes and since having a single surface and based on the laws of reflection, the spherical mirrors even in big sizes are free from most of the optical defects.

The principal feature of the present invention resides in the use of spherical mirrors (concave or convex) before any still picture, motion picture or television camera in such a manner that the entire depth of field existing before the mirror (in case of concave mirrors the entire depth of field beyond the center of curvature) produced by the spherical mirrors in the form of image field is coincided by the depth of field of the camera lens so that when the camera lens is focused to the image field of the mirror, the entire image field which actually represents the entire depth of original field, is sharply photographed or televised by the camera. Mainly, there are two types of spherical mirrors viz., Concave and Convex. The properties of concave mirrors as far as the formation and nature of the images are concerned, are similar to those of convex lenses. In the same way properties of the convex mirrors are alike the properties of concave lenses. The important difference between the lenses and the above spherical mirrors is that former are based on the laws of refraction while the latter are based on the laws of reflection and as such the images by the mirrors can be viewed only from the same side of the mirror where the object is situated whereas the images of the objects before the lenses are viewed from the opposite side of the lenses.

It is, therefore, felt that when considering for the arrangements to carry out the present invention by using the spherical mirrors, the above difference between the properties of the lenses and spherical mirrors necessitates.

A different type of arrangement which would differ than that made in a system using the additional lenses. Moreover, the problems arising due to the following properties of the spherical mirrors, are of particular mention in this connection.

(i) Laterally compressed images: In order that the camera lens can photograph the image field produced by the mirror, it is essential that the mirror should be placed on the

vertical plane racing the camera lens so that the mirror remains in the viewing field of the camera lens. But according to the laws of reflection when a mirror will be used in such a position before the camera lens, only the image of camera will be produced by the mirror since in this case the camera would obstruct the viewing field of the mirror. Although this could be avoided by turning the face of the mirror to such an angle that the camera does not obstruct the viewing field of the mirror but in such a position, the spherical mirrors will produce laterally compressed images. The increase in the angle of turning the face of the mirror will increase the lateral compression of the images produced by the mirror.

(ii) Laterally inversed images: Since the images are formed due to reflection, all the mirrors produce laterally inversed images which if photographed by the camera, will be photographed laterally inversed in the final picture. Lateral inversion in the pictures gives an unnatural look...

(ii) Inverted Images: Concave type of spherical mirrors produce inverted images of all the objects before is beyond the centre of curvature; and these images if photographed become erect which although have no effect in still picture photography but are highly objectionable in motion picture photography and television transmission. Where this defect can only be removed by using the camera upside down. However, convex mirrors are free from this trouble.

The accompanying drawing illustrates a preferred constructional form of a device for carrying out the present invention.

In the figure of the attached drawing, L is a camera lens whose depth of field when focused to a certain distance, lies between the planes AB and CD, i.e., the lens L can sharply focus all the objects between the planes AB and CD, MN is a Convex type of spherical mirror to be used before the camera lens L, which has been SO selected that its focal length PF is equal to the depth of field of the camera lens L existing between the planes AB and CD. Convex mirror MN has been placed in such a position before the camera lens L that the focal plane of the mirror MN coincides the plane AB of the camera lens L. As the focal length PF of the mirror MN is equal to the distance between the planes AB and CD, the pole the mirror MN would fall on the plane CD of the camera lens L. After ascertaining the exact position of the mirror as described above, it has been permanently fitted on the vertical plane facing the camera lens L. Then one "semi-transparent" plain type of mirror ON has been placed before the Convex mirror MN in such a position that the reflecting surface of the mirror ON is facing towards the reflecting surface of the convex. Mirror MN. The angle between the planes of the mirrors. MN and ON is at 45° . For the protection of unnecessary light rays which may fall over the mirrors and camera lens, covering R has been provided. There is an opening in the covering R between the mirrors MN and ON through which the light rays from the field to be photographed or televised, enter in and strike first on the reflecting surface of the mirror ON.

According to the laws of reflection, in the figure since ON is a plain type of mirror placed at an angle of 45° to the Convex mirror MN and therefore, facing the subject field at an angle of 45° ; the light rays from the subject field striking the reflecting surface of the mirror ON would be reflected so as to fall upon the reflecting surface of the Convex

mirror MN at right angles. In other words, the plain type of mirror ON enables the actual field (which is out of the vision field of the mirror MN) established in front of the Convex Mirror MN in the form of an image field of the mirror ON, which is exacting in nature to original field except the fact that it is laterally inversed. The image field of the original field place before the Convex mirror MN by the mirror ON is subsequently transformed into the image field of the Convex mirror MN as per the properties of the Convex mirrors.. Due to reflection: taking place on the surface of the convex mirror MN, the image field produced by the mirror ON which is laterally inversed, once again undergoes lateral inversion and becomes in original form. Therefore, the image field produced by the convex mirror MN remains free from lateral inversion and can be photographed or televised without affecting the natural look of the pictures.

The lateral compression of the images is also avoided by the use of 'semi-transparent' plain type of mirror ON which places the entire field to be photographed televised, before the convex mirror MN IN in such or a way that the convex 'mirror MN although remains in the position facing the camera lens L, produces the entire field in the form of image field which is free from lateral compression.

Since the Convex mirror MN is used in the attachment there is no possibility of inverted images.

To photograph or televise the pictures representing the illusion of the entire depth of the field photographed or televised, with the help of the present invention, the function of the attachment as described above and illustrated in the attached drawing is described below.

In the figure of the attached drawing, the light rays from the object X which is at the farthest distance from the camera will fall upon the reflecting surface of the mirror ON wherefrom they will be reflected upon the mirror MN at right angle. As per the properties of the convex mirrors, the image of the object X will be formed at the focus F of the mirror MN which lies on the plane AB of the camera lens L. Similarly, the light rays from the object Y which is at the closest distance from the camera, will fall upon the reflecting surface of the mirror ON wherefrom they will be reflected upon the Convex mirror MN at right angles. The image of the object Y will, therefore, be formed at the point G which is within the planes AB and CD of the camera lens L. As in cases of Convex mirrors, the entire field before them is reproduced in the form of virtual image field, between the focal plane of the mirrors and the reflecting surface of the mirrors, in the figure, the image field of the convex mirror MN will line between the points P and F which are on the planes CD and AB respectively, between which the depth of field of the camera lens L also lies. Hence, the imago field of the convex mirror MN is coincided by the depth of field of the camera lens L.

As the camera lens L can sharply focus the field between the planes AB and CD at the same time, the image field of Convex mirror MN lying between these planes, which actually represents the entire depth of original field, will be sharply focused on the surface S. Hence, the images of the objects X and Y produced by the Convex mirror MN at F and G respectively which lies between the planes AB and CD of the camera lens L, will be sharply focused on the surface 9 in the form of images X and Y respectively. In case of

a photographic camera, surface S represents the film or plate; and in the case of television camera, surface S represents the mosaic screen of iconoscope.

If so desired, the attachment of Concave type of spherical mirror can also be used on the same lines and principles as laid down for Convex mirrors; but particular attention will have to be given to the image forming properties of the Concave mirrors which greatly vary with those of Convex mirrors. However, the principle of the present invention is applicable to both the types of spherical mirrors.

It is to be understood that the details of the construction of the attachment as described in this specification and illustrated in the drawing, may be elaborated, varied and combined in many ways without departing from the scope of the present invention.

In order to avoid any inaccuracies resulting from the use of improper spherical mirrors with a particular camera, details of the spherical mirrors viz., its focal length, the distance at which it would be placed before the camera lens and the size of the mirror, should be first ascertained theoretically, and then the required type of spherical mirror used. In this connection, same directions as laid down for the use of additional lenses, are applicable.

Thus, with the help of the attachment of spherical mirrors, the photographic or television pictures containing the sharp images of all the objects extending between the nearest and the farthest planes of a field to be photographed or televised, are obtained just like the pictures obtained with the help of additional lens attachment. Moreover, the wide angle views of a field can be obtained with the attachment of the present invention which could be used with any wide angle view photographing camera. The photographic pictures obtained according to the present invention, as far as processing, projection and viewing is concerned, are treated in the same manner as the pictures obtained by the additional lens attachments are used. The above consideration also applies to the Television pictures and wide angle view's pictures.

Thus, with the help of the attachment of spherical mirrors, the photographic or television pictures containing the sharp images of all the objects extending between the nearest and the farthest planes of a field to be photographed or televised, are obtained just like the pictures obtained with the help of additional lens attachment. Moreover, the wide angle views of a field can be obtained with the attachment of the present invention which could be used with any wide angle view photographing camera. The photographic pictures obtained according to the present invention, as far as processing, projection and viewing is concerned, are treated in the same manner as the pictures obtained by the additional lens attachments are used. The above consideration also applies to the Television pictures and wide angle view's pictures.

The chief advantage of the improvement suggested by the present invention is that the pictures of big size representing the illusion of the entire depth of the field photographed or televised, can be obtained by using the spherical mirrors since the spherical mirrors can be conveniently obtained in big dimensions which is rather quite difficult with the lenses.

I claim:

1. *A system to produce illusion of depth in the pictures obtained by photography and television wherein Concave or Convex type of spherical mirror is used before any still picture, motion picture or television camera in such a manner that the entire depth of field existing before the mirror (in case of concave mirrors the entire depth of field beyond the centre of curvature) produced by the spherical mirror in the form of image field is coincided by the depth of field of the camera lens so that when the camera lens is focused to the image field of the mirror. The entire image field which actually represents the entire depth of original field, is sharply photographed televised by the camera.*
2. *A system to produce illusion of depth in the pictures Obtained by photography according to Claim 1 wherein the attachment of spherical mirrors is used before the lens of any camera used for photographing wide angle views and an optical projector to project the pictures so obtained.*
3. *A device to carry out the invention according to Claim 1 wherein Convex type of spherical mirror is used in the form of an attachment before the camera lens in such a position that the mirror is fitted on the vertical plane facing the camera lens and one "semi-transparent plain type of mirror placed before the Convex mirror in such a position that the reflecting surfaces of both the mirrors are facing each other and the angle between the surfaces of the mirrors being at 45°.*
4. *A system to produce illusion of depth in the pictures obtained by photography and television, substantially as described.*

SOAMI SHARAN SHRIVASTAVA,

Dated this 5th day of July 1954,

SOAMI SHARAN SHRIVASTAVA
No. 50445.

ONE SHEET

● ×

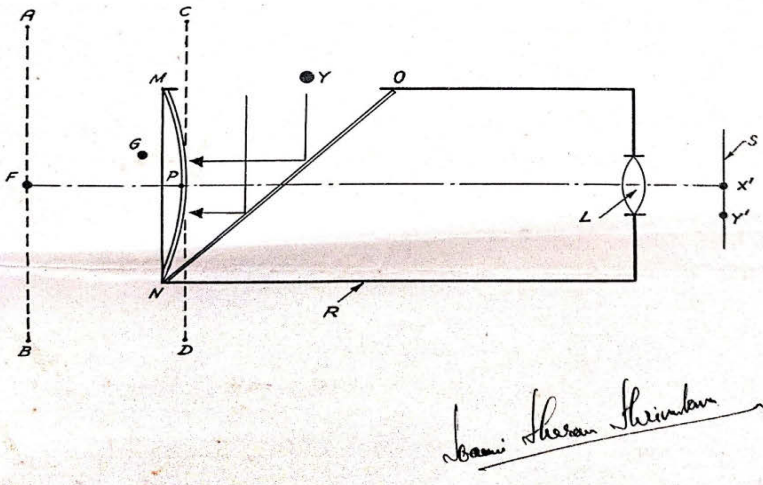


Figure 63: Image from the specification document

Information about the inventions of Shri Soami Sharan Shrivastava was issued in the notification and notice published in the Gazette of the Government of India, dated 19 February 1955 and 16 April 1955.

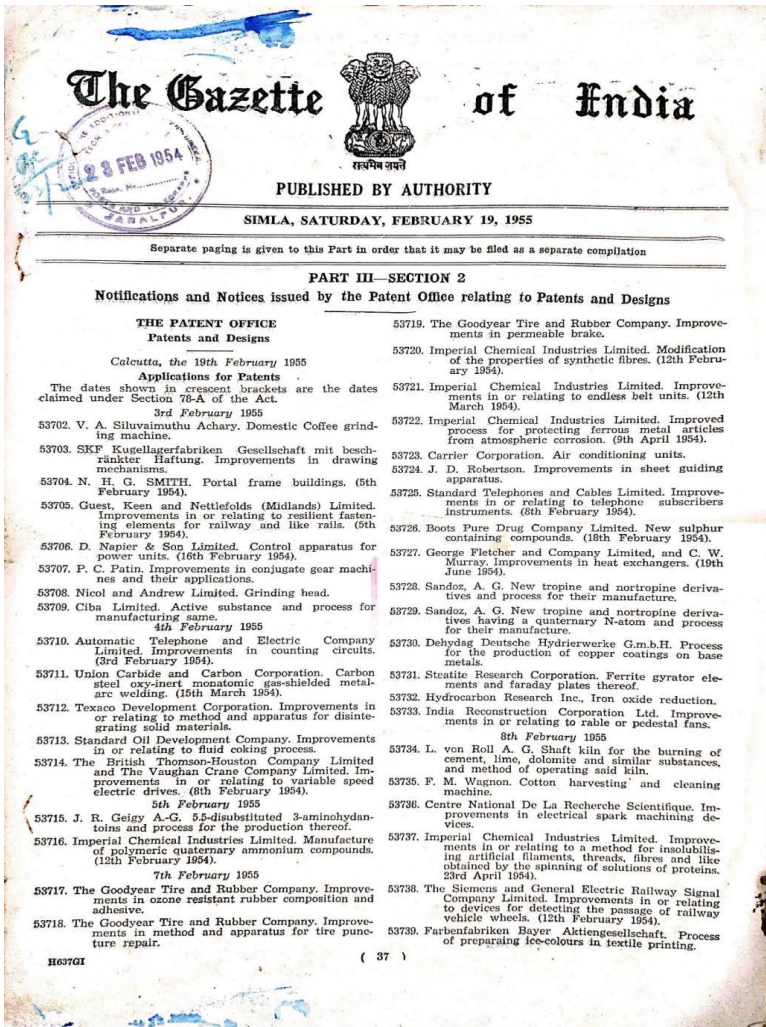


Figure 64: Gazette Notifications

38	THE GAZETTE OF INDIA, FEBRUARY 19, 1955	[PART III—SEC. 2
53740. J. Viswanath. Improvements in devices for removal of dirt and dust from all types of equipments by blowing compressed air.	49576. Harry Ferguson Limited. Improvements in or relating to mountings for mounting apparatus on tractors. (20th May 1952). Accepted on 6th February 1955.	
53741. Unilever Limited. Improvements in the treatment of soapstock. (16th February 1954).	<i>Main mountings are laterally spaced apart and respectively on the inner and outer side the outer mounting part being located on a lateral extension from the tractor.</i>	
53742. Unilever Limited. Improvements in or relating to the manufacture of soap. (16th February 1954).	49935. (Mrs.) Nancy Hobson. Improvements in or relating to adjustable bracket supports. Accepted on 7th February 1955.	
53743. Ciba Limited. Process for the manufacture of new hydroquinone compounds.	<i>Comprising a supporting member carrying projecting brackets, either the supporting member or the bearer member having channel or slot wherein one or the other can slide.</i>	
53744. H. Burggraf. Method of making lumps of primarily fine granular materials.	50079. Merck & Co., Inc. Coated cereal products and process for preparing the same. Accepted on 9th February 1955.	
53745. Didier-Kogag-Hinselmann G.m.b.H. Improvements in or relating to regeneratively heated industrial ovens.	<i>A water insoluble coating agent is applied to the granules and a whitening agent such as tricalcium phosphate is dusted and the process is repeated to obtain white granules.</i>	
53746. Takeda Pharmaceutical Industries, Ltd. Improvements in fortification of food.	50140. Dunlop Rubber Company Limited. Bonding rubber to metal. [Addition to No. 48479]. Accepted on 9th February 1955.	
53747. Pertrix-Union G.m.b.H. Improvements in or relating to galvanic plate batteries.	<i>Forming on the non-ferrous surface an adherent film of oxide, applying to the surface a heat vulcanisable rubber with a layer of organic polyisocyanate interposed between the adherent film and the rubber.</i>	
9th February 1955	50348. Debabrata Sen. A device for the production of perfumed or medicinal or insecticidal atmosphere. Accepted on 6th February 1955.	
53748. S. R. Kishore. Florolite wood.	<i>Comprising an absorbent material soaked with perfume or insecticide placed in contact of a source of heat.</i>	
53749. P. K. Chakroborty. Improvements in or relating to fireplace, chulla or like appliance.	50435. The General Electric Company Limited. Improvements in or relating to methods of forming P-N junctions in crystalline semi-conducting materials. (15th October 1952). Accepted on 5th February 1955.	
53750. N. V. De Bataafsche Petroleum Maatschappij. Method and apparatus for contacting liquids and gases.	<i>... of one conductivity type on a seed crystal of the opposite conductivity type in an ... sphere.</i>	
53751. Rohm & Haas Company. Improvements in or relating to a spinning process.	50444. S. S. Shrivastava. A system to produce illusion of depth in the pictures obtained by photography and television. Accepted on 4th February 1955.	
53752. American Cyanamid Company. Improvements relating to the production of aminoglycosidopurines. (19th November 1954).	<i>Additional convex or concave lens is used before photographic or television camera in such manner that the entire depth of field produced by the said lens in the form of image field is coincided by the depth of field of camera lens.</i>	
53753. United States Steel Corporation. Control system for regulating the conductivity of liquids.	50600. Insulated Callender's Cables Limited. Improvements in or relating to flexible members on to an electric conductor of other support. (11th November 1952). Accepted on 7th February 1955.	
53754. J. Sieber. Improvements in or relating to cover plates for stoves, ovens, ranges and the like. (22nd February 1954).	<i>Helically lapping a flexible member by the rotation of a coil of flexible member about the axis of the support, the flexible members passes through a driving member on to the support.</i>	
53755. Agricultural Implements and Brass Utensils. Method of manufacturing utensils.	50678. Soceny-Vacuum Oil Company Incorporated. Improvements in and relating to systems for studying phonographically reproducible records of transient waves, such as employed in seismic exploration. Accepted on 3rd February 1955.	
53756. J. A. E. Farbrother. Improvements in, or relating to, vehicles. (13th February 1954).		
53757. Pilkington Brothers Limited. Improvements in or relating to glass insulators. (11th February 1954).		
53758. Pilkington Brothers Limited. Improvements in or relating to tempered glass windscreens. (11th February 1954).		
53759. Th. Goldschmidt A-G. Electrically heated shaft furnace having an exchangeable insert.		
Alteration of Date		
50140. The claim to priority date 28th August 1952 has been abandoned and the application dated as of 25th August 1953, the date of filing in India.		
52298. The priority date claimed has been altered from 14th July 1953 to 20th May 1954.		
52624. Ante-dated to 12th May 1953, under Section 5.		
52926. The claim to priority date 23rd October 1953 has been abandoned and the application dated as of 15th October 1954, the date of filing in India.		
Applications Accepted		
Notice is hereby given that all persons interested in opposing the grant of patents on any one of the applications referred to below may at any time within four months of the date of this Gazette of India give notice to the Patent Office in the prescribed form No. 6 of the Indian Patents and Designs Rules, 1953, of such opposition.		
A limited number of printed copies of the specifications in the following list will be available for sale from the		

Figure 65: Gazette Notifications continued

The Gazette



of India

22 APR 1955

PUBLISHED BY AUTHORITY

SIMLA, SATURDAY, APRIL 16, 1955

Separate paging is given to this Part in order that it may be filed as a separate compilation

PART III—SECTION 2

Notifications and Notices issued by the Patent Office relating to Patents and Designs

THE PATENT OFFICE
Patents and Designs

Calcutta, the 16th April 1955

Applications for Patents

The dates shown in crescent brackets are the dates claimed under Section 78-A of the Act.

31st March 1955

54181. G. Rösch. A method and apparatus for the permanent waving and curling of hair.
54182. Anstalt für die Entwicklung von Erfindungen und gewerblichen Anwendungen ENERGIA. Artillery equipment.
54183. J. Dangler. Enclosure for treating web material such as textile fabrics and the like.
54184. Etablissement Public dit: REGIE INDUSTRIELLE DE LA CELLULOSE COLONIALE. Improvements in or relating to processes for bleaching vegetable materials.
54185. J. R. Geigy A.-G. Process for the production of diammonium compounds.
54186. Harry Ferguson Research Limited. Improvements relating to the transmission mechanism of motor vehicles. (9th April 1954).
54187. Harry Ferguson Research Limited. Improvements in and relating to power-driven wheel-and-axle assemblies of motor vehicles. (13th April 1954).
54188. Ciba Limited. Manufacture of certain esters or amides containing quaternary ammonium groups. [Divisional date, October 27, 1954].
54189. Carlen Corporation. Improvements in or relating to germicide.
54190. C. Barth. Improvements in or relating to kerosine oil stoves.

1st April 1955

54191. Bishnu Charan Banerjee and Gopal Chandra Kar. Composition containing hormone for use as foodstuff.
54192. D. Napier & Son Limited. Improvements in or relating to torque responsive devices. (26th April 1954).
54193. W. W. Spooner. Improvements in and relating to the rendering or melting of material.
54194. M. G. DePenning (legal representative of V. E. DePenning deceased). Method of making a twistless yarn or strand. [Divisional date June 18, 1954].
54195. M. G. DePenning (legal representative of V. E. DePenning deceased). Method of making a twistless yarn or strand. [Divisional date June 18, 1954].
54196. Reconstruction Supplies Limited. Improved locking means for doors of autoclaves and the like. (2nd April 1954).
54197. Time, Incorporated. Process for development of printing plate and agent therefor.
54198. Boots Pure Drug Company Limited. New anthelmintic compositions. (2nd April 1954).

H1601

2nd April 1955

54199. American Cyanamid Company. Improvements relating to the production of tetracycline. (10th February 1955).

4th April 1955

54200. Mrs. Johanna Zakarias and Dr. Laszlo Zakarias. Means for repeated slowing down of motive power and for the relaxation of the moveable device. (6th April 1954).
54201. St. Anne's Board Mill Company Limited. Improved apparatus for de-watering pulp or stock on a fourdrinier type paper or board making machine. (6th April 1954).
54202. "Shell" Research Limited. Improvements in or relating to pesticidal compositions. (5th April 1954).
54203. Union Francaise Commerciale Et Industrielle. Improvements in extraction processes. (15th April 1954).
54204. Power Jets (Research and Development) Limited. Improvements in or relating to aircraft.

5th April 1955

54205. Orient General Industries Ltd. Improvements in or relating to oscillating fan mechanism.
54206. V. C. Patel. Overhead loading machine.
54207. Taoka Dyestuff Manufacturing Company Limited and S. Taoka. Production of acetaldehyde from acetylene.
54208. G. V. Mohan. An automatic device for collecting and distributing files in offices.
54209. J. R. Geigy A.-G. Process for the production of substituted 1,2-diphenyl-3,5-dioxo-pyrazolidines.
54210. Imperial Chemical Industries Limited. Improvements in or relating to a method for insolubilising artificial filaments, threads, fibres and the like obtained by the spinning of solutions of proteins.
54211. Imperial Chemical Industries Limited. New and improved explosive compositions. (10th May 1954).
54212. H. Weslake. Improvements in or relating to inlet passages for internal combustion engines.
54213. Ciba Limited. Process for the manufacture of emulsions of hardenable artificial resins and emulsions so obtained.
54214. Belliss & Morcom Limited. Pistons. (6th April 1954).
54215. P. A. I. Cuvelier. Pump for liquids and slops driven by compressed fluid.
54216. Ciba Limited. Manufacture of new oxy-amino-carboxylic acids and derivatives thereof.

6th April 1955

54217. Kiron Ananda Mitter. Internal combustion power generator.
54218. S. Freres. Valves.
54219. General Aniline & Film Corporation. Improvements in or relating to phthalocyanine lakes.

(77)

Figure 66: Gazette Notifications continued

54220. Ciba Limited. Ganglionic blockers and processes for their manufacture.

54221. Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Improvements in the treatment of hydrocarbons in the presence of hydrogen.

54222. J. L. McDonald. An improved sanitary closet. (22nd April 1954).

Applications Accepted

Notice is hereby given that all persons interested in opposing the grant of patents on any one of the applications referred to below may at any time within four months of the date of this Gazette of India give notice to the Patent Office in the prescribed form No. 6 of the Indian Patent and Designs Rules, 1933, of such opposition.

A limited number of printed copies of the specifications in the following list will be available for sale from the Manager of Publications, Civil Lines, Delhi, and also on cash payment at the counter of the Government of India, Central Book Depot, 8 Hastings Street, Calcutta, in the course. The price of each specification is Rs. 2 (postage extra, if sent out of India). Request for the supply of printed specifications should be accompanied by the numbers of specifications as shown in the following list.

If required typed copies of the specification together with copies of drawing, if any, can be supplied by the Patent Office, on payment of the necessary charge which may be ascertained on application to the office.

The dates shown in crescent brackets are the dates allowed under Section 78-A of the Act.

49835. The Jay Engineering Works Ltd. Regulators for A.C. fans. Accepted on 1st April 1955.

Number of turns of copper is fixed but the reluctance of magnetic circuit is variable.

49883. E. Bobkiewicz. Yarn production. Accepted on 5th April 1955.

Bonding the staple fibers together by a thermoplastic and/or thermosetting bonding agent prior to spinning.

49885. E. Bobkiewicz. Textile fabric. Accepted on 5th April 1955.

The warp and weft yarns being welded together at contact points by heat-activated bonding agent.

50374. Bohne Fettchemie G.m.b.H. Prescuring and bleaching of textile fibres. Accepted on 31st March 1955.

Subjecting the material to a pre-treatment with bacteria or enzymes decomposing pectin.

50376. Maskin Aktiebolaget Plavia. A process and an apparatus for separating solids from suspensions of solids in fluids. Accepted on 31st March 1955.

Causing the suspension of flow in a tangential direction to a curved perforate wall and giving the suspension a continuously deflecting movement.

50389. Ludlow Manufacturing & Sales Co. Improvements in or relating to the production of jute yarns, and woven fabrics and carpets made therefrom. Accepted on 5th April 1955.

Treating jute fibers by applying water thereto and also applying about 4 per cent to 9 per cent of an oil composition made up of a petroleum oil and a drying material dissolved therein and forming yarn from fibers thus treated.

50417. Dr. Moti Lal Jain. Improved connector between an inflator (air pump) and article to be inflated. Accepted on 6th April 1955.

Consisting of a threaded tube and a piece with a hole made of elastic material.

50445. S. S. Shrivastava. Improvements in or relating to a system to produce illusion of depth in the pictures obtained by photography and television. (Addition to No. 50444). Accepted on 5th April 1955.

Concave or convex spherical mirror is used before photographic or television camera in such manner that the entire depth of field produced by said mirror in the form of image field is coincided by the depth of field of camera lens.

50450. For printing. Accepted on 6th April 1955.

50608. Monsanto Chemical Company. Polystyrene compositions. Accepted on 31st March

Comprising 100 parts of polystyrene parts of copolymer of 50 per cent butadiene styrene and 0.8 to 1 parts of organic phosphoric acid.

50645. Societe D'Etudes, De Recherches Et D'App. Mecaniques. Ignition device for rocket. Accepted on 1st April 1955.

Ignition device constituted by flat metal at the front end of rocket motor rear the box bearing on front face of block pelling charge and having apertures holes.

51625. Council of Scientific and Industrial Research. process for the concentration of manganese high in iron. Accepted on 31st March 1955.

Separating manganese minerals from magnetic minerals by magnetic separation desliming the ore prior to magnetic separation.

51639. Inflico Incorporated. Improvements in or to apparatus for treating liquid. Accepted on 4th April 1955.

Apparatus consists of a chamber in a station tank with means to introduce the sludge in the chamber from the tank.

51694. British Celanese Limited. Improvements in production of artificial fibres. (24th April 1955). Accepted on 31st March 1955.

Fusible filament-forming material is against a heated plate having orifices filaments coming out of said orifices are cooled.

51894. N. V. Bronswerk. Improvements in air cond by means of supersaturated air. Accepted on April 1955.

Air is cooled before supersaturation a manner that its heat content is decreased.

52045. Imperial Chemical Industries Limited. Improvements in or relating to titanium base alloys. (8th June 1953). Accepted on 4th April 1955.

A titanium base alloys consisting of 0.5 per cent tin, 0.5-10 per cent aluminium, titanium apart from impurities.

52086. Norsk Hydro-Elektrisk Kvælstofaktieselskab. cell. Accepted on 4th April 1955.

Having a drum with a wire coil on it filter cloth stretched over the wire coil.

52363. Simon-Carves Limited. Improvements relating to the processing of coal and other carbonaceous materials. (27th July 1953). Accepted on April 1955.

Treating the mineral in finely ground form with a gaseous chlorinating agent at 200-600°C.

52509. Ciba Limited. New monoazo-dyes and processes of making same. Accepted on 4th April 1955.

Aminonaphthalene sulfonic acid is coupled with an acid medium with a diazo-compound amine.

52599. Ciba Limited. New diazoamino-compounds process for making them. Accepted on 4th April 1955.

1-amino-benzene-2-carboxylic acid-4-azo acid is condensed with a diazo-compound amine.

52600. Ciba Limited. New diazoamino-compounds process for making them. Accepted on 4th April 1955.

Condensing a dicarboxylic acid with a compound suitable for the production of colors.

52611. Ciba Limited. Process for the manufacture of diazoamino-compounds in dry form. Accepted on 4th April 1955.

A solvent-containing mixture which consists in addition to a diazoamino-compound a diazo-compound and a free amine is subjected to rapid drying.

52759. Gestetner Limited. Improvements in or relating to offset rotary printing machines. (4th April 1954). Accepted on 6th April 1955.

Figure 67: Gazette Notifications continued

Communications with the Bombay Film Industry

Correspondence done by Kodak Limited in 31 March 1952.

KODAK LIMITED

(Incorporated in England)
P. O. Box No. 343

KODAK HOUSE
HORNBY ROAD
BOMBAY

SOLE TO:

Mr. Shantilal,
C/o. Mr. Harkishan Narayandas,
39, Lordganj,
Jabalpur.

Invoice No. BC/267 Date 31-3-52. Your Order of 28-3-52. Office Order No. 9277.

The Goods in this Invoice have been sold to you on the terms of the "Conditions of Sale" as printed on the reverse. Your acceptance of the goods will be treated as an acknowledgement that they were sold to you on these terms. If you do not agree please at once return the goods.

Errors and shortages must be notified immediately on receipt of goods.

Before returning any goods, full particulars of the reasons and number of invoice should be given by letter and our reply awaited.

All goods are sent freight forward and at owner's risk. Cost of packing is charged and is nett, not subject to cash or settlement discount.

NOTE:- Claims for goods lost, damaged or pilfered in transit must be made upon the Carriers. The Company cannot accept any responsibility for goods after they have left the Company's premises.

200

Feet (2 x 100 ft. Rolls)
Kodak Safety Plus X Negative
No. 10 Cartridge film for Eyemo Camera.
Eml. 5231-213. Per 100ft. 24/- 24 - 48 -

Posting Fee. 0 2

Insurance Fee. 0 4

Packing. 0 6

Postage. 1 0

Rs. 49 13

Rs. & 0. E.

Invoice Amount.....Rs. 49-12-0
Less 5% C/D. on Rs. 48/- Rs. 2- 6-0
Rs. 47- 7-0
=====

One V.P. Parcel of 76 Tolas.

JVK.

Figure 68: Invoice from Kodak

Correspondence done by The Bombay Film Laboratories Limited in 19 November 1952.

TEL. NO. 60055 (TWO LINES.)

"CLEARPRINT."

The Bombay Film Laboratories, Ltd.

149, PORTUGUESE CHURCH STREET, DADAR, BOMBAY 28.

19th November 1952.

S. Sharan, Esqr.,
39, Lordgunj,
JABALPORE.

Dear Sir,

We are enclosing herewith our Debit Note No.52/537 for Rs.5-7-0 in respect of a parcel sent to you today by V.P.P. for Rs.61/- as per particulars enclosed herewith.

Kindly honour the parcel on presentation

Thanking you.

Yours faithfully,
for Bombay Film Laboratories Ltd.

Encls: 2.
RHW:DMB.

Mg. Director.

Drawing 1: Note from Bombay Film Labs

In November 1952, print & dev. positive work done at Bombay Film Laboratories Ltd.

BOMBAY FILM LABORATORIES LTD.

60025 (TWO LINES)

14B, PORTUGUESE CHURCH ST.,
CADELL ROAD, BOMBAY.

DATE 29-11-1952
NO. 52/2799

INVOICE

'CLEARPRINT'

S. Sharan Esqr.,
39, Lorketurj, Jabalpure.

ORDER No.	QUANTITY	SUBJECT	PARTICULARS	RATE	Rs.	As.	Pb.
			Work done during November 52.				
	470 ft.	Topical.	Print & Dev. Positive.	Rs.25/-p. 1000 ft.	11	12	-
			(Rupees Eleven and annas twelve only)				
		NKT.					

Effy Master
E & O E.

Figure 69: Invoice from Bombay Film Labs

The 470 ft topical Kodak London safety positive for the purpose of preparing rushes.

10 000-7-51.
"CLEARPRINT"

80055 (TWO LINES)

BOMBAY FILM LABORATORIES LTD.

149, P. PORTUGUESE CHURCH ST.,
DADAR, BOMBAY.

**S. Sharam Esqr.,
Bombay.**

INVOICE

DATE **29-11-1952.**

NO **RST/52/1530**

QUANTITY	SUBJECT	PARTICULARS	RATE	RS.	AS.	PS.
470 ft.	Topical.	To cost of replacement of Kodak London Safety Positive for the purpose of preparing rushes.	Rs. 95/3/- p. 1000 ft.	43	13	
(Rupees Forty three and annas thirteen only). <i>Exp. Master</i>						

1584

Drawing 2: Invoice from Bombay Film Labs

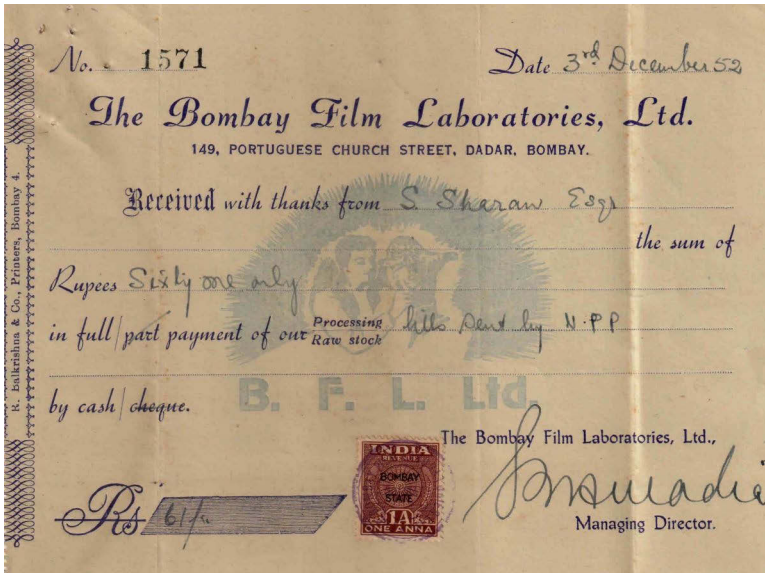


Figure 70: Receipt from Bombay Film Labs



Figure 71: Some camera lenses used by the inventor

Some camera lenses used by Shri Soami Sharan Shrivastava

BELIEVE IT OR NOT

On 15th May 1954, he was invited as the representative of Movie Colors by the third All India Cine Technicians Conference, Bombay. Whose chief guest was the famous film producer and director Shri V. Shantaram.



Figure 72: Invitation from the All India Cine Technicians Conference

Conclusion

The contemporaneous Jabalpur Mayor Shri Bhavani Prasad Tiwari issued a certificate (verified by the First Class Magistrate) on 2/2/1958 congratulating Shri Soami Saran Shrivastava for his invention.

Office of the Mayor,
City of Jabalpur Corporation.

Jabalpur M.P.

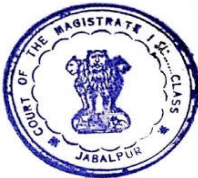
Certified that Shri Soami Sharan Shrivastava s/o Shri Shyam Lal ji Shrivastava is known to me. He comes out of a reputed middle-class family and has pleasing manners. Photography is his hobby and he has original work to his credit. The Government of India has been pleased to make him a patentee on his work. He is also a member of the Royal Photographic Society of Great Britain. He has excellent character that vouchsafes a bright future. I wish him success.

2-2-1958

Sd/- Bhawani Prasad Tiwari.

Mayor.

"True Copy"



Mc Randh
Magt 1st class
3/2/58 Jabalpur

Figure 73: Certificate by the Jabalpur Mayor

Thus, moving with the times, Shri Soami Sharan Shrivastava chose his own path. During this time, he met well-wishers who told him the destination of other path. Following that path he again achieved success.

He never had any regret that his successful work in the field of color cinematography did not achieve its final destination, he never looked back. Leaving some work even after achieving success does not show your weakness but your self-confidence. Because the person knew that he will be able to use his skill and expertise in some other field. With the same skill and proficiency, he continued his work in other important field's electronics, telecommunication technology, tube amplifier, solid state.

It was very special thing that Shri Soami Sharan Shrivastava was proficient in the field of photography and electronic engineering but considering his efficiency, the Government of India also gave him the responsibility of administrative post.

If a person's personality is to be known then his memories should be explored. He always remembered the kindness of Shir Prem Adib Ji. He always remembered the invaluable support of his close friend Shri Shanti Lal N.Soneji. His meeting with Shri Shanti Lal Ji continued as long as he was alive. Shri Shanti Lal Ji passed away on 18 September 1994. During the year 1952, there was a sudden halt in the activities of "Prem Adib Pictures".

But even during this period, the mutual relations between Shri Soami Sharan Ji and Shri Prem Adib Ji continued till 1958. Shri Prem Adib Ji passed away suddenly on 25 December 1959. By 1955 ,Shri Soami Sharan Shrivastava had made inventions like Improvement in or relating to coloured motion pictures and A colour photographic process for motion pictures and device for carrying out the same, A system to produce illusion of depth in the pictures obtained by photography and television.

At the age of just 24 years, the inventions made by Shri Soami Sharan Shrivastava were given patents by the Government of India and notice about it was published in the gazette of the Government Of India but the attitude of the film industry and his own self-respect he change his path. Thus, the initial phase of color film photography in India kept coming.

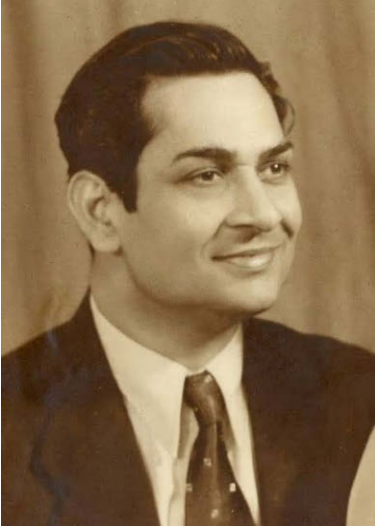


Figure 74: Prem Adib



Figure 75: Shanti Lal N. Soneji



Figure 76: Soami Sharan Shrivastava

More Images

Some preserved objects



Figure 77: Still camera



Drawing 3: Exposed reel pieces

BELIEVE IT OR NOT

(14)

J. H. DALLMEYER LTD.,

Church End Works, High Road, Willeaden, London, N.W.10.

Our Ref: S/BSK.

22nd March, 1954.

Mr. S.S. Shrivastava,
Block 13, Mohan Bai Buildings,
Nr. Chhannpur Crossing,
Jabalpur 1, (M.P.), INDIA.

Dear Sir,

We are in receipt of your letter dated the 11th instant and note your interest in a lens for use on a 35mm professional size Motion Picture Camera for photographing objects at 1:1.

We note, when photographing under these conditions, you require the depth of field to be $2\frac{1}{2}$ " accordingly we have calculated that it will be necessary to employ a 30" lens working at an aperture of f/11, a 20" working at f/16, or a 15" working at f/22.

As you appreciate, the use of so long a focal length lens will result in a fairly large circle of confusion and in our calculations as regards depth of focus we have considered the circle of confusion to be approximately one thousandth of the focal length.

Regretting we are unable to be of greater assistance, we are,

Yours faithfully,
J. H. DALLMEYER LTD.

Figure 78: Letter from J H Dallmeyer

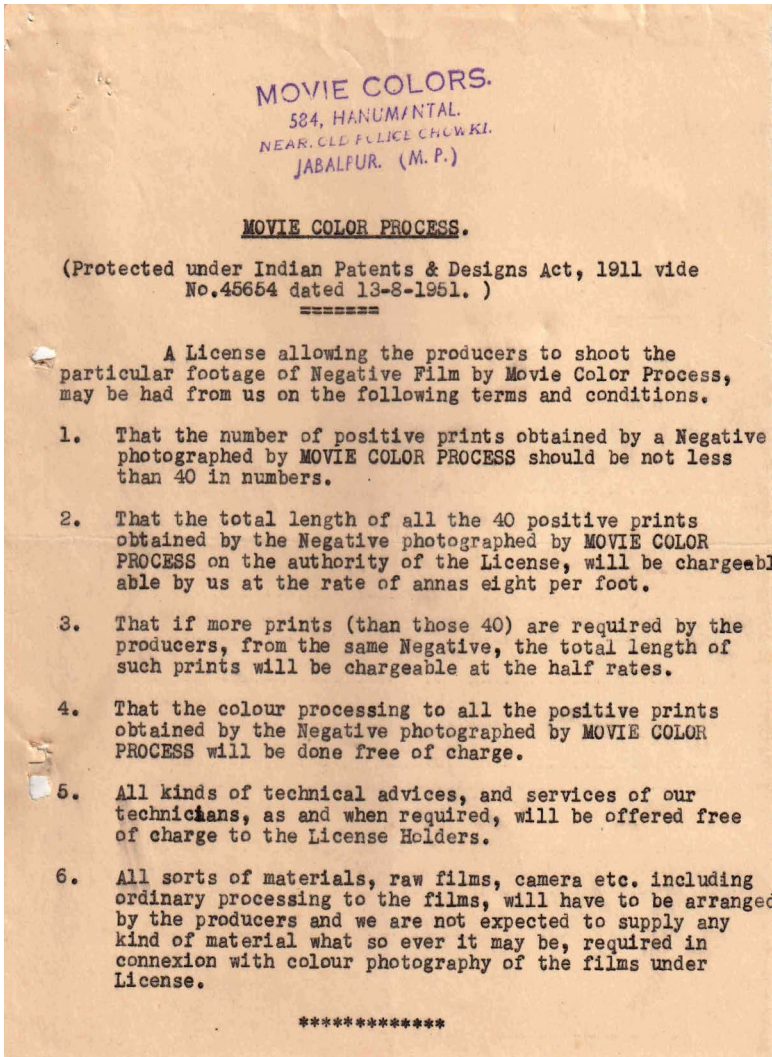
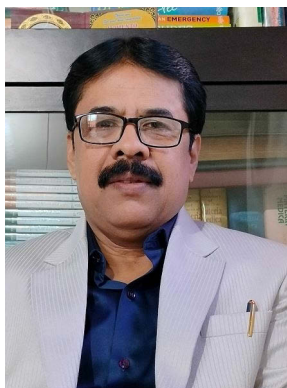


Figure 79: A license example



Figure 80: Rubber stamps of Movie Colors

ABOUT THE AUTHOR



Dr. P.S. Shrivastava, renowned Homeopath and Clinical Psychologist from Madhya Pradesh. He has been in practice for more than 32 years. Dr. Shrivastava is a science graduate from RDV University, Jabalpur and completed his course in Homeopathy from Bhopal and advance diploma from British Institute of Homeopathy, London. He completed special course in Cerebral Palsy and post-graduation in Clinical Psychology from Delhi.

He is the General Secretary of Hahnemann Academy of Vital Science and Humanities, Homeopathic Physician in Central Government Organization, former counselor supervisor & resource person in Shakshan GFATM -7, Bhopal School of Social Science. He has submitted research project on Neurology for GinkoMeckel Awards. He has also organized national level seminars and workshops on disability and medical sciences. Apart from writing in prestigious newspapers and magazines, he participated in All India Radio as a prelector.

“Dr. Shrivastava, who considers medical profession as ultimate goal, has a keen interest in Indian Cinema and music. In preparing this compilation, he has put in a lot of hard work and presented the real facts before you.”

OTHER BOOKS BY THE PUBLISHER

For more information please visit

<https://hindi-movies-songs.com/joomla/index.php/published-books>

1. Edwina: An Unsung Bollywood Dancer of the Golden Era, by Prof Surjit Singh (2015)
2. The RMIM Minibus (1992-): A Compendium of Selected Writings About Indian Films, Their Songs and Other Musical Topics From a Pioneering Internet Discussion Group, by Prof Surjit Singh (2017)
3. Music and Arts in Hyderabad Deccan: A Contribution to the History and Culture of Bygone Days, by Kamalakar Pasupuleti (2017)
4. Indurani: An Unsung but Unforgettable Heroine of the Early Talkies by Prof Surjit Singh (2017)
5. Sahraa Sahraa (Urdu poetry, Hindi and Urdu editions), by Raj Kumar Qais (2017)
6. Telugu Filmography Volume 1 (1932-1980) by Dr Venkata S Vutukuri (2018)
7. Telugu Filmography Volume 2 (1981-2000) by Dr Venkata S Vutukuri (2018)
8. The Lost Treasure: Early Hindustani Talkies: Based on Contemporary Material, by Kamalakar Pasupuleti and Prof Surjit Singh (2018)
9. Forgotten Artists of Early Cinema and The Same Name Confusion, by Arunkumar Deshmukh and Prof Surjit Singh (2018)
10. Drops on a Leaf by Jyoti Bhamra (2018)
11. Hindi Films: Pictures of the Cast (1933-1937), by Sheo Khetan and Prof Surjit Singh (2019)
12. Illustrated History of Punjabi Cinema (1935-1985), by Bhim Raj Garg (2019)
13. Unsung Junior Artists of Hindi Cinema Who Debuted Before 1961, by Upendra Samaranayake and Prof Surjit Singh (2019)
14. Beete Hue Din (Forgotten Memories of Hindi Cinema) by Shishir Krishna Sharma (2020 English)
15. Beete Hue Din (Forgotten Memories of Hindi Cinema) by Shishir Krishna Sharma (2021 Hindi)
16. Hindi Films: Pictures of the Cast II (1938-1940), by Sheo Khetan and Prof Surjit Singh (2021)
17. Unsung Junior Artists of Hindi Cinema Who Debuted After 1959,

- by Upendra Samaranayake and Prof Surjit Singh (2021)
18. Master Ebrahim: The Forgotten Ace Clarinetist, by Prof Surjit Singh (2021)
 19. Censor Certificate Information of Hindi Talkies (1931-2010), by Har Mandir Singh 'Hamraaz' and Prof Surjit Singh (2021 English)
 20. Censor Certificate Information of Hindi Talkies (1931-2010), by Har Mandir Singh 'Hamraaz' and Prof Surjit Singh (2022 Hindi)
 21. Background Dancers in Hindi Films (1952-68), by Edwina Violette, Narsingh Agnish and Prof Surjit Singh (2021)
 22. Films Showing in Madras Theatres (1941-1947), by MV Surender, N Ramaswamy and Prof Surjit Singh (2021)
 23. Rainbow of Emotions, by Lalit Berry (2021)
 24. The Caliginous Light, by Rashmin Bhardwaj (2021)
 25. Witnessing Wonders, by Ali Peter John (2021)
 26. Laxmikant-Pyarelal Music Forever, An LP Era ::1963-1998, by Ajay Poundarik (2021)
 27. MY DEV Memories of an Immortal Man by, Ali Peter John (2021)
 28. Silent Cinema In India 1913 – 1934 When Silence Spoke In Celluloid by Sanjeev Tanwar (2021)
 29. MUNNA The boy who grew into a legend by Ali Peter John (2021)
 30. Hindi Films: Pictures of the Cast III (1941-1942), by Sheo Khetan and Prof Surjit Singh (2021)
 31. Early Hindi Film Advertisements (1935-39), by N Ramaswamy and Prof Surjit Singh (2021)
 32. WITH YOU, MAA, WITHOUT YOU, OH MAA! by Ali Peter John (2021)
 33. The Bitter-Sweet Cocktail, Movies, Music, Wine, Women, The Life and Times of C. Ramchandra by Dilip Shripad Phansalkar (2022)
 34. Hindi Talkie Filmography (1951-1960) by Har Mandir Singh 'Hamraaz' and Prof Surjit Singh (2022 English)
 35. Tujhe Mere Geet Bulate Hain – Pt Bharat Vyas Filmography by Sanjeev Tanwar (2022)
 36. The Golden Era of Hindi Film Music by Ashok Jagtap (2022)
 37. ALI(VE) in Bits And Pieces by Ali Peter John (2022)
 38. The Story of The Rainbow Bunch by Dr Amit Sur (2022)
 39. India: A Reckoning With History by Dr Sanjay Sood (2022)
 40. Hindi Films: Pictures of the Cast IV (1943-1946), by Sheo Khetan and Prof Surjit Singh (2022)
 41. Hindi Talkie Filmography (1951-1960) by Har Mandir Singh 'Hamraaz' and Prof Surjit Singh (2022 Hindi)
 42. Hindi Film Song Picturizations (1951-1960) by Prof Surjit Singh and Har Mandir Singh 'Hamraaz' (2022)
 43. History of Indian Cinema by N Ramaswamy (2022)

44. **From Jhunjhunu to New York Story of My Life, Part 1 by Sheo Khetan (2022)**
45. Hindi Film Song Picturizations (1951-1960) by Prof Surjit Singh and Har Mandir Singh 'Hamraaz' (2022 Hindi)
46. Fact and Fiction I. Fiction by Dr Khawar Sohail Siddiqui (2023)
47. Fact and Fiction II. Fact by Dr Khawar Sohail Siddiqui (2023)
48. Hindi Talkie Filmography (1961-1970) by Har Mandir Singh 'Hamraaz' and Prof Surjit Singh (2023)
49. Lyricists of Hindi Cinema by Jawed Hamid and Gajendra Khanna (2023)
50. Group Dancers of Indian Cinema (Golden Age and Beyond) by Upendra Samaranayake and Prof Surjit Singh (2023)
51. Hindi Talkie Filmography (1961-1970) by Har Mandir Singh 'Hamraaz' and Prof Surjit Singh (2023 Hindi)
52. Hindi Talkie Filmography (1961-1970) by Har Mandir Singh 'Hamraaz' and Prof Surjit Singh (2023)
53. Forgotten Artists of Early Cinema and The Same Name Confusion, Book 2 by Arunkumar Deshmukh (2023)
54. Films and Shows in Bombay – 1931 by Ajit Sidhu and Prof Surjit Singh (2023)
55. Hindi Films The Stars of Silent Films Hindi Films Stars Series: Part 1 by Sheo Khetan (2023)
56. filmindia Covers Collection by Sanjeev Tanwar (2023)
57. Pictorial Journey Of Hindi Cinema 1951 by Sanjeev Tanwar (2023)
58. Early Hindi Film Advertisements II (1940-43), by N Ramaswamy and Prof Surjit Singh (2023)
59. Beete Hue Din (Part-2) (Forgotten Memories of Hindi Cinema) by Shishir Krishna Sharma (2023 Hindi)
60. Tales of Stealth for the Curious One by Khawar Sohail Siddiqui (2023)
61. Hindi Films: The Stars of the 1932-37 Films: Hindi Film Stars Series: Part 2 by Sheo Khetan (2023)
62. Hindi Films: The Stars of the 1932-37 Films: Hindi Film Stars Series: Part 3 by Sheo Khetan (2023)
63. Hindi Film Song Picturizations (1961-1970) by Prof Surjit Singh and Har Mandir Singh 'Hamraaz' (2023 Hindi)
64. Hindi Film Song Picturizations (1961-1970) by Prof Surjit Singh and Har Mandir Singh 'Hamraaz' (2023)
65. The One And Only Common Man by Dhiru Mistry (2023)
66. Poems Written in a Flutter by Hashmat Rahimtoola (2023)
67. GROWING OUR FAMILY, NY AND PA; Sheo Khetan, Life Story, Part 2 by Sheo Khetan (2023)
68. GROWING OUR FAMILY, NJ; Sheo Khetan, Life Story, Part 3

- by Sheo Khetan (2023)
69. Hindi Film Geet Kosh Saga of a Compiler's Odyssey, by Har Mandir Singh 'Hamraaz' and Prof Surjit Singh (2023)
 70. Hindi Film Geet Kosh Saga of a Compiler's Odyssey, by Har Mandir Singh 'Hamraaz' and Prof Surjit Singh (2023) HINDI
 71. Hindi Films: Pictures of the Cast V (1947-1949), by Sheo Khetan and Prof Surjit Singh (2023)
 72. Radio Transcripts Volume – 1 (Vividh Bharati Special Programmes & Non-Vividh Bharati), By Sujoy Chatterjee (2023)
 73. Early Hindi Film Advertisements III (1944-48), by N Ramaswamy and Prof Surjit Singh (2023)
 74. ANIMAL FAIRY TALES FOR ALL AGES by Khawar Sohail Siddiqui and Aimeen Siddiqui (2023)
 75. Hindi Talkies (1951-1960) 78RPM Records Information by Har Mandir Singh 'Hamraaz' and Prof Surjit Singh (2023) HINDI
 76. Hindi Talkies (1951-1960) 78RPM Records Information by Har Mandir Singh 'Hamraaz' and Prof Surjit Singh (2023)
 77. Pictorial Journey Of Hindi Cinema 1952 by Sanjeev Tanwar (2023)
 78. Hindi Talkies (1961-1970) 78RPM Records Information by Har Mandir Singh 'Hamraaz' and Prof Surjit Singh (2023)
 79. Hindi Talkies (1961-1970) 78RPM Records Information by Har Mandir Singh 'Hamraaz' and Prof Surjit Singh (2023) HINDI
 80. Early Hindi Film Photo Gallery I (A-F) by N Ramaswamy and Prof Surjit Singh (2023)
 81. Poems Written On A Whim by Prabodh Shukla (2023)
 82. Films Shown in Bombay – 1941 by N Ramaswamy and Prof Surjit Singh (2023)
 83. Film News and Reviews at Madras Theatres (1937-41) by M V Surender and Prof Surjit Singh (2024)
 84. RMIM Articles: 1. Singers by Prof Surjit Singh (2024)
 85. Hindi Films: The Stars of the 1938-40 Films: Part 4 by Sheo Khetan (2024)
 86. Early Hindi Film Advertisements IV (1949-60), by N Ramaswamy and Prof Surjit Singh (2024)
 87. RMIM Articles: 2. About Films by Prof Surjit Singh (2024)
 88. Radio Transcripts Volume – 2 (Vividh Bharati: Aaj Ke Fankaar-I) by Sujoy Chatterjee (2024)
 89. Hindi Films: Pictures of the Cast 1971 Part A by Kharag Singh and Professor Surjit Singh (2024)
 90. Films and Shows in Bombay – 1932 by Ajit Sidhu and Prof Surjit Singh (2024)
 91. Hindi Films: Pictures of the Cast VI (1950-1951), by Sheo Khetan and Prof Surjit Singh (2024)

92. Early Hindi Film Photo Gallery II (G-J) by N Ramaswamy and Prof Surjit Singh (2024)
93. RMIM Articles: 3. Music Directors by Prof Surjit Singh (2024)
94. Radio Transcripts Volume – 3 (Vividh Bharati: Aaj Ke Fankaar-II & Special Bhoole Bisre Geet) by Sujoy Chatterjee (2024)
95. Hindi Films: Pictures of the Cast VII (1952-1953), by Sheo Khetan and Prof Surjit Singh (2024)
96. Pictorial Journey Of Hindi Cinema 1953 by Sanjeev Tanwar (2024)