

PATENT SPECIFICATION



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COMPLETE SPECIFICATION.

Improvements in Cameras for Colour Photography.

We, ARON HAMBURGER, of 99, Charlotte Street, London, W. 1, a citizen of the United States of America, and HERBERT ERNEST COSTON, of 41, Dundonald Road, Brondesbury Park, London, N.W., a British subject, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to cameras adapted for use in colour photography and more particularly to the cinema type wherein the sensitised films adapted to be exposed to the analysed light are arranged in mutually inclined planes.

In one form of camera of the above type the composite light from the object to be photographed passes through a lens system on its way to a transparent mirror surface, such as lightly platinised glass, arranged at an angle of 45° to the incident beam. The incident beam is thus divided into two parts, one along and one in a direction at right angles to the original beam.

Each of the two beams then passes through one or more suitable colour filters in its passage to its appropriately sensitised film.

The invention consists in a camera for colour photography of the kind including two prisms cemented together by their faces to form a block, arranged between the camera lens and at least two sensitised surfaces disposed in mutually inclined planes, the cemented face of one of the prisms partly reflecting and partly transmitting light, wherein a colour filter is arranged in or on said prism block.

The invention also consists in a camera as set forth above, including one or more additional colour filters arranged between the object to be photographed and one or both of the sensitised surfaces.

The invention also consists in a camera as set forth above, in which the colour

filter is arranged immediately behind the semi-mirror face in the prism block. 50

The invention also consists in a camera as set forth above including means for mounting said prism block in the camera in a universally adjustable manner. 55

The invention also consists in a camera as set forth above including a plurality of prism blocks in universally adjustable mounts adapted to be interchangeable in the camera body. 60

The invention also consists in a camera as set forth above substantially as described with reference to the accompanying drawings. 65

The invention may be carried into effect by way of example in the following manner which will be described with reference to the accompanying drawings in which:— 70

Figure 1 represents a section of the prism block in its first and second mountings, taken through the centre of the gates or orifices for the entrance or exit of light. 75

Figure 2 is a corresponding section of the fitting attached to the camera body for receiving the complete mount shown in Figure 1. 80

As shown in the drawings the hypotenuse surfaces 1 and 2 of a pair of 45° isosceles prisms 3 and 4 respectively enclosing between them a thin sheet 5 of suitably coloured gelatine or glass are cemented together by means of Canada balsam. The hypotenuse surface 1 of the first prism 3 is platinised or silvered or coated with a thin mirror at 13 with any suitable substance by cathode discharge, or other suitable coating process, to a degree which produces the required ratio between the reflected and transmitted light beams 6 and 7 resulting from a beam of composite light 8 entering normal to the right angle face 9. 85 90 95

The reflected beam 6 passes through the right angle face 11 of the prism 3 to a sensitised film surface 12 arranged parallel to the face 11 and a colour filter

10 may be incorporated in the face 11 if required.

5 The beam 7, transmitted unaltered in direction through the platinised or other mirror-coated surface 13, passes through the colour filter 5 between the hypo-tenuse faces 1 and 2 and normally through the face 14 of the second prism on its way to a second sensitised film 15 arranged at right angles to the first film 12. A colour screen 16 of glass-covered gelatine or coloured glass may be incorporated in the face 14 of the second prism. It is to be understood that the colour screens 5, 10 and 16 may be used singly or in any desired combination.

15 Now, particularly in the case of cameras for two-colour kinematography, exact focussing of the image on both films is of great importance. The interposition of a colour screen in the path of either of the component pencils will alter the effective length of the light path between the lens and the respective film.

20 Since it is difficult in practice to adjust the film for focussing purposes, the effect of the interposition of the colour screens is preferably neutralised by removal of an appropriate layer of the prism material.

25 The prism block is sunk slightly into a metal carrier 17 whose outer surfaces 18 are formed as parts of a sphere. The carrier 17 may cover the optically unutilised face 19 of the prism block.

30 Two annular members 20, 21, having faces 22 and 23 respectively which are parts of a sphere equal in radius to the spherical surfaces of the metal carrier 17, are arranged to slide into a tubular member and embrace the cemented prisms with their carrier 17.

35 The tubular member 24 carrying the prisms and carrier is fixed by means of screws (not shown) in a frame 31 which forms part of the camera body and is thus easily dismantled and replaced by other tubular members and prism assemblies having different optical or colour characteristics without altering the foregoing adjustment of the prisms.

40 Lock rings 25, 26 are provided as shown for clamping the parts 20 and 21 to the carrier 17 and adjustment of the carrier 17 about one axis is carried out by screws 27 and about an axis at right angles to the first-mentioned axis by screws 28, acting respectively on corresponding flat surfaces 29, 30 formed on the spherical mount 17.

45 The adjustment of the prism mount 17 about a third or remaining axis at right angles to those already mentioned is

accomplished by means of the screws 32 and washers 33 which are attached to the prism carrier 17 abutting against the edges 34 and 35 of slots formed as shown in the cylindrical member 31. This latter member is attached normally to the camera body and the member 24 is a sliding fit therein. 65

A suitable masking device (not shown) adjustable to suit lenses of varying foci may be arranged at some distance in front of the lens to exclude stray reflections of objects outside the field and an initial colour screen 36 may be interposed on or before the incident face 9 of the prism 3. When more than two sensitised surfaces are utilised, additional films may be provided substantially in contact with either or both the films 12, 15, the contacting films being sensitive to different colours. 70

We are aware of Patent No. 130,002 and do not claim anything disclosed therein. 75

80 Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is :- 85

1. A camera for colour photography of the kind including two prisms cemented together by their faces to form a block, arranged between the camera lens and at least two sensitised surfaces disposed in mutually inclined planes, the cemented face of one of the prisms partly reflecting and partly transmitting light, wherein a colour filter is arranged in or on said prism block. 90

2. A camera as claimed in Claim 1, including one or more additional colour filters arranged between the object to be photographed and one or both of the sensitised surfaces. 95

3. A camera as claimed in Claim 1, in which the colour filter is arranged immediately behind the semi-mirror face in the prism block. 100

4. A camera as claimed in Claim 1, including means for mounting said prism block in the camera in a universally adjustable manner. 105

5. A camera as claimed in Claim 1, including a plurality of prism blocks in universally adjustable mounts adapted to be interchangeable in the camera body. 110

6. A camera as claimed in Claim 1, substantially as described with reference to the accompanying drawings. 115

Dated this 22nd day of December, 1924.  
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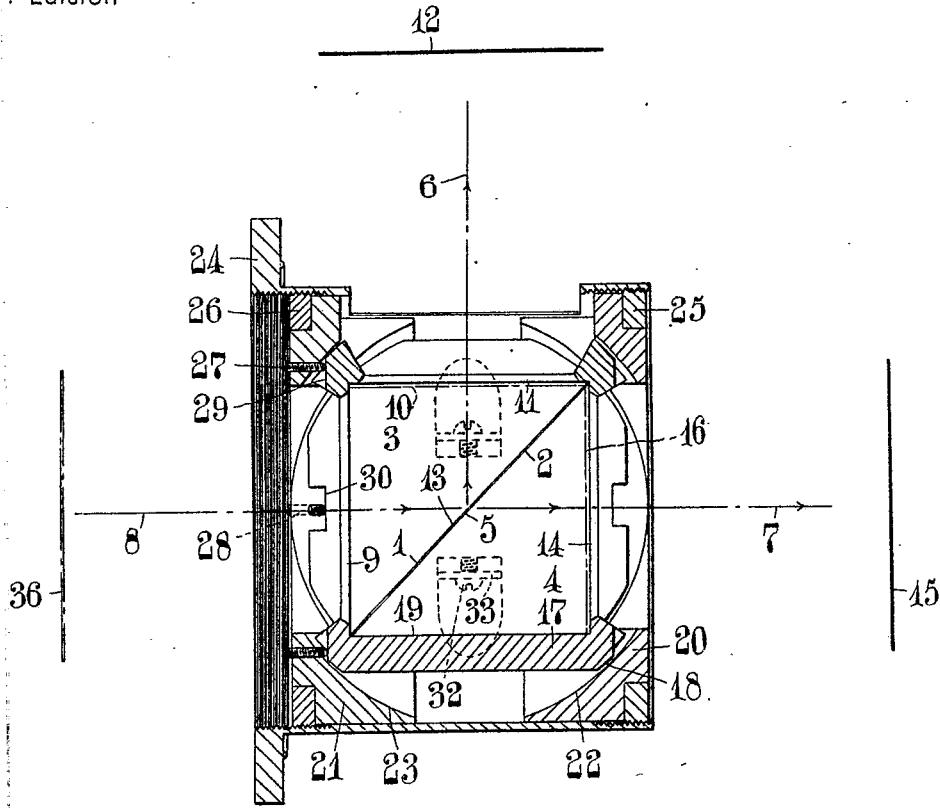


Fig. 1

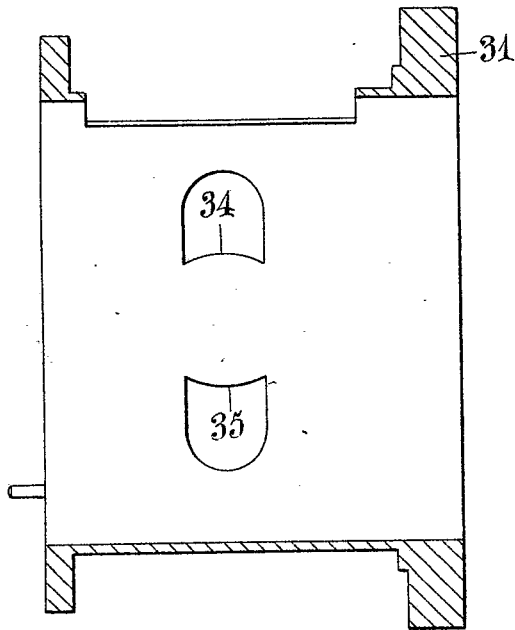


Fig. 2