PATENT SPECIFICATION

We, Arox Hamburger, of 99, Charlotte Street, London, W. 1, a citizen of the United States of America, and Henry E. Rawdon Cosson, 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 platiniéed glas, arranged at an angle of 45° to the incident beam. The incident beam is thus divided into two parts, one along and one 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.

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.

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.

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

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:

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.

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

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 platiniéed 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.

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.
The beam 7, transmitted unaltered in direction through the platiniised or other
mirror-coated surface 13, passes through
the colour filter 5 between the hypotenuse 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.

Now, particularly in the case of
cameras for two-colour cinematography,
exact focussing of the image on both
films is of great importance. The inter-
position 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.
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.

The prism block is sunk slightly into
a metal carrier 17 whose outer surfaces
18 are formed as part of a sphere. The
carrier 17 may cover the optically un-
utilised face 19 of the prism block.

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.

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 dismounted and replaced by other
prism members and prism assemblies having different optical or
colour characteristics without altering the
foregoing adjustment of the prisms.

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
to the first-mentioned axis by
screws 28, acting respectively on corre-
sponding flat surfaces 29, 30 formed on
the spherical mount 17.

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.

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 re-
flections of objects outside the field and an
initial colour screen 36 may be inter-
posed on or before the incident face 9 of
the prism 3. When more than two sen-
tisised 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.

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

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

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.

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.

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.

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

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.

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

Dated this 22nd day of December, 1924.
MARKS & CLERK.