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COMPLETE SPECIFICATION.

A Method of and Device for Obturating Photographic Objectives having a Multi-colour Filter.

We, I. G. FARBENINDUSTRIE AKTIEN-
GESELLSCHAFT, a Joint Stock Company
organised according to the laws of
Germany, of Frankfurt a/Main,
5 Germany, do hereby declare the nature
of this invention and in what manner
the same is to be performed, to be par-
ticularly described and ascertained in and
by the following statement:—

10 In the known Berthon process for
photographing moving pictures in
natural colours on linear lenticular
films a filter, placed in front of the
objective, is used which comprises several
15 juxtaposed areas in different colours.
In its preferred form of construction the
filter has three parallel juxtaposed areas
(zones) of the fundamental colours red,
green and blue. For a great many pur-
20 poses it is desirable to obturate partly one
or more or even all of the colour areas.
This is particularly necessary when the
emulsion used is too sensitive for one of
the colours of the filter, or when special
25 colour effects are to be obtained by sup-
pressing one or two constituent colours.
In certain cases it will also be necessary
to reduce uniformly the luminosity for
all colours. In this case the light can-
30 not be intercepted by perforated or iris
diaphragms as is customary in the
ordinary black and white photography,
since the colours obtained would not be
the true colours for the reason that the
35 central colour area is obturated to too
small an extent while the lateral segments
of the multicolour-filter are much more
affected by this interception of light.
Hitherto it has been proposed to obturate
40 the colour filter by more or less obturat-
ing the colour areas in question over
their whole breadth.

In the known Berthon process three
parti-colour pictures of the object to be
45 photographed are produced in the sensi-
tive layer behind each lens element of
the film backing. Owing to the small
extension of each particolour picture into
the areas of the adjacent pictures a
50 diffusion halo is produced in this process
which entails the disadvantage that the
colours are more or less turned into white.
By lateral diffusion one of the picture

zones which corresponds with the red
colour of a part of the object to be photo-
graphed and which, as the object contains
at that place, for instance, only a small
amount of red, will scarcely be exposed,
receives an additional exposure from the
adjacent zone corresponding with green
which may perhaps be strongly exposed.

In order to prevent diffusion halos along
the dividing lines of the colour areas of
a multi-colour filter, it has hitherto been
proposed to separate the colour areas by
opaque strips which extend over the whole
length of the dividing lines.

According to this invention the
obturation of a multi-colour filter by
means of strips which extend along the
dividing lines of the colour areas is
improved by making the strips adjust-
able, so that the colour areas may be
masked to a greater or less extent accord-
ing to requirement and the colour repro-
duction controlled within wide limits.
The strips used for masking the colour
areas along their dividing lines are
adjusted according to the relationship
desired between the individual colour
values and according to the sensitiveness
80 to colours of the emulsion, while taking
due account also of the other properties
of the emulsion. In the case of a filter
comprising n colour areas the number of
the strips may vary from $(n-1)$ to $(n+1)$,
but may likewise be smaller than $(n-1)$.
The strips may be adjustable in the
lateral direction, so that they may either
cover equal areas at the right and left
90 of the dividing line or may cover at one
side of the dividing line a larger area
than on the other. The strips may like-
wise be adjustable in their longitudinal
direction so that they extend either over
95 the whole length of the dividing line or
over only a fraction thereof.

A construction in accordance with the
invention is illustrated by way of example
in the accompanying drawing, Fig. 1
100 being a view of the device in perspective
and Fig. 2 is a cross section.

The obturating device comprises a
frame 2, which is mounted together with
the colour filter 3 having colour areas r ,
105 g , and b on the objective casing 1 of a

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photographic camera. Adjustable slides 4, which can be moved longitudinally in a slot of the frame 2, are arranged in front of the colour filter and are provided with extensions 5. The slides 4 may be fixed in any desired position by means of set screws 6; to facilitate adjustment the slides may be provided with a suitable scale. It will be seen that the colour areas are masked along their dividing lines by the extensions 5 to an extent which is dependent upon the positions of the slides 4 in front of the colour filter. At the same time, the outer edges of the outer colour areas are also masked parallel to the dividing lines.

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:—

1. In the known process of producing colour record images on lenticular films having cylindrical lens elements, wherein the photographic objective has a multi-colour filter, which is obturated by

means of strips along the dividing lines of the different colour areas, the improvement which consists in making the strips adjustable, so that the colour areas can be masked to a greater or less extent and the colour reproduction controlled. 30

2. A device for the process referred to in claim 1, comprising a mask which is fitted in front of the multi-colour filter and is provided with adjustable opaque strips adapted to cover wholly or in part the dividing lines between the colour areas of the filter, the number of adjustable strips being not more than $n+1$, n being the number of the colour areas of the filter. 35 40

3. A device for obturating photographic objectives having a multi-colour filter, constructed and adapted to operate substantially as herein described. 45

Dated this 17th day of November, 1930.

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[This Drawing is a reproduction of the Original on a reduced scale.]

