PATENT SPECIFICATION

406,187

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COMPLETE SPECIFICATION.

Improvements relating to the Obturation of Multi-colour Filters in Taking Pictures on Lenticular Films.

We, I. G. FARBENINDUSTRIE AKTIENGESELLSCHAFT, a Joint Stock Company organised according to the laws of Germany, of Frankfurt a/Main, Germany, 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:—

It is known that the production of pictures on lenticular films with the aid of a multi-colour filter is improved when the camera has a tubular extension in front of its objective. The present invention relates to means for obturating the objective and filter in cameras having such a tubular extension or objective tube.

An obturating device in accordance with the invention comprises slidable members arranged within the tubular extension and forming in close proximity to the filter an aperture having edges perpendicular to the direction of the filter stripes and variable in respect of its width (that is, in its dimension perpendicular to the said edges) by movement of the slidable members in opposite directions.

In one construction according to the invention the slides are operated by means of a rotatable ring which is mounted on the objective tube and is connected to the sliding members through a pin and slot connection.

The slidable members may consist of two angular steel slides mounted in guideways in close proximity to the filter and operated by the aforesaid pin and slot connection; or they may consist of two flexible, resilient bands arranged close to the inner wall of the objective tube and having their end portions adjoining the filter turned inwardly so as to form the aperture. According to another construction, the slidable members form runs of a single flexible band passing around a roller or the like and the aperture is formed by openings in adjacent portions of the runs, so that movement of the runs in opposite directions causes relative movement of the openings and consequent variation in the width of the effective aperture.

It has already been proposed to obturate a square multi-colour filter by means of slides arranged adjacent to the filter and forming an aperture whose dimension in the direction of the filter stripes can be varied by movement of the slides in opposite directions; in the construction hitherto proposed, the slides and their operating mechanism were mounted on the front of the camera which had no tubular extension, and the device was not adapted for use with a camera having such an extension.

The invention is illustrated in the accompanying drawings in which—

Fig. 1 is a longitudinal section through an objective tube provided with a multi-colour filter for taking pictures on lenticular films.

Fig. 2 is a front view of the outer tube of the obturating device with its guideway for the diaphragm slides.

Fig. 3 is a front view of the controlling ring with a tube-like extension and the controlling slits for the diaphragm.

Fig. 4 shows in detail the diaphragm slides.

Figs. 5 and 6 are longitudinal sections through two modified devices according to this invention.

In the objective tube 1 the colour filter 2 for taking pictures on lenticular films is fixedly mounted in such a manner that the filter stripes comprising, for instance, three partial colours run in the same direction as the lenticular embossings on the film. The objective tube 1 further holds the outer diaphragm tube 3, the end wall 4 of which facing the colour filter 2 has a rectangular opening 5. On the end wall 4 the slides 6 of the diaphragm, which serve to limit the filter stripes, are slidably mounted in guideways 4*a*. The diaphragm slides 6 are angular in form, each having a pin 6*a*. These pins are guided in slots 7 inclined to the edges of the diaphragm aperture and provided in the end wall 8 of the rotatable ring member 9. The end wall 8 has furthermore a rectangular opening 8*a* which is rotated when the ring is turned. The tubular part of the rotatable ring member 9 is disposed within the outer diaphragm tube 3. On its front side the ring member 9

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bears a slot 10, which in co-operation with a pin 11 provided on the stationary objective tube 1 limits the movement of the ring 9.

It may be seen from Fig. 1 that when turning the ring 9 the end wall 8 having slots 7 is likewise turned with regard to the stationary objective tube 1 and, therefore, the slides 6 sliding in fixed guiding means 4*a* are displaced by the pins 6*a* in such a manner that the rectangular opening is increased or decreased in width, so that the different filter stripes are uniformly stopped in their longitudinal direction.

In a modification of Fig. 1 shown in Fig. 5 inside an objective tube 13 there is placed a sleeve 14. Between the tube 13 and the sleeve 14 there is slidably provided a flexible steel band 15 serving as a mask. The flexible steel band 15 is guided round the pin or roller 16 and fixed thereto so that when turning the knob 17 which is connected to the pin 16 the band mask is displaced. At the opening 18 of the diaphragm tube 13 the band mask has two rectangular openings 19 (cf. the dotted lines). The free ends of the band mask are designed 15*a* and 15*b*. When turning the knob 17 one end of the band mask, for instance 15*a*, will approach the exposure window, while the other free end 15*b* of the band mask moves away from it. In this manner the rectangular slot is decreased or increased and the filter stripes are stopped in their longitudinal direction.

Fig. 6 represents another modified form of a device according to this invention. With this arrangement the flexible band masks 20 and 21 form at their free edges the aperture of the diaphragm and are controlled by a regulating ring 22, which by a pin-and-slot connection 23 co-operates with the band masks. All other parts which this device has in common with the device illustrated in Fig. 5 bear the same reference numbers. The regulating ring 22 is rotatably connected, by means of a stud 24, with the objective tube 13 which is provided with an annular groove 25.

The attachment is connected with the camera by introducing it in the objective tube. It may be held in the desired position by a pin fixed on the attachment, said pin engaging a slot provided in the objective tube.

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. An obturating device for use in taking pictures on a lenticular film with the aid of a multi-colour filter by means of a camera having a tubular extension in front of the objective, comprising slidable members arranged within the tubular extension and forming in close proximity to the filter an aperture having edges perpendicular to the direction of the filter stripes and variable in respect of its width by movement of the slidable members in opposite directions.

2. A device according to Claim 1, wherein the sliding members are controlled by a regulating ring mounted on the objective tube.

3. A device according to Claims 1 and 2, wherein the actuation of the sliding members by the regulating ring is effected by a pin-and-slot connection.

4. A device according to Claim 1, wherein the rectangular diaphragm is formed by two angular slides disposed in guideways in close proximity to the filter so as to be slidable in the direction of the filter stripes.

5. A device according to claim 1, wherein the slidable members consist of two flexible, resilient bands arranged close to the inner wall of the objective tube and having their end portions adjoining the filter turned inwardly so as to form the aperture.

6. A device according to claim 1, wherein the slidable members consist of runs of a flexible band passing around a roller or the like, and the aperture is formed by openings in adjacent portions of the runs.

7. A device for obturating multi-colour filters for use in taking pictures on lenticular films, substantially as herein described with reference to the accompanying drawings.

Dated this 5th day of July, 1933.

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Fig. 1

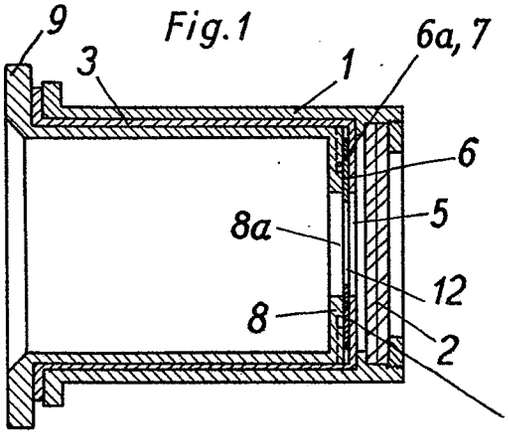


Fig. 2

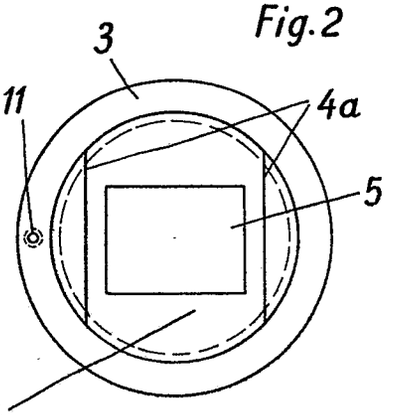


Fig. 3

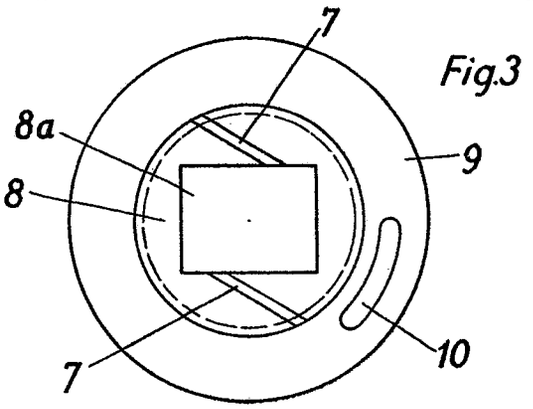


Fig. 4

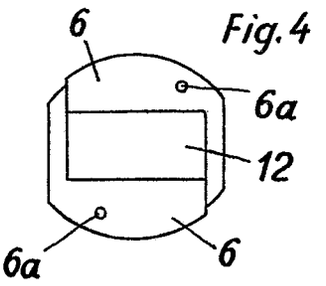


Fig. 5

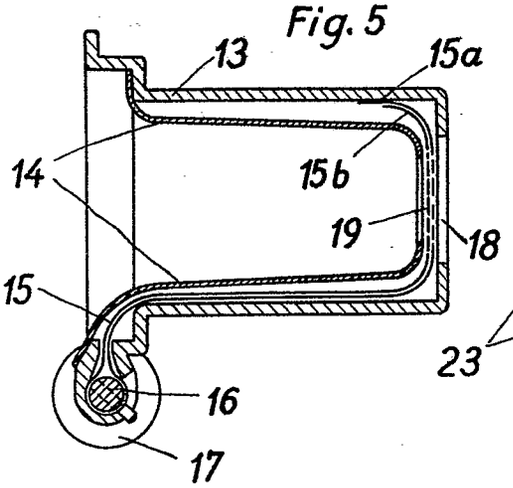
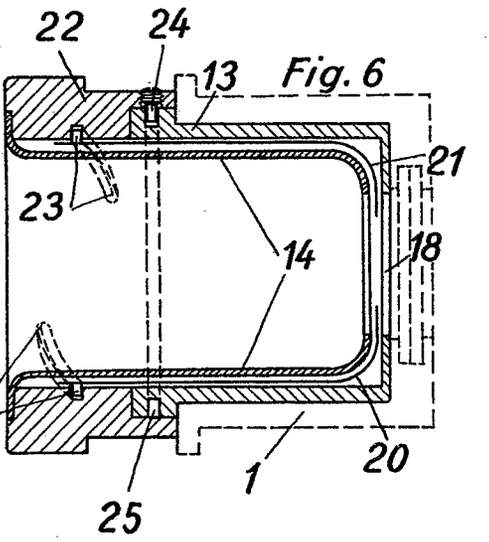


Fig. 6



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