

Lens hood for a photographic objective

The present invention relates to a photographic fitting and has particular reference to a lens hood.

In CH-PS 236 399 there is disclosed a lens hood comprising a stationary part with a bayonet fastening and a displaceable part. The stationary part is fastened to a camera independently of the objective and has guide pins on which the displaceable part can slide axially from a rest position into an operative position. In both settings the displaceable part is arrested by means of springs against unintended displacement. In the operative position of the hood, the stationary part leaves a lateral access so that the focal stop and distance can be set at the objective. This known hood is relatively bulky. In order to allow mounting of filters, which are screwed into a front thread of an accessory carrier of the objective, the hood must be removed from the objective.

A lens hood is known from CH-PS 446 877 for photographic objectives of particularly short focal length, this shade consisting of a set of interchangeable masks of rectangular cross-section. The individual masks are connectible by means of several balls, disposed under spring pressure, with a carrier ring which is screwed into the front thread of an accessory carrier for the objective. Each mask is provided with a grip element to allow rotation of the mask for an upright or a transverse format. The hood is arranged directly in front of the objective in order to conceal those circular segments of the objective which are not needed for the image formation. Mounting

of filters or other attachments at the objective is not possible with this hood.

There is thus a need for a weather shade, of compact dimensions, which is available for use whenever needed and thus is captively
5 connected with the objective, which may enable use of accessories such as filters free of problems, and which may cut out unwanted light.

According to the present invention there is provided a photographic fitting comprising a unitary lens hood mounted on a photographic objective to be movable axially thereof between a
10 retracted setting in which a front face of the hood is substantially flush with a front end of an accessory carrier of the objective and an extended setting in which the front face is spaced from said front end, the objective being provided with at least one format stop and the hood comprising a front member which defines the front face and
15 has a generally rectangular opening and an adjoining mounting tubus which is secured against rotation relative to the objective by means of a substantially rectilinear guide at the accessory carrier and against detachment from the objective by means of the carrier.

Such a lens hood or weather shade may be particularly suitable
20 for objectives of short focal length, for example from 21 to 50 millimetres. Known hoods for objectives of that kind are bulky and require coupling points or latching and unlatching elements. By contrast, a hood embodying the present invention may be of short, compact mode of construction and does not, in its rest setting
25 recessed in the objective, impair the screwing of accessories, such as filters, onto the thread of the accessory carrier or hinder the

attachment of a cover for the objective cover. Even when a filter is attached to the objective, the hood can be pulled out without hindrance and brought into operative setting.

By virtue of the short mode of construction, unwanted light may
5 be able to enter the objective through the upper and lower circular arc of the front surface of the hood. In order to exclude this, a format stop is provided as a component of the objective. The stop still permits the edge rays for the individual image heights. It is self-evident that the geometric shape of this format stop is to
10 fixed by computation for the respective objective. The format stop can be applied as an opaque layer, for example printed or evaporated onto the front lens, or can be mounted as a thin non-reflecting metal or synthetic material foil. A further stop of the same or similar mode of construction can be provided in the rear region of the optical
15 system of the objective in order to exclude unwanted light within the objective or the interior space of a camera equipped with the fitting.

An embodiment of the present invention will now be more particularly described, by way of example, with reference to the accompanying drawings, in which:

20 Fig. 1 is a partly sectioned side elevation a part of a fitting embodying the invention, with a lens hood in retracted rest setting on an objective;

Fig. 2 is a perspective view of the hood; and

Fig. 3 is a detail of the fitting of Fig. 1, with the hood
25 disposed in extended use setting.

Referring now to the drawings there is shown in Fig. 1 a fitting

comprising a photographic objective 10 with several lens mounts 11, 12 and 13, as well as a main mount 14 and a diaphragm leaf guide ring 15. The last-mentioned is connected with a stop ring 16 by way of an entraining ring 17 and a screw (not shown). The objective is provided
5 with an accessory carrier 18 with a thread into which optical accessories such as filters, soft-focus lenses or the like can be screwed. A slot 19, which receives a cylindrical tubus 20 of a one-piece weather shade or lens hood 21, when this is in a rest setting as shown in Fig. 1, is formed between the accessory carrier 18 and the
10 stop ring 16 as well as the entraining ring 17 connected therewith. The hood 21 is secured against rotation by means of a rectilinear guide 22 arranged at the accessory carrier and displaceable axially in the slot 19. Complete pulling-off of the hood 21 is prevented by a step 23 at the accessory carrier 18 and a projection 24 within the
15 hood. The entraining ring 17 forms an abutment for the hood when it is pushed into the rest setting. It can be seen that the front surface 25 of the hood 21 in this position is practically flush with the front edge of the accessory carrier 18. The thread of the carrier is thus freely accessible for the mounting of filters.

20 The shape of the hood 21 is evident from Fig. 2. The cylindrical tubus 20 adjoins a front member 26 with a front surface 25 having an approximately rectangular opening. The front surface itself has two longer and two shorter circular arcs 27 and 27', which are mutually opposite and separated by substantially radially directed cut-outs 28.
25 These determine the approximately rectangular opening in the front surface 25.

By virtue of the compact and, particularly in axial direction, short mode of construction of the hood 21, unwanted light may be able to enter the objective 10 mainly through the longer circular arcs 27. In order to prevent this, a format stop 29 is provided. In the present case, this is carried by an end ring 30 of the objective 10 and is disposed directly in front of its front lens. The format stop 29 can be formed by a self-supporting blackened metal or synthetic material, for example plastics, foil and can have an approximately rectangular opening. In some cases, it can be simpler to print or evaporate the format stop directly as an opaque coating onto the front lens. A further format stop (not shown) of like mode of construction can be provided in the part of the objective adjacent to the point of connection of the fitting to a camera, for example behind the last lens, in order to eliminate reflections in the camera interior.

Fig. 3 shows a detail of the objective 10, the same reference numerals being used as in Fig. 1. In this case, however, the hood 21 is shown disposed in operative setting, thus in pulled-out position. It can be seen that the axial pulling-out is limited by the step 23 at the accessory carrier 18 and the projection 24 of the hood 21.

CLAIMS

1. A photographic fitting comprising a unitary lens hood mounted on a photographic objective to be movable axially thereof between a retracted setting in which a front face of the hood is substantially flush with a front end of an accessory carrier of the objective and an
5 extended setting in which the front face is spaced from said front end, the objective being provided with at least one format stop and the hood comprising a front member which defines the front face and has a generally rectangular opening and an adjoining mounting tubus which is secured against rotation relative to the objective by means
10 of a substantially rectilinear guide at the accessory carrier and against detachment from the objective by means of the carrier.
2. A fitting as claimed in claim 1, wherein the opening is defined in part by circularly arcuate edges which partially encompass the carrier in the retracted setting of the hood.
- 15 3. A fitting as claimed in claim 2, wherein the opening is further defined by cut-outs between the arcuate edges.
4. A fitting as claimed in any one of the preceding claims, wherein the at least one format stop is arranged in front of an optical system of the objective.

5. A fitting as claimed in any one of claims 1 to 3, wherein the at least one format stop is arranged within an optical system of the objective.
 6. A fitting as claimed in any one of claims 1 to 3, wherein the at least one format stop is arranged behind an optical system of the objective.
 7. A fitting as claimed in any one of the preceding claims, wherein the at least one format strip is provided by a printed layer.
 8. A fitting as claimed in any one of the claims 1 to 6, wherein the at least one format stop is provided by a synthetic material foil glued into position.
 9. A fitting as claimed in any one of the claims 1 to 6, wherein the at least one format stop is provided by a self-supporting blackened foil.
 10. A photographic fitting substantially as hereinbefore described with reference to the accompanying drawings.
 11. Photographic apparatus comprising a fitting as claimed in any one of the preceding claims.
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