

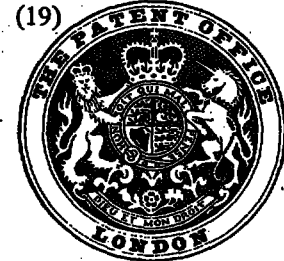
PATENT SPECIFICATION

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(54) BAYONET FITTING FOR THE DETACHABLE CONNECTION OF A FLASH UNIT TO A CAMERA

(71) We, BRAUN

AKTIENGESELLSCHAFT, a body corporate
organised and existing under the laws of the
Federal Republic of Germany, of

22 Rüsselsheimer Strasse, Frankfurt/Main,
Federal Republic of Germany, do hereby
declare the invention, for which we pray that a
patent may be granted to us, and the method by
which it is to be performed, to be particularly
described in and by the following statement:—

This invention relates to a bayonet fitting for
the detachable connection of a flash unit to its
associated camera.

It is well known to connect a flash unit to a
camera by providing the former with a shoe
arrangement which is inserted into a matching
socket carried by the camera. This method of
connecting the flash unit to the camera is now
not normally employed with flash units of
higher power because of the relatively high
weight of the unit and because the two parts of
this kind of connection can readily cant or tilt
in relation to one another.

If the flash unit is attached to the camera by
a screw connection, then it has to be accepted
that the introduction of the screw into the
threaded hole in the flash unit and the sub-
sequent screwing down and tightening of the
screw all take a not inconsiderable amount of
time which, in many cases, exceeds the short
time available for the photographing of a mov-
ing subject so that the often unrepeatable
opportunity of making such a photograph is lost
simply because it is impossible to make the
camera and flash unit ready in time for
operation.

The present invention aims to provide a
detachable connection between flash unit and
camera, which is not subject to the aforesaid
drawbacks.

According to the invention, there is provided
a bayonet fitting for the detachable connection
of a flash unit to a camera, said bayonet fitting
comprising an external component assigned to
one of the flash unit and camera, an internal

component assigned to the other of the camera
and flash unit, and a locking member provided
on one of said components and biased by a
spring into engagement in a recess in the other
component when said external component is
fitted inside the internal component for securing
the external component in a predetermined
angular relationship whereby the bayonet fitting
serves to secure the flash unit in a predeter-
mined attitude in relation to the camera. This
kind of fitting is distinguished by a low overall
height, ensures extremely rapid connection and
disconnection of the flash unit to and from the
camera, and also secures the flash unit to the
camera firmly and in a robust manner. More-
over, the bayonet fitting in accordance with the
invention is extremely easy to handle.

By means of the locking member, automatic
locking of the flash unit to the camera, with
the reflector in the proper position for
operation, is achieved. Moreover, with sym-
metrical disposition of the locking member
within the bayonet connection, it becomes
possible to secure the flash unit to the camera
in either of two angular positions which are
rotated through 180° relatively to one another.
This is a particular advantage when the flash
unit is disposed at the side of the camera be-
cause it enables the camera to be operated with
the left hand or the right hand, as desired.

The invention will now be further described,
by way of example, with reference to the draw-
ings, in which:—

Figure 1 is a side elevation of one embodi-
ment of an external component or bayonet fit-
ting forming part of a bayonet connection ac-
cording to the invention;

Figure 2 is a section through one embodiment
of an internal component or bayonet fitting
adapted to co-operate with the external bayonet
fitting illustrated in Figure 1;

Figure 3 shows a detail of the fitting illus-
trated in Figure 2 to an enlarged scale; and

Figure 4 is a plan view of the internal
bayonet fitting illustrated in Figure 2.

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Referring to the drawings, the external component or bayonet fitting 1 shown in Figure 1 is provided at the end of a bar-like handle 2 of a flash unit (not shown). The external bayonet fitting comprises four flange-type extensions 1.1 located diametrically opposite one another in pairs at the periphery of the external fitting. Assigned to these four flanges 1.1 on the external fitting, there are four cutouts 3.1 in an internal component or bayonet fitting 3 which together with the external fitting 1 forms the device adapted to detachably connect the flash unit to a camera.

As shown in Figure 4, the internal bayonet fitting 3 consists of an undercut ring on which four cut-outs 3.1 have been formed for the introduction of the flanges 1.1 on the external bayonet fitting 1. The remaining part of the undercut ring thus, likewise, forms four flange-like extensions 3.3 which project inwards and which are likewise disposed diametrically opposite one another in pairs.

The internal bayonet fitting 3 has a flat surface 3.2 which acts as a stop for engagement with a corresponding stop face 1.2 on the external bayonet fitting 1. When the two bayonet fittings are connected together the likewise flat stop face 1.2 on the external fitting 1 comes up flush against the stop face 3.2 on the internal fitting.

The internal bayonet fitting 3 has an opening 3.4 passing centrally through its base 3.5 and designed to allow a locking key 4 to pass through it, the locking key having a locking stop 4.1 which can project into the interior of the internal bayonet fitting 3 and thus (when the external fitting 1 is in the locking position) into a longitudinal groove 1.4 in the base section 2.1 of the unit handle 2, said section 2.1 simultaneously forming the front of the external bayonet fitting 1. A compression spring 7 is provided which seats on the one hand against the locking key 4 and on the other hand against a rail 6 attached to the camera base (not shown) and screwed to the base 3.5 of the internal bayonet fitting 3 by a screw 5.

When the external bayonet fitting 1 is inserted into the internal fitting 3, the flanges 1.1 pass through the cut-outs 3.1 and the base section 2.1 presses the locking stop 4.1 of the locking key 4 down against the load of the compression spring 7 since in this entry position the longitudinal groove 1.4 in the external bayonet fitting 1 occupies an angular position which deviates from that of the locking key. Once the external fitting 1 has been completely inserted into the internal fitting 3, the two fittings are rotated relatively to one another, the flanges 1.1 engaging behind those 3.3. The thicknesses of these flanges are so related to one another that the stop face 1.2 on the external fitting 1 slides without any clearance over that 3.2 on the internal fitting 3.

The mutual rotation of the two bayonet fittings 1 and 3 is continued until the longitudinal groove 1.4 is in line with the locking

key 4. As soon as this position is reached, the locking key 4, under the action of the compression spring 7, is driven to engage its locking stop 4.1 in the groove 1.4 and thus secures the two bayonet fittings 1 and 3 in their locked position. The flash unit is thus secured to the camera by the camera rail 6, at a fixed spacing from the camera optical system.

The central, i.e. symmetrical arrangement of the locking key 4 and of the co-operating longitudinal groove 1.4, makes it possible to offset the two bayonet fittings 1 and 3 from one another through 180°. This offsetting means that the camera thus secured to the flash unit through the agency of the camera rail 6, can be operated either by the left hand or by the right hand of the user.

To release the bayonet connection, the locking key 4 is depressed by means of a thumb catch 4.2, projecting out of the internal bayonet fitting 3 and forming an extension of the locking key 4. The locking key 4 is thus caused to pivot inside the opening 3.4, about its shoulder 4.3 and thus disengages the locking stop 4.1 from the interior of the internal bayonet fitting 3. This done, the external bayonet fitting can be freely rotated within the internal fitting and once the flanges 1.1 and cut-outs 3.1 have been brought into angular alignment with one another, can be withdrawn, breaking the connection between flash unit and camera.

To facilitate the insertion of the external bayonet fitting 1 into the internal fitting 3, the bayonet connection is provided with markings indicating the correct insertion and release position. A marking 8 assigned to the external fitting is provided on the circumference of the bar-like handle 2 of the flash unit, directly above the stop face 1.2, whilst on the other hand four markings 9 offset at intervals of 90° from one another are formed by narrow slots which extend from the external periphery down to the stop surface 3.2 of the internal bayonet fitting 3.

The external bayonet fitting 1 is aligned for insertion into the internal bayonet fitting 3 when the marking 8 is in line with one of the markings 9 whilst when the bayonet connection is in the locked position, the marking 8 is located in each case between two of the markings 9.

WHAT WE CLAIM IS:—

1. A bayonet fitting for the detachable connection of a flash unit to a camera, said bayonet fitting comprising an external component assigned to one of the flash unit and camera, an internal component assigned to the other of the camera and flash unit, and a locking member provided on one of said components and biased by a spring into engagement in a recess in the other component when said external component is fitted inside the internal component for securing the external component in a predetermined angular relationship whereby the bayonet fitting serves to secure the flash unit in a predetermined attitude in relation to



Referring to the drawings, the external component or bayonet fitting 1 shown in Figure 1 is provided at the end of a bar-like handle 2 of a flash unit (not shown). The external bayonet fitting comprises four flange-type extensions 1.1 located diametrically opposite one another in pairs at the periphery of the external fitting. Assigned to these four flanges 1.1 on the external fitting, there are four cutouts 3.1 in an internal component or bayonet fitting 3 which together with the external fitting 1 forms the device adapted to detachably connect the flash unit to a camera.

As shown in Figure 4, the internal bayonet fitting 3 consists of an undercut ring on which four cut-outs 3.1 have been formed for the introduction of the flanges 1.1 on the external bayonet fitting 1. The remaining part of the undercut ring thus, likewise, forms four flange-like extensions 3.3 which project inwards and which are likewise disposed diametrically opposite one another in pairs.

The internal bayonet fitting 3 has a flat surface 3.2 which acts as a stop for engagement with a corresponding stop face 1.2 on the external bayonet fitting 1. When the two bayonet fittings are connected together the likewise flat stop face 1.2 on the external fitting 1 comes up flush against the stop face 3.2 on the internal fitting.

The internal bayonet fitting 3 has an opening 3.4 passing centrally through its base 3.5 and designed to allow a locking key 4 to pass through it, the locking key having a locking stop 4.1 which can project into the interior of the internal bayonet fitting 3 and thus (when the external fitting 1 is in the locking position) into a longitudinal groove 1.4 in the base section 2.1 of the unit handle 2, said section 2.1 simultaneously forming the front of the external bayonet fitting 1. A compression spring 7 is provided which seats on the one hand against the locking key 4 and on the other hand against a rail 6 attached to the camera base (not shown) and screwed to the base 3.5 of the internal bayonet fitting 3 by a screw 5.

When the external bayonet fitting 1 is inserted into the internal fitting 3, the flanges 1.1 pass through the cut-outs 3.1 and the base section 2.1 presses the locking stop 4.1 of the locking key 4 down against the load of the compression spring 7 since in this entry position the longitudinal groove 1.4 in the external bayonet fitting 1 occupies an angular position which deviates from that of the locking key. Once the external fitting 1 has been completely inserted into the internal fitting 3, the two fittings are rotated relatively to one another, the flanges 1.1 engaging behind those 3.3. The thicknesses of these flanges are so related to one another that the stop face 1.2 on the external fitting 1 slides without any clearance over that 3.2 on the internal fitting 3.

The mutual rotation of the two bayonet fittings 1 and 3 is continued until the longitudinal groove 1.4 is in line with the locking

key 4. As soon as this position is reached, the locking key 4, under the action of the compression spring 7, is driven to engage its locking stop 4.1 in the groove 1.4 and thus secures the two bayonet fittings 1 and 3 in their locked position. The flash unit is thus secured to the camera by the camera rail 6, at a fixed spacing from the camera optical system.

The central, i.e. symmetrical arrangement of the locking key 4 and of the co-operating longitudinal groove 1.4, makes it possible to offset the two bayonet fittings 1 and 3 from one another through 180°. This offsetting means that the camera thus secured to the flash unit through the agency of the camera rail 6, can be operated either by the left hand or by the right hand of the user.

To release the bayonet connection, the locking key 4 is depressed by means of a thumb catch 4.2, projecting out of the internal bayonet fitting 3 and forming an extension of the locking key 4. The locking key 4 is thus caused to pivot inside the opening 3.4, about its shoulder 4.3 and thus disengages the locking stop 4.1 from the interior of the internal bayonet fitting 3. This done, the external bayonet fitting can be freely rotated within the internal fitting and once the flanges 1.1 and cut-outs 3.1 have been brought into angular alignment with one another, can be withdrawn, breaking the connection between flash unit and camera.

To facilitate the insertion of the external bayonet fitting 1 into the internal fitting 3, the bayonet connection is provided with markings indicating the correct insertion and release position. A marking 8 assigned to the external fitting is provided on the circumference of the bar-like handle 2 of the flash unit, directly above the stop face 1.2, whilst on the other hand four markings 9 offset at intervals of 90° from one another are formed by narrow slots which extend from the external periphery down to the stop surface 3.2 of the internal bayonet fitting 3.

The external bayonet fitting 1 is aligned for insertion into the internal bayonet fitting 3 when the marking 8 is in line with one of the markings 9 whilst when the bayonet connection is in the locked position, the marking 8 is located in each case between two of the markings 9.

WHAT WE CLAIM IS:—

1. A bayonet fitting for the detachable connection of a flash unit to a camera, said bayonet fitting comprising an external component assigned to one of the flash unit and camera, an internal component assigned to the other of the camera and flash unit, and a locking member provided on one of said components and biased by a spring into engagement in a recess in the other component when said external component is fitted inside the internal component for securing the external component in a predetermined angular relationship whereby the bayonet fitting serves to secure the flash unit in a predetermined attitude in relation to



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the camera.

2. A bayonet fitting according to claim 1, wherein the external component is provided on the flash unit and the internal component is provided on the camera.

3. A bayonet fitting according to claim 1 or claim 2, wherein the locking member is biased by the spring into a position in which it is engageable with the external component, means being provided for moving said locking member out of engagement with the external component against the action of the spring.

4. A bayonet fitting according to any preceding claim, wherein the locking member comprises a locking key guided in the base of the internal component and having a locking stop adapted to co-operate with the external component when the latter is inserted into the internal component in such a fashion that, with the fittings in a predetermined angular position in which flanges on the internal component engage behind flanges on the external component, the locking stop snaps under spring load into a longitudinal groove formed in the external component.

5. A bayonet fitting according to claim 4, wherein the thicknesses of the flanges on the external and internal components are so related to one another that when said flanges engage behind one another, a stop face on the external component slides without any clearance over a

mating stop face on the internal component.

6. A bayonet fitting according to any preceding claim, wherein markings are provided on the external and internal components to indicate the correct angular position of the external component to the internal component for insertion and release, as well as the correct angular position for locking.

7. A bayonet fitting according to claim 5 and claim 6, wherein a marking is arranged immediately above the stop face on the external component, whilst markings are formed by narrow slots extending from the external periphery of the internal component down to the stop face thereof.

8. A bayonet fitting according to any preceding claim, wherein the external component is mounted on a barlike handle of the flash unit and the internal bayonet fitting is mounted on a rail attached to the camera base.

9. A bayonet fitting for the detachable connection of a flash unit to a camera, said fitting being substantially as described herein with reference to the drawings.

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