

PATENT SPECIFICATION



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COMPLETE SPECIFICATION.

Improvements in or relating to Photographic Cameras.

We, ERNST LEITZ G.M.B.H., a Company organised under the Laws of Germany, of Optical Works, Wetzlar, 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:—

This invention relates to a photographic camera of the kind provided with a telemeter of the short-base type, wherein the movable mirror or prism of the telemeter is mechanically interconnected with a screw-focussing mount for the camera objective (or with a screw-focussing member carrying the objective mount), so that the telemeter indicates when the objective is focussed. The present applicants' prior British Patent Specification No. 371,252 relates to an arrangement of this kind, wherein the interconnecting mechanism, through which the focussing movement is transmitted to the telemeter, is in the form of a simple system of levers, and in the preferred arrangement more particularly described in the prior specification two levers are employed which are in sliding engagement with one another. A difficulty arises with such an arrangement however owing to the fact that the laws governing the objective movement and the telemeter movement in relation to the distance of the object to be photographed do not conform to one another. Consequently it is possible to arrange the mechanism so that the telemeter correctly indicates exact focussing for two distances, say infinite distance and a chosen short distance, but for other distances there will be a slight error in the focussing.

The present invention has for its object to provide an improved arrangement wherein this difficulty is avoided.

In the arrangement according to the invention the interconnecting lever mechanism for transmitting the objective focussing movement to the telemeter includes two levers which make sliding engagement with one another, one or each of the interengaging lever surfaces being curved in such a manner as to afford substantially exact compensation for the varying rela-

tionship between the objective movement and the telemeter movement throughout the whole range of distances.

Preferably one of the levers carries an adjusting screw whose end engages with a part of the other lever, such part or the end of the adjusting screw being appropriately curved.

A preferred arrangement according to the invention, together with a modification thereof, is illustrated in the accompanying drawings, in which

Figures 1 and 2 are respectively horizontal and vertical sections through the casing of the telemeter showing the preferred form of lever mechanism; and

Figure 3 illustrates the modified arrangement.

In the arrangement of Figures 1 and 2, the telemeter is of the short-base type and consists of a rotatable totally reflecting prism A and a fixed partially reflecting mirror B mounted in a casing C carried on the top of the casing of the camera (not shown). The casing C has an observation window C¹ in its back wall adjacent to the mirror B, and two windows C², C³ in its front wall adjacent respectively to the mirror B and the prism A, the arrangement being such that the prism A is rotated until the two images of the object obtained through the windows C², C³ coincide with one another when viewed through the window C¹.

The prism A is carried by a lever A¹ pivoted about a pin A² and normally pressed towards the back wall of the casing C by means of a spring A³. The lever A¹ is provided near its free end with an adjusting screw D, the end D¹ of which is formed as a flat surface.

The angular movement of the prism A about its pivot A² is brought about by the focussing movement of the camera objective (not shown). For this purpose the objective mount or a member carrying the mount is screwthreaded to engage in a screwthread fixed in the camera wall, so that the focussing movement of the objective is effected by screwing the mount or the carrier into the camera. The rear end of the mount or carrier abuts against the free end of a lever E pivoted.

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about a spindle E^1 passing through a bushing E^2 in the bottom of the telemeter casing C. The spindle E^1 fits closely within the bushing E^2 or may be in screwthreaded engagement therewith, the arrangement in either case being such as to render the joint dust-tight as far as possible and thereby to eliminate inaccuracies in the transmission of the movement.

At its upper end within a telemeter casing C the spindle E^1 is formed with a flange F, which is cut away in a plane F^1 through the axis of the spindle and is recessed at one end with a convex surface F^2 in the recess, against which the flat end D^1 of the adjusting screw abuts. It will be appreciated that the flange F constitutes a lever, whose effective length varies slightly as the spindle E^1 is rotated owing to the fact that the end D^1 of the adjusting screw slides over the convex surface F^2 . The shape of the convex surface F^2 is so chosen, that this variation in the effective length of the lever F affords substantially exactly the correction necessary in the transmission of the movement owing to the difference between the laws governing the telemeter and objective movements in relation to the distance of the object to be photographed.

Figure 3 differs from the arrangement of Figures 1 and 2 solely in respect of the arrangement of the engaging surfaces of the adjusting screw D and the flange F, and shows an arrangement which may be regarded as the converse to that shown in Figures 1 and 2. In this modification the adjusting screw D has a convexly curved end D^2 , and the recess in the surface of the flange F is omitted, so that the convex end D^2 engages with the flat surface F^1 of the flange. Here again the

shape of the convex end D^2 of the screw is calculated to afford the desired substantially exact compensation.

It will be appreciated that the above arrangements have been given by way of example only and may be modified within the scope of the invention.

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 a photographic camera of the kind described, an interconnecting lever mechanism, through which the objective focussing movement is transmitted to the telemeter, including two levers which make sliding engagement with one another, one or each of the interengaging lever surfaces being curved in such a manner as to afford substantially exact compensation for the varying relationship between the objective movement and the telemeter movement.

2. A lever mechanism for a photographic camera as claimed in Claim 1, in which one lever carries an adjusting screw whose end engages with a part of the other lever, such part or the end of the adjusting screw being appropriately curved.

3. A compensating arrangement for a photographic camera of the kind described, substantially as described and as illustrated in Figures 1 and 2 or in Figure 3 of the accompanying drawings.

4. A photographic camera of the kind described, provided with a compensating arrangement substantially as described with reference to the accompanying drawings.

Dated this 27th day of September, 1932.

KILBURN & STRODE,
Agents for the Applicants.

[This Drawing is a full-size reproduction of the Original.]

