J. BECKER.

ATTACHMENT FOR OPERATING CAMERA SHUTTERS.

APPLICATION FILED MAR. 11, 1910.

975,602. Patented Nov. 15, 1910.

Fig. 1.

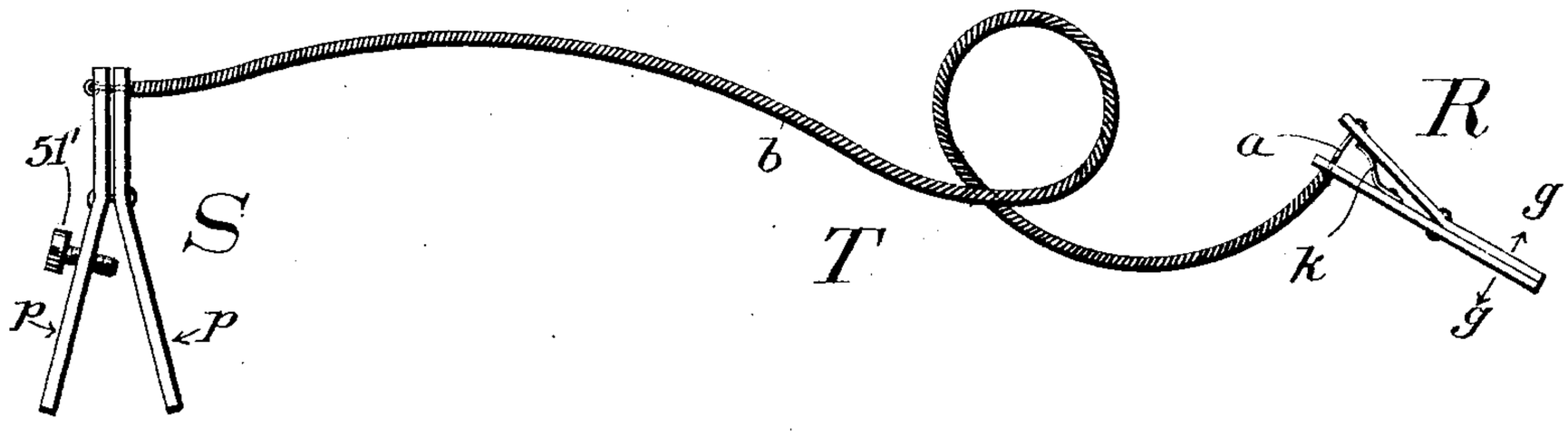


Fig. 2.

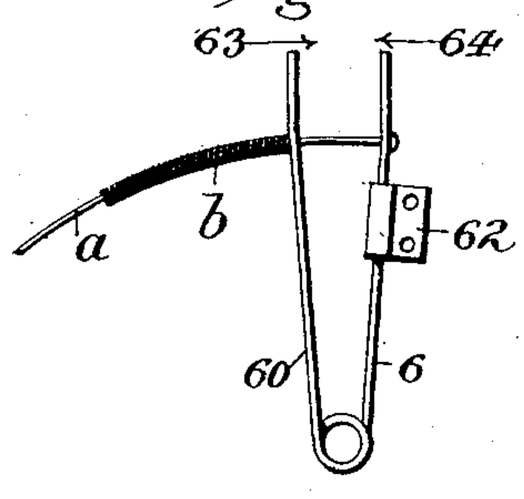
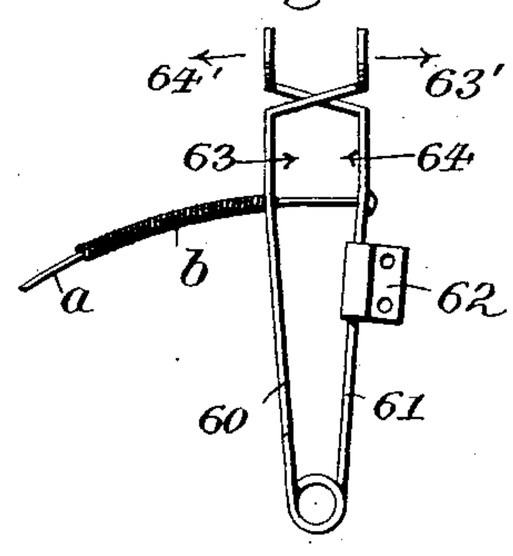


Fig. 3.



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UNITED STATES PATENT OFFICE.

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ATTACHMENT FOR OPERATING CAMERA-SHUTTERS.

975,602. Specification of Letters Patent. Patented Nov. 15, 1910.

Original application filed June 26, 1901, Serial No. 66,159. Divided and this application filed March 11, 1910. Serial No. 548,530.

To all whom it may concern:

Be it known that I, JOSEPH BECKER, a citizen of the United States, residing at Washington, in the District of Columbia, have invented a new and useful Attachment for Operating Camera-Shutters, of which the following is a specification.

The present application for patent is drawn to a separably patentable part of my prior application for camera shutter operating mechanism, filed June 26, 1901, Serial No. 66,159, and it consists in devices of the type shown in Figs. 7, 8 and 9 of the said prior application, that is, in a novel article of manufacture adapted for use as an attachment to cameras or camera shutters generally for applying pressure or tension to any finger or other part of the camera or camera shutter that must be actuated to produce an exposure.

The present invention is independent of the specific form of flexible transmission used; and in its broadest aspect it is also independent of the exact mode of operation at the shutter or receiving end, that is to say, is independent of the fact whether the heavier camera or shutter parts are connected with the pull element, as set forth in my said prior application, or with the push element, as in U. S. patent to Stoddard, No. 231,506, of August 24, 1880.

In the accompanying drawings:—Figure 1 is a side view of a simple form of my push and pull attachment, comprising the combination of a sender, flexible transmission, and receiver; and Figs. 2 and 3 show two modified forms of the receiver.

The combination shown in Fig. 1 comprises a sender S, of any preferred form, the flexible transmitter T, and a receiver R, to which is attached a spring *k*. When pressure is applied on the sender as shown by the arrows *p*, *p*, the lower branches of the receiver spread as indicated by arrows *g*, *g*; spreading action which can be utilized in many ways, either directly or indirectly, to operate a shutter. Shutters being as a rule spring-operated, the device is most generally mounted to trip a shutter catch and allow the shutter to move under the action of its spring. The sender has an adjustable stop 51′, to limit the extent of motion transmitted.

Any other form of sender shown in said prior application may be adapted to act as a receiver, as can readily be understood.

If a closing action, instead of a spreading action, be desired at the receiving end, the upper branches of the receiver are used and the lower branches may be suppressed. The form of receiver shown is, however, more advantageous because it can be set to act with either end and, therefore, may be utilized to secure either a spreading or a closing action, as may be required.

I shall describe only one other form of receiver, which is shown in Fig. 2, as consisting of a U-shaped spring 60, 61, formed by bending a spring wire as shown in the figure. The pull element *a* of the transmitter is connected with one branch, say 61, and the push element *b* bears against the other branch, 60. One branch of the U is fixed to the shutter frame or camera by means of a clamp plate or bracket 62. By fixing branch 61 the motion obtained is to the right, as indicated by arrow 63. By fixing branch 60, instead, reversed motion to the left is secured, as shown by arrow 64.

By extending the ends and crossing them, as shown in Fig. 3, this receiver may be used either below the crossing point to exert a closing action, as indicated by arrows 63, 64, or above the said crossing point to exert a spreading action, as indicated by arrows 63′, 64′.

Fixing branch 61 as shown in Figs. 2 and 3 connects the pull element *a* of the flexible transmission to the heavier camera or shutter parts, and this, as explained in the said prior application, is the preferred construction.

As stated in the preamble the present invention is independent of the specific form of the flexible transmission provided only the same shall include a longitudinally inextensible pull element bound throughout its length closely with a longitudinally incompressible push element; the latter being preferably so made as to serve also as the binding means, and so the axis of the pull element shall coincide throughout with the axis of the push element, whatever may be the amount of flexure.

What I claim as my invention and desire to secure by Letters Patent is:—

1. As an attachment for operating camera shutters, the combination with a sender for

simultaneously exerting a thrust and an equal pull, of a receiver adapted to receive and be operated by said thrust and pull, a flexible connection between said sender and receiver for transmitting the said stresses said flexible connection comprising a longitudinally inextensible pull element bound throughout its length with a longitudinally incompressible compression element, and in the receiver a spring adapted to resist the stresses and to tend to keep all parts in their normal relative position of rest.

2. As an attachment for operating camera shutters, the combination with a sender for simultaneously exerting a thrust and an equal pull, of a receiver adapted to receive and be operated by said thrust and pull, a flexible connection between said sender and receiver for transmitting the said stresses said flexible connection comprising a longitudinally inextensible pull element bound throughout its length with a longitudinally incompressible compression element, and in the receiver a spring adapted to resist the stresses and to tend to keep all parts in their normal relative position of rest, said receiver being provided with means for fastening it to a camera or camera shutter.

3. As an attachment for operating camera shutters, the combination with a sender for simultaneously exerting a thrust and an equal pull, of a receiver adapted to receive and be operated by said thrust and pull, a flexible connection between said sender and receiver for transmitting the said stresses, said flexible connection comprising a longitudinally inextensible pull element bound throughout its length with a longitudinally incompressible compression element, a spring in the receiver adapted to resist the stresses and to tend to keep all parts in their normal relative position of rest, and an adjustable stop on the sender to limit the extent of motion to be transmitted.

4. As an attachment for operating camera shutters, the combination with a sender for simultaneously exerting a thrust and an equal pull, of a receiver adapted to receive and be operated by said thrust and pull, a flexible connection between said sender and receiver for transmitting the said stresses said flexible connection comprising a longitudinally inextensible pull element bound throughout its length with a longitudinally incompressible compression element, and in the receiver a spring adapted to resist the stresses and to tend to keep all parts in their normal relative position of rest, said receiver being provided with means for fastening it to a camera or camera shutter and adapted to exert either a spreading or a closing action.

5. As an attachment for operating camera shutters, the combination with a sender for simultaneously exerting a push and an equal pull; of a transmission comprising a transversely flexible but longitudinally inextensible pull element for transmitting said pull bound throughout its length with a transversely flexible but longitudinally incompressible compression element for transmitting the said push; the receiving end of said pull element being provided with means for attaching it to a point in fixed relation to a shutter or camera frame and said push element being adapted to act on a finger or other part of the camera or camera shutter that must be actuated to produce an exposure.

6. As an attachment for operating camera shutters, the combination with a sender for simultaneously exerting a push and an equal pull; of a transmission comprising a transversely flexible but longitudinally inextensible pull element for transmitting said pull bound throughout its length with a transversely flexible but longitudinally incompressible compression element for transmitting the said push; the receiving end of said pull element being provided with means for attaching it to a point in fixed relation to a shutter or camera frame and said push element being adapted to act on a finger or other part of the camera or camera shutter that must be actuated to produce an exposure; and in said attachment a spring adapted to resist the said push and pull and to tend to keep all parts in their normal position of rest.

7. As an attachment for operating camera shutters, the combination with a sender for simultaneously exerting a push and an equal pull; of a transmission comprising a transversely flexible but longitudinally inextensible pull element for transmitting said pull bound throughout its length with a transversely flexible but longitudinally incompressible compression element for transmitting said push; the receiving end of one of said flexible elements being provided with means for attaching it to a point in fixed relation to a shutter or camera frame and said other flexible element being adapted to act on a finger or other part of the camera or camera shutter that must be actuated to produce an exposure.

8. As an attachment for operating camera shutters, the combination with a sender for simultaneously exerting a push and an equal pull; of a transmission comprising a transversely flexible but longitudinally inextensible pull element for transmitting said pull bound throughout its length with a transversely flexible but longitudinally incompressible compression element for transmitting said push; the receiving end of one of said flexible elements being provided with means for attaching it to a point in fixed relation to a shutter or camera frame and said other flexible element being adapted to

act on a finger or other part of the camera or camera shutter that must be actuated to produce an exposure; and in said attachment a spring adapted to resist the said push and pull and to tend to keep all parts in their normal position of rest.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOSEPH BECKER.

Witnesses:
HORACE A. DODGE,
GEO. B. PITTS.