No. 815,552. PATENTED MAR. 20, 1906.

H. B. PERRY.

PHOTOGRAPHIC SHUTTER.

APPLICATION FILED JAN. 10, 1905. RENEWED JAN. 19, 1906.

Fig. 1.

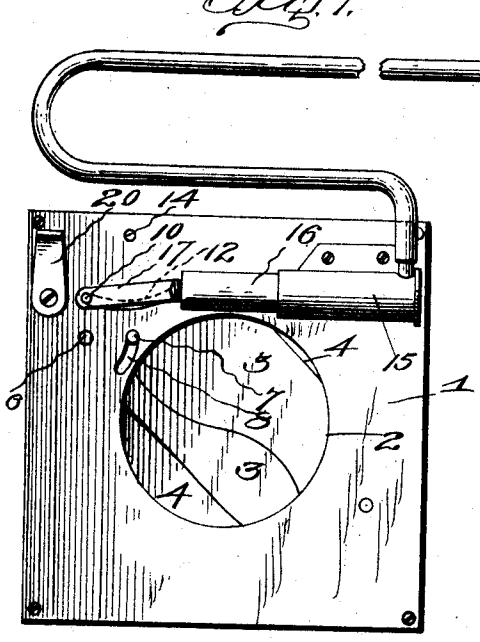


Fig. 2.

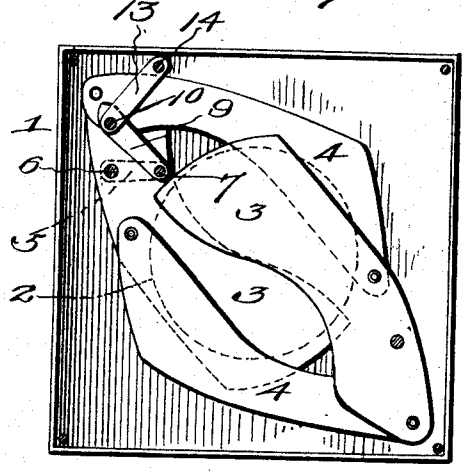


Fig. 3.

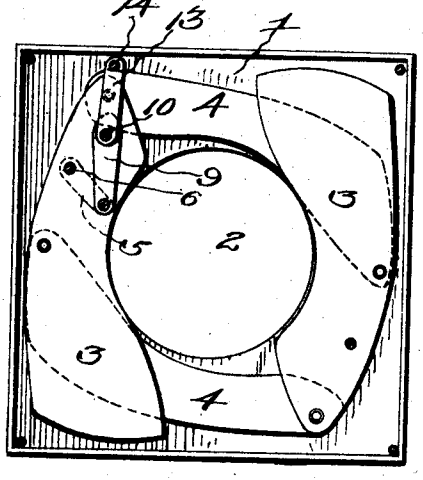
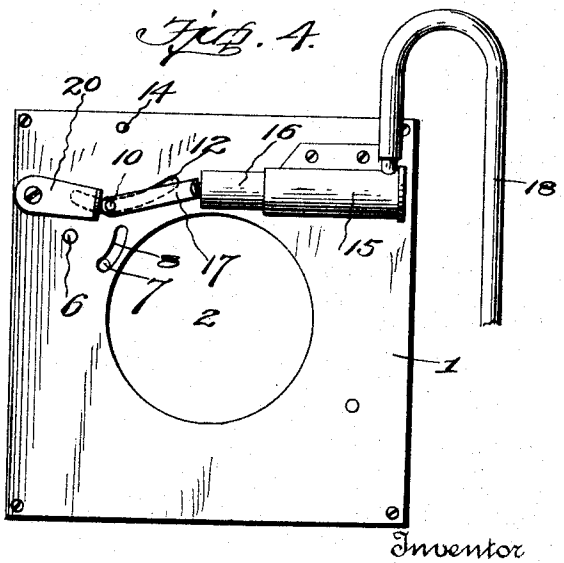


Fig. 4.



Witnesses
C. C. Hunt.
C. H. Griesbauer.

Inventor
Henry B. Perry.
by A. B. Wilson.
Attorney

UNITED STATES PATENT OFFICE.

HENRY BUCKLEY PERRY, OF SHELDON, IOWA.

PHOTOGRAPHIC SHUTTER.

No. 815,552. Specification of Letters Patent. Patented March 20, 1906.

Application filed January 10, 1905. Renewed January 19, 1906. Serial No. 296,788.

To all whom it may concern:

Be it known that I, HENRY BUCKLEY PERRY, a citizen of the United States, residing at Sheldon, in the county of O'Brien and State of Iowa, have invented certain new and useful Improvements in Photographic Shutters; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in photographic shutters.

The object of the invention is to provide a simple and improved construction of shutter which may be operated pneumatically or by a hand-lever.

With the above and other objects in view the invention consists of certain novel features of construction, combination, and arrangement of parts, as will be hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a side view of the shutter-casing, the shutter being shown in closed position. Fig. 2 is a similar view, one side of the casing being removed. Fig. 3 is a view similar to Fig. 2, showing the wings of the shutter in open position. Fig. 4 is a view similar to Fig. 1, showing the parts arranged for a time exposure.

Referring more particularly to the drawings, 1 denotes a shutter-casing provided with a centrally-disposed opening 2. Between the front and rear plates of the casing on opposite sides of the opening 2 are pivotally mounted two main shutter-wings 3, said wings being pivotally connected together by means of supplemental wings 4. One end of the supplemental wings 4 is pivotally connected to one end of the main wings 3, while the opposite ends of said supplemental wings are pivotally connected to the main wings midway between the ends of the same, the pivotal connection of the two ends of the supplemental shutter-wings being approximately equal distance from the pivotal connection of the main wings with the casing. By pivoting the wings and connecting them together as described above they will be caused to move in unison to close the opening in the casing. The shape of the main and supplemental wings is such that the edges thereof will overlap and form a light-tight closure for said opening.

Any suitable means may be employed for moving the shutter-wings to an open and closed position, the same, however, being shown as operated pneumatically. In order that the wings may be pneumatically operated, I provide a guide-link 5, one end of which is loosely mounted upon the pivotal connection of one of the main shutter-wings, as shown at 6, and on the opposite end of the link is formed a laterally-projecting stud 7, which projects through an opening in said main wing. The end of the stud 7 also projects through a short curved slot 8, formed in the casing 1.

To the stud 7 within the casing is loosely connected one end of a short lever 9, the opposite end of which is provided with a laterally-projecting stud 10, which projects through a curved slot 12, formed in the casing adjacent to and substantially at right angles with the slot 8. To the stud 10 is loosely connected the end of a guide-link 13, the opposite end of which is pivoted to a screw or stud 14, arranged in the casing.

Mounted on the side of the casing is an air-cylinder 15, in which is mounted a reciprocating piston 16. On the outer end of the piston 16 is secured a rigid arm 17, the free end of which is loosely connected to the stud 10 of the lever 9, whereby when said piston is forced in and out of the cylinder the arm 17 will actuate the lever 9 and cause the same to operate the wings of the shutter, and thereby open or close the opening 2. In the closed end of the cylinder 15 is arranged a nipple with which is adapted to be connected a flexible tube 18 of a pneumatic bulb 19, which when pressed and released will force air into and out of the cylinder 15, thereby actuating the opposite end of the same, as hereinbefore described.

Pivotally mounted upon the casing 1 is a stop-arm 20, which is adapted to be swung into the path of movement of the stud 10. Thereby when said stop-arm is swung across the slot 12 the movement of the stud 10 will be limited, thus preventing the same from being forced far enough to both open and close the shutter-wings, thereby permitting the device to be used for time exposures. It is understood that when the pin 10 and the lever 9, to which the same is connected, are moved to their greatest extent, which is to the end of the slot 12, the shutter-wings will be first opened and then quickly closed, this

action being due to the curved shape of the slot 12, which directs the movement of the stud 10.

While I have shown and described the shutter-wings as being connected to and operated by a pneumatic piston, it is obvious that the same may be actuated by a hand-lever or any other suitable operating mechanism.

From the foregoing description, taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a photographic shutter, the combination with a casing, of a pair of main shutter-wings pivotally mounted in said casing, a pair of supplemental wings pivotally connecting said main wings, a pneumatic cylinder, having a reciprocating piston, a lever pivotally connected to one of said main wings, a laterally-projecting pin formed on said lever and adapted to project through a curved slot in said casing, an arm connecting said pin and said piston whereby said wings are pneumatically operated, and means whereby the movement of the wings is controlled to make an instantaneous or a time exposure, substantially as described.

2. In a photographic shutter, the combination with a casing, of a pair of main shutter-wings pivotally mounted in said casing, a pair of supplemental wings pivotally connecting said main wings, a pneumatic cylinder having a reciprocating piston, a lever pivotally connected to one of said main wings, a laterally-projecting pin formed on said lever and adapted to project through a curved slot in said casing, an arm connecting said pin and said piston whereby said wings are pneumatically operated, guide-links pivotally connected to each end of said lever and a stop-arm pivotally mounted on said casing whereby the same may be swung into the path of movement of the pin on said lever to limit the movement of the same thereby controlling the movement of said wings, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

HENRY BUCKLEY PERRY.

Witnesses:
GRACE LAUGHLIN,
G. T. WELLMAN.