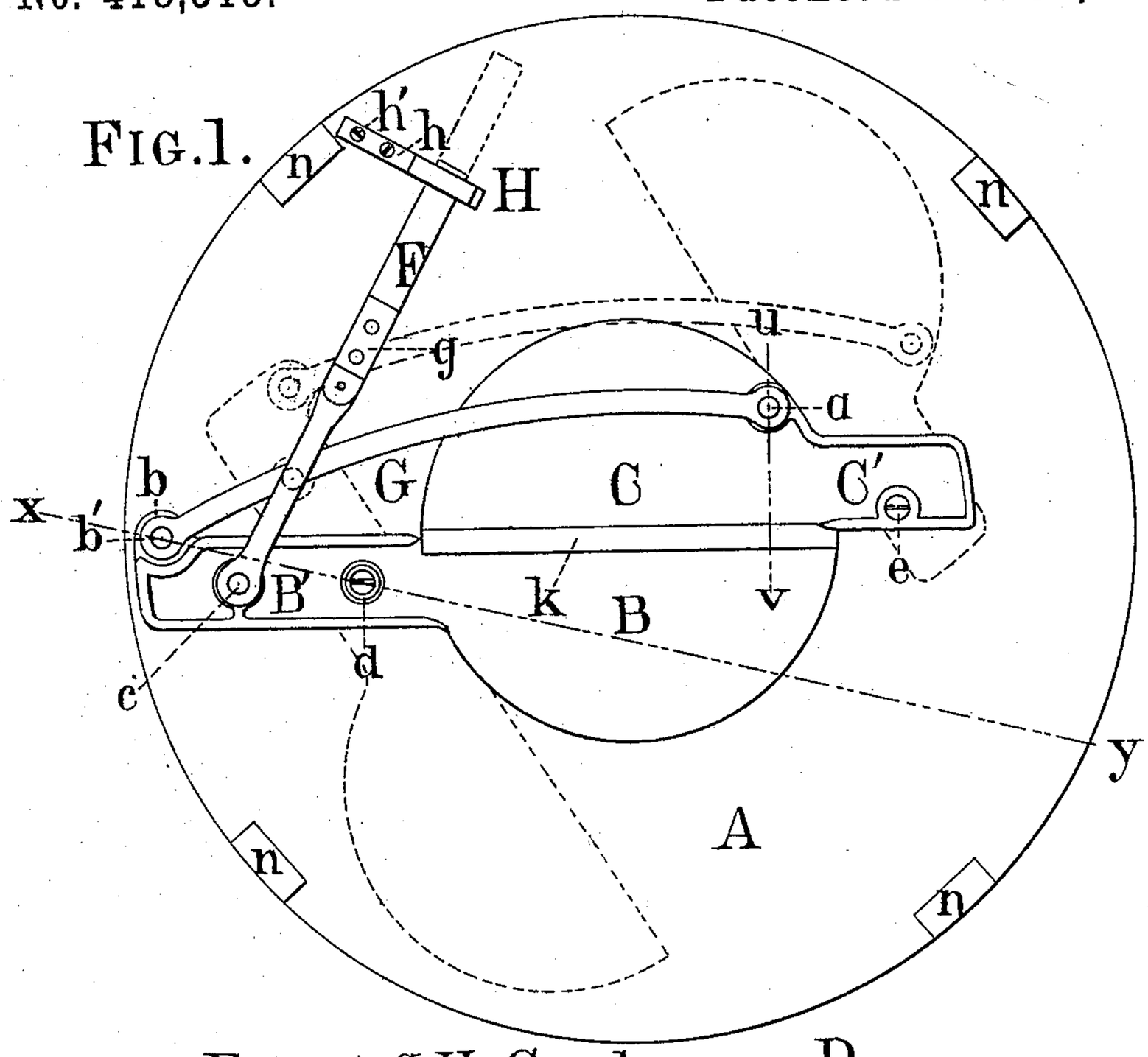
(No Model.)

T. O. HEGG.

SHUTTER FOR CAMERAS.

No. 418,318. Patented Dec. 31, 1889.

FIG. 1.



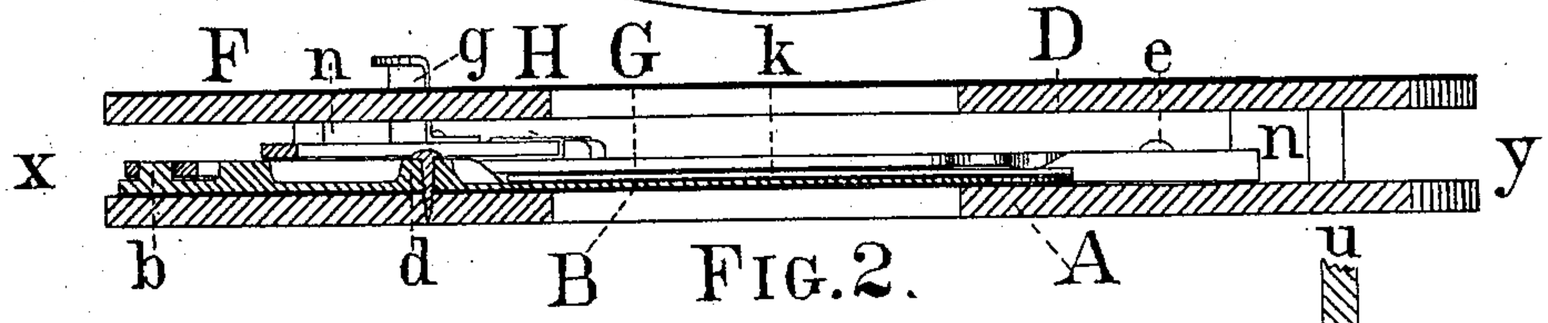
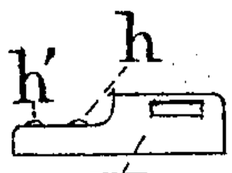


FIG. 2.

FIG. 5.



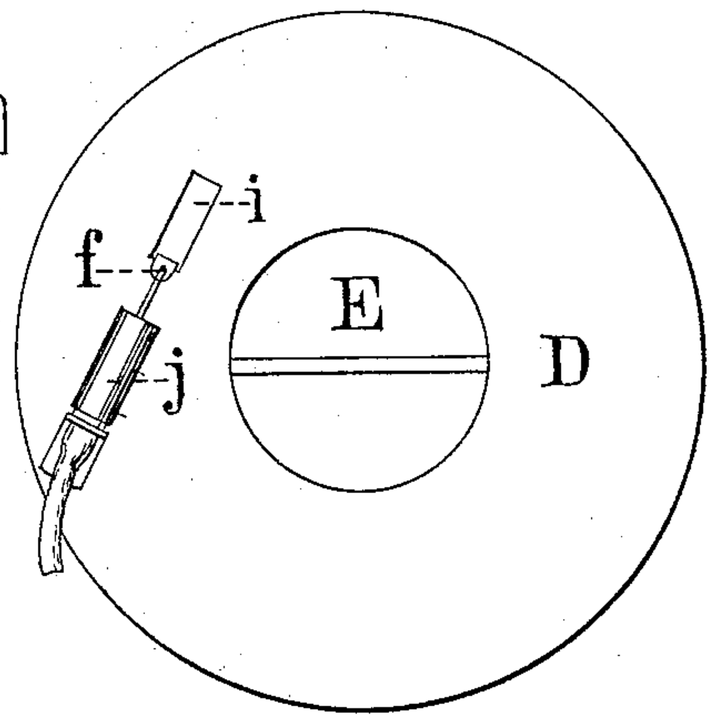


FIG. 3.

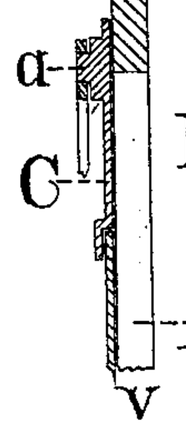


FIG. 4.

Witnesses
M. C. Dodge
L. Taylor.

Inventor
Thomas O. Hegg
By his Attorney L. J. Wakeley

UNITED STATES PATENT OFFICE.

THOMAS O. HEGG, OF MADISON, WISCONSIN, ASSIGNOR OF ONE-HALF TO JOSEPH HUSSEY, OF SAME PLACE.

SHUTTER FOR CAMERAS.

SPECIFICATION forming part of Letters Patent No. 418,318, dated December 31, 1889.

Application filed June 6, 1889. Serial No. 313,333. (No model.)

To all whom it may concern:

Be it known that I, THOMAS O. HEGG, a citizen of the United States, residing at Madison, in the county of Dane and State of Wisconsin, have invented a new and useful Improvement in Instantaneous and Time Shutters for Photographic Cameras, of which the following is a specification.

My invention relates to improvements in that class of instantaneous and time shutters for photographic cameras which are operated by the air-pump; and the objects of my improvement are, first, to provide a device that will without failure accomplish the most rapid exposure of the camera to the light and prolong the same at the will and without the continued attention of the operator; second, to reduce the friction by providing a less number and complication of parts, and for these purposes and for simplicity and economy in construction and convenience in using to do away with springs for movement, relying only on the pressure and suction of the air-pump. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a front view of my device, with the cover removed and the blinds closed, as shown by the entire lines, and opened, as shown by the dotted lines; Fig. 2, a transverse section on the line X Y, Fig. 1; Fig. 3, a front view with cover on; Fig. 4, a vertical section of a part on the line U V, Fig. 1; and Fig. 5, a side view of the lever-holder H.

Similar letters refer to similar parts throughout the several views.

The wood disk A, its metal plate-cover D, separating-blocks *n n n n* between them, and the lever-holder H constitute the frame of my shutter. In the center of the disk A, I cut the circular aperture E the full size of the opening admitting the light to the camera, which aperture is to be wholly covered by my blinds or exposed, at the will of the operator, and remain either way without his continued attention.

My two blinds B and C, which constitute my shutter-plates, are made of thin rubber or metal plate colored black, the main body of each similar in construction in the form of a semi-disk with their straight edges overlapping when shut. They each have one arm B′ and C′ about half their width, constructed opposite each other in continuation of the lines to which such edges lap. The arm B′ of B extends to near the periphery of the disk A. The other arm extends about half-way to such periphery. The arms are made thicker than the body of the blinds by an addition on their inside surfaces. The blind C has the journal *a* near its arc and the base of its arm and at a point which will by the lever G, having its bearing thereon, secure equal motion in both blinds. The arms are attached to the disk by the pivot-screws *d e* at short and equal distances from the aperture E, on opposite sides, and so as to cover such aperture and properly meet and lap through its diameter. The arm of the blind B has near its end the journal *c*, and at its end is widened inward by the thinner circular projection *b*, having upon it the journal *b′* for the bearing of the more outward end of the curved working-lever G, the other end of which has its bearing upon the journal *a* on the blind C. One end of the straight lever F has its bearing on the journal *c* upon the arm B′ of the blind B, from whence it reaches, passing over the lever G, to and through its holder H, mortised to loosely receive it, and attached by the screws *h h′* near enough to the outside of the disk to allow the blind C to pass it, and far enough to allow the lever F to pass through it for operating. The lever F has attached near its center the arm *g*, extending at right angles forward and outward through and moving in the slot *i* in the cover D. The bent wire *f*, connecting with the piston or outer working-shell *j* of an air-pump there attached upon the cover D, is hooked into the outward end of the arm *g*. The air-pump working parallel to F, with the extreme end of the piston toward H, will have the end of a rubber pipe drawn over the stem of its inside or stationary part, and the other end of the pipe will be connected with a hollow rubber bulb at the hand of the operator.

My device, so constructed and having all its parts in place and having its cover on, is attached by screws or other proper device to the front of the camera. When it is to be used, the pressure of the bulb will instanta-

neously throw both blinds apart and back from the center with equal motion entirely clear of the aperture E, admitting light to the camera, in which position it may be held by keeping the grasp, or air may be admitted or expelled at the bulb by a short pipe with a perforation sliding in and out its stem or other usual device, enabling the operator, without continued attention, to leave the blinds opened or closed, for the reason that my device has no springs or power other than air to move any of its parts.

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

In shutters for cameras, the combination of the wooden disk A, its metal cover D, separating-blocks *n n n*, semi-disk-shaped shutters having arms B′ C′, pivoted on opposite sides of the camera-opening, lever G, connecting said shutters, so as to give them equal motion when operated, lever F, pivoted to arm B′, guide-block H, through which lever F operates, angular arm *g*, attached to lever F, and pump *j*, connected to arm *g* by piston-rod *f*, all substantially as and for the purpose set forth.

THOMAS O. HEGG.

Witnesses:

JOHN OLLIS,

JOHN GRIUDE.