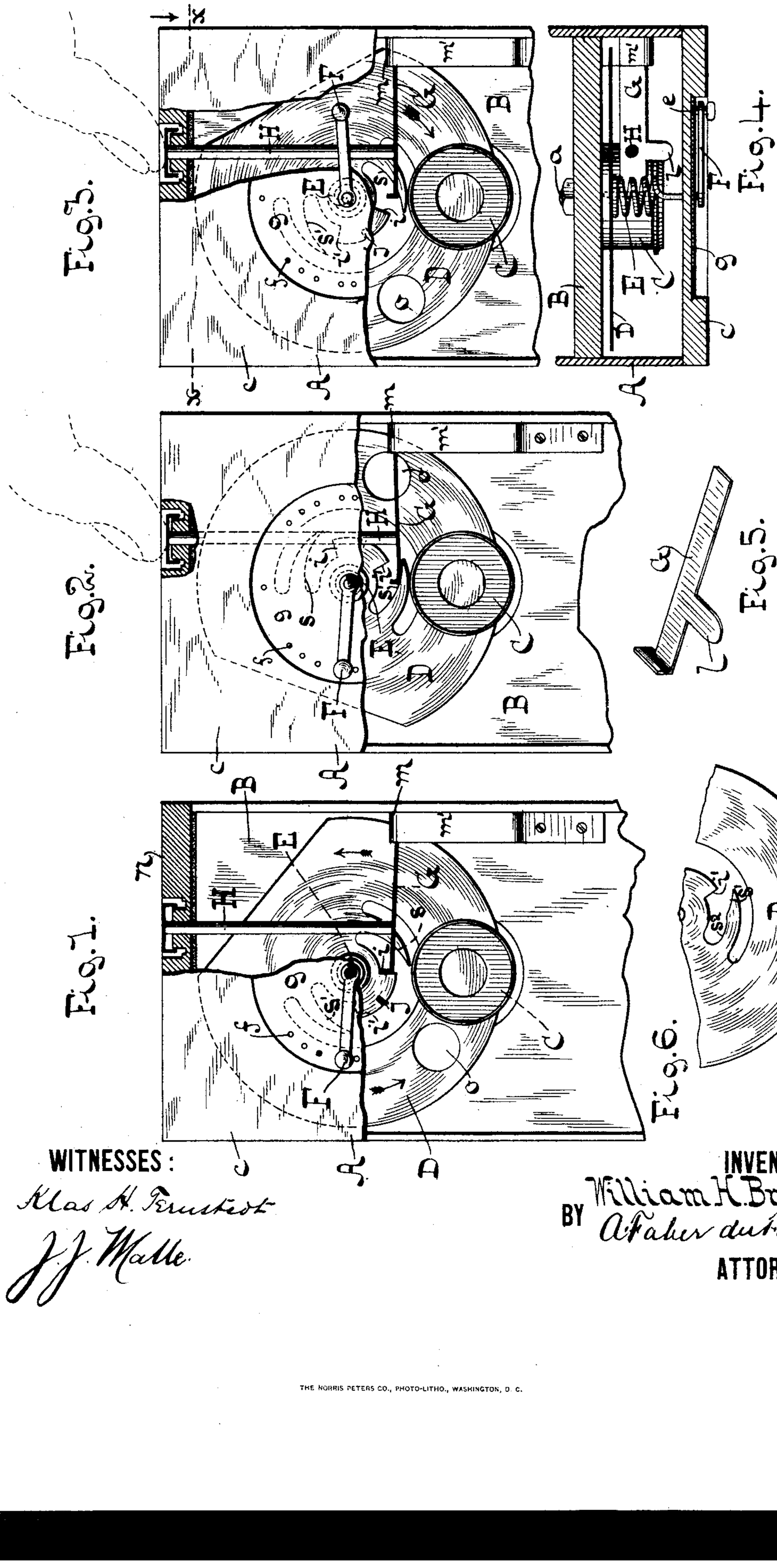
(No Model.)

W. H. BRISTOL.

CAMERA SHUTTER.

No. 480,995. Patented Aug. 16, 1892.



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WILLIAM H. BRISTOL, OF HOBOKEN, NEW JERSEY.

CAMERA-SHUTTER.

SPECIFICATION forming part of Letters Patent No. 480,995, dated August 16, 1892.

Application filed June 17, 1892. Serial No. 437,029. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. BRISTOL, a citizen of the United States, and a resident of Hoboken, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Camera-Shutters, of which the following is a specification.

My invention has reference to camera-shutters, and especially to that class which are intended for instantaneous exposures.

It has for its object to avoid the shock coincident to the stoppage of the shutter by the usual forms of stops; and with this object in view my invention consists, essentially, in a camera-shutter provided with a shoulder and with an inclined surface, a detent arranged between the shoulder and the inclined surface and normally engaging with the shoulder to hold the shutter against the action of its propelling-spring, said detent when depressed by the finger of the operator releasing the shutter and engaging with the inclined surface to gradually arrest the motion of the shutter, all of which is more fully pointed out in the following specification and claim and illustrated in the accompanying drawings, in which—

Figure 1 represents a front elevation of a camera-shutter embodying my invention, part of the camera-casing being broken away. Figs. 2 and 3 are similar views showing the shutter in different positions. Fig. 4 is a horizontal section in the plane $x\,x$, Fig. 3. Fig. 5 is a perspective view of the detent. Fig. 6 is a face view of a modified form of shutter, part being broken away.

Similar letters indicate corresponding parts.

In the drawings, the letter A designates the box or case, B the lens-board movable in suitable guides, and C the lens-tube secured to the lens-board and provided with a transverse slot for the passage of the shutter D, all as usual in a well-known type of camera. The shutter D is centrally pivoted at a to the lens-board, so as to swing freely about its pivot. One end of a spiral spring E, arranged at right angles to the plane of the shutter and on line with the pivot, is secured to the shutter, while the opposite end of said spring is engaged by a key F, provided with a suitable pin e, adapted to engage with a row of recesses f in a plate g, countersunk in and secured to the front c, Fig. 4.

The lens-board is adjusted for the purpose of focusing by any usual means.

The shutter is provided with two shoulders i and i' and a central notch j, which are adapted to be entered and engaged by the nose of a spring-detent G. The detent is preferably made in the form of a flat spring attached at m to a bracket m', secured to the lens-board B, and is engaged to force it out of engagement with the shoulders i and i' on the shutter by a push-bar H, extending through the top n of the box or case. The spring may be made wide enough or provided with a lateral extension l, Figs. 4 and 5, in order that the bar H may always remain in contact with the same during focusing. The notches $i\,i'$ are made use of for instantaneous exposures, while for time exposures the shutter is set to its central position, where it is held by the detent G entering the notch j.

For arresting the motion of the shutter when propelled in either direction by the spring I form upon the shutter two inclined surfaces s and s'. The shutter in this case having an oscillatory motion about the pivot a, the surfaces $s\,s'$ are formed eccentric to said pivot or to the circular path of the shutter. These surfaces s and s' are situated in the range of the detent G and are respectively engaged by the same to gradually arrest the motion of the shutter after the shutter has made the exposure. The push-bar H being depressed to release the shutter when the exposure is to be made, the pressure exerted upon the detent G by the rod H is transmitted to and acts upon the shutter, whereby the finger of the operator in the act of releasing the shutter also furnishes the necessary pressure on the arm for arresting the motion of the shutter.

In Fig. 1 the spring E is shown energized and the shutter tending to move in the direction of the arrow marked thereon; but it is restrained by the detent G, which latter is in contact with the shoulder i'. If the push-bar H is depressed, the shutter turns about its pivot, and after the opening o therein has passed the lens-tube the inclined surface s is engaged by the nose of the depressed detent

G, which latter acts as a brake in virtue of the inclined surface tending to move the same upward against the pressure of the finger, Fig. 2. The action when the shutter is sprung in the opposite direction will be understood from Fig. 3 without further explanation.

To positively prevent retrograde motion of the shutter after stoppage, the inclined surfaces *s* and *s'* may terminate in surfaces, as s^2, formed concentric with the pivot of the shutter, Fig. 6, so that any tendency to propel the shutter by pressure upon the detent G is forestalled.

It is evident that if the shutter is intended to move in but one direction to make the exposure one frictional inclined surface will be sufficient.

I do not herein wish to restrict myself to an oscillating shutter, to any particular form for the shutter, or to any particular means for propelling the same, since it is clear that the form of brake described could be applied to any type of shutter.

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

In a camera-shutter, the combination of a shutter provided with a shoulder and with an inclined surface, means for propelling the shutter, a detent arranged to engage with the shoulder, and means for effecting the disengagement of the detent from the shoulder and throwing the same under applied pressure into the range of the inclined surface, substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 15th day of June, 1892.

WILLIAM H. BRISTOL.

Witnesses:
KLAS H. TERNSTEDT,
A. FABER DU FAUR, Jr.