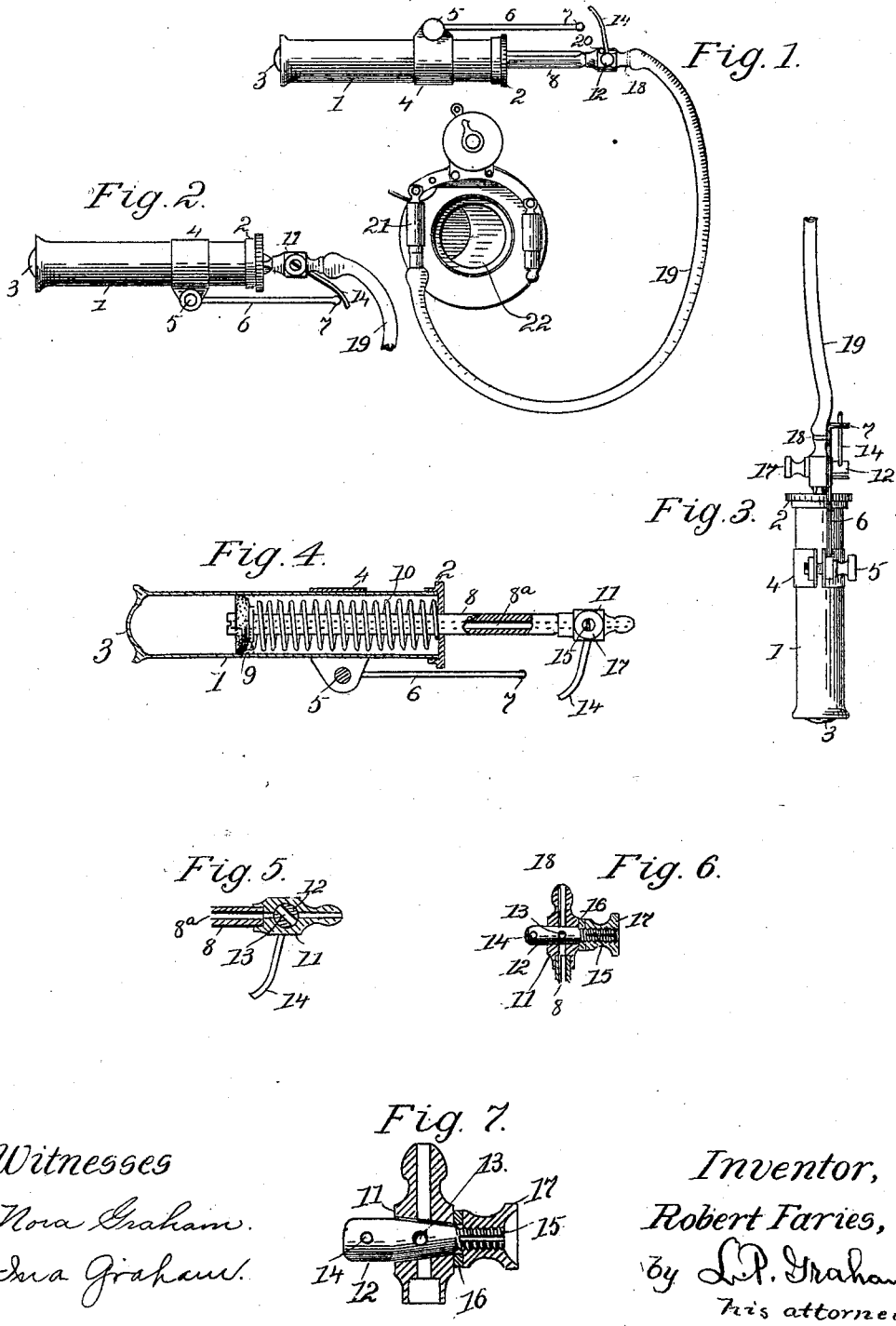


R. FARIES.
SHUTTER TRIPPER FOR CAMERAS.

(Application filed Aug. 10, 1900.)

(No Model.)



Witnesses
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UNITED STATES PATENT OFFICE.

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SHUTTER-TRIPPER FOR CAMERAS.

SPECIFICATION forming part of Letters Patent No. 690,939, dated January 14, 1902.

Application filed August 10, 1900. Serial No. 26,455. (No model.)

To all whom it may concern:

Be it known that I, ROBERT FARIES, of the city of Decatur, county of Macon, and State of Illinois, have invented a certain new and useful Shutter-Tripper for Cameras, of which the following is a specification.

This invention involves the idea of storing force to be used automatically at an approximately predetermined time for the purpose of tripping the shutter of a photographic camera; and its object is to enable the photographer to include himself in the picture he is taking.

The invention is exemplified in the structure hereinafter described, and it is defined in the appended claims.

The invention is more particularly applicable to camera-shutters which are opened and closed by a spring previously set by hand and held in tension by a detent or trigger which is usually tripped by the finger of the operator or by air-pressure through the medium of the well-known pneumatic release. It frequently happens that the photographer would like to include himself in his picture—as in a group, for instance—and this he is enabled to do by substituting my device for the ordinary hand-bulb.

In the drawings forming part of this specification, Figure 1 is a representation of my improvement connected with a shutter, force being stored in the shutter-tripper to be subsequently imparted to the shutter-releaser. Fig. 2 is a representation of the side of the tripper opposite that shown in Fig. 1, the condition of the tripper being that which exists when the force in the tripper has been applied to the shutter-release. Fig. 3 represents the tripper turned half-way between the position shown in Fig. 1 and that shown in Fig. 2. Fig. 4 is a central section lengthwise of the cylinder of the tripper. Fig. 5 is a section lengthwise through the head of the piston-stem and crosswise of the cock-plug therein. Fig. 6 is a section through the head of the piston-stem lengthwise of the plug. Fig. 7 is the same as Fig. 6, except that the parts are abnormally enlarged, the taper of the plug is exaggerated, and a space between the plug and the bearing thereof is shown larger

than actually exists. Fig. 7 is introduced to illustrate a peculiarity in the operation of my invention which is not very apparent in a tripper of ordinary size and proportion.

A cylinder is shown at 1. At 2 is shown a cap for the cylinder, which serves as a guide for a piston-stem and an abutment for a spring, and at 3 is shown a closed end of the cylinder. At 4 is shown a divided band which embraces the cylinder and is clamped thereon by means of a set-screw 5. A trippar 6 is attached to the divided band 4, and it extends parallel with the cylinder beyond the capped end thereof. A rectangular bend 7 on the extended end of bar 6 forms a head that engages the trigger of the tripper. A piston 9 in cylinder 1 has a hollow piston-stem 8, which extends through the cap of the cylinder and has on its extended end a valved head 11. The cock-plug 12 of head 11 is tapered to conform to correspondingly-tapered bearings, and its smaller end extends beyond the head and is screw-threaded and longitudinally slotted or split. A washer 16 fits over the small end of the plug and against a side of the head, and a finger-nut 17 is screwed onto the plug against the washer. The large end of plug 12 also extends beyond the plug, and a trigger 14 is fastened in such large extended end. In one side of the head 11 is a stop-pin 20, (shown in Fig. 1,) and when the trigger 14 bears against this stop-pin the hole 13 of the plug is out of line with the passage through the valve-head, and the passage through the piston-stem is closed. A knob 18 on the end of head 11 provides for the attachment of a flexible tube 19, and the opposite end of such flexible tube is connected with the shutter-releasing cylinder 21 of a shutter 22.

The piston 9 has a packing that cups toward the end 3 of the cylinder, and the bore 8^a of the piston-stem communicates with the space between end 3 and the piston. A spring 10 surrounds the piston-stem between the piston and the cap 2 of the cylinder, and the tendency of the spring is to force the piston toward end 3 of the cylinder. The piston-stem is prismatic or ribbed, as shown in Fig. 1. It has a sliding bearing in cap 2, which

conforms to its cross-sectional configuration, and it has a reciprocating movement in the cylinder when in operation. The trigger 14 has a definite path of motion to and from the capped end of the cylinder, and the end 7 of trip-bar 6 is set in the path of the reciprocating movement of the trigger. The trigger swings with the valve-plug in addition to its reciprocating motion, closing the air-passage when it is in the position shown in Figs. 1 and 4 and opening the air-passage when it is in the position shown in Figs. 2 and 3.

In operating the tripper the trigger is turned to open the air-passage, the piston-stem is pulled out of the cylinder as far as it will come, the trigger is turned to close the air-passage, and the head of the piston-stem is quickly released. Then the shutter is set, the tripper is laid on the camera or otherwise supported, and the operator is free to take a position in front of his camera. As the piston is drawn toward the capped end of the cylinder the spring 10 is put under tension and air passes into the space between end 3 and the piston. When the air-passage is closed and the piston-stem suddenly released, the spring compresses the air behind the piston and forms a support that but for leakage would effectually prevent further expansion of the spring; but the fit of the plug in the head is not air-tight, and air gradually wastes through the piston-stem and the head thereof, and the spring forces the piston inward at a speed dependent on the rapidity of the escape of the air. When the head is released after drawing out the piston and the spring established an air-cushion capable of counteracting the tension of the spring, there is some space between the trigger and the head of the trip-bar, somewhat as shown in Figs. 1 and 4, and the time required for the trigger to encounter the trip-bar and be swung to the position necessary to bring the plug-hole in line with the bore of the piston-stem is what the operator may avail himself of in taking a position. This time may be varied by shifting the clamp-band on the cylinder and setting the head of the tripper-bar nearer to or farther from the cap of the cylinder, and it may also be varied by loosening or tightening the nut on the plug, so as to increase or diminish the wastage of air. The last-mentioned operation is illustrated in Fig. 7, where the nut is loosened sufficiently to show a space between the plug and its bearings.

The nut 17 should hold whatever position on the threaded stem of the plug it is given, so that the wastage may not be unintentionally varied, and to assure this the stem 15 is split or slotted, as shown, and spread to exert a slight degree of pressure on the nut. The tendency of the split stem to spread holds the nut from accidental displacement, and whenever through wear or other cause

the nut shows a tendency to shift on the stem the stem may be spread to an extent to overcome the tendency.

Air may be admitted behind the piston by collapse of the packing in case the piston should be moved out with the valve-plug closed.

The invention comprises as essential elements a spring, an air-valve that wastes to permit motion in the spring, and a connection or communication between the spring and a shutter-releaser, whereby the spring will release the shutter at a predetermined point in its movement. In this instance the communication between the spring and the shutter-releaser is a tube through which air is forced by the action of the spring; but in its broadest sense my invention is not confined to this or any other specific means for transmitting the force of the spring to the shutter-releaser.

The cylinder contains a quantity of compressed air at the time the trigger opens the air-passage and this air at once acts through the tube 19 on the cylinder 21 of the shutter-release.

I claim—

1. A shutter-tripper comprising a chamber adapted to contain a fluid, such chamber having an escape-hole, spring-actuated means tending to force the fluid out of the chamber and means for transferring the force of the spring to a shutter-releaser.

2. In a shutter-tripper, the combination of a cylinder, a piston in the cylinder, a hollow stem for the piston extending out of the cylinder, a spring tending to press the piston toward the inner end of the cylinder, means for controlling the wastage of air from the inner end of the cylinder as the spring acts on the piston, and means for transmitting motion of the piston-stem to a shutter-releaser at a predetermined point in the movement of the spring.

3. In a shutter-tripper, the combination of a cylinder, a piston in the cylinder, a hollow stem for the piston extending out of the cylinder, a spring tending to force the piston toward the inner end of the cylinder, a valve in the outer end of the piston-stem regulating the escape of air from the space behind the piston as the spring acts on the piston, and means for transmitting motion from the piston-stem to a shutter-releaser at a predetermined point in the movement of the spring.

4. In a shutter-tripper, the combination of a cylinder, a piston in the cylinder, a hollow stem for the piston extending out of the cylinder, a spring tending to force the piston toward the inner end of the cylinder, a rockable air-plug crosswise of the extended end of the piston-stem, a trigger on the plug, an obstruction on the cylinder in the path of the trigger and a tube to convey air from the piston-stem to a shutter-releaser when the plug is turned by the trigger.

5 5. In a shutter-tripper, the combination of
a cylinder, a piston in the cylinder, a hollow
piston-stem extending outside the cylinder, a
tapered air-plug crosswise of the extended
10 end of the piston-stem, the small end of which
plug is split and threaded, a nut on the
threaded end of the plug to vary the close-
ness of the fit of the plug, a trigger in the
15 plug, a trip-bar on the cylinder with its head
in the path of the trigger and a tube to carry

air from the piston-stem to a shutter-releaser
when the trip-bar rocks the trigger-finger and
opens the air-plug.

In testimony whereof I sign my name in the
presence of two subscribing witnesses.

ROBERT FARIES.

Witnesses:

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