

No. 673,184.

Patented Apr. 30, 1901.

A. R. WELCH.  
FLASH LIGHT.

(Application filed Dec. 10, 1900.)

(No Model.)

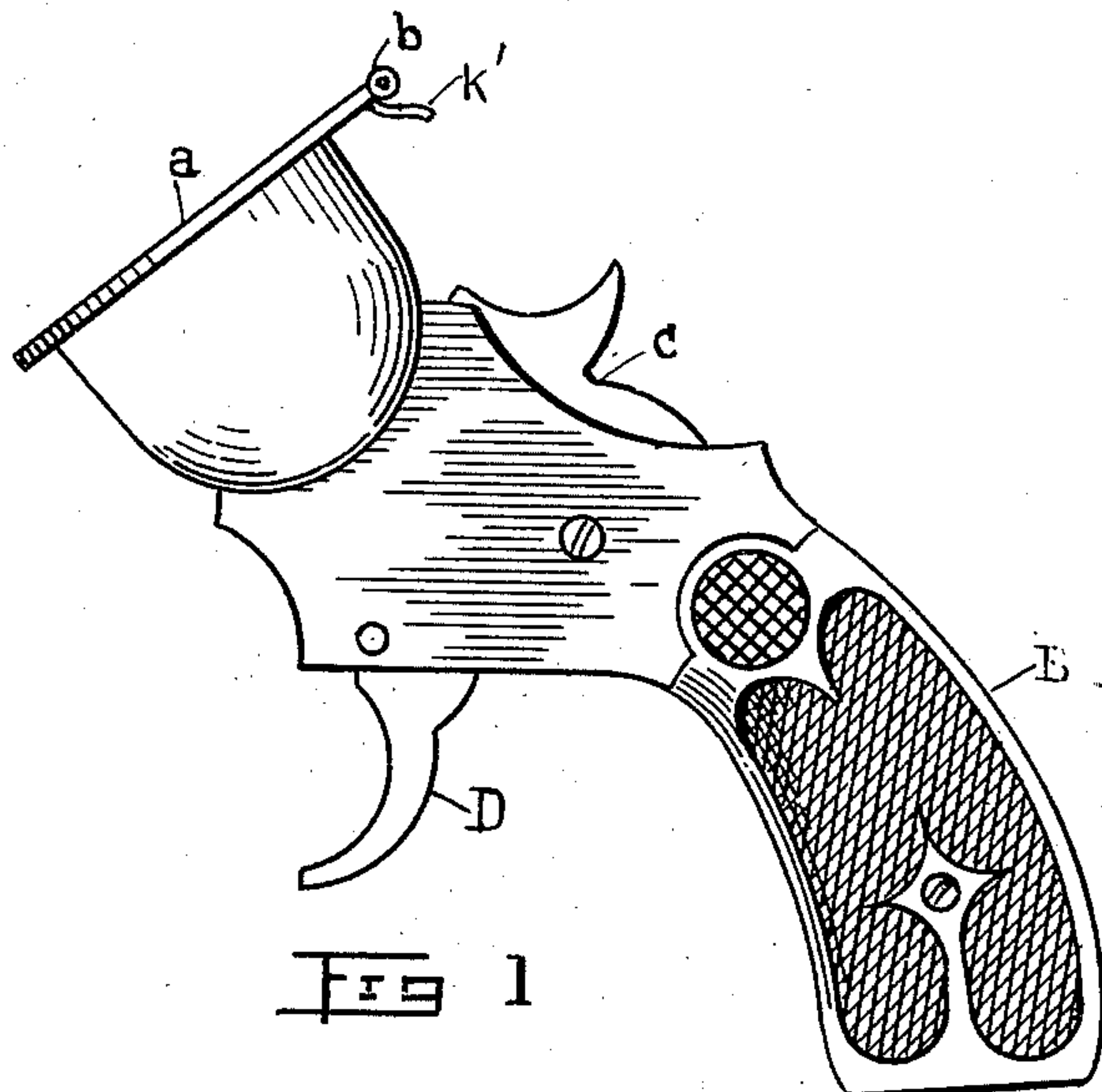


FIG 1

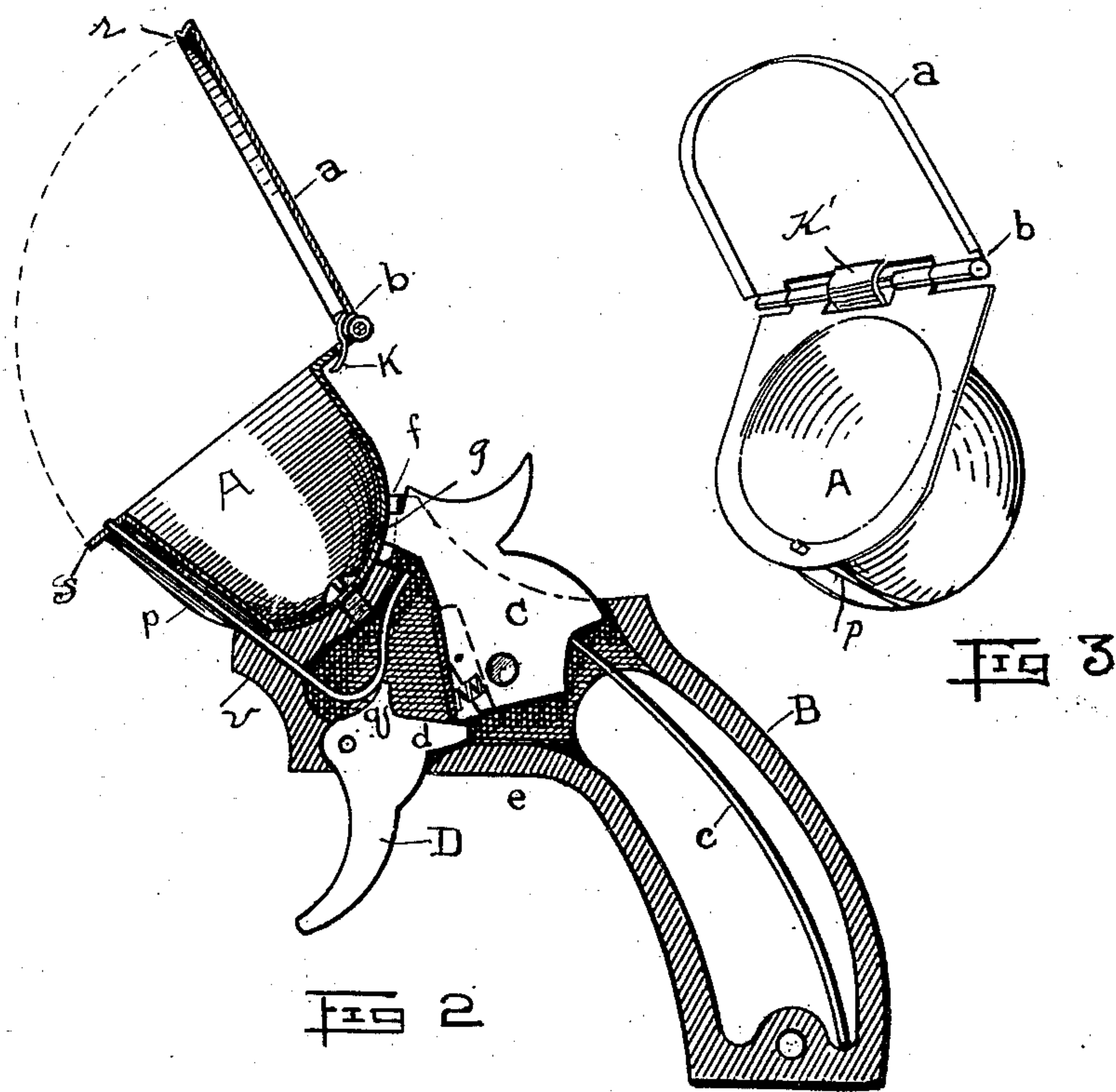


FIG 3

FIG 2

WITNESSES.

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# UNITED STATES PATENT OFFICE.

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## FLASH-LIGHT.

SPECIFICATION forming part of Letters Patent No. 673,184, dated April 30, 1901.

Application filed December 10, 1900. Serial No. 39,307. (No model.)

*To all whom it may concern:*

Be it known that I, ALLIE R. WELCH, a citizen of the United States, residing at Chelsea, county of Washtenaw, State of Michigan, have invented a certain new and useful Improvement in Flash-Lights; and I 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 pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to flash-lights, and has for its object an improved apparatus for producing the sudden, almost instantaneous, light that is useful in connection with photographic instruments for the production of photographic pictures.

The object of the invention is to produce a machine that rapidly, almost instantaneously, uncovers a receptacle in which there is stored a quantity of magnesium-powder and immediately after the receptacle is uncovered sets fire to the same by introducing into the powder preferably the flame of an explosive. The machine comprises a receptacle in which the magnesium-powder is held preparatory to its combustion, a cover to the receptacle, a receptacle for the explosive that is outside the magnesium-holder, but communicates with it through an aperture, a locking device or locking-catch to hold the cover to the magnesium-receptacle, a spring to throw the cover open when the catch is released, and some means for consecutively loosening the catch of the cover and striking and exploding the explosive, and thereby firing the magnesium-powder in the now open receptacle. The invention which embodies these features is shown in the drawings which form a part of the specification.

In the drawings, Figure 1 shows the device in side elevation. Fig. 2 is a longitudinal section of the device. Fig. 3 is a perspective showing only the magnesium-receptacle and the cover thereto.

The device consists of a magnesium-receptacle A, which is fixed by a screw *a* to a handle B, and the handle B has the shape or form of the handle to a pistol and is provided with a hammer C, a trigger D, and a

mainspring *c*. The hammer and trigger have self-cocking features which are similar to the self-cocking hammer in quite common use, comprising a spring offset *e* on the hammer that normally projects over a spur *d* on the trigger, so that when the lower end of the trigger-lever is retracted the outer end of the spur *d* in rising lifts the offset and swings the hammer on its pivot until the spur has swung so far upward and forward that it passes the offset *e*. During the swing of the hammer the mainspring *c* has been brought into tension, and as soon as the spur *d* has passed the offset the mainspring swings the hammer rapidly in a direction reverse to that which it has heretofore had and brings the face of the hammer forcibly against the explosive-cap, which has been placed in a small chamber *f*. The interior of the magnesium-receptacle communicates with the chamber *f* through a hole *g*, through which the burning explosive is driven by the blow of the hammer. Around the hole *g* the walls of the receptacle form the front side of the chamber *f*, and also constitute the anvil that coacts with the hammer to produce the explosion.

The receptacle A is normally closed by a cover *a*, that is hinged to the receptacle, and at the hinge is provided with a spring *b*, and this spring is in a state of tension when the cover is closed and tends to force the cover open. The full opening, however, is preferably prevented by a little stop *k'*. At the front of the cover is a catch *r*, that engages over a flange *s* on the receptacles. The catch need be nothing more than a spur produced by bending the thin metal in at a position such that the spur projecting inward from the edge of the cover is lower down than the lower side of the flange *s*. The exact form of the catch is not important, the essential feature being that it shall hold the cover to the receptacle against the piece of the spring and against displacement in the ordinary handling of the device, but which will allow the disengagement of the parts by a slight push. On the under side of the cover engages the end of a push-rod *p*, that passes down the outside of the receptacle, preferably in a groove or indentation that protects it.

The lower end of the rod *p* engages against



a spur *q* on the trigger *D*, and whenever the trigger *D* is swung the first movement of it while lifting the hammer and swinging it back pushes the rod *p* with force against the  
5 cover *a* and disengages the catch *r* from the flange *s*. The rod *p* is arranged to be held in place by the groove in which it rests, and a hole *v* through it passes from the outside of the framework of the handle to the chamber  
10 within the handle, in which the ends of the trigger and hammer are contained, and the rod is here bent to prevent its turning in the chamber and prevent its escaping from its proper engagement with the trigger.

15 What I claim is—

1. In a flash-light device, the combination of a pistol-lock mechanism of the self-cocking variety, a receptacle for flash-light powder, said lock mechanism being arranged to ignite  
20 said powder on the fall of the hammer, a cover for said receptacle, a spring acting to throw said cover open, a catch adapted to yieldingly secure said cover closed against the action of the spring, and means whereby the action of  
25 said self-cocking mechanism in raising the

hammer loosens said catch, substantially as described.

2. In a flash-light device, the combination of a pistol-lock mechanism of the self-cocking variety, a receptacle for flash-light powder, said lock mechanism being arranged to ignite  
30 said powder, on the fall of the hammer, and means actuated by the lock mechanism for opening the powder-receptacle as the hammer is rising, substantially as described. 35

3. In a flash-light device, the combination of a pistol-lock mechanism, a receptacle for flash-light powder, said lock mechanism being arranged to ignite said powder on the fall of the hammer and means actuated by the trigger of said mechanism whereby said receptacle is opened by the initial movement of  
40 said trigger, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses.

ALLIE R. WELCH.

Witnesses:

HELEN STOCKING,  
IRENE PLACE.