

EDGE & HYDE.  
Pyrotechnic Signal.

No. 35,089.

Patented April 29, 1862.

Fig 1

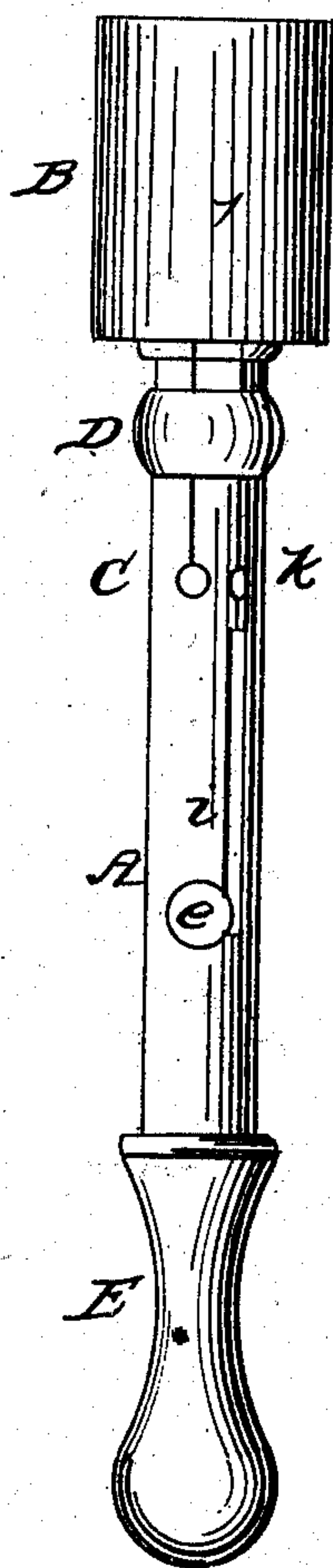
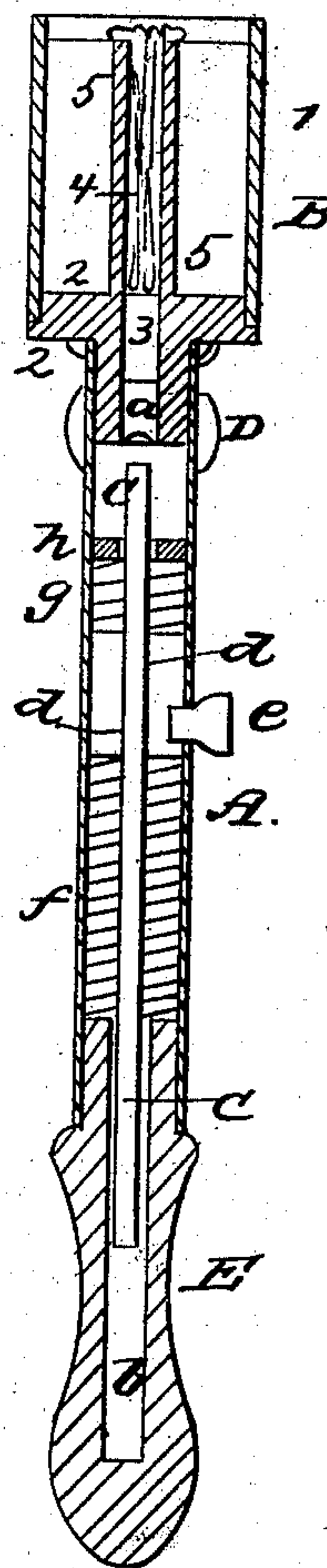


Fig 2



Witnesses  
J. A. Hyde  
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Isaac Edge  
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# UNITED STATES PATENT OFFICE.

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## IMPROVED MODE OF FIRING NIGHT-SIGNALS.

Specification forming part of Letters Patent No. 35,089, dated April 29, 1862.

*To all whom it may concern:*

Be it known that we, ISAAC EDGE, of Jersey City, in the State of New Jersey, and CHARLES CARROLL HYDE, of Stonington, in the State of Connecticut, have invented a new and Improved Means for Igniting Night Lights or Signals to be Used for Military and other Like Purposes; and we hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

We employ the usual signal case and tube provided with a proper handle for holding the signal while burning, the signal-case being rammed with inflammable composition to produce the proper light or lights required. This tube is slotted at its upper end, and is provided with a sliding ring to compress the tube upon the stem of the signal and secure it thereto. With such ordinary contrivance the handle is not fastened to the holding-tube, but its stem is allowed to play freely therein, and to this stem a wire or metallic rod is firmly secured, and is of such length that when the handle is closed against the end of the tube the wire will extend to the signal-stem; and to the stem of the signal a metallic plug or nipple is secured, upon which a common percussion-cap of copper is fixed. The cap is exploded by partially withdrawing the handle from the tube and then striking the end smartly to force the wire upon the cap, when, the fulminating substance being exploded, it will in turn ignite the central match, which will fire the signal. (See drawings.)

Figure 1 represents the holder A with the signal B attached, and Fig. 2 shows the same in longitudinal section. C shows the slots; D, the sliding ring; 1 1 1, the signal-case, of paper or other proper material; 2, the base with its stem and match-case, carrying a rammed fuse, 3, and match 4; and 5 shows the rammed signal composition; and for further explanation E may represent the sliding handle, and c the rod firmly secured to it.

The difficulties in the employment of the above-described are inconvenience, uncer-

tainty, and danger, as it is difficult to so regulate the force of the blow (usually by striking the end of the handle against some hard substance) but that the signal is often driven from the socket altogether; again, ineffectual blows frequently discover the signal useless for the time, which difficulty, after such repeated vain efforts, (always in the dark,) leads to the discovery that the cap had dropped off or had become useless from corrosion from its long contact with the iron nipple. As the cap is exposed when the signal is not in the staff, it is easily fired by accident, thus rendering it dangerous.

Our improvement (see drawings) consists in placing a couche of fulminate paste within a socket in the stem of the signal at *a* and directly upon the fuse composition 3. The fulminate paste will not deteriorate from age, it cannot fall from its place, it will not miss fire, nor can it be fired except by design, for which we employ a firing-tube provided with its handle E firmly attached thereto. This handle is provided with a socket, *b*, throughout nearly its entire length to admit the rod *c* to slide freely therein. To this rod *c* we attach a piston or plug, *d*, fitting the tube, and to this plug we affix a strong knob or button, *e*, secured from the outside of the tube and traversing freely in a longitudinal slot, *i*, cut therein, the slot at its lower end being cut across the tube a distance about equal to the diameter of the stem of the knob and designed to lock it in position when drawn down.

Between the end of the fixed handle E and the piston *d* we place a helical spring, *f*, and above the piston we place a shorter and more feeble helical spring, *g*, which bears against an annular plate or diaphragm, *h*, soldered to the tube. Now it follows that with the signal fixed as in Fig. 2, if the button be drawn down and locked, as shown in Fig. 1, and the tube be held by the handle, the button may be pressed to the right with the thumb or finger, when the spring *f* will force the rod upon and ignite the fulminate *a* and fire the signal. The spring *g* will quickly withdraw the end of the rod from the socket, as shown in Fig.

2, to allow the escape of the gas downward from the fuse and out by orifices *k*, or otherwise it might force the signal from the tube.

We claim as our invention and desire to secure by Letters Patent—

The herein-described improvement in firing night-signals by means of the fulminate couche *a*, fired by the self-acting rod *c*, actuated by springs *f* and *g* and the piston *d* and

the annular plate *h* through the agency of the button *e*, the slot *i*, and the socket *b*, substantially as described.

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Witnesses:

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