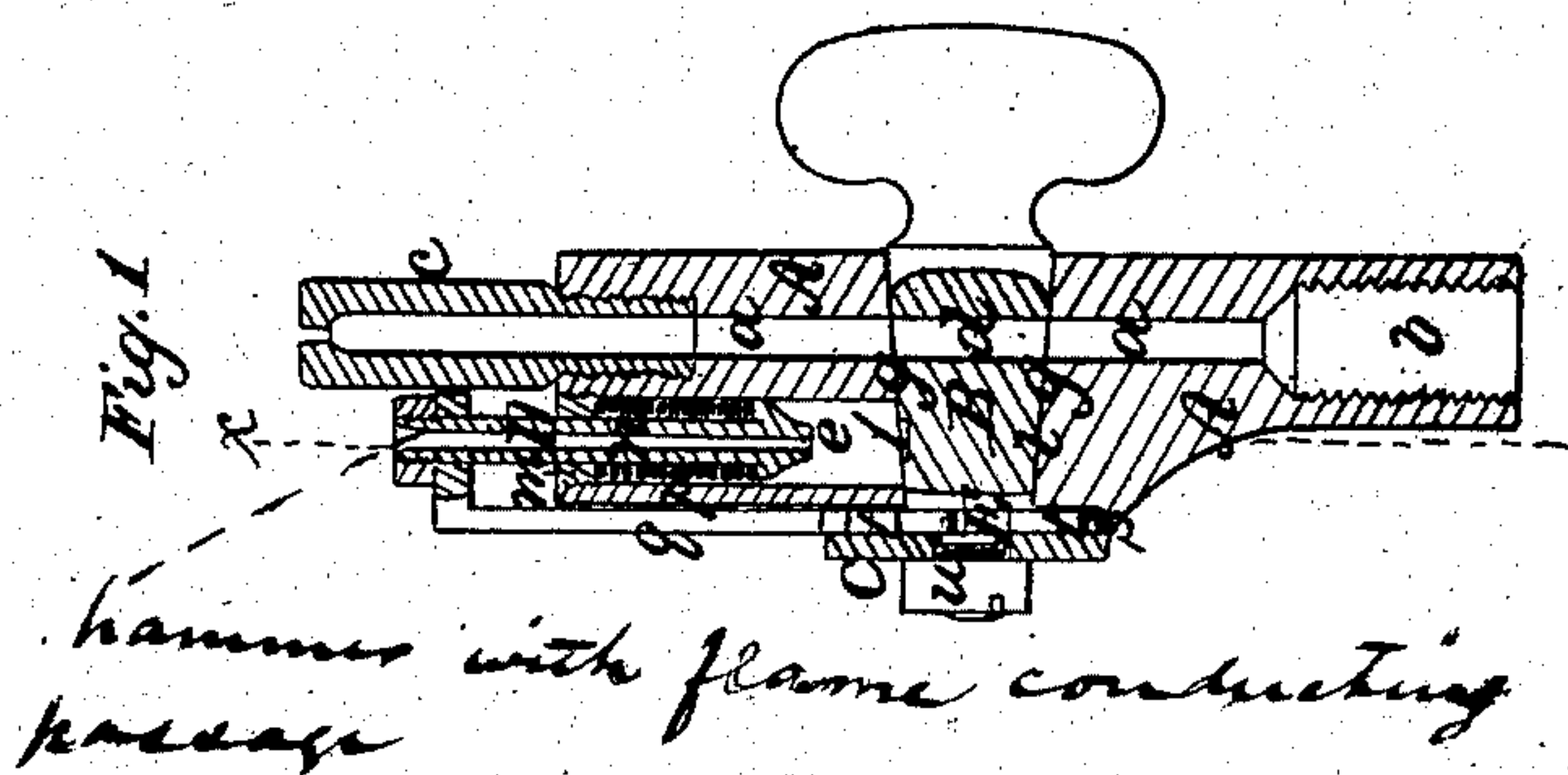
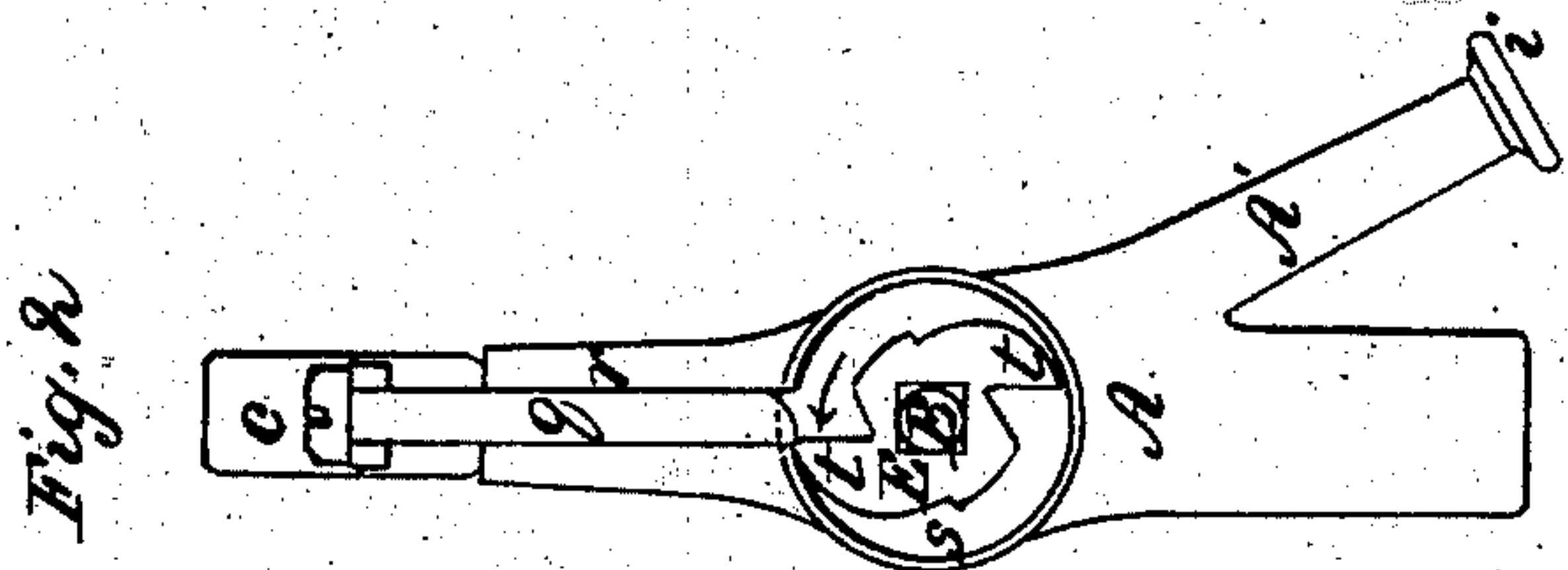
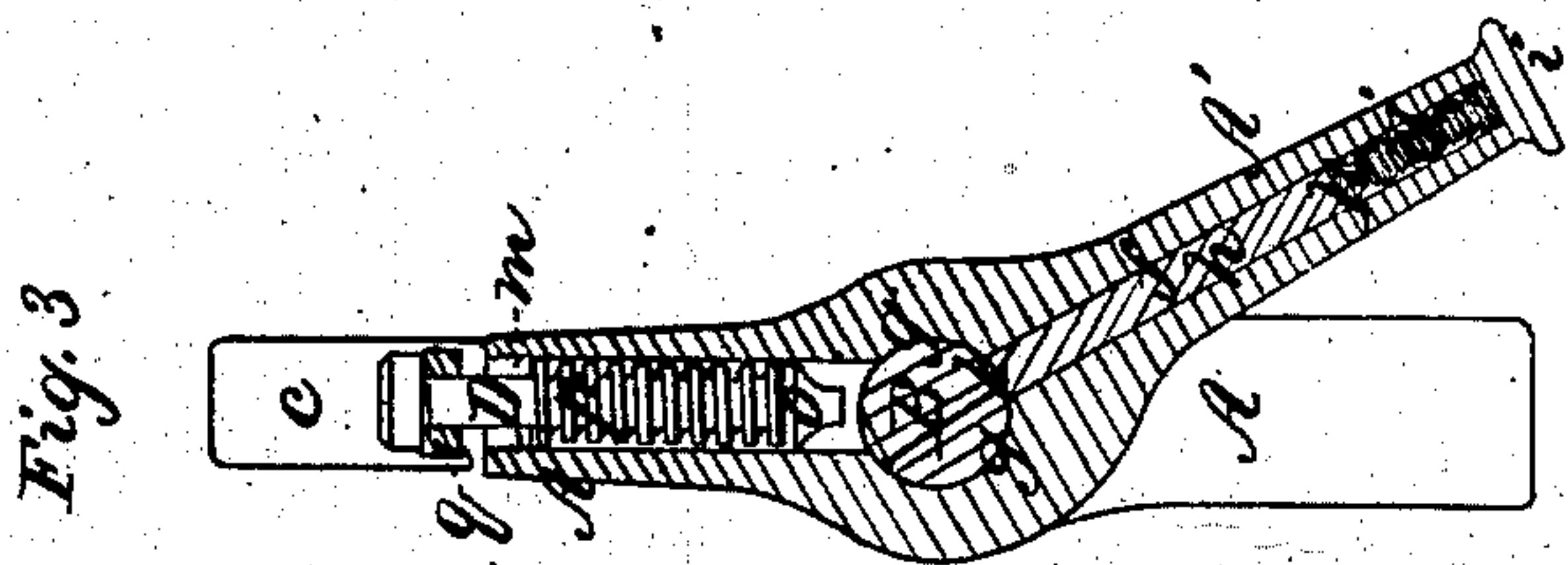


H.B. Stockwell,
Fulminate Gas Lighter,
No. 48,459, Patented June 27, 1865.



Witnesses.
John Baker
J. H. Coombs

Inventor.
H. B. Stockwell

UNITED STATES PATENT OFFICE.

HENRY B. STOCKWELL, OF BROOKLYN, NEW YORK.

IMPROVED FULMINATE GAS-LIGHTER.

Specification forming part of Letters Patent No. 48,459, dated June 27, 1865; antedated June 17, 1865.

To all whom it may concern:

Be it known that I, HENRY B. STOCKWELL, of No. 3 Jefferson Park, in the city of Brooklyn, county of Kings, and State of New York, have invented a new and useful Means of Lighting Illuminating-Gas, which I term a "Fulminate Gas-Lighter;" and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a central vertical section of my fulminate gas-lighter, showing its application in connection with a gas-burner and with the cock for turning the gas on and off. Fig. 2 is an elevation of the same at right angles to Fig. 1, with the cap C removed. Fig. 3 is a vertical section at right angles to Fig. 1 in the plane indicated by the line *x x*.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists in so applying a fulminate, in combination with a gas-burner, and so combining a hammer or percussion device with the stop-cock which supplies gas to the burner that by the act of turning the stop-cock to let on the gas the hammer or percussion device will be caused to ignite the fulminate, which will be thus caused to light the gas issuing from the burner.

To enable others to apply my invention to use, I will proceed to describe it with reference to the accompanying drawings, which represent that construction and mode of application which, after many experiments, I have found to be, all things considered, the best.

A is a metal socket, in which there is a vertical passage, *a*, the lower end of which is tapped, as shown at *b* in Fig. 1, to enable it to be screwed onto a gas-pipe, and into the upper end of which is screwed the gas-burner *c*. This socket is also bored transversely to receive the plug B of the stop-cock, in which there is a passage, *d*, which ranges with the passage *a*. Parallel with and very near the passage *a* there is also provided in the socket A another passage, *e*, Fig. 1, which leads from the transverse bore *g*, in which the plug B is received,

to the top of the socket for the reception of a straight plunger, D, which operates as a hammer to produce the ignition by percussion of the fulminate by which the gas is lighted.

Below the transverse bore which receives the plug B there is provided, in the socket A or in a branch tube, A', attached thereto, a straight passage, *f*, leading upward to the bore *g* for the reception of the fulminate *h*, which is made in the form of a stick and inserted into the said passage.

Into the lower end of the passage *f* there is screwed a plug or stopper, *i*, to which there is attached by a spiral spring, *j*, a piston, K, which fits into the said passage, and which is caused by the pressure of the said spring to press or feed the fulminate toward the plug B and keep it in contact therewith.

In the plug B, opposite each other and ranging with the passage *f*, there are two small cavities, *l l*, which, by the act of turning the plug to open and close the passage *a* for letting on the gas to and shutting it off from the burner, are caused to cut off from the stick *h* a small portion of fulminate and carry it around to the passage *e*, where it may be struck by the plunger D and thereby ignited, one of the said cavities always being opposite the plunger D when the cock is open.

The plug B should be made of steel, to prevent its being too rapidly worn out in cutting off the fulminate.

The plunger D has provided directly through it a small longitudinal passage, *n*, through which the flame from the ignited fulminate may be injected in such manner that it will come in contact with and light the gas issuing from the burner *c*. Near the lower end of the plunger there is a shoulder, *o*, which serves as one of the bearings of a spiral spring, *p*, which is coiled around the plunger and inserted with it into the passage *e*, and the upper bearing of which consists of a gland, *m*, screwed into the mouth of the said passage. The upper end of the plunger, which protrudes through the top of the socket A, is firmly secured to the upper end of a rod, *q*, which is fitted to slide in a groove, *r*, in the exterior of the socket A, and

the lower end of which enters a circular cavity, *s*, formed by counter-boring the bore *g* which receives the plug B. Within this cavity *s* there is fitted to a square formed on the plug B a cam, E, having two offsets, *t t*, arranged on opposite sides of its axis. The said cavity *s* is covered by the cap-plate C, which is secured in place by a nut, *u*, screwed onto the plug B, or by a screw screwing into the said plug, the said cap-plate and nut or screw also serving to hold the plug B and the cam E in place. The cam is so arranged relatively to the passage *d* in the plug that one of the two lowest points of the cam is always opposite the rod *q* when the cock is open. The rod *q* acting against the offsets *t t*, prevents the cock-plug from being turned in one direction when open, and it acts in two ratchet-like notches, *v v*, provided in the cam to prevent it from being turned in the same direction when closed, and the plug is then only permitted to turn in the direction indicated upon or near it by arrows in Figs. 2 and 3.

The operation of lighting the gas by the act of turning it on is simply as follows: As the cock-plug is turned to the extent of a quarter of a revolution from the closed to the open position, it brings the fulminate contained in one of the cavities *l* directly under the plunger D, and at the same time causes one of the offsets *t* of the cam to lift up the rod *q* and the plunger D and compress the spring *p*, and as the plug arrives in position to give the full opening to the passage *d* and bring a cavity, *l*, opposite the plunger, the highest point of the offset of the cam passes the lower extremity of the rod *q* and allows the plunger D to be driven down suddenly by the spring *p* upon the fulminate, which is thereby ignited, and

the flame from it, issuing through the passage *n*, meets the gas issuing from the burner and ignites it.

The fulminate employed should be one which will give out a copious flame when ignited, but act with the least amount of explosive force. I prefer to use a compound of fulminating-mercury, saltpeter, black sulphuret of antimony, and French chalk, which forms the subject of another application made by me for Letters Patent.

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

1. So applying a fulminate and a hammer, or its equivalent, in combination with each other and with a gas-burner, as to produce the ignition of the gas issuing from the burner by the action of the hammer, or its equivalent, on the fulminate, substantially as herein described.

2. So combining the stop-cock which admits the supply of gas to the burner with the hammer, or its equivalent, as to produce the action of the latter by the act of opening the former to turn on the gas, substantially as herein set forth.

3. The hollow plunger or hammer D, rod *q*, and cam *t*, combined with each other and with the stop-cock and burner, and operating substantially as herein specified.

4. One or more cavities, *l l*, in the plug of the stop-cock operating in relation to a passage, *f*, containing the fulminate, and a passage, *e*, containing the plunger or hammer D, substantially as and for the purpose herein described.

HENRY B. STOCKWELL.

Witnesses:

JOHN F. BAKER,
GEO. W. REED.