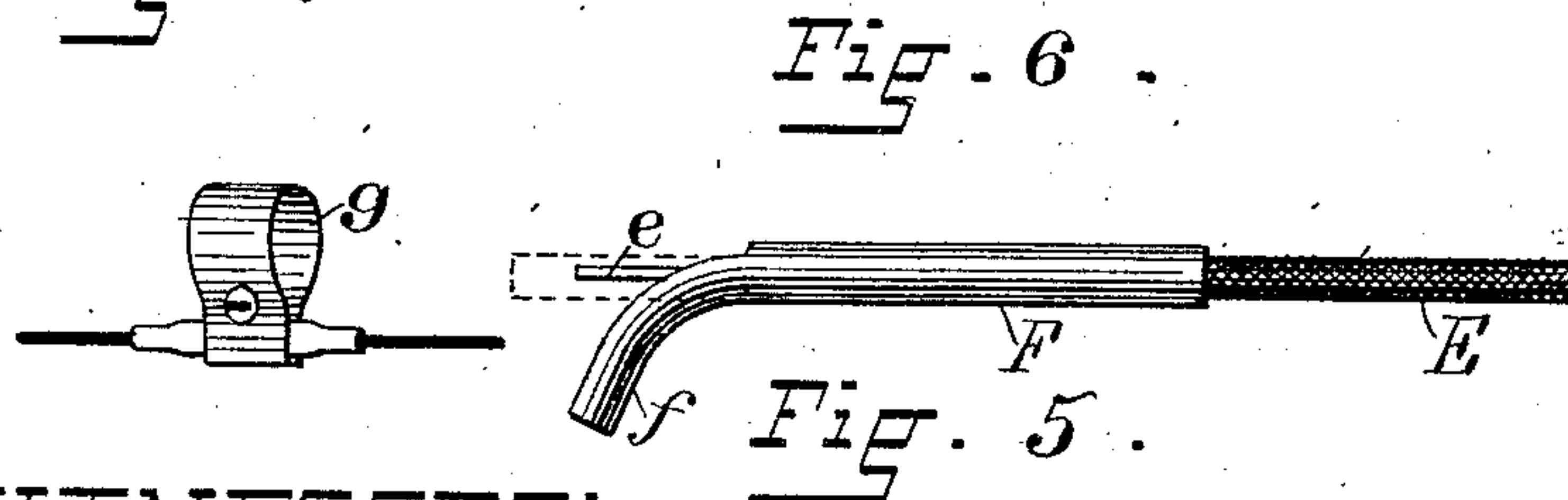
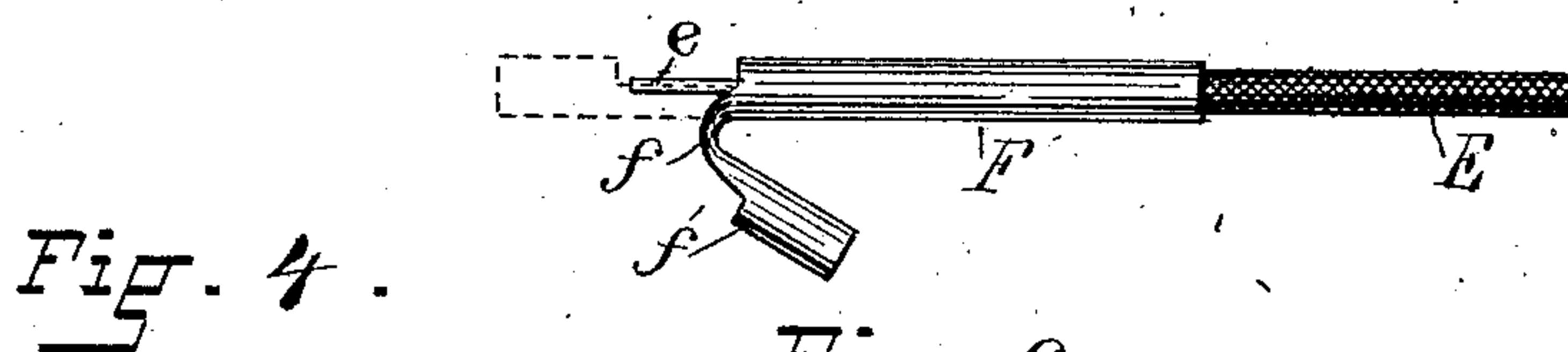
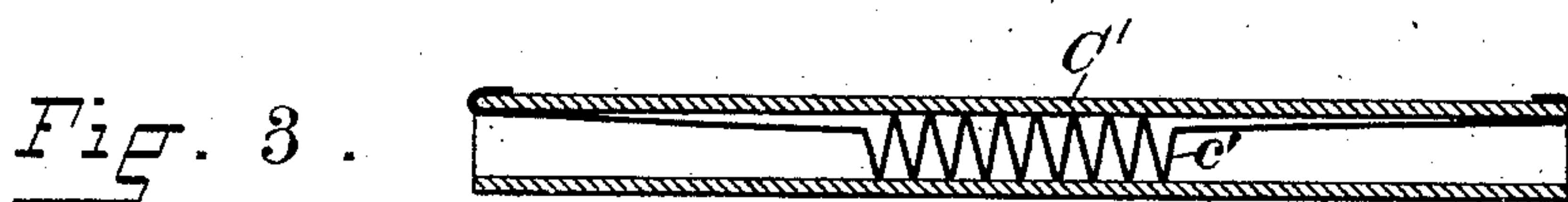
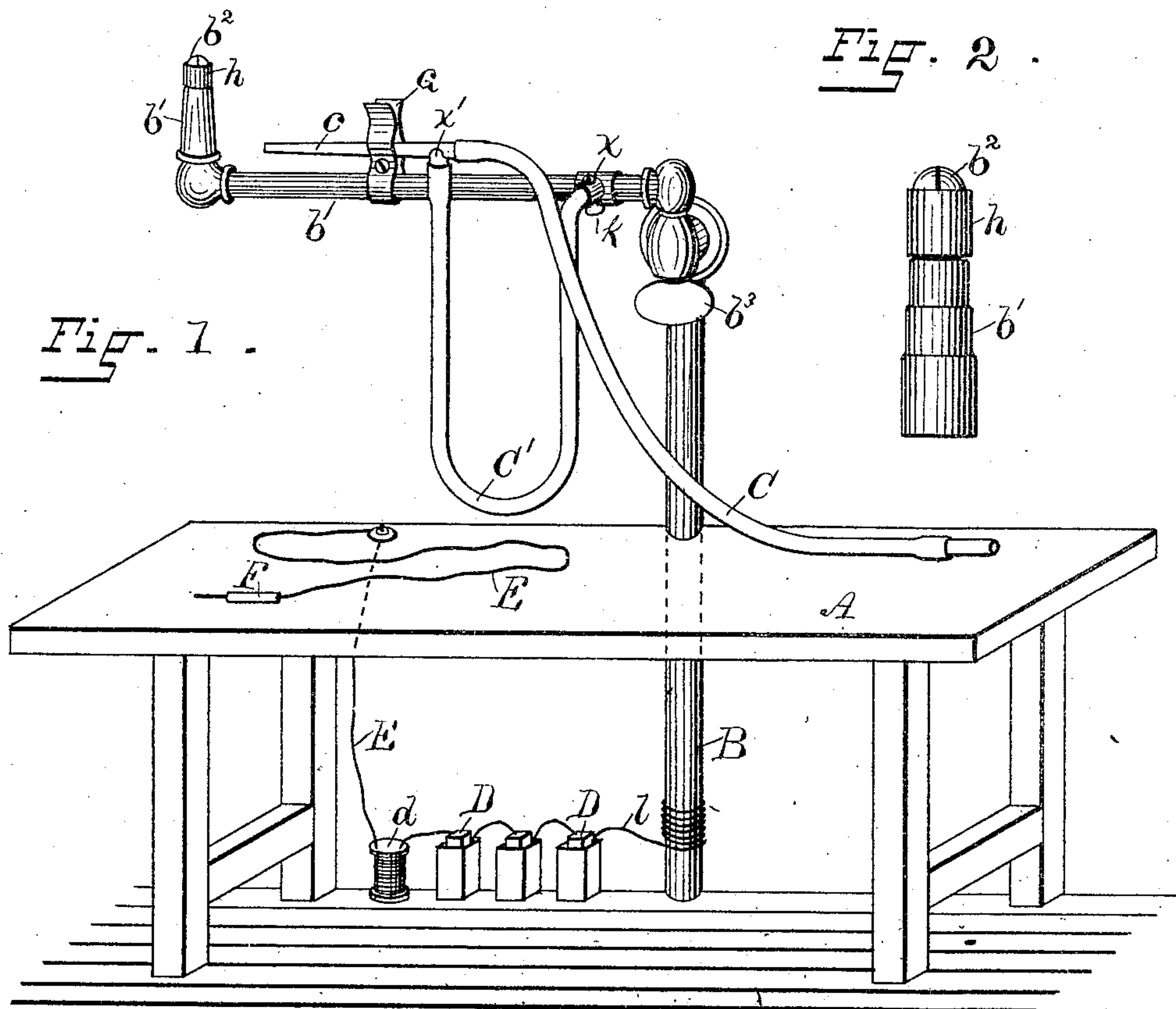


(No Model.)

H. N. WILLIAMS,  
ELECTRIC DEVICE FOR LIGHTING GAS.

No. 305,726.

Patented Sept. 23, 1884.



WITNESSES:

C. H. Leuther Jr.  
Fred. C. Field.

INVENTOR:

Horatio N. Williams  
by Joseph A. Miller & Co.  
Attys.



# UNITED STATES PATENT OFFICE.

HORATIO N. WILLIAMS, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR OF TWO-THIRDS TO JOHN W. DUXBURY AND CHARLES P. BRANN, BOTH OF SAME PLACE.

## ELECTRIC DEVICE FOR LIGHTING GAS.

SPECIFICATION forming part of Letters Patent No. 305,726, dated September 23, 1884.

Application filed January 17, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, HORATIO N. WILLIAMS, of the city and county of Providence, State of Rhode Island, have invented certain new and useful Improvements in Electric Lighters, of which the following is a specification.

My invention has for its object to provide a simple and efficient substitute for friction-matches in lighting blow-pipes.

My invention consists in an electric blow-pipe lighter, constructed and arranged as hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a perspective view of a jeweler's work-bench with my improvements applied. Figs. 2, 3, 4, 5, and 6 are views of certain details of construction hereinafter described.

In manufacturing establishments, particularly those devoted to the making of jewelry, it is necessary to burn many blow-pipe flames, and such lights are frequently lighted and extinguished and relighted. Heretofore such establishments have been obliged to keep large supplies of friction-matches constantly on hand, and the presence of such quantities of unused matches, and the careless handling of the burned matches as well, have greatly increased the liabilities of fire in such establishments; hence the necessity of some superior substitute for the matches.

In the said drawings, A designates a jeweler's work-bench; B, a gas-service pipe; *b*, a swinging gas-bracket; *b'*, a burner-tube; *b''*, a burner-tip, and *b'''* a key for turning the gas off and on. No novelty is claimed in these parts *per se*, and they may be of any suitable or preferred form.

C designates a blow-pipe, one end of which (shown resting on the bench A) may be connected with any suitable air-forcing apparatus; or such end may be arranged to be placed in the operator's mouth, as preferred. The opposite end of the blow-pipe is provided with a metallic nozzle, *c*, of any suitable or preferred form.

C' designates a flexible gas-tube, which leads from a metallic connection, *x*, with the bracket *b*, to a metallic connection, *x'*, with the nozzle *c*. The connection at *x* is provided with a key, *k*, which causes the gas to flow either to

the burner or to the blow-pipe tube, or to both.

D designates a battery of any suitable form, and *d* designates the helix thereof.

*l* designates the ground-wire, which leads from the battery D to the pipe A, whence current communication extends to earth.

E designates the conductor or lighting wire, which extends from the helix *d* upward through an aperture in the bench A. At its free end the wire E is provided with a protecting and insulating sheath, F, which is provided with a flap, *f*, as shown in Fig. 5.

For the purpose of increasing the degree of protection afforded to the naked end or tip *e* of the wire E by the sheath F, the latter may be provided not only with the flap *f*, but also with the guard *f'*. (See Fig. 6.)

G designates a clip for holding the blow-pipe nozzle when said pipe is not in use, said clip being secured to the bracket *b* or to any other convenient object. *g*, Fig. 4, is a similar clip, which is designed to be secured to the bracket or to any other convenient object for the purpose of holding the wire E when idle. These clips embrace their supporting object, to which they are each secured by a screw or pin, as shown. The nozzle or wire, as the case may be, is clasped between the extremities of the clip, as shown, and when the clip is secured to the bracket it forms a part of the electrical connection between the bracket and the battery through the blow-pipe.

As previously stated, the tip *b''* may be of lava or other suitable material. In any event the tip may be surrounded up to the level of its cut with a collar, *h*, secured to the tube *b'*, as indicated in Fig. 2.

In Fig. 3 I have illustrated a longitudinal section of the blow-pipe gas-tube C', in order to represent the form of electrical conductor used therein, the tube C' being shown as drawn out straight for purposes of economy in space upon the sheet.

*c'* designates a piece of resilient metal coiled at its middle section and turned up at its extremities over the ends of the tube.

The purpose in coiling the piece *c'* is to render it flexible, so that it shall not chafe the tube C', and said piece is resilient, so as to support and strengthen the tube. The ends of



the piece *c'* are bent over the ends of the tube, in order to effect a contact with the bracket, and consequently an electrical communication between the ends of the piece *c'* and the metallic connections *x x'*. I would also state that the purpose of the sheath *F* is not only to protect the naked end or tip *e* of the wire *E*, but also to prevent any waste of the current which would result from any contact between the tip and the metal portions of the bench *A*.

The operation of the device is as follows: The gas is turned on by means of the key *b*, and flows into the bracket, and thence to the burner, (let us suppose.) The workman takes the wire in his hand and brings the naked tip *e* near to the upper edge of the collar *h*, and the spark which is emitted ignites the gas which lights the workman's bench. When the blow-pipe flame is to be lighted, the operation is similar. The workman adjusts the key *k* so as to shut off the gas from the burner, or so as to admit the gas to both the burner and blow-pipe. He then presents the tip *e* to the end of the nozzle, and thus ignites the gas.

Having thus described my invention, I claim—

1. The combination of a blow-pipe, a battery with which said blow-pipe is electrically connected, and a lighting-tip electrically connected with the battery and arranged to complete the circuit by contact with the blow-pipe, substantially as described.

2. The combination, with a gas-bracket placed in electrical communication with a battery, of a blow-pipe placed in electrical communication with the bracket, and a lighting-tip placed in electrical communication directly with the battery, substantially as described.

3. The combination, with the gas-bracket placed in electrical communication with the battery, of the blow-pipe *C*, having the tip *e*, and the branch *C'*, containing the electrical conductor, and the tip *e*, electrically connected directly with the battery, as described.

4. The combination, with the bracket carrying the clip *G*, of the blow-pipe *C*, having the branch *C'*, containing the conductor *c*, and the tip *e*, electrically connected directly with the battery, as described.

5. The combination, with the lighting-tip, of the sheath *F*, having the flap *f* and the guard *f'*, as described.

6. The combination, with the bracket having the key *k*, and the blow-pipe *C*, having the tip, and the branch *C'*, provided with the conductor *c*, of the tip *e*, the conductor *E*, and the sheath *F*, having the flap *f* and the guard *f'*, as described.

HORATIO N. WILLIAMS.

Witnesses:

J. A. MILLER, Jr.,  
M. F. BLIGH.