

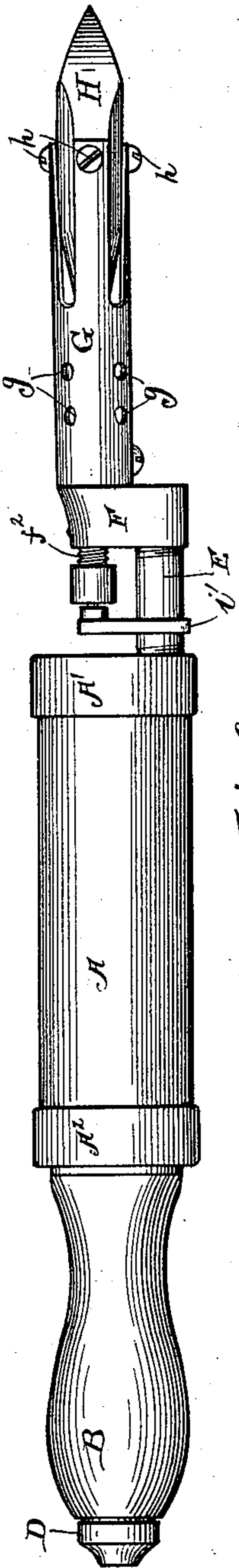
(No Model.)

J. WICKSTROM.  
SELF HEATING SOLDERING IRON.

No. 574,596.

Patented Jan. 5, 1897.

Fig. 1.



Witnesses:  
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Fig. 2.

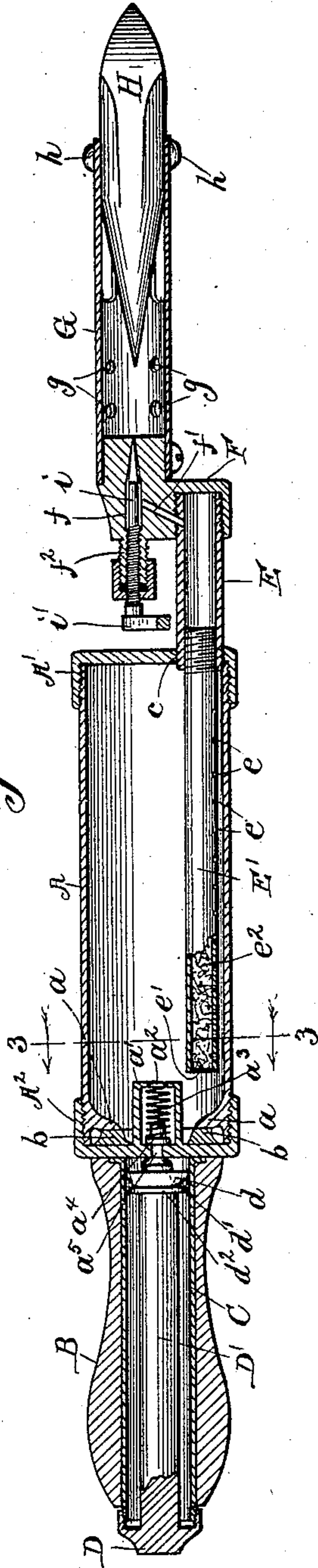


Fig. 3.

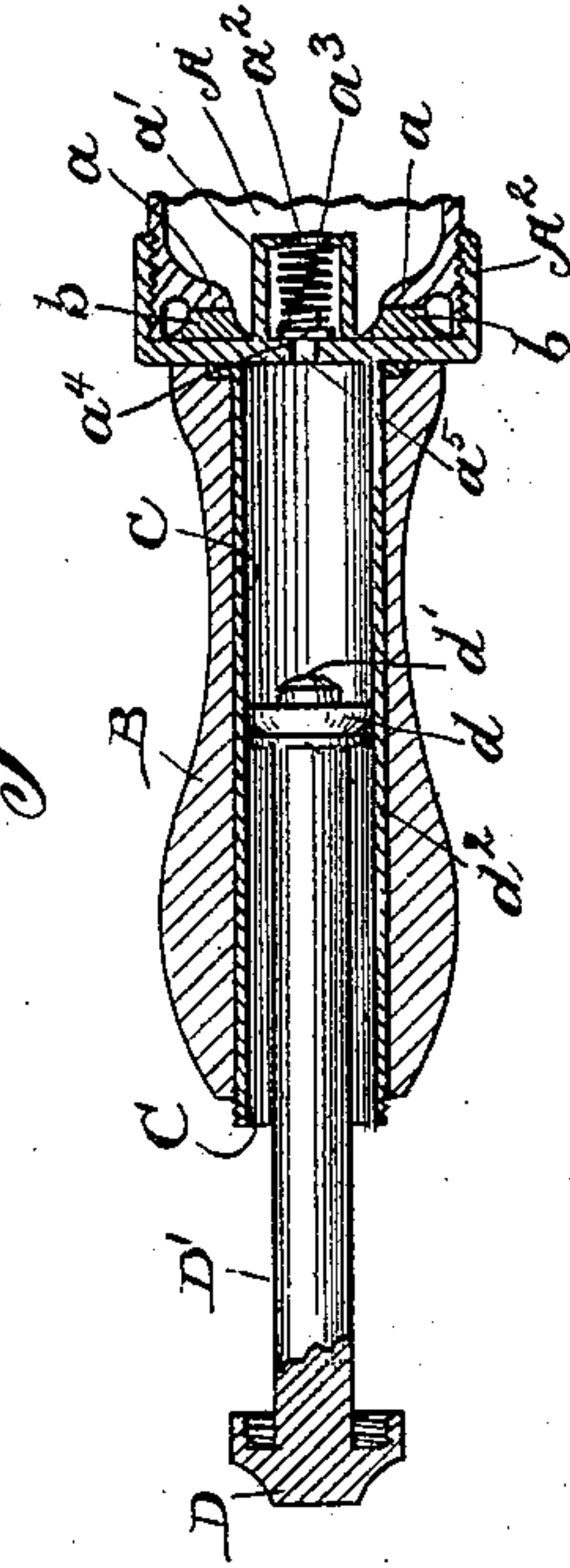
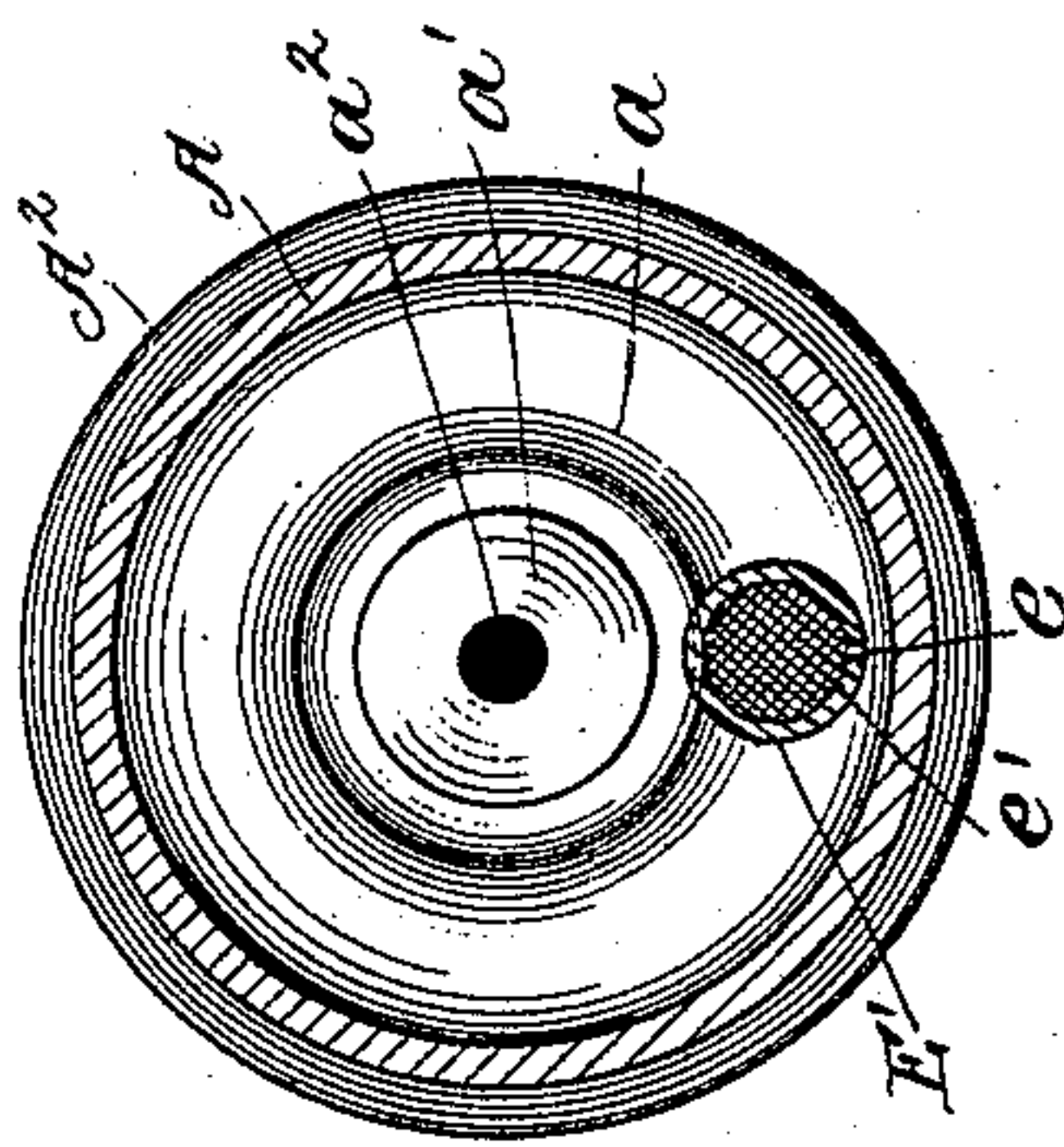


Fig. 3.



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# UNITED STATES PATENT OFFICE.

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## SELF-HEATING SOLDERING-IRON.

SPECIFICATION forming part of Letters Patent No. 574,596, dated January 5, 1897.

Application filed February 17, 1896. Serial No. 579,525. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN WICKSTROM, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Self-Heating Soldering-Irons, of which the following is a specification.

This invention relates to improvements in soldering-irons; and it consists in certain peculiarities of the construction, novel arrangement, and operation of the various parts thereof, as will be hereinafter more fully set forth and specifically claimed.

The objects of my invention are, first, to provide a self-heating soldering-iron which shall be simple and inexpensive in construction, strong and durable, and effective in operation; second, such a soldering-iron the parts of which shall be so constructed and arranged as to provide a handy and convenient implement or tool to be used by plumbers, tanners, cornice-makers, and other metal-workers, in which the iron or copper head may be heated and kept hot while the tool is being used; third, a soldering-iron which shall have combined therewith and forming the handle thereof an air-pump and gasoline-receptacle, and, fourth, to provide a means for regulating the temperature to which the iron or copper head may be heated.

In order to enable others skilled in the art to which my invention pertains to make and use the same, I will now proceed to describe it, referring to the accompanying drawings, in which—

Figure 1 is a view in elevation of a soldering-iron, showing it in its completed form and embodying my invention. Fig. 2 is a central longitudinal sectional view thereof. Fig. 3 is an enlarged cross-sectional view taken on line 3 3 of Fig. 2; and Fig. 4 is a central sectional view of a portion of the handle, gasoline-receptacle, and air-pump located in the handle, showing the piston-rod thereof extended.

Similar letters refer to like parts throughout the different views of the drawings.

A represents a gasoline-receptacle, which may be made of any suitable size, form, and material, but preferably cylindrical and of hard metal. Each end of this cylinder or receptacle is usually screw-threaded to engage the caps A' and A<sup>2</sup>, which are internally screw-

threaded, as shown, but which may be sometimes otherwise secured on the cylinder. Near the outer end of the cylinder A, or that end thereof adjacent to the handle B, and on its inner surface is formed or provided an annular flange *a*, against which rests a ring *b*, of soft metal or other suitable material, on the inner surface of the cap A<sup>2</sup>, to form a tight joint. The central portion of the inner surface of the cap A<sup>2</sup> is provided with a tubular projection *a'*, having an opening *a<sup>2</sup>* at its inner part for the escape of the compressed air from the air-pump. Within this projection is placed a spring *a<sup>3</sup>* to hold the check-valve *a<sup>4</sup>* for the opening *a<sup>5</sup>* in said cap. Around the opening *a<sup>5</sup>* and to the outer surface of the cap A<sup>2</sup> is secured a tube or cylinder C, having its outer end screw-threaded to engage the screw-threaded head D on the piston-rod D', the inner end of which is provided with a piston *d*, of leather or other flexible material, which fits snugly within the cylinder C. The piston *d* is secured on the rod D', between the soft-metal piece *d'* on the inner end of the rod and a ring or washer *d<sup>2</sup>* near its inner end. The piece *d'* is adapted to fit over the opening *a<sup>5</sup>* in the cap A<sup>2</sup> when the piston-rod is in the position shown in Fig. 2 of the drawings, to prevent the escape of air from the cylinder A or gasoline-receptacle.

As shown in Figs. 2 and 4 of the drawings, the ring *d<sup>2</sup>* is somewhat smaller than the tube C, but serves to prevent the piston *d* slipping on the rod. Around the tube C is located a handpiece B, of wood or other suitable non-heat-conducting material. The cap A' is provided near its periphery with an opening *c* into which is fitted a tube E, to the outer end of which is secured a burner-head F. To the inner portion of the tube E and located within the cylinder A is a tube E', which is formed with a number of perforations *e* in its surface adjacent to the wall of the cylinder, and has at its free end a sieve or strainer *e'* to prevent the passage of any accumulations in the gasoline. To the outer portion of the burner-head F is secured a hollow burner G, which is formed with perforations *g*, and in the free end of which may be secured, by means of set-screws *h* or otherwise, the copper head H, which is employed for melting and applying the solder. The burner-head F is provided



with a central longitudinal opening  $f$ , which is formed tapering toward its outer end, and said opening communicates with the tube E through a channel  $f'$ , through which the gasolene is forced. The rear portion of the burner-head F is formed or provided with a screw-threaded projection  $f^2$ , through which passes a screw-threaded rod  $i$ , which tapers at its inner end to correspond with the shape of the opening  $f$  in the burner-head. The outer end of the rod  $i$  is provided with a transverse projection  $i'$  for adjusting the same, so that it may be forced forward into the opening  $f$  of the burner or retracted to regulate the flow of the gasolene through the opening  $f$  into the burner G or holder for the copper head or soldering-iron, which is formed with its inner portion tapering, as shown, so that the flame will envelop the same and be divided thereby, thus causing the iron or head to be more readily heated, and especially so when the implement is used in the open air, than if the flame was forced into a hollow iron or head.

From the foregoing and by reference to the drawings it will be seen that by removing the cap  $A^2$  from the cylinder A the gasolene or other oil to be used may be placed in said cylinder and safely confined therein by means of said cap, the spring-held valve  $a^4$  serving to prevent its escape through the opening  $a^5$ . When it is desired to force the gasolene through the tubes E' and E into the opening  $f$ , the head on the piston-rod may be disconnected from the tube C, when by operating said rod back and forth air will be forced

into the cylinder A and compressed therein, thus causing the gasolene to be forced into the tube E' through its perforations  $e$  and absorbent material  $e^2$ , and out into the tube C, from whence it will flow into the chamber or opening  $f$  of the burner-head, where as soon as it (the burner-head) becomes heated gas will be formed, and by the pressure within the receptacle be forced through the opening  $f$  into the burner or holder G against the copper head or soldering-piece, which may be heated to any desired degree by the flame produced by the escaping gas. By turning the rod  $i$  by means of the extension  $i'$  it is apparent that the said rod will be extended or retracted, thus regulating the flow of the gas through the opening  $f$  of the burner-head.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The combination of the cylinder A, provided with the internal annular flange  $a$ , the cap  $A^2$ , having the ring  $b$ , tubular projection  $a'$ , and opening  $a^5$ , the spring-held check-valve  $a^4$ , located in the projection  $a'$ , an air-pump secured to the outer surface of the cap  $A^2$ , and communicating with the oil-receptacle, and having on the end of the piston-rod adjacent to said cap a piece  $d'$ , to close the opening therein, substantially as described.

JOHN WICKSTROM.

Witnesses:

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