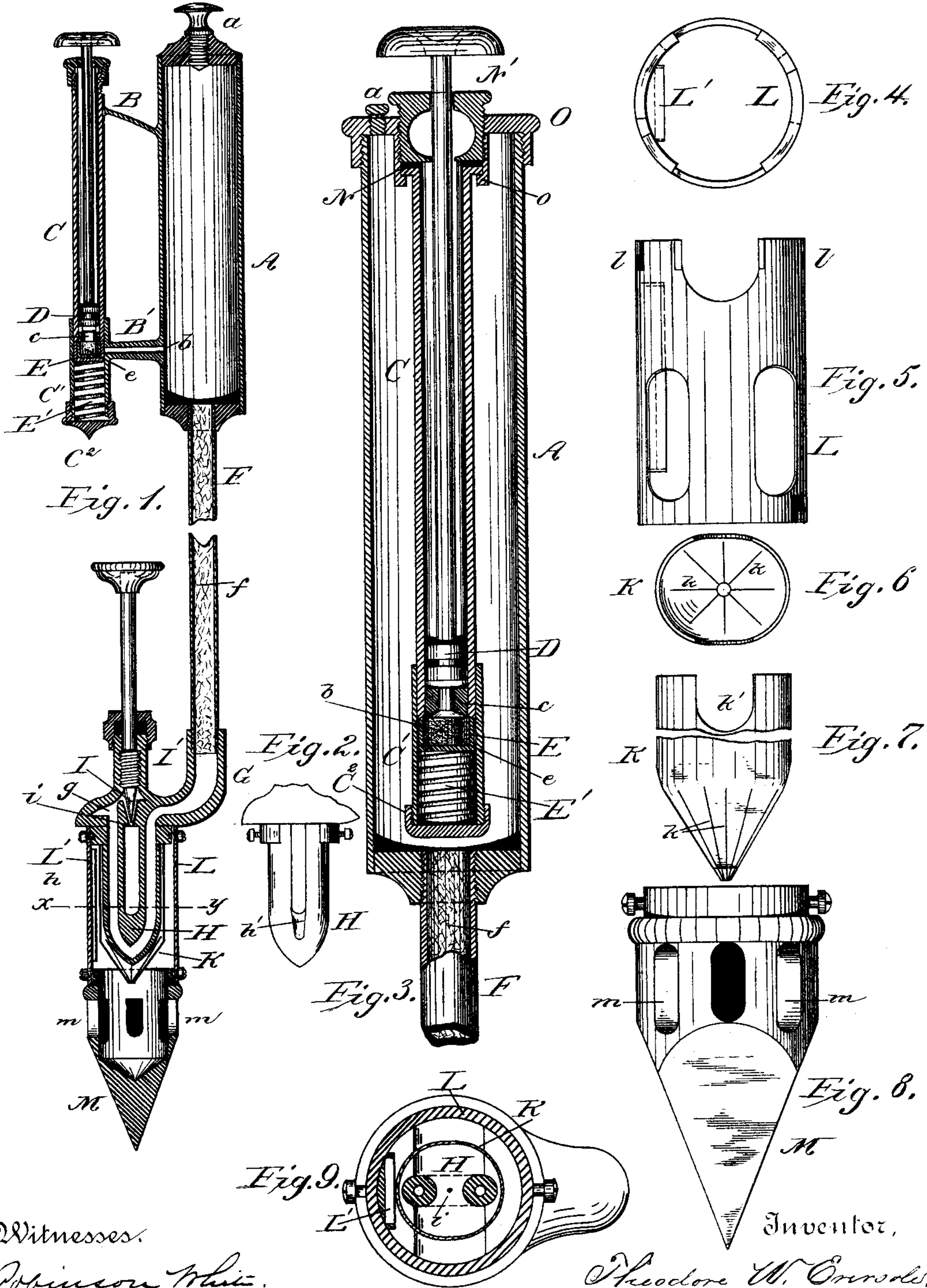


(No Model.)

T. W. EVERSOLE.
SELF HEATING SOLDERING IRON.

No. 388,187.

Patented Aug. 21, 1888.



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UNITED STATES PATENT OFFICE.

THEODORE W. EVERSOLE, OF MARTINSBURG, WEST VIRGINIA.

SELF-HEATING SOLDERING-IRON.

SPECIFICATION forming part of Letters Patent No. 388,187, dated August 21, 1888.

Application filed March 20, 1888. Serial No. 267,855. (No model.)

To all whom it may concern:

Be it known that I, THEODORE W. EVERSOLE, a citizen of the United States, residing at Martinsburg, in the county of Berkeley and State of West Virginia, have invented certain new and useful Improvements in Self-Heating Soldering-Irons; and I do 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 appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to soldering-irons, and more especially to that class known as "self-heating" irons, which are maintained at an even temperature by means of heat applied to them continuously while in use. This has been accomplished in various ways—by gas, by air and gas combined, by a hot mass of metal, by an oil-burner, by electricity, and possibly in other ways. There are objections to several of these modes of heating, and it is obvious that the only one of them that is available for work out of doors, on roofs, and in similar situations is that in which the soldering-iron itself is provided with a reservoir for holding oil or other liquid fuel and a burner for directing the flame upon the tip of the soldering-iron, the whole making a self-contained portable iron and heater.

My invention relates to this class of soldering-irons; and it consists in certain combinations and arrangements of parts, hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a longitudinal section of the iron. Fig. 2 is an elevation of the burner. Fig. 3 is a full-sized view of a modified construction of reservoir and pump. Figs. 4, 5, 6, 7, and 8 are full-sized details of the burner, shield, hood, and soldering-iron proper; and Fig. 9 is a cross-section of the three parts on line *x y*, Fig. 1.

The same letters refer to like parts in all the views.

The handle A of my soldering-iron is hollow and forms a reservoir for gasoline or other liquid fuel, which may be introduced through a suitable opening closed by a screw-plug, *a*.

Projecting from one side of the handle are two brackets, B B', to which is secured a pump, C. The pump-barrel is preferably long and slender. The plunger D is solid and may be suitably packed, as shown. The bottom *c* of the pump-barrel is located just above the lower bracket, B', and is perforated. Below the bottom *c* is a valve-chamber, C', in which the piston-valve E, provided with suitable packing, *e*, is held against the under side of the bottom *c* by means of a spring, E'. A removable screw-cap, C², allows the spring and valve to be taken out when necessary and affords a ready means for adjusting the tension of the spring.

A passage-way, *b*, extends through the bracket B' from the reservoir A to the valve-chamber C', opening into the latter slightly below the bottom *c*, so that its end is normally closed by the valve E.

A pipe, F, extends from the bottom of the reservoir A to the burner. The pipe is filled with wicking, *f*, and its end communicates with the interior of a hollow casting, G, which constitutes the base of the burner.

Projecting from the base-piece is a U-shaped pointed hollow gas-generator, H. The passage-way *b*, extending through this generator, communicates at one end with the pipe F and at the other end with the gas-chamber *g*, from which a tapering needle-hole, *i*, opens to the space between the legs of the generator H. A suitable pointed valve, I, with a screw-threaded spindle working in a threaded stem, I', and passing through a packing-nut, controls the opening *i*.

Surrounding the generator H is a hood, K, of sheet metal, having a conical tip in which are a number of narrow slits, *k*, converging at the point of the cone. The hood is cut away at its base at *k'* to admit air to the flame. A perforated shield, L, is placed around the hood, being removably secured to the base-piece G by means of bayonet-joints *l* or other suitable fastening. At one side of the shield is a pan, L', extending lengthwise of the generator H. To the outer end of this shield is removably secured the tip M of the soldering-iron, which is hollowed out and provided with lateral openings *m* for aiding the draft.

The operation is as follows: The reservoir

A is filled with liquid fuel, such as gasoline, which is soaked up by the wick *f* and carried into the gas-generator H. The tool is now held level, with the pan *L'* under the gas-generator H, and a little gasoline is allowed to escape into the pan and ignited. The heat thus produced generates the gas from the gasoline inside the generator H, which flows into the gas-chamber *g*, from which it escapes by the hole *i*. Upon being ignited the flame is projected upon the end of the generator H, which is chamfered away at *h'* to avoid obstructing the flame. The generation of gas is now carried on continuously by the flame from the hole *i*, which is confined by the hood K in close proximity to the generator H. Passing through the slits *k*, the flame blows into the soldering-iron M and heats it to the required temperature. In order to keep up a constant flow of gasoline, the pump C is given two or three strokes, which forces air through the perforated bottom *c*, causing the valve E to move downward and allow the air to pass into the reservoir through the passage way *b*, thereby putting sufficient pressure upon the gasoline to force it through the wick to the burner in whatever position the iron may be held.

The flame is strong and very hot, and from the manner in which it is confined and directed the tool is especially adapted for out-door work in high winds and exposed places.

In the modification of the handle shown in Fig. 3 the pump-barrel is placed inside of the reservoir, being provided with a flange, N, that seats upon an internal shoulder, *o*, formed at the bottom of a counterbore in the cap O. A threaded sleeve, N', is screwed down upon the flange N, and at the same time serves to guide the pump-handle.

Suitable packing may be introduced under the end of the sleeve.

The other parts of the pump are the same as in Fig. 1.

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

1. A self-heating soldering-iron having the hollow handle A, the pump-barrel C, plunger D, valve-chamber C', communicating with the interior of the handle, and the spring-actuated valve E, substantially as and for the purpose set forth.

2. A self-heating soldering-iron having a hollow handle and a force-pump located inside of said handle, substantially as and for the purpose set forth.

3. A self-heating soldering-iron having a base-piece, G, a U-shaped gas-generator, H, a gas-chamber, *g*, and opening *i*, and a pointed valve, I, substantially as and for the purpose set forth.

4. The combination, with the U-shaped gas-generator H, of the hood K, having a conical tip provided with the slits *k*, substantially as and for the purpose set forth.

5. The combination, with the U-shaped gas-generator H, having the chamfers *h'*, of the hood K, having a conical end provided with slits *k*, a perforated shield, L, surrounding the hood, and a hollow tip, M, having openings *m*, substantially as and for the purpose set forth.

6. A self-heating soldering-iron consisting of the hollow handle A, provided with a pump, the pipe F, containing the wicking *f*, the base-piece G, having the gas-chamber *g* and opening *i*, the gas-generator H, communicating with the pipe F and the gas chamber *g*, the valve I, the hood K, shield L, having pan *L'*, and hollow tip M, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

THEODORE W. EVERSOLE.

Witnesses:

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