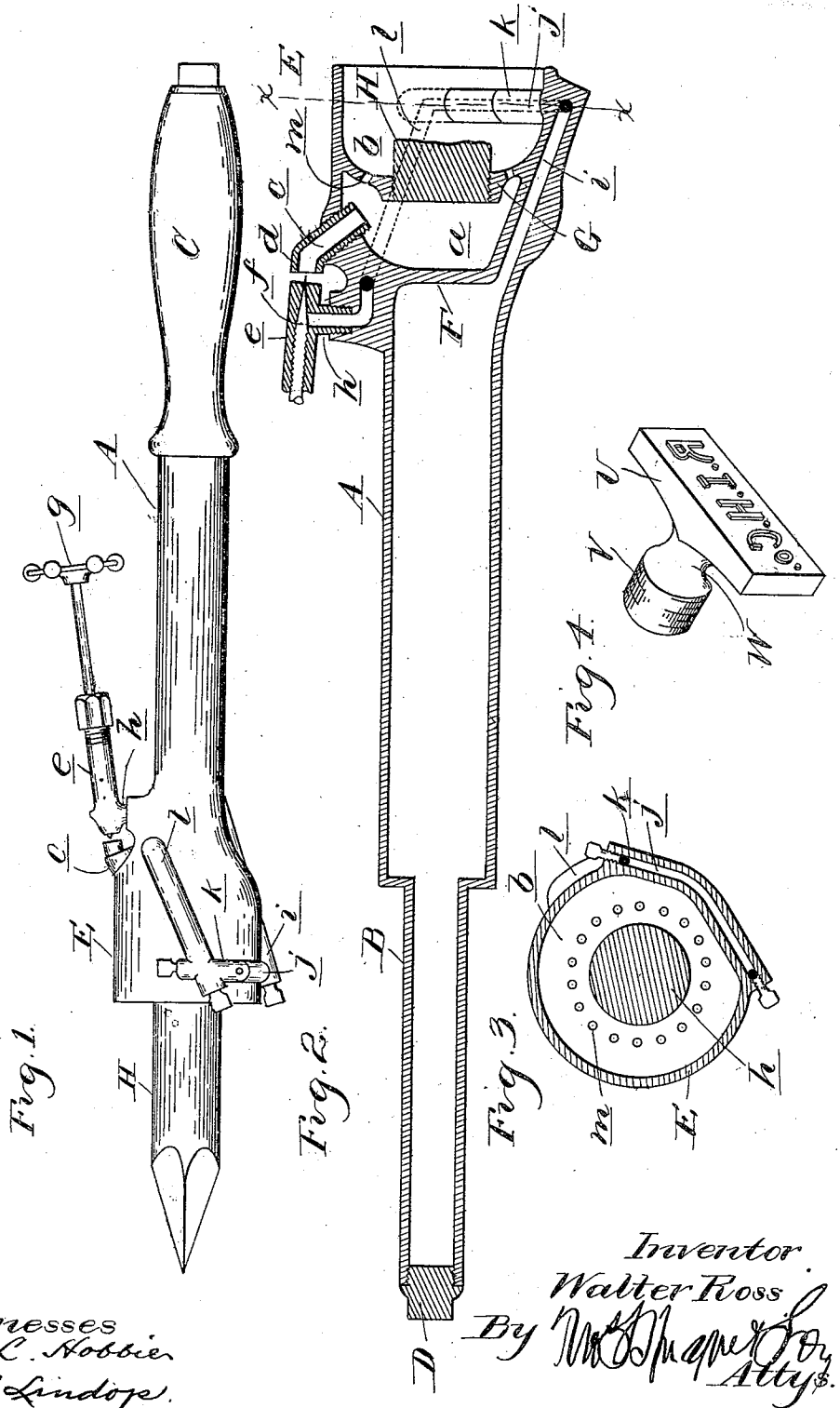
(No Model.)

W. ROSS.

SELF HEATING SOLDERING IRON.

No. 511,802. Patented Jan. 2, 1894.



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SELF-HEATING SOLDERING-IRON.

SPECIFICATION forming part of Letters Patent No. 511,802, dated January 2, 1894.

Application filed January 17, 1893. Serial No. 458,630. (No model.)

To all whom it may concern:

Be it known that I, WALTER ROSS, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Self-Heating Irons, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention consists in the peculiar construction of a self heating iron for soldering, &c., which is heated by a vapor burner, the body of the tool forming the handle and at the same time a tank for the liquid to be vaporized, the gas chamber and the combustion chamber formed at the end of said body portion, and the soldering or branding iron proper secured centrally of the combustion chamber and adapted to receive the heat of the flame.

The invention further consists in the peculiar construction, arrangement and combination of the various parts, all as more fully hereinafter described.

In the drawings, Figure 1 is a side elevation of my improved device. Fig. 2 is a vertical, central, longitudinal section thereof. Fig. 3 is a cross section on line *x*—*x* in Fig. 2. Fig. 4 is a detached perspective view of a branding iron adapted to be interchanged with the soldering iron.

A is a cylindrical body portion terminating in the reduced portion B which is covered with a suitable wooden or other non-conducting handle C, the whole forming a tank for the liquid fuel. At the smaller end this tank is provided with a suitable plug D, through which it may be filled and emptied. At the opposite end the body portion is formed with a head E, preferably bell shaped. The forward end of the tank is inclosed by a partition F and the head E is divided by a partition G, centrally apertured to receive the inner end of the soldering or other suitable iron. This iron is preferably engaged into the partition by being screw threaded and engaging a corresponding screw-thread in the partition. This partition divides the interior of the head into two chambers, *a* and *b*, the inner one being an inclosed one. The chamber *a* I will call the distributing chamber, and the chamber *b* the combustion chamber.

c is a mixing tube engaging in a screw-threaded aperture in the head and communicating at its inner end with the distributing chamber *a*. This tube is preferably provided with an elbow *d* having its inlet opening arranged, substantially parallel to the body of the tool, as plainly shown in Fig. 2.

e is the vapor nozzle arranged to discharge into the mixing tube and provided with the usual valve *f* having the hand wheel *g* at its outer end for controlling the same. This hand wheel is arranged beside the body of the tube and in convenient proximity to the handle C, so that the operator when he has hold of the handle C with one hand (his other hand being occupied) can turn the hand wheel with the thumb of the hand holding the tool. The nozzle *e* is provided on its side with a screw threaded nipple *h* engaging into a screw-threaded aperture formed on the top of the tool. Communication is established between the tank or receptacle and the nozzle *e* through the outlet passage *i* extending from the lower point of the tank on the under side of the tool to near the front end of the head E, where it communicates with a cross or connecting passage way *j* formed in a flange *k*, projecting partially into the interior of the head, as plainly shown in Fig. 3. This passage at its end connects with the return passage *l* which communicates at its rear end with a passage-way leading into the nipple *h*. The object of passing the fluid forward on the head and partially around the same is so that the heat may be imparted to the fluid in this passage necessary to generate the gas by the time it reaches the discharge nozzle *e*. This heating effect is largely augmented by arranging the connecting passage *j* in the flange or lug *k* inside of the head, so that the heat may get more or less around that passage.

The parts being thus constructed their operation is as follows: In starting, the end of the tool is necessarily heated sufficiently to generate gas and then the valve *f* is opened, allowing the gas to pass through the mixing tube *c* and into the chamber *a*, where the blast effect is reduced and it is distributed entirely around the head finding exit into the combustion chamber through the apertures *m*. The flame will thus form a circle entirely

around the iron and the blast effect will be entirely overcome after the gas has passed through the chambers *a* and *b*, so that there will be an even heating of the iron, which can be increased or diminished as desired by opening or closing the valve *f*.

In Fig. 4 I show a detached perspective view of the branding iron which consists of the head U on which the brand is formed and the shank V which is provided with suitable screw threads making it interchangeable with the soldering iron and with the neck W which is conically contacted to form a spreader for the flames to direct the same to all portions of the iron.

It is evident that any suitable iron may be used in lieu of the soldering or branding irons.

What I claim as my invention is—

1. In a self heating iron, the combination of the tubular body forming a tank for the liquid fuel, the bell shaped head, the iron extending centrally within said head, a liquid passage formed in the walls of the head connected to the needle valve and a combining tube extending into the head, substantially as described.

2. In a self-heating iron, the combination of the tubular body, a handle forming a tank for the liquid fuel, a bell shaped head, a liquid supply passage extending around the head and connected to the needle valve at the rear edge thereof, a combiuing tube leading into the rear of the head, the partition G dividing the head into a distributing and combustion chamber, connected by marginal apertures and the iron secured centrally of said partition, substantially as described.

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

WALTER ROSS.

Witnesses:
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