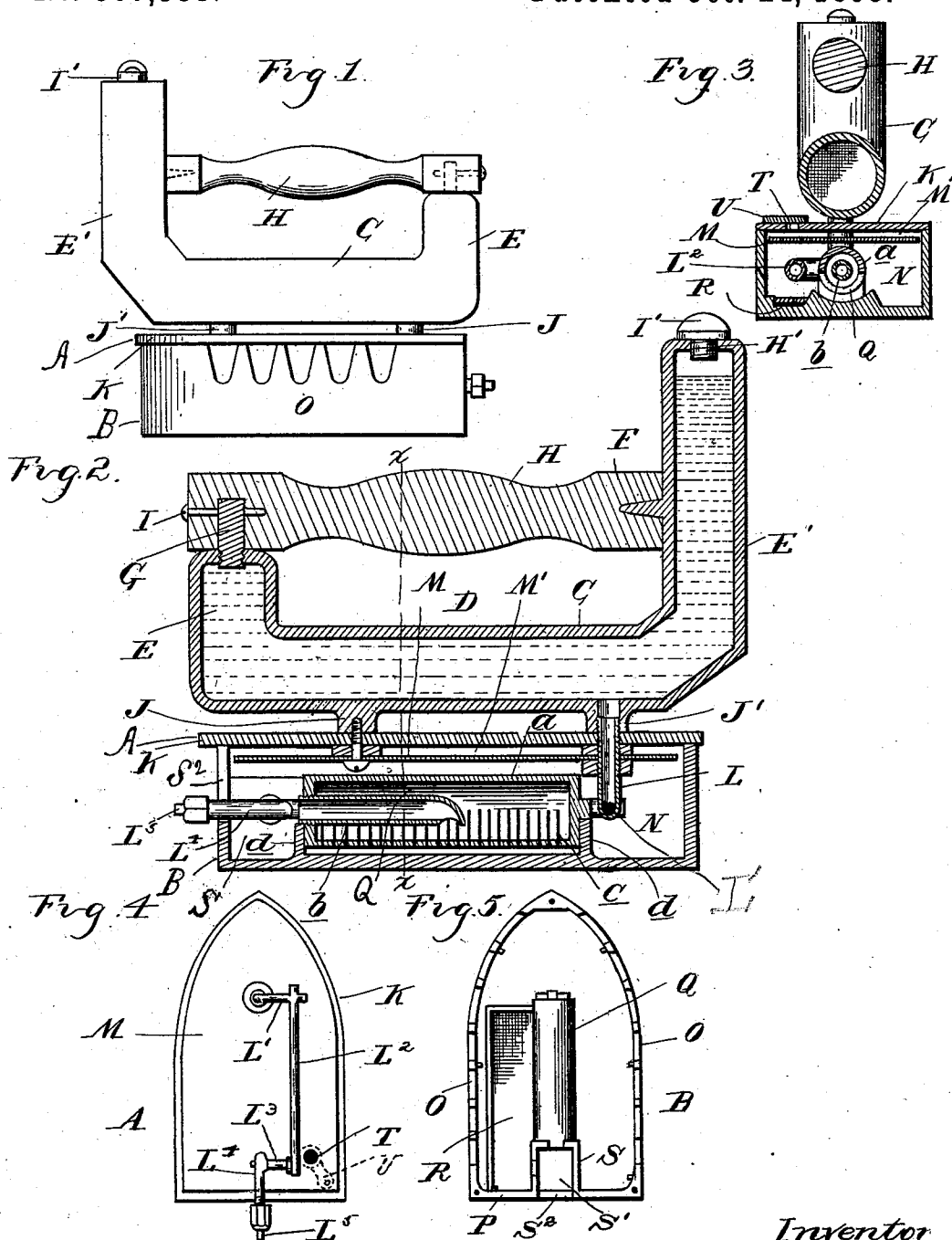


(No Model.)

H. W. TIBBALS.
SAD IRON.

No. 507,338.

Patented Oct. 24, 1893.



Witnesses
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UNITED STATES PATENT OFFICE.

HORACE W. TIBBALS, OF DETROIT, MICHIGAN.

SAD-IRON.

SPECIFICATION forming part of Letters Patent No. 507,338, dated October 24, 1893.

Application filed April 28, 1892. Serial No. 431,036. (No model.)

To all whom it may concern:

Be it known that I, HORACE W. TIBBALS, 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 Sad-Irons, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to new and useful improvements in self heating sad irons, and the invention consists in the peculiar construction, combination and arrangement of parts, all as more fully hereinafter described.

In the drawings Figure 1 is a side elevation of my improved sad iron. Fig. 2 is a vertical central, longitudinal section thereof; Fig. 3 a cross section on line $x-x$ Fig. 2; Fig. 4 a bottom plan of the upper part of the iron and Fig. 5 a top plan of the lower part of the iron.

My improved sad iron is made in two parts A and B, (shown in Figs. 4 and 5) the part B containing the combustion chamber, burner and auxiliary heater, and part A consisting of the reservoir, handle, vapor tube and jet valve, the specific construction of which is as follows:

C is the reservoir which is substantially U-shaped and has the horizontal portion D and the two vertical end extensions E and E'.

F is a spur upon the side of the extension E', and G a lug on the top of the extension E.

H is a handle preferably made of wood apertured at one end to engage on the spur F and having the recess at the other end in which the lug G is adapted to engage, and to which it is secured by means of the fastener I.

H' is a fill opening in the top of the extension E', normally closed by the screw cap I'.

J and J' are bosses upon the lower side of the reservoir.

K is a plate forming the top for the combustion chamber secured to the bosses J and J'.

L is a downwardly projecting tube connected to the reservoir through the boss J' and having the lateral bend L', the rearward extension L² forming a vapor tube, and the lateral bend L³ connecting it to the jet tube L⁴ in which is the needle valve L⁵.

M is a shield preferably made of asbestos or other suitable non-conductor of heat which is secured below the plate K leaving a small air space M' between said shield and plate.

The part B consists of a hollow casing containing the combustion chamber N having the apertured side walls O and rear wall P.

Q is the burner located within the combustion chamber and formed of an outer tubular casing a within which is inclosed the commingling tube b extending from the rear end of the casing to the middle and having a down turned end. c are slots or apertures in the casing a . The burner is supported a short distance above the bottom of the hollow casing by the lugs d at each end. The thickness of the casing directly under the burner is preferably greater than at any other part of the bottom.

R is a cavity or basin formed at the side of the commingling tube in which a piece of asbestos or other porous non-combustible material is placed.

When the two parts A and B are secured together the relative position of the burner and vapor tube is such that the latter passes along one side of the burner while the lateral bend L³ will bring the jet tube L⁴ in line with the center of the commingling tube so that the jet will be directed into said commingling tube.

S is a partition which separates the jet tube L⁴ from the rest of the combustion chamber inclosing it within a chamber S'.

S² is a slot in the rear wall P of the hollow casing through which the squared end of the valve stem projects.

T is an aperture in the plate K, and U a cover normally closing said aperture.

In practice when it is desired to use the iron a small quantity of alcohol is first introduced through the aperture T into the combustion chamber where it becomes absorbed by the asbestos or other porous material in the cavity R. The operator then applies the match and by the burning of the alcohol the vapor tube L² is heated sufficiently to generate gas from the liquid fuel (such as naphtha or gasoline) which has been previously introduced in the reservoir C, and from there passed through the tubes LL' into the vapor tube. As soon as the gas is generated, by opening the valve L⁵ the jet is directed into the open end of the commingling tube b which conducts the vapor mingled with the proper amount of air into the center of the burner,

where the down turned end of the tube *b* will distribute it uniformly to all parts of the casing, and passing through the apertures *c* it will become ignited on the outside. The extra thickness of metal below the commingling tube prevents the over heating of that portion of the iron. The shield *M* together with the air space *M'* at the top of the combustion chamber will prevent too great a loss of heat from radiation, but a sufficient amount will find its way to the reservoir *C* to expand the liquid contained therein and keep up a constant feed into the vapor tube.

By inclosing the jet tube in the chamber *S'* the jet is protected from becoming ignited by the flame of the burner and from any injury it might receive were it placed outside of the casing.

What I claim as my invention is--

1. In a sad-iron, the combination with a hollow base, of a superimposed reservoir, a burner in the base, non-combustible absorbent material in the base, a feed opening formed in the base a cap for the opening and a vapor tube above the non-combustible material, substantially as described.

2. In a self-heating sad-iron, the combination with the hollow casing having the combustion chamber formed therein, of a vapor burner within said combustion chamber, a commingling tube within said burner, a vapor tube arranged at the side of said burner, and a supplementary heater for said vapor tube consisting of a basin formed in the casing below containing a porous non-combustible sub-

stance adapted to be saturated with inflammable liquid, substantially as described.

3. In a self heating sad iron, the combination with the hollow casing having the combustion chamber formed therein, of a reservoir arranged above said combustion chamber having upward extensions *E* and *E'* one at each end, the spur *F*, the lug *G*, the handle *H*, and the fastener *I* passing through the handle and lug, substantially as described.

4. In a self heating sad iron, the combination of the hollow casing having the combustion chamber *N*, the partition *S* and chamber *S'*, the burner *Q* in the combustion chamber, the commingling tube *b* having the downward turned end, the vapor tube *L²* at the side of the burner and the jet tube in the chamber *S'*, substantially as described.

5. In a self heating sad iron, the combination of the hollow casing, the combustion chamber *N*, the partition *S*, the chamber *S'*, the burner *Q*, the commingling tube *b*, having the downward turned end, the vapor tube *L²* at the side of the burner, the lateral bend *L³*, the jet tube *L⁴* in the chamber *S'*, the reservoir *C* having extensions *E* and *E'*, the handle *H*, the shield *M*, the air space *M'*, the aperture *T* and cover *U*, substantially as described.

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

HORACE W. TIBBALS.

Witnesses:

M. B. O'DOHERTY,
N. L. LINDOP.