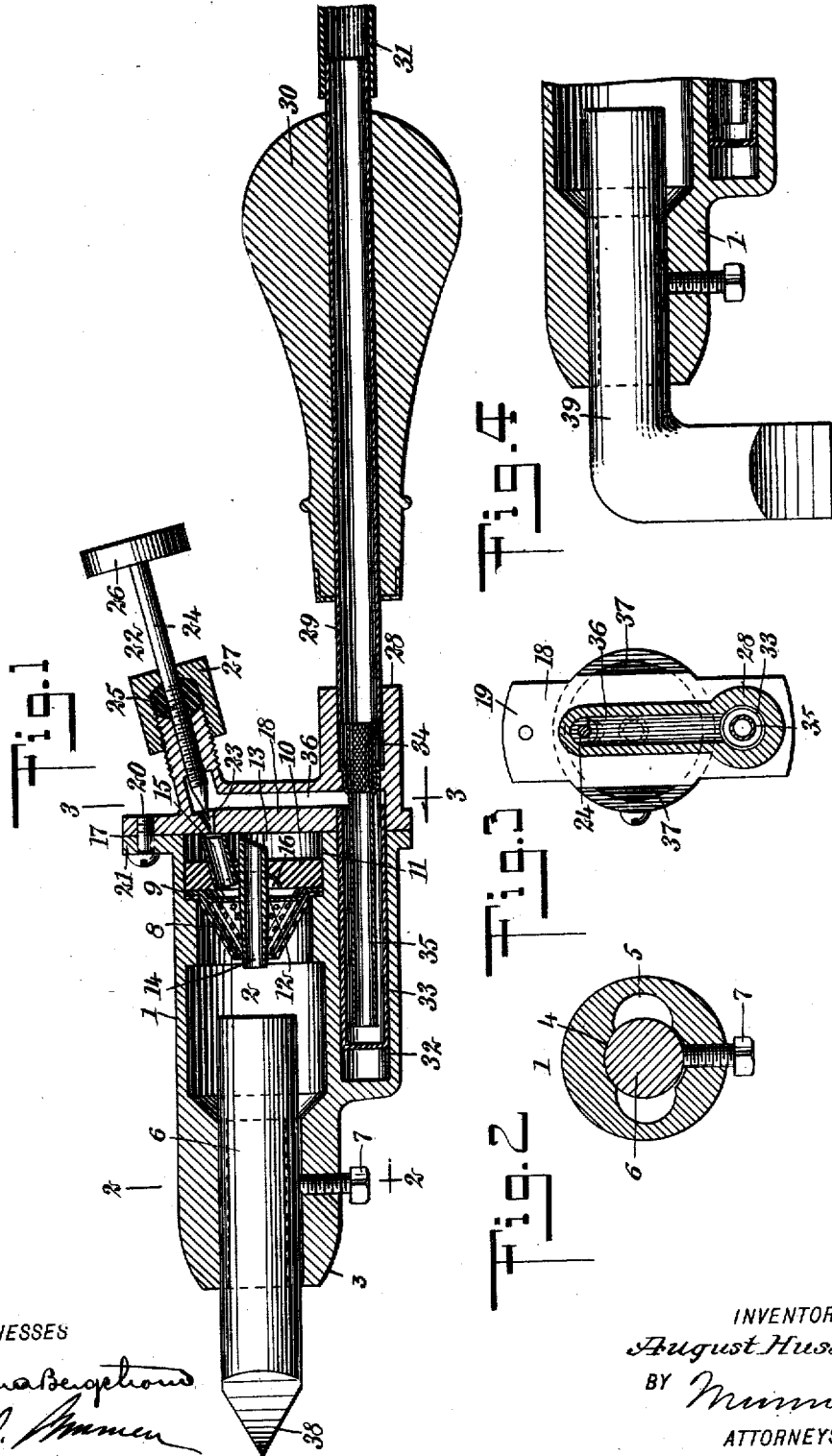


A. HUSSON.
 SELF HEATING SOLDERING IRON.
 APPLICATION FILED OCT. 15, 1908.

932,865.

Patented Aug. 31, 1909.



WITNESSES

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AUGUST HUSSON, OF OSHKOSH, WISCONSIN.

SELF-HEATING SOLDERING-IRON.

932,865.

Specification of Letters Patent. Patented Aug. 31, 1909.

Application filed October 15, 1908. Serial No. 457,830.

To all whom it may concern:

Be it known that I, AUGUST HUSSON, a citizen of the United States, and a resident of Oshkosh, in the county of Winnebago and State of Wisconsin, have invented a new and Improved Self-Heating Soldering-Iron, of which the following is a full, clear, and exact description.

This invention relates to soldering irons such as are adapted to heat the soldering bit and maintain the same in a heated condition.

The invention relates especially to the type of irons of this class which are heated by liquid fuel.

The object of the invention is to produce an iron of this class which is simple in construction and which will operate effectively to produce a thorough vaporization of the liquid as it is admitted to the burner.

A further object of the invention is to construct the device so as to render the inner parts readily accessible.

The invention consists in the construction and combination of parts to be more fully described hereinafter and particularly set forth in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a longitudinal section taken through a soldering iron constructed according to my invention; Fig. 2 is a cross section taken on the line 2—2 of Fig. 1 and illustrating the manner of securing the bit in position; Fig. 3 is a cross section on the line 3—3 of Fig. 1, and illustrating the construction at the back of the device where the fuel is admitted; and Fig. 4 is a longitudinal section at the forward part of the device showing a modified form of bit which I may employ.

Referring more particularly to the parts, 1 represents the body of the device which is in the form of a barrel or cylinder having a cylindrical heating chamber 2 formed therein. The forward end of the barrel is formed into a tapered nose 3 having a centrally disposed socket 4 formed longitudinally therein, which communicates with the chamber 2, as indicated. This socket is of reduced diameter, and in its side walls, gas

ducts or channels 5 are formed which lead to the outer air from the chamber 2. In the socket 4, a bit 6 or soldering iron, is removably held by means of a set screw 7, as shown. The butt end of this bit projects into the chamber 2 and is in a position to receive the flame from the burner 8. This burner is of conical form and of perforated metal or gauze. It is disposed co-axially with the bit 6, with the small end disposed toward the bit. The base of this cone seats against a baffle plate 9, which baffle plate in turn seats against a plug 10, and this plug is received in a counterbore 11 formed in the rear end of the barrel. The baffle plate 9 is preferably dished inwardly, and is formed with a central opening 12, as indicated. To the rear of the plug 10, in the counterbore 11, an air chamber 13 is provided. Mounted centrally in the plug 10 there is provided an air inlet tube 14, the inner end of which connects with the air chamber 13. The forward end of this tube projects through the truncated end of the conical burner 8, as shown.

In the plug 10, a fuel nipple 15 is provided, which extends through the plug so as to deliver fuel into the space between the dished baffle plate and the body of the plug. This nipple is inclined inwardly at its forward end so that it directs the fuel toward the central opening 12. The inner face of the plug is formed with a recess or dish 16, as indicated. The nipple 15 projects completely across the air chamber 13, and its rear end is cut on an incline, as indicated, so that the rear edge of the tube is in the plane of the rear face 17 of the body 1. The mouth of this nipple is beveled on its inner side, as shown.

Against the rear face 17 of the body, a cover or bonnet 18 seats, the body of this bonnet being in the form of a plate, and this plate projects at one side so as to form a flange 19 which is attached by a screw 20 to a similar flange 21 formed on the rear end of the body. The rear end of the nipple 15 seats against the inner face of this cover, and is in direct alinement with a needle valve 22. Said needle valve has a conical seat 23 having a pin-hole therein and the stem 24 of the valve is provided with threads which enable the stem to be advanced onto the seat when the hand-wheel 26 carried by

the stem is rotated. This stem 24 is suitably packed by means of a stuffing box 27, as will be readily understood.

At the opposite end of the cover, a boss 28 is provided, at which a tube 29 is attached. This tube has a suitable handle 30, and said tube 29 projects beyond the rear end of the handle 30 and has a supply hose 31 attached thereto, as indicated. On the side of the body adjacent to this boss 28, a cylindrical pocket or bore 32 is formed, and the axis of this bore is parallel with that of the barrel 1. On the inner face of the cover 18, a tubular shell 33 is provided, which fits neatly in this bore. This shell is closed at its inner end but open at its outer end. In the boss 28 at which the tube 29 is attached, a gauze strainer 34 is provided, and beyond this strainer, in the lower part of the bore, an inner tube 35 is provided, having an open mouth, as shown. This tube 35 receives the fuel as it comes through the tube 29 and strainer 34 and conducts it into the inner end of the shell 33. The interior of this shell constitutes a vaporizing chamber for the fuel and the combustible vapor is conducted from the shell 33 to the valve by means of a transverse fuel duct 36 which is formed in the cover, as indicated in Figs. 1 and 3.

In order to admit air to the air chamber 13, air inlet openings 37 are provided at each side of the cover, as shown in Fig. 3.

In the operation of the burner, the high temperature of the barrel is communicated to the vaporizing chamber formed in the interior of the shell 33. The vaporizing fuel then passes up to the valve where it is admitted across the air chamber 13 by means of the nipple 15. This nipple 15 discharges it onto the baffle plate and it finds its way through the central opening 12 therein into the interior of the conical burner. As it issues from the burner it is supplied with air through the air tube 14 so that a flame is formed in the heating chamber 2 and this flame is directed against the butt end of the bit.

In Fig. 1 the bit 6 is represented as a short straight bar having a soldering point 38 formed on the end thereof. Instead of using a bit of this form, however, I may use a bent or offset bit 39, as illustrated in Fig. 4. In this bit the outer end of the bit is bent at right angles to the body thereof. These bits are of course interchangeable and can be readily removed when desired. The gases of combustion find exit from the device through the openings 5 at the sides of the bit. On account of the arrangement of the openings 5 at the sides of the bit, the gases of combustion are directed not only against the butt end of the bit, but pass along the side of the bit until they arrive near the soldering point.

Special attention is called to the shell 33 and the manner in which it is received in the pocket 32. The pocket operates as a guide for the entire cover when the cover is being seated, so that it is only necessary to provide a single fastening screw 20 to hold the parts in position. The function of this screw is simply to hold the cover in place and to prevent its sliding rearwardly from its seat.

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

1. In a self-heating soldering iron, in combination, a barrel having a heating chamber formed therein, a bit projecting into said heating chamber, a conical burner seated in said barrel behind said bit, a baffle plate in the base of said burner and having an opening therein through which fuel may be admitted, and an air inlet tube conducting air through said opening to said heating chamber.

2. In a self-heating soldering iron, in combination, a barrel having a heating chamber therein, a bit mounted in said barrel and projecting into said heating chamber, a plug mounted in the rear end of said barrel, a burner disposed adjacent to the inner face of said plug, a fuel nipple mounted in said plug, a cover seating on the rear end of said barrel and forming a seat for the rear end of said fuel nipple, said cover having a fuel duct communicating with said fuel nipple, and means for admitting air to said burner.

3. In a self-heating soldering iron, in combination, a barrel having a heating chamber therein, a bit mounted in said barrel and projecting into said heating chamber, a plug in the rear end of said barrel, a burner on the inner side of said plug, said barrel having an air chamber formed at the rear of said plug, a fuel nipple leading to said burner through said plug and extending across said air chamber, a cover seating on the rear end of said barrel and forming a seat for the rear end of said fuel nipple, said cover having means for admitting fuel to said fuel nipple, means for admitting air to said air chamber, and means for conducting the air from said air chamber to said heating chamber.

4. In a self-heating soldering iron, in combination, a barrel having a heating chamber therein, a bit mounted in said barrel and projecting into said heating chamber, a burner mounted in said barrel behind said bit, a plug mounted in said barrel, said barrel having an air chamber formed therein at the rear of said plug, a fuel nipple passing through said plug and extending across said air chamber, a cover seating on the rear end of said barrel and forming a seat for the rear end of said fuel nipple, an air inlet tube extending through said plug and open-

ing communication from said air chamber to said heating chamber, and an inlet valve carried by said cover adapted to admit fuel to said fuel nipple, said air chamber being in communication with the atmosphere.

5 5. In a self-heating soldering iron, in combination, a barrel having a heating chamber therein and having a cylindrical pocket formed at the side of said heating chamber,
10 a cover seating on the rear end of said barrel having a cylindrical vaporizing shell extending into said pocket, means for conducting the fuel through said vaporizing shell and through said cover, and means for admitting the fuel from said cover to said
15 heating chamber.

6. In a self-heating soldering iron, in combination, a barrel having a heating chamber therein, a cover seating on the rear end
20 of said barrel and having a cylindrical vaporizing shell projecting inwardly from the inner face thereof, said barrel having a cylindrical bore formed at the side thereof receiving said vaporizing shell, means for admitting fuel to the inner end of said vaporiz-

ing shell, means for conducting the fuel through said cover, and means for admitting the fuel from said cover to said heating chamber.

7. In a self-heating soldering iron in combination, a barrel having a heating chamber therein and having a cylindrical pocket at the side of said barrel, a cover having a tubular shell projecting from the inner face thereof and received in said pocket, an inlet
30 tube extending downwardly into said shell and adapted to conduct fuel thereto, said cover having a fuel duct therein communicating with the interior of said shell, and a valve in communication with said fuel duct
35 and adapted to admit fuel to said heating chamber.
40

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

AUGUST HUSSON.

Witnesses:

OSCAR F. SCHUMANN,
ELMER G. FULLER.