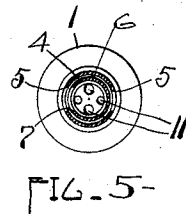
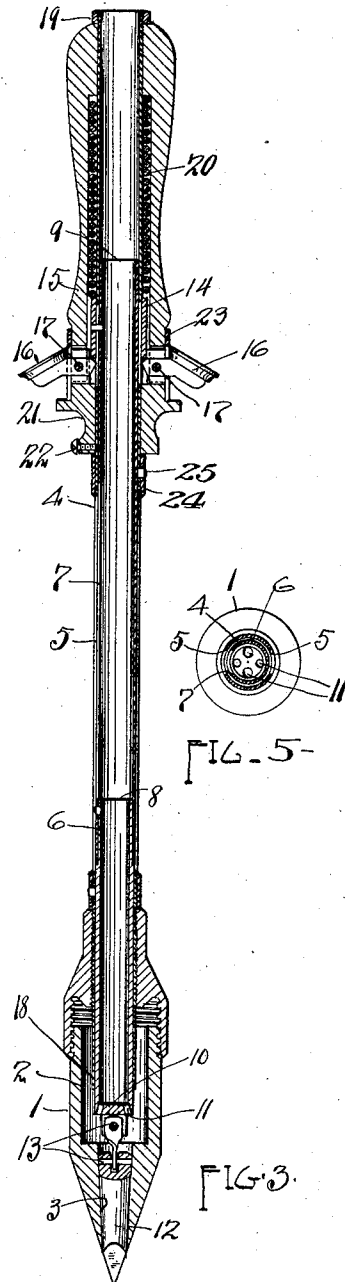
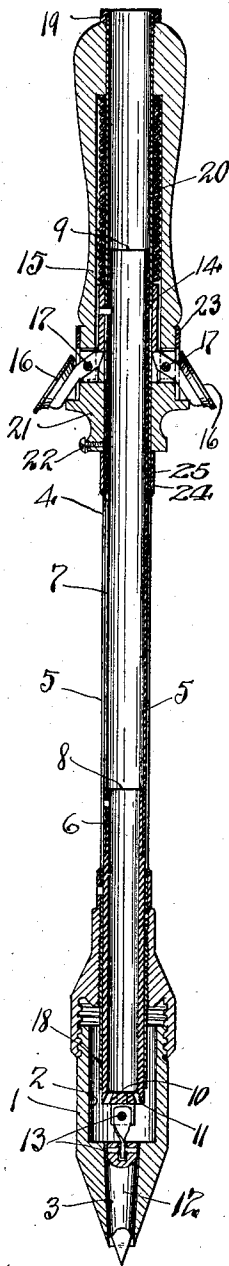
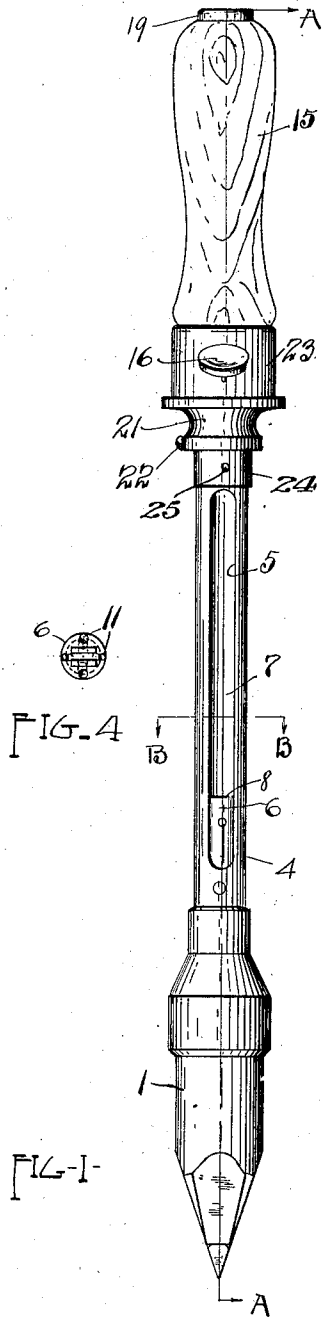


N. I. DRYFOOS.
SOLDERING TOOL.
APPLICATION FILED SEPT. 27, 1911.

1,062,088.

Patented May 20, 1913.



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SOLDERING-TOOL.

1,062,088.

Specification of Letters Patent.

Patented May 20, 1913.

Application filed September 27, 1911. Serial No. 651,608.

To all whom it may concern:

Be it known that I, NATHAN I. DRYFOOS, a citizen of the United States, and a resident of Cleveland, county of Cuyahoga, and State of Ohio, have invented a new and useful Improvement in Soldering-Tools, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

The present invention relates in general to soldering tools, and its particular object is the provision of a fountain tool from which the flow of solder can be closely controlled.

To the accomplishment of this and related objects, said invention, then, consists of the means hereinafter fully described and particularly pointed out in the claims.

The annexed drawing and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting, however, but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawing:—Figure 1 is an elevational view of the improved tool; Fig. 2 is a section on the line A—A, in Fig. 1; Fig. 3 is a section on the line A—A with the operating parts in different positions than that in which they are shown in Fig. 2; Fig. 4 is an end elevation of a sleeve forming part of the invention, and Fig. 5 is a section on the line B—B in Fig. 1.

The improved tool comprises a head 1 which is formed interiorly with a chamber 2 from which an opening 3 leads to the point of the iron, the opening 3 being preferably tapered. A tubular handle 4 is secured to the head and opens into the chamber 2, and preferably has a portion 18 extending part way into the chamber. The handle 4 is formed with one or more openings 5 extending longitudinally outwardly from the head 1, the drawing illustrating these openings 5 as two in number. At its outer end, the handle 4 is provided with a suitable grip 15 in which are mounted two diametrically opposite levers 16 pivoted on pins 17 and provided at their outer ends with finger

pieces. The levers 16 are preferably mounted by pivoting them in a slotted collar 21 secured to the handle 4 by a set screw 22; the grip 15 proper is provided with a cylindrical shell 23 which fits into the collar 21 and is provided with slots through which the levers 16 extend. A collar 24 secured to handle 4 by a screw 25 affords a shoulder against which the collar 21 may rest.

Within the tubular handle 4 is a reciprocable tube 6 which is provided with an opening 7 registering with one of the openings 5 in the handle, the opening 7 extending outwardly from a certain point in the length of the tube, which point, during reciprocation of the tube, is never moved within the head 1. The portion of the tube from the plane 8 in which the inner end of the slot 7 lies to the outer end 9 of the tube, is formed of a material which is a relatively poor conductor of heat, the preferred material being steel. The remaining portion of the tube, viz., from the plane 8 to the inner end 10 of the tube is formed of a material which is a relatively good conductor of heat, the preferred material being aluminum. In the inner end of the tube a plurality of holes 11 afford communication between the interior of the tube 6 and the chamber 2, the tube 6 extending part way into the chamber 2. A valve member 12 is disposed in the outlet 3 and is connected with the inner end of the tube 6, preferably by a universal joint 13.

On the outer end of the tube 6, within the grip 15, is secured a collar 14 against which presses a spring 20 tending to hold the tube in its inner, valve closing position. A collar 19, threaded on the outer end of the tubular handle holds the grip 15 in position, and hence holds the spring compressed.

In operation, stick solder is inserted through the outer end of the tubular handle and passes down within the tube. Because of the longitudinal openings in the handle and tube, together with the poor conducting material of which the tube is formed, the solder does not melt as long as it is in the handle portion of the tool. Because of the good conducting material of which the lower end of the tube is formed, the solder will

melt practically as soon as it projects beyond the plane 8 of the tube, and as it melts it passes downwardly through the openings 11 into the chamber 2. By reason of the
 5 spring, the valve 12 normally closes the outlet 3, and as the solder melts and flows into the chamber, it passes back around the portion of the handle and the tube projecting into the chamber, and hence is to a more or
 10 less degree trapped against flowing back into the handle. The operator holds the iron by the grip, and consequently the finger pieces on the levers 16 are directly under his thumb and forefinger. By pressing forwardly upon these levers, the tube, and with
 15 it the valve 12, may be retracted to any desired extent, so that the solder may flow from the chamber through to the point of application. Obviously, the solder only
 20 passes from the handle portion into the head portion as the solder from the chamber is used; and the best results are obtained by correlating the size of the chamber, the length of the good conductor portion of the
 25 tube, and the size of the solder stick to be used. Thus, the stick is of practically the same length as such portion, and when melted substantially fills the chamber. Consequently, when the stick solder is inserted
 30 it does not melt and clog up in the handle, but upon reaching the good conductor portion of the tube, it melts immediately and runs into the chamber. It is there effectually trapped against reverse flow and forms
 35 a charge which may be applied exactly as desired by operation of the valve.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention:—

1. A soldering tool, comprising a head provided with a chamber having an outlet, and with a tube opening into the chamber; a valve controlling said outlet; and a second tube reciprocable in the first tube and extending within said chamber and formed of good heat conducting material from its inner end to adjacent the end of said head, the second tube forming a longitudinal
 55 channel for the passage of solder.

2. A soldering tool, comprising a head provided with a chamber having an outlet, and with a tube opening into the chamber; a second tube reciprocable in the first tube,
 60 said second tube forming a longitudinal channel for the passage of solder; and a valve reciprocable with said second tube and controlling said outlet.

3. A soldering tool, comprising a head provided with a chamber having an outlet, 65 and with a tube opening into the chamber, said tube having one or more longitudinally extending openings; a second tube reciprocable in the first tube, said second tube forming a longitudinal channel for the passage of solder; and a valve reciprocable with
 70 said second tube and controlling said outlet.

4. A soldering tool, comprising a head provided with a chamber having an outlet, and with a tube opening into the chamber, 75 said tube having one or more longitudinally extending openings; a second tube reciprocable in the first tube, said second tube forming a longitudinal channel for the passage of solder, and having a longitudinal opening registering with one of the openings in the first tube; and a valve reciprocable with
 80 said second tube and controlling said outlet.

5. A soldering tool, comprising a head provided with a chamber having an outlet, 85 and with a tubular handle opening into the chamber, said handle having one or more longitudinally extending openings; a tube reciprocable in said handle and extending into said chamber, said tube having an opening extending longitudinally from a point
 90 outside of the head toward the outer end of the handle and registering with one of the openings in the handle; and a valve secured to said tube and controlling said outlet. 95

6. A soldering tool, comprising a head provided with a chamber having an outlet, and with a tubular handle opening into the chamber, said handle having one or more longitudinally extending openings; a tube 100 reciprocable in said handle and extending into said chamber, said tube having an opening extending longitudinally from a point outside of the head toward the outer end of the handle and registering with one of the
 105 openings in the handle, the portion of the tube from said opening to its inner end being formed of a good heat conducting material and the remainder of the tube being formed of a poor heat conducting material; 110 and a valve secured to said tube and controlling said outlet.

7. A soldering tool, comprising a head provided with a chamber having an outlet, and with a tubular handle opening into the 115 chamber, said handle having one or more longitudinally extending openings; a tube reciprocable in said handle and extending into said chamber, said tube having an opening extending longitudinally from a point
 120 outside of the head toward the outer end of the handle and registering with one of the openings in the handle, the portion of the tube from said opening to its inner end being formed of a good heat conducting material and the remainder of the tube being 125

formed of a poor heat conducting material;
a valve secured to said tube and controlling
said outlet; a spring tending to hold said
tube in its valve-closing position; and two
5 oppositely disposed levers engaging said
tube and adapted, on actuation, to retract
said tube.

Signed by me this 25th day of September,
1911.

NATHAN I. DRYFOOS.

Attested by—

ALFRED WOLF,
RALPH TUW.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
