

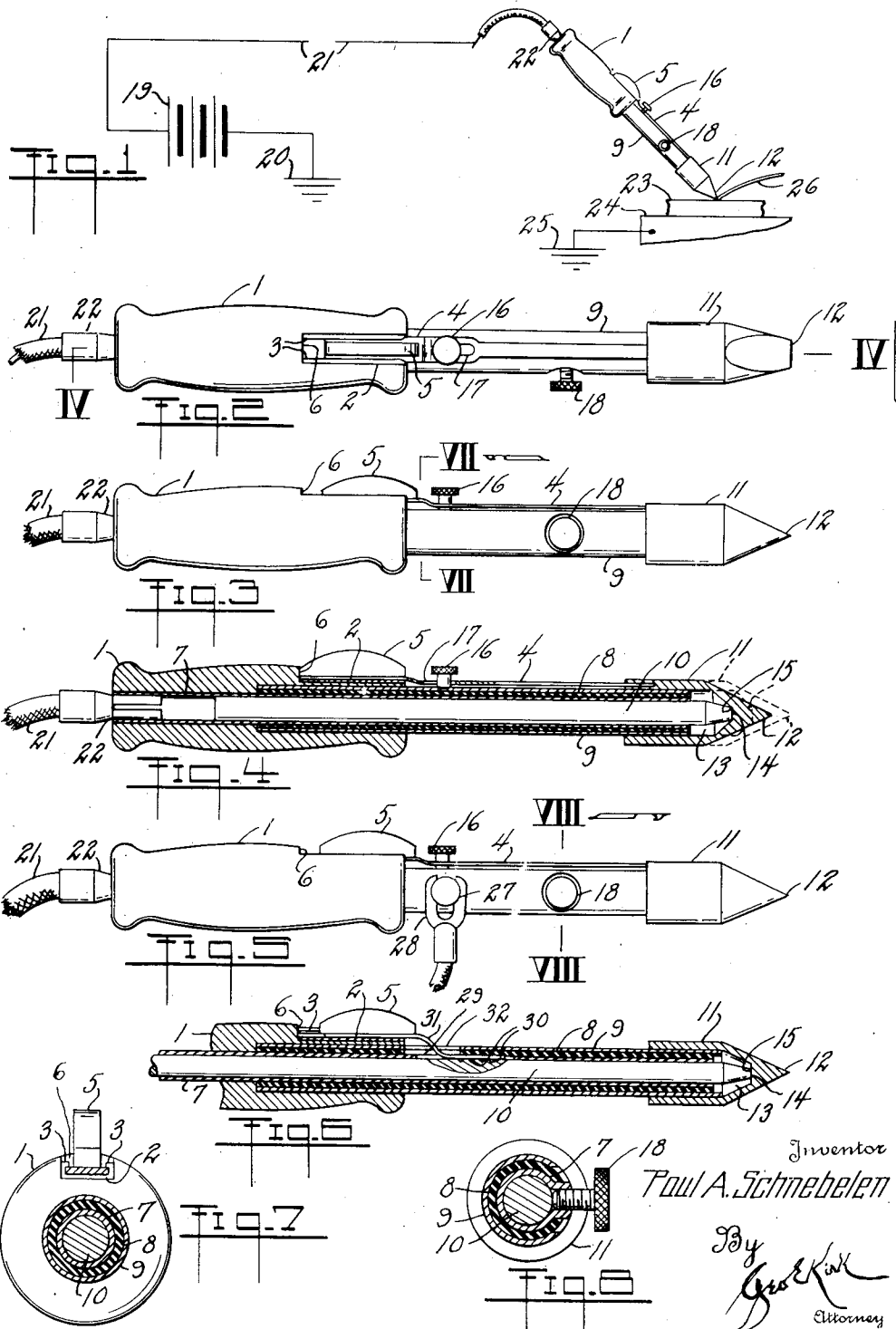
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SOLDERING TOOL

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SOLDERING TOOL

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6 Claims. (Cl. 219—26)

This invention relates to electrical resistance in heat-imparting proximity to a tool working face with such resistance in series with the working face providing element.

This invention has utility when incorporated in heat-imparting tools of the fusion or soldering iron type, more particularly wherein the electric heating circuit may be established or broken by opening or closing a gap between the resistance carbon and the work element providing face or copper head of the tool.

Referring to the drawing:

Fig. 1 is a wiring diagram showing the circuit in which the tool is functioning;

Fig. 2 is a detail view of the tool showing the control in plan;

Fig. 3 is a view of the tool of Fig. 2 from the lower side thereof;

Fig. 4 is a section of the tool on the line IV—IV, Fig. 2, showing the relation of the head or working face as to the resistance carbon;

Fig. 5 is a view of the tool wherein a conductor is provided for completing the circuit through the tool;

Fig. 6 is a fragmentary view of the control for shifting the resistance or carbon relatively to the head in lieu of shifting the head relatively to the carbon as in Fig. 4;

Fig. 7 is a section on the line VII—VII, Fig. 3, showing the guide for the control at the head; and

Fig. 8 is a section on the line VIII—VIII, Fig. 5, showing the set screw lock or adjusting means for engaging the resistance or carbon.

In carrying out the invention herein, this portable hand tool is provided with a grip or handle 1 having guide 2 with overhangs 3 (Fig. 7) for control strips 4 having operating insulation thumb-engaging piece 5. This guide 2 has limit stop 6 (Fig. 4). This handle 1 has therethrough inner tubular conductor 7 extending beyond the guide 2. Insulation 8 spaces from this conductor 7 outer concentric tubular conductor 9. The inner tubular conductor 7 herein is a guide for electrical resistance or heating element carbon 10 adapted to protrude from this conductor 7 remote from the handle 1. The tubular conductor 9 remote from the handle 1 provides a guide for copper head 11 having working face-providing terminus 12 and recess 13. This recess 13 may serve as a guide in sliding contact of this head or working face-providing element 11 relatively to the outer concentric tubular conductor 9. The carbon 10 at its terminus 14 may abut wall 15 of the working face-providing element 11 and

thereby form a switch make-and-break connection between the heating element and the working face-providing element.

In practice hereunder, the carbon 10 is thrust into the conductor 7. The element 11 is thrust on the conductor 9. This element 11 has therefrom the control 4 to the thumb piece 5 and this thrusting of the working face element against the carbon 10 with the switch 14, 15, closed, is to an extent to bring the thumb control piece 5 to limit position 6. At this termination set screw 16 in slot 17 of the control connection 4 assembles the working face-providing element 11 with the handle 1 and allows the limit of thrust for this thumb piece 5 away from the handle 1 for thereby breaking the circuit or opening the switch 14, 15. At this adjusted position, upon placing the set screw 16 for the working face-providing element 11, there may simultaneously be positioned set screw 18 into engaging position with the carbon 10 to hold such carbon against shifting relatively to the conductor 7 as well as additional good electric contact therefor. It is thus seen that different lengths for the carbon 10 may be cared for in the thrusting of such into an initial position to engage the working face-providing element 11 and thereafter anchoring such carbon by the set screw 18 as well as completing assembly of the control by the set screw 16.

In the functioning hereunder, electric current from battery 19 (Fig. 1) may have ground 20. From the battery 19 conductor 21 may have friction terminal 22 thrust into the handle 1 for electric contact with the inner tubular conductor 7. The working face-providing element 11 may be brought to heating position by placing such to complete circuit upon work 23 as on support 24 having ground 25. In practice, with 100 to 125 amperes of 6 volt current say in the instance used in connection with motor vehicles, the carbon 10 responds for heating the copper head 11 in as short an interval as ten seconds. In the event there is only desired heating of the head and not of continuity for maintaining the tool at such temperature, it is only necessary to thrust the thumb piece 5 to shift away from the stop 6 and thereby open the switch 14, 15. In such position there may be the desired heating or fusing action as by operating upon solder strip 26. In instances where a more continued higher temperature is desired during the working, the switch 14, 15, may be left closed. It is to be noted that in this grounded type of circuit, there may not be as frequent occasion or as much occasion for use of this switch as in the instance of circuit completed

away from the work, wherein terminal 27 (Fig. 5) may anchor terminal fork 28 in completing the circuit from the energy source desirably of low voltage for the normal functioning hereunder.

The effective control in positioning the carbon relatively to the tool working head may have tool working face-providing element 11 directly anchored from the outer tubular conductor 9 (Fig. 6). Shifting of the carbon 10 in the conductor 7 may be effected through slot 29, wherein ratchets 30 and control arm 31 as extending through opening 32 are connected to the thumb piece 5 in the guide 2. The control of the switch herein is by retracting the thumb piece to open the switch or break the heating operation of the carbon 10.

The tool is one of range for speedy functioning in trouble or repair work, and is advantageously adapted to be transported in connection with motor vehicle operations for line work attention. While there may be a battery to be taken in proximity to the work, in other instances the leads from the battery as at the motor vehicle may thus have preferably a complete circuit in giving attention to the installation or repair work required.

What is claimed and it is desired to secure by Letters Patent is:

1. A heating tool having a working face-providing element for grounding through the work, a heat resistance in circuit with the element, a directing handle for the tool, and a sleeve rigid with the handle and extending therefrom to provide a directing holder for the resistance in series with the working element located on said sleeve normally clear of the element.

2. A heating tool having a working face-providing element, a heat resistance in circuit with the element, a directing handle for the tool, an insulation sleeve rigid with the handle and extending therefrom to provide a guide about the resistance to protrude therefrom toward the working element, said sleeve exterior providing mounting for the working element, and a control for effecting spacing between the resistance and element to break the circuit for the tool.

3. A heat effecting tool having an insulation providing handle, a tubular conductor rigid with the handle, an insulation jacket for the conductor, a carbon resistance directed by the tubular conductor, and a working face-providing element movably mounted on the jacket for contacting resistance upon the jacket remote from the handle.

4. A heat effecting tool having an insulation providing handle, concentric tubular means rigid with the handle and including an inner conductor, a jacket thereon, a carbon resistance directed by the means, a working face-providing element movably mounted on the jacket, and control means for effecting shifting between the carbon resistance and element for opening and closing the circuit for the tool.

5. A heat effecting tool having an insulation providing handle, an inner tubular conductor, an insulation sleeve thereon, each rigid with the handle, a carbon resistance directed by the inner tubular conductor, a working face-providing element insulated by the sleeve from the resistance, and independent adjustment means for shifting the element toward the handle, thereby to contact the resistance.

6. A heat effecting tool having an insulation providing handle, an inner tubular conductor, a sleeve thereon, said conductor and sleeve extending from and rigid with the handle, a resistance directed by the inner tubular conductor, a working face-providing element movably mounted as to the sleeve and remote from the handle, said handle providing a guide and limit stop at the guide; an element shifting control connection in the guide for moving the element relative to the resistance, a set screw for positioning the carbon resistance against the element at the limit stop position of the control, and an additional set screw stop for limiting shifting of the control from said limit position of the carbon resistance to open the circuit between the carbon resistance and element in providing a switch for the tool.

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