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SOLDERING TOOL

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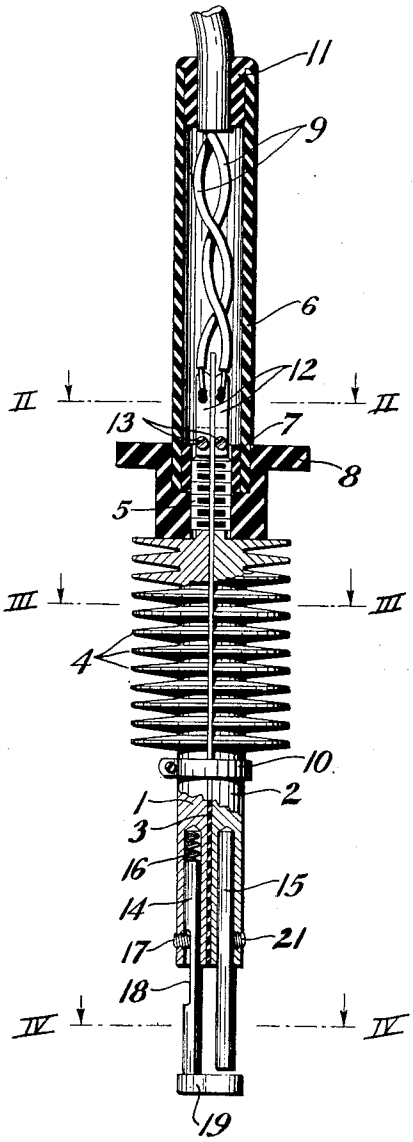


Fig. 1

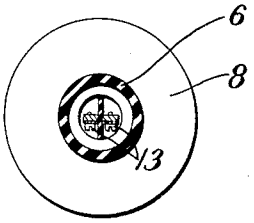


Fig. 2

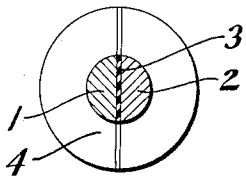


Fig. 3



Fig. 4

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SOLDERING TOOL

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3 Claims. (Cl. 219—26)

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This invention relates to a tool for effecting soldering, brazing, welding or cutting operations on a conductive material and has for its object the provision of an improved form of readily manipulable hand tool of this construction utilizing a carbon electrode for contact with the workpiece.

Another object of the invention is the provision of a tool embodying a pair of electrodes at least one of which is of carbon with at least one of the electrodes spring loaded and movable relative to the main body portion of the tool to facilitate contact of the electrodes with the work.

Other objects and features of the invention will be readily apparent to those skilled in the art from the specification and appended drawings illustrating certain preferred embodiments in which:

Figure 1 is a view partly in section and partly in elevation of the tool.

Figure 2 is a transverse sectional view on the line II—II of Figure 1.

Figure 3 is a transverse sectional view on the line III—III of Figure 1.

Figure 4 is a transverse sectional view on the line IV—IV of Figure 1.

The main body portion of the tool is formed by two conducting halves 1 and 2 of semi-cylindrical form separated by a sheet 3 of insulation such as mica. Integral with the portions 1 and 2 are fins 4 serving as a radiator reduce the heat transmitted to the handle from the electrodes. Above the fins 4, the body portions 1 and 2 are threaded as at 5 to receive an insulating handle portion 6 of hollow cylindrical form which has rigidly mounted therein a bushing 7 threaded on the tool. An insulating shield 8 is disposed between the handle 6 and the fins 4. The electrical conductors 9 enter the hollow handle 6 through the end cap 11 and are provided with connectors 12 at their ends which are individually connected to the body portions 1 and 2 by the studs 13. The body portion is held together by a clamp 10 insulated from the conducting halves and by the bushing 7.

As specifically illustrated in the drawing, the lower ends of the body portions 1 and 2 are provided with longitudinal openings in which are disposed electrodes 14 and 15. Electrode 14 is loaded for external movement by a spring 16 but its extended position is limited by a flat face screw 17 which rides in a slot 18 to also prevent turning of the electrode. The contact end of the electrode 14 is provided with a guide shoe 19 adapted to engage the work. The electrode 15 is rigidly mounted within the body portion 2 by

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the set screw 21. In the form illustrated in the drawing, the electrode 14 and the shoe 19 are formed of a relatively good conducting material while the electrode 15 is formed of carbon or other material having relatively high resistance and/or relatively high contact resistance. The purpose of the shoe 19 is to indicate to the operator where the electrode 15 will contact the work and it will, of course, be understood that this shoe may be omitted and also that the electrode 14 may be formed of a material similar to the electrode 15 if desired.

In the operation of the form of the tool specifically shown in the drawings, the conductors 9 are connected to a suitable source of electrical energy and the tool advanced to the work with the shoe 19 of electrode 14 first engaging the work to establish contact therewith. As the tool is further advanced toward the work, the electrode 14 moves relatively to the body portion of the tool as the spring 16 is compressed until the electrode 15 engages the work to complete the circuit. The maximum heating will be effected at the work surface engaged by the carbon or high resistance electrode 15 due to the contact resistance between the electrode and the work and also from the heat generated in the electrode itself by the passage of current.

With suitably formed electrodes and the selection of the proper material therefor, the tool is adapted for soldering, brazing, welding, burning or cutting a workpiece.

While certain preferred embodiments of the invention have been specifically disclosed, it is understood that the invention is not limited thereto, as many variations will be readily apparent to those skilled in the art and the invention is to be given its broadest possible interpretation within the terms of the following claims.

What is claimed is:

1. A tool of the class described comprising an elongated conducting body portion formed of two longitudinally extending halves joined together with insulation therebetween, a handle provided at one end of said body portion, a rod like electrode extending from the other end of each of the halves of said body portion, one of said electrodes being rigidly mounted, the other of said electrodes being spring loaded and movable relative to said body portion, said other of said electrodes in its extended position terminating beyond the end of said rigidly mounted electrode so as to engage the work under the bias of its spring loading prior to the engagement of the rigidly mounted electrode with the work to complete the circuit.

2. A tool of the class described comprising an

elongated conducting body portion formed of two longitudinally extending halves joined together with insulation therebetween, a handle provided at one end of said body portion, a rod like electrode extending from the other end of each of the halves of said body portion, one of said electrodes being rigidly mounted, the other of said electrodes being spring loaded and movable relative to said body portion, said other of said electrodes in its extended position terminating beyond the end of said rigidly mounted electrode so as to engage the work under the bias of its spring loading prior to the engagement of the rigidly mounted electrode with the work to complete the circuit, said other of said electrodes terminating in a contact shoe for engaging the work with the contact shoe formed to provide a clearance through which is indicated on the work the point of engagement of said rigidly mounted electrode therewith.

3. A tool of the class described comprising an elongated conducting body portion formed of two longitudinally extending halves joined together with insulation therebetween, a handle provided at one end of said body portion, a rod like electrode extending from the other end of each of the halves of said body portion, one of said electrodes being rigidly mounted, the other of said electrodes being spring loaded and movable relative to said

body portion, said other of said electrodes in its extended position terminating beyond the end of said rigidly mounted electrode so as to engage the work under the bias of its spring loading prior to the engagement of the rigidly mounted electrode with the work to complete the circuit, said other of said electrodes terminating in a contact shoe for engaging the work with the contact shoe formed to provide a clearance through which is indicated on the work the point of engagement of said rigidly mounted electrode therewith, said other of said electrodes and contact shoe being formed of a material of good conductivity and said rigidly mounted electrode being formed of a resistive material having a relatively high contact resistance.

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