June 16, 1931. R. L. HINDS 1,810,212

ELECTRIC TOOL

Filed Dec. 21, 1928

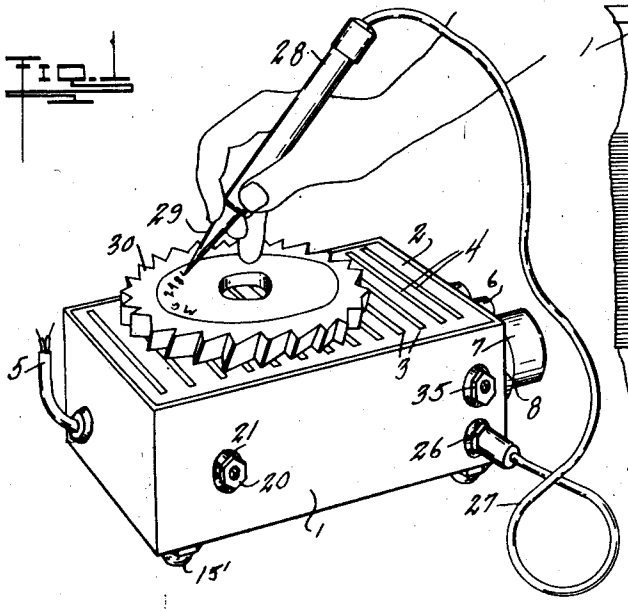


Fig. 1

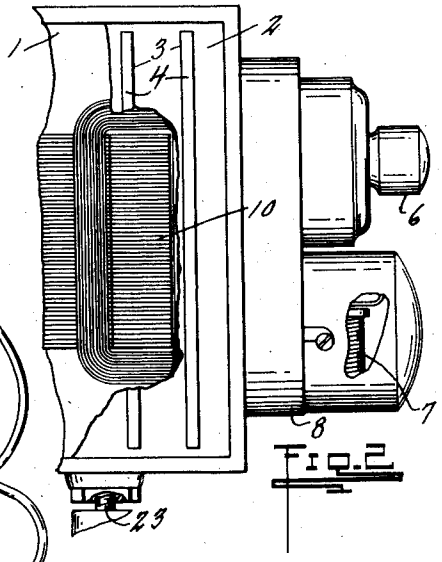


Fig. 2

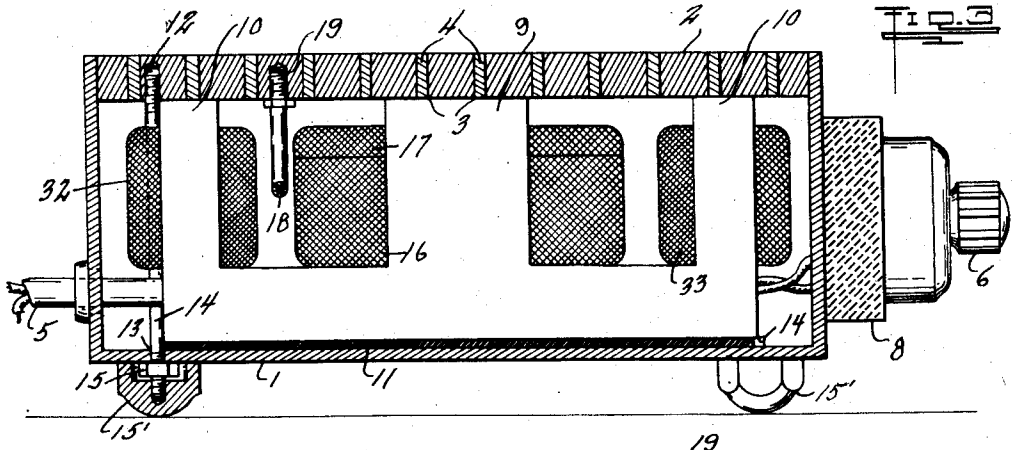


Fig. 3

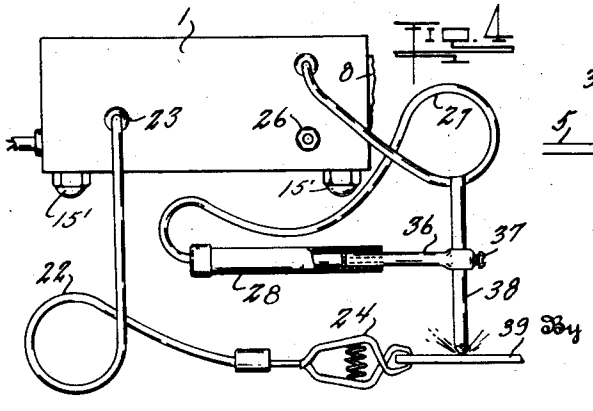


Fig. 4

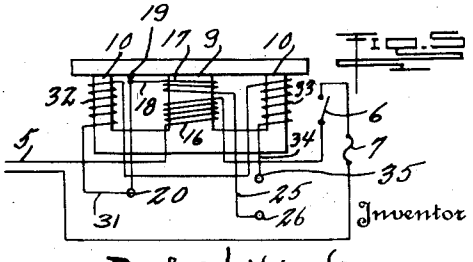


Fig. 5

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UNITED STATES PATENT OFFICE

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ELECTRIC TOOL

Application filed December 21, 1928. Serial No. 327,631.

This invention relates to tools for acting on metal.

This invention has utility when incorporated in a transformer housing terminal, with a plurality of flexible extensions therefrom in providing additional terminals.

Referring to the drawings:

Fig. 1 is a perspective view of an embodiment of the invention;

Fig. 2 is a fragmentary plan view, with the cover removed, of the housing of Fig. 1, portions being broken away;

Fig. 3 is a longitudinal section through the housing of Fig. 1;

Fig. 4 is a side elevation of the housing of Fig. 1, showing extension terminals assembled therefrom; and

Fig. 5 is a wiring diagram.

Housing 1 as herein adopted is preferably of a non-magnetic metal as aluminum. This housing or box 1 has top plate or cover 2 of magnetic material as iron having in transverse slots 3 thereof filling 4 of non-magnetic material as aluminum. There is accordingly thus completed the housing. Electric current supply line 5, say for alternating current of 110 volts extends to the housing. Externally of the housing there is mounted switch 6 in association with fuse 7 carried by insulator block 8. Inside this housing 1 is core device of laminations of sheet iron having central pole 9 and terminal poles 10. This core member is insulated from the housing 1 by fiber board 11. Taps 12 in the underside of the cover plate 2 are in alignment with openings 13 in the bottom of the housing 1 so that stud bolts 14 may be engaged with the top 2 and nuts 15 be effective for thereby drawing the top 2 into flush position with the housing and into direct contact with the pole pieces 9, 10. As thus assembled, cover nuts 15′ as legs or feet may be applied to conceal these nuts 15.

Central pole 9 carries primary winding 16 of many coils of fine wire in the instance when 110 volts alternating current 60 cycle is used, and secondary winding 17 of a few turns of coarse wire. There is thus provided a transformer. The secondary may be to no purpose in the instance the tool is to be used as a demagnetizer, wherein the material to be thus treated may be shifted along the top 2 from end to end to clear such top, while the alternating current is creating pulsating magnetic fields.

The primary winding 16 is connected to the supply line 5. The secondary winding 17 is provided with extension 18 branched to provide terminals 19, 20. The terminal 19 is shown as a threaded stem anchored with the top plate 2. The terminal 20 is an internally threaded socket having insulation 21 from the housing 1.

Flexible extension 22 may have screw thread stem 23 engaging the socket terminal 20 in thereby providing conductor connection to spring clamp terminal 24 thus permitting such connection to be made away from the housing 1. The secondary winding 17 may have its other extension 25 therefrom connected to terminal 26 as an internally threaded socket to receive externally threaded connection 23 of flexible extension 27 to hand piece 28 having thread connection for mounting terminal 29, herein shown as a metallic point say of copper.

In the use of this terminal, relatively low voltage may be adopted, and with the current completed through work 30, as placed upon the plate 2, there may be direct marking on such work by the action of such low voltage relatively high ampere current, effecting arcing out of impurities in the material in the line of travel of the point in the writing operation. This writing operation is more satisfactorily accomplished by very light touch. If there be a more firm bearing down, the connection is a really good conducting short circuit and does not give the marking effect on the metal. The materials as marked hereunder may be iron or steel or other metals. The more impure the specimen and greater electrical resistance the material has, the more easy the marking. Successful marking is obtained even on copper and aluminum.

Line 31 from the terminal 20 extends to supplemental secondary windings 32, 33, on the terminal poles 10 of the laminated core structure. From these windings 32, 33, of the secondary winding, extends connection

34 to terminal 35 as an internally threaded socket, insulated from the housing 1. These additional secondary windings tend to reduce the amperes, but increase the voltage for the secondary winding, 32, 33, in the instance that the externally threaded fitting 23 is assembled in the terminal 35 instead of the terminal 26. With such higher voltage, the handle 28 may be used with a higher resistance terminal. To this end, extension 36 is provided for thread assembly with the handle 28. This fitting 36 is provided with an eye having set screw 37 for clamping therein carbon electrode 38. Accordingly, in this assembly, the carbon electrode may be used for marking on work 30 as on the housing, or work 39 as engaged by the terminal 24. Furthermore, there may be performed such cutting, soldering and light annealing operations as may be found desirable or even to filling in places on work or castings.

There is accordingly provided under the disclosure herein, a simple compact tool including a transformer housing in a demagnetizer case, which demagnetizer may be a terminal or merely the housing and that from such there may be the supplemental terminals for one or both of the terminals of the secondary as in simpler form or for the secondary as supplemental for the higher voltage.

It is to be understood the marker is more satisfactorily effective when the pencil is of dissimilar substance from the work. If the pencil be of less resistance than the work, the marking line may be more fine and clear.

With 110 volt, 60 cycle current, the primary winding and transformer may conveniently be of say 550 turns of No. 20 wire, and the secondary coils be of say 8 or 9 turns of No. 6 wire.

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

1. A transformer housing having a conductor face, a transformer therein having primary and secondary windings, electric current supply connections to the transformer, a branched connection at one side of the transformer from the secondary winding extending as to one branch thereof to the housing conductor face, and a flexible extension from the other branch thereof having a terminal for connection away from the housing.

2. A transformer housing having a conductor face, a transformer therein having primary and secondary windings, electric current supply connections to the transformer, a branched connection at one side of the transformer from the secondary winding extending as to one branch thereof to the housing conductor face, and a flexible extension from the other branch thereof having a terminal for connection away from the housing, said secondary winding having a second terminal insulated from the housing, and a second flexible extension from the second terminal.

3. A transformer housing having a conductor face, a transformer therein having primary and secondary windings, electric current supply connections to the transformer, a branched connection at one side of the transformer from the secondary winding extending as to one branch thereof to the housing conductor face, and a flexible extension from the other branch thereof having a terminal for connection away from the housing, said secondary winding having second and third terminals insulated from the housing, and a second flexible extension selectively connectible to said insulated terminals.

4. A transformer housing having a conductor face, a transformer therein having primary and secondary windings, electric current supply connections to the transformer, a branched connection at one side of the transformer from the secondary winding extending as to one branch thereof to the housing conductor face, said secondary winding having second and third terminals insulated from the housing, one of said insulated terminals being from the other branch of said connection, and a flexible extension selectively connectible to said insulated terminals.

In witness whereof I affix my signature.

ROBERT L. HINDS.