Aug. 5, 1930. E. M. BARRY 1,772,126

AUTOMOBILE ELECTROMAGNETIC SPECIALTY TOOL

Filed Feb. 26, 1929

Fig. 1

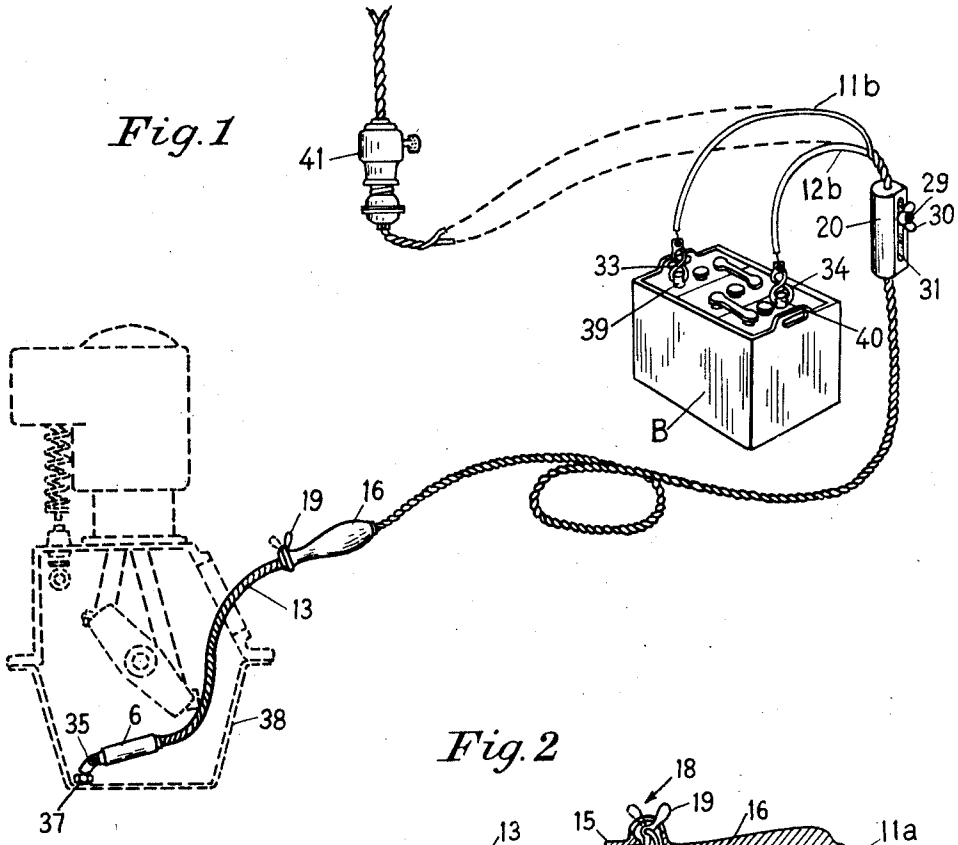


Fig. 2

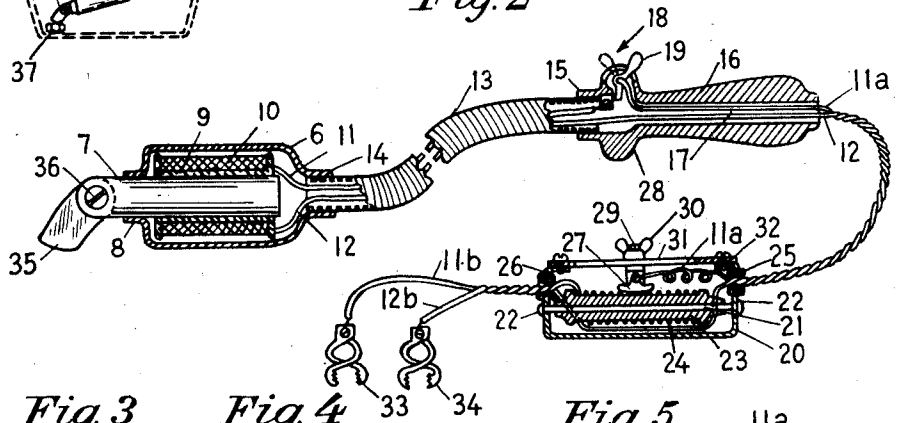


Fig. 3

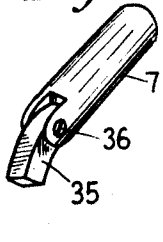


Fig. 4

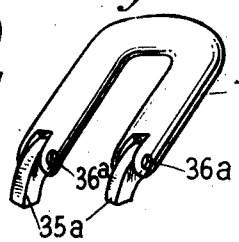
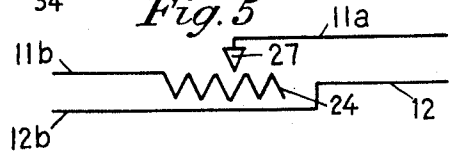


Fig. 5



INVENTOR
ERNEST M. BARRY
BY Raymond L. Barton
ATTORNEY

Patented Aug. 5, 1930 1,772,126

UNITED STATES PATENT OFFICE

ERNEST M. BARRY, OF MAYWOOD, CALIFORNIA

AUTOMOBILE ELECTROMAGNETIC SPECIALTY TOOL

Application filed February 26, 1929. Serial No. 342,880.

In this specification, and the accompanying drawing, I shall describe and show a preferred form of my invention, and specifically mention certain of its more important objects. I do not limit myself to the forms disclosed, since various changes and adaptations may be made therein without departing from the essence of my invention as hereinafter claimed; and objects and advantages, other than those specifically mentioned, are included within its scope.

My invention relates to tools and more particularly to a specialty tool of the electromagnetic type adapted for use in garages and principally in conjunction with the maintenance and repair of automobiles, trucks, tractors and the like.

Among its more important objects are: first, to provide a specialty tool having a flexible shank provided with a central bore and electrical conductor wires leading through the bore, which makes it particularly adapted for removing valve keys from valves, which eliminates danger of dropping them in the crank case; also for removing nuts, washers, screws and the like which drop in remote corners thereof; second, to mount on the far end thereof a water-proof metal housing wherein is contained a single pole electro-magnet having attached to its exposed end a movable or adjustable iron terminal fishing head; third, to provide in the device an electric circuit a variable resistance means included in the circuit to accommodate itself to a range in voltage and a thumb switch to make and break the circuit; and fourth, to provide a specialty tool which is very simple and economical of construction, durable, easy to optrate, efficient and will not readily deteriorate or get out of order.

With these and other objects in view as will appear hereinafter, my invention consists of certain novel features of construction, combination and arrangement of parts and portions as will be hereinafter described in detail and particularly set forth in the appended claims, reference being had to the accompanying drawing and to the characters of reference thereon which form a part of this application in which:

Fig. 1 is a perspective view showing my improved tool being used to extract a lost nut from within the crank case of an engine.

Fig. 2 is a longitudinal mid-section thereof including in the view a resistance box.

Fig. 3 is a perspective view of a single pole magnet used as a fishing head.

Fig. 4 is a perspective view of a double pole magnet used as a fishing head, and

Fig. 5 is a wiring diagram of the resistance box.

Referring in detail to the drawings, the tool comprises a preferably water-proof cylindrical metal housing 6 containing an electromagnet proper 7 which projects from said metal housing 6 through a reduced neck portion 8 which is tightly fitted therearound. Over said magnet 7 is fitted a spool insulator 9 upon which is wound an induction coil 10. Said coil 10 is energized through conductors 11, 11^a and 12 which extend through the flexible water-proof shank 13. This flexible shank has one end fastened within the other reduced neck portion 14 of housing 6, while the other end of shank 13 is fastened within a neck 15 with which a bakelite handle 16 is provided.

Said handle 16 has a bore 17 extending therethrough. Within said handle 16 is mounted a thumb switch 18 indicated in said view in two positions; in one position its handle 19 is shown in full lines, positioned to close the switch thus to complete the circuit through conductors 11 and 11^a.

With the wires 11 and 11^a is included in the circuit a variable resistance box 20, preferably of metal. Through said box extends a pin 21 having at each outer side of said box a head 22. Upon said pin is mounted a fire proof cylinder 23 upon which is wound the resistance wire 24. Wires 11^a and 12

enter this resistance box through a rubber bushing or insulator 25 and exit through a similar bushing insulator 26. Wire 11[a] terminates in a metal sliding shoe 27. Said shoe is mounted for longitudinal adjustment upon a fiber insulator 28 which is, in turn supported by the adjustable bolt 29 having an adjustable screw nut 30 which is movable in the slot 31 of the cover plate 32. The arrangement just described provides a device which can be accommodated to different voltages and therefore makes it possible to electrify the magnet either from a storage battery or from an electric light socket to be referred to later.

The completed circuit is delivered through the terminal wires 11[b] and 12[b] to which are fastened the clamps 33 and 34 which are attachable to the poles 39 and 40 of the battery B when desired.

Magnet 7 carries an adjustable terminal iron fishing head or finger 35 which is secured thereto by a pivot screw 36. In Fig. 4 is shown a double pole magnet 7[a], each pole of which has a like adjustable finger 35[a] pivotally secured thereto at 36[a]. These magnets should be laminated in the same manner as the magnets of transformers. They are stronger and more appropriate for city alternating current when thus constructed.

In Fig. 1 the device is shown in an operative position in the act of withdrawing a lost nut 37 from a crank case 38, it having its clamps 33 and 34 attached to the poles 39 and 40 of the battery B. In dotted lines it is shown connected with a light socket 41.

In Fig. 5 is shown a wiring diagram of the resistance box, the construction of which, when viewed with the resistance box in Fig. 2, is quite obvious.

I claim:

1. In a device of the character described, a flexible shank, a magnet carried thereby, conductors leading through said shank to energize said magnet, and an adjustable fishing head carried by the outer end of said magnet and forming one of the magnetic elements thereof, said fishing head being attached to said magnet by a pivot screw whereby it is yieldingly maintained in adjusted position.

2. In a specialty tool, a flexible shank, a magnet carried thereby, conductors leading through said shank to energize said magnet, a core, said core having a recessed extremity, carried by the outer end of said core, and a finger which forms one of the magnetic elements of said magnet, said finger having its inner end pivotally fastened within said recessed extremity the mounting of said finger providing sufficient friction thereagainst to maintain it normally in the desired angular adjustment.

3. In a specialty tool, a flexible shank, a magnet having two limbs carried thereby, conductors leading through said shank to energize said magnet, each of the limbs of said magnet having a recessed extremity, and a finger for each of said limbs, said finger forming a continuation of the magnetic element at that side of the magnet, each of said fingers having its inner end fastened pivotally within the recess at the end of the limb of which it forms a continuation, the mounting of said fingers providing sufficient friction normally to maintain them in adjacent position.

ERNEST M. BARRY.