

Oct. 20, 1925.

1,558,447

C. H. BEACH
ELECTROMAGNETIC FISHING TOOL
Filed Nov. 7, 1921

Fig. 1

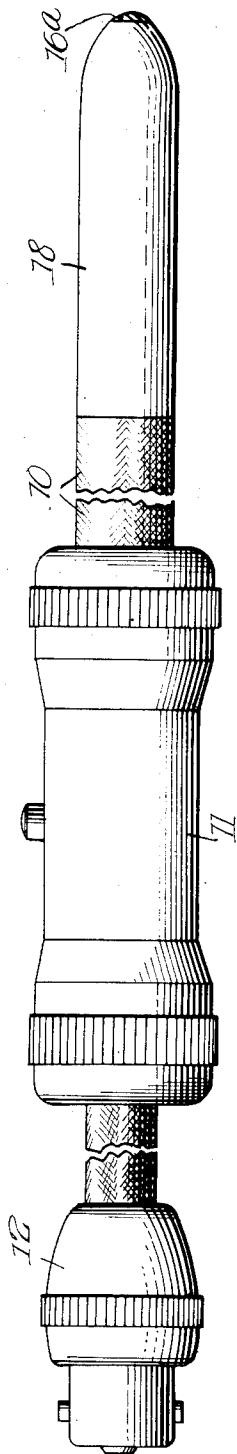
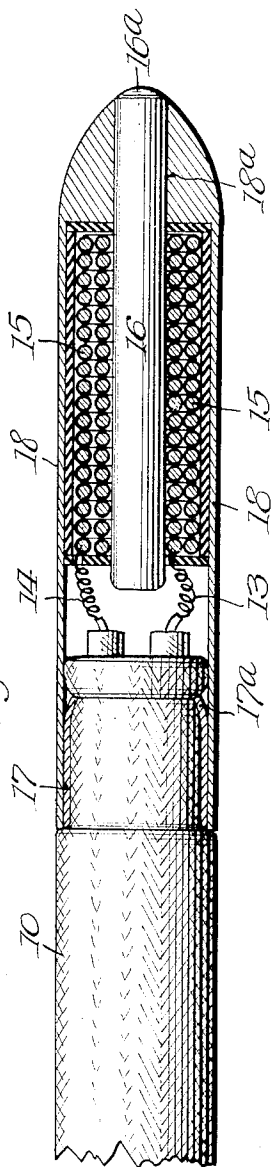


Fig. 2



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UNITED STATES PATENT OFFICE.

CHESTER H. BEACH, OF RACINE, WISCONSIN, ASSIGNOR TO WISCONSIN ELECTRIC COMPANY, A CORPORATION OF WISCONSIN.

ELECTROMAGNETIC FISHING TOOL.

Application filed November 7, 1921. Serial No. 513,324.

To all whom it may concern:

Be it known that I, CHESTER H. BEACH, a citizen of the United States, residing at Racine, in the county of Racine and State of Wisconsin, have invented certain new and useful Improvements in Electromagnetic Fishing Tools, of which the following is a specification:

This invention relates to improvements in electromagnetic fishing tools, one object of the invention being to provide a small portable tool of this character which may be used in and around automobile engines and machinery in general for picking up nuts, bolts, and other small metal parts which may fall into obstructed places out of reach for removal by hand and difficult of removal in any other way.

Other objects of the invention will be apparent from the following description, taken in connection with the accompanying drawings, wherein one form of the invention is illustrated.

Figure 1 is a side elevation of a tool constructed in accordance with the present invention; and

Fig. 2 is a longitudinal sectional view, taken through the electromagnet.

Referring more in detail to the drawings—

10 designates an ordinary electric cable or cord, provided, intermediate its ends, with a suitable switch 11. At one end the cord is provided with a connecting plug 12, which may either be of the single or double contact type. At the other end of the cord the two leads 13 and 14 are connected to an electromagnetic coil 15, the central opening of which accommodates a bar or rod 16, of soft iron or the like. The coil is suitably insulated and the rod 16 extends forwardly of the coil at its outer end, and is rounded at 16^a at its tip. A ferrule 17, of brass or other non-magnetic material, is mounted on the cord 10 and at one end is spun or crimped into the insulation of the cord, as at 17^a. A suitable shell 18, also preferably of brass or some other non-magnetic material, fits down over the soft iron rod 16 and the coil 15 and

engages the ferrule 17 at its inner end, the said shell being pressed or sweated into firm engagement with the ferrule in order to anchor same against displacement. In addition the rear edge of the shell may be soldered or otherwise secured to the ferrule, if desired. The forward end of the shell 18 is apertured, as at 18^a, to permit of the forward end of the soft iron core 16 projecting there-through, the latter being rounded, as above pointed out, at 16^a, this rounded portion conforming to the contour of the forward end of the shell. In order to prevent accidental displacement of the soft iron core relatively to the shell and, further, in order to impart rigidity and ruggedness to the entire assembly, it may be found desirable that the forward end of the core tightly fit the bore or aperture 18^a in the end of the shell.

From the above description it will be observed that an electromagnetic fishing tool has been provided wherein the magnetic influence is exerted only at the exposed tip 16^a of the soft iron core, the enclosing shell 18, of non-magnetic material, eliminating lateral attraction. This enables the operator in the use of the tool to lower the same through obstructed passages into direct contact with the article to be raised without such interference as would be occasioned in the event the tool were subject to or exerted lateral attraction. Another important feature of the present improvements resides in the general arrangement and assembly of the parts, the same being of such a compact nature that the elongated enclosing shell is of substantially the same diameter as that of the electric cable or cord 10. Thus the tool may be employed in lifting articles from narrow passages and other obstructed places practically inaccessible in any other way.

It will be obvious to those skilled in the art that the present improvements are susceptible to change and modification; and it is not therefore desired to restrict the same, except as defined in the appended claim.

What I claim is:

In a tool of the class described, an electric cable, a ferrule tightly fitted over said

cable adjacent one end thereof, one edge of said ferrule being pressed into said cable to anchor the same thereon, an elongated shell tightly fitting said ferrule at its inner end
5 and provided with an aperture at its outer end, an electromagnetic coil housed within said shell and connected to the conductors of said cable, and a core of magnetic material mounted in said coil with its tip projecting into said aperture and lying flush 10 with the outer end of said shell.

In testimony whereof, I have subscribed my name.

CHESTER H. BEACH.