

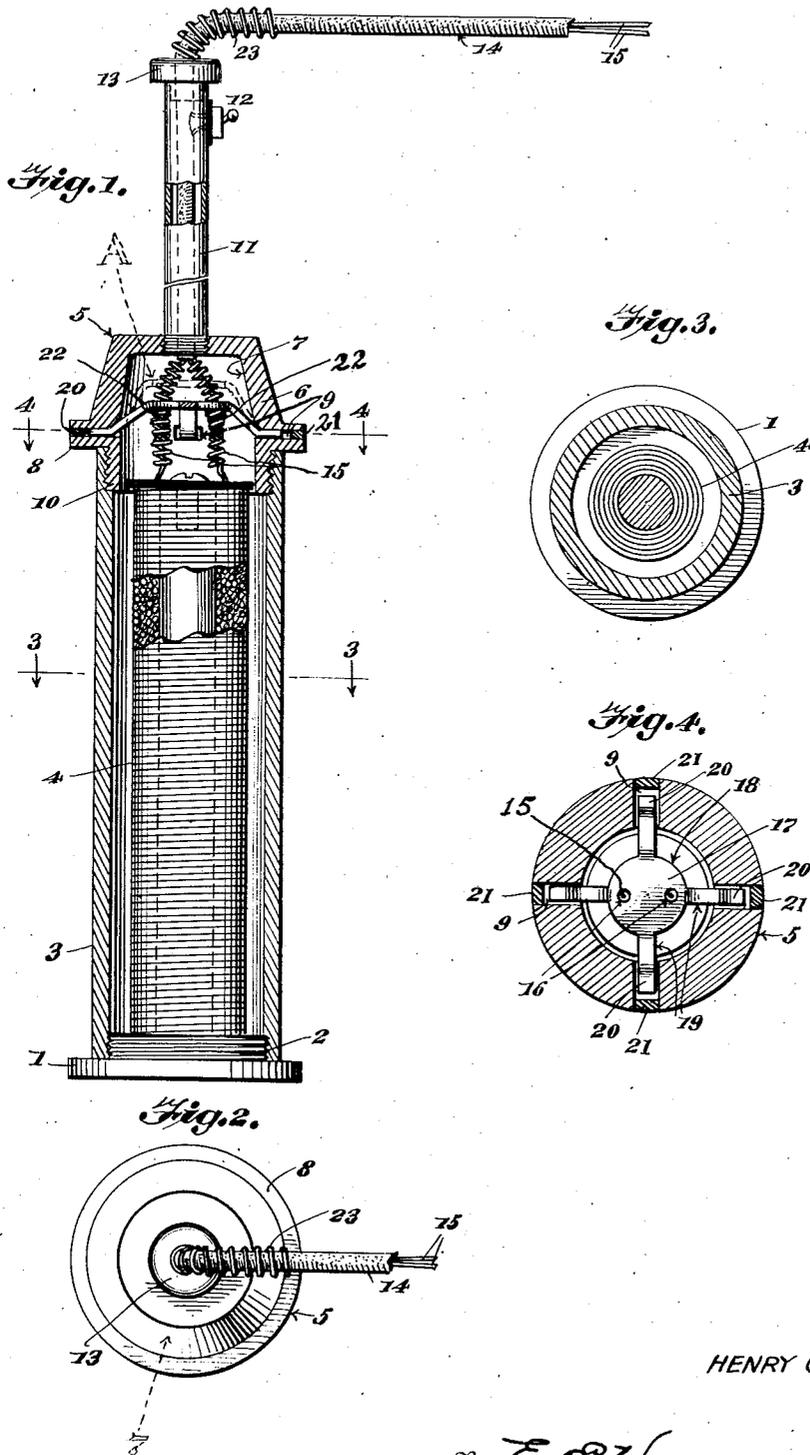
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TANK MAGNET

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TANK MAGNET

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6 Claims. (Cl. 175—367)

This invention relates to a tank magnet.

An object of this invention is the construction of a novel and efficient tank magnet for use in recovering lost parts in a tank containing an electroplating solution.

Another object of the invention is the construction of a tank magnet with a novel wire retaining device therein, for preventing the disconnection of the wires from the electromagnet.

A still further object of the invention is the construction of a tank magnet involving an electromagnet, and enclosing means therefor, a wire retaining device in said enclosing means, and said wire retaining device of sufficient yielding or springy nature, to constitute a shock absorbing means, whereby the wires leading to the electromagnet are always in an efficient operating condition.

With the foregoing and other objects in view, the invention comprises certain novel constructions, combinations, and arrangements of parts as will be hereinafter fully described, illustrated in the accompanying drawing, and more particularly pointed out in the appended claims.

In the drawing:

Figure 1 is a view of this invention, showing parts in elevation and part in vertical section, while

Figure 2 is a top plan view.

Figure 3 is a section taken on line 3—3, Figure 1, and looking in the direction of the arrows.

Figure 4 is a sectional view taken on line 4—4, Figure 1, and looking in the direction of the arrows.

Referring to the drawing, in which I have shown the preferred embodiments of my invention, 1 designates a flat disk base, provided with an integral upstanding externally threaded portion 2. A brass casing 3 is screwed upon portion 2, with base 1 projecting a considerable distance beyond the outer face of brass casing 2. An electromagnet 4 is fixedly secured at its lower end to threaded portion 2.

A novel cap 5 is positioned on the upper end of casing 3. This cap 5 comprises an upwardly extending body 6 having dome 7. Extending outwardly from body 6 is an annular projecting flange 8. In flange 8 are horizontally-positioned slots 9. Body 6 is provided with an externally-threaded depending extension 10; this extension 10 is threaded into the upper end of casing 3.

A metal tube 11, of any desired length, is threaded at its inner end into the dome portion of cap 5. On metal tube 11 is a suitable toggle switch 12. Extending into the upper or outer

end of metal tube 11 is wood cap 13. A suitable covering 14, containing wires 15 extends through cap 13 and metal tube 11, with wires 15 threaded through apertures 16 of the disk-like body 17 of the wire retaining device 18; the wires 15 are fastened at their inner ends in any suitable manner to the electromagnet 4. The switch 12 is connected to wires 15, in any suitable manner, for controlling the passing of current through the wires. Current is supplied to the wires 15 by any suitable source of electricity.

The wire retaining device 18 has integral downwardly and outwardly extending fingers 19; each finger 19 has a flat outer end 20. The flat outer ends 20 of fingers 19 are normally in the horizontal slots 9. These slots 9 are formed in any desired manner, and after the parts of the device are assembled, the outer ends of the slots 9 are sealed or closed by plugs or closure means 21. The wires 15 are closely coiled or bent at 22 (Fig. 1), so that the wires are prevented from pulling through the body 17 when undue strain is placed upon the wires 15 and their covering 14. In the operation, when the device is assembled, if in dropping or placing the magnet in a tank, such placement is too quick, or if the operator pulls too severely upon the covering 14, the retaining device 18 will absorb the shock, by moving up into the dome a slight distance, as indicated by dotted lines A, whereby the inner ends of wires 15 are not disconnected from the electromagnet 4. This produces an efficient device, because of the shock absorbing action of the retaining device 18. Normally the ends of the bowed fingers of the "spider" unit are as shown in full lines, Fig. 1, but they have sufficient play in slots 9 to accomplish the novel and desirable function just specified.

On covering 14, contiguous to cap 13, is a tension coil spring 23, of the usual construction. It is to be understood that the length of tube 11, as well as covering 14 and wires 15 is entirely optional with the constructor.

In operation, the device is lowered into the tank, and the current is turned on at switch 12, and the lost parts are attracted to the disk base 1, whereupon the device can be lifted out of the tank and the lost part or parts recovered.

While I have described the preferred embodiment of my invention and illustrated the same in the accompanying drawing, certain changes or alterations may appear to one skilled in the art to which this invention relates during the extensive manufacture of same and I, therefore, reserve the right to make such changes or altera-

tions as shall fairly fall within the scope of the appended claims.

What I claim is:

- 8 1. In a device of the class described, the combination of an electromagnet, enclosing means therefor, yieldable wire-retaining means in said enclosing means, and wires extending into said enclosing means in engagement with said yieldable wire-retaining means and connected to said electromagnet.
- 10 2. In a device of the class described, the combination of an electromagnet, enclosing means therefor, yieldable wire-retaining means within said enclosing means contiguous to an end of said electromagnet, and wires extending through said yieldable wire-retaining means and connected to said electromagnet.
- 15 3. In a device of the class described, the combination of an electromagnet, enclosing means including a cap with a dome for said electromagnet, wire-retaining means movably mounted within the dome of said cap, and wires operably engaging said wire-retaining means and connected at their inner ends to said electromagnet.
- 20 4. In a device of the class described, the combination of a casing provided with a cap, an electromagnet in said casing, a yieldable wire-retaining device within said cap, above said electro-

magnet, and wires extending through said cap and yieldable retaining device and fastened to said electromagnet.

5. In a device of the class described, the combination of a casing, a cap threaded at its lower 5 end into said casing, said cap comprising a body portion provided with a dome, said body portion provided with a horizontal, outwardly projecting annular flange, said flange provided with a plurality of horizontal slots, closure means in the 10 outer ends of said slots, a wire-retaining device within said dome, said wire-retaining device comprising an apertured disk body with outwardly and downwardly extending spring fingers, said spring fingers provided with outer flat ends 15 seated in said slots, and wires extending through the dome of said cap and through the apertures of said disk and connected to said electromagnet.

6. In a device of the class described, the combination of a casing provided with a domed cap, 20 an electromagnet within said casing, a vertically-movable shock absorbing device in said cap, and wires extending through said cap and fixedly engaging in one direction said shock absorbing device and being fastened also to said electromag- 25 net.

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