(No Model.)

H. H. WHITACRE & A. C. WOLFE.

ELECTROMAGNET FOR SEPARATING METALS.

No. 555,546. Patented Mar. 3, 1896.

Fig. 1.

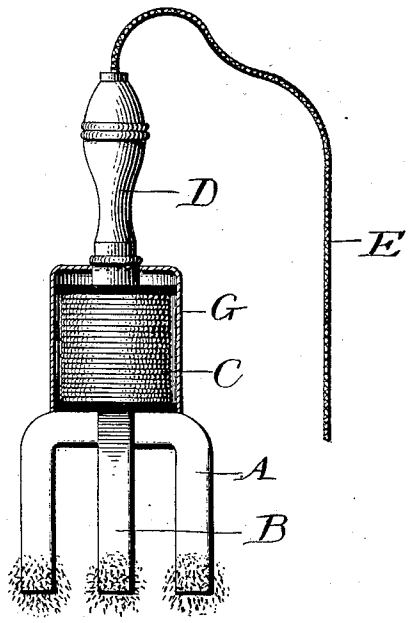
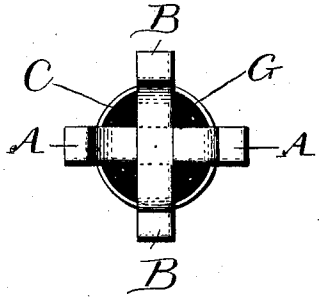


Fig. 2.



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UNITED STATES PATENT OFFICE.

HARVEY HILLARD WHITACRE AND ANDREW CURTIN WOLFE, OF WELLSVILLE, OHIO.

ELECTROMAGNET FOR SEPARATING METALS.

SPECIFICATION forming part of Letters Patent No. 555,546, dated March 3, 1896.

Application filed March 1, 1895. Serial No. 540,139. (No model.)

To all whom it may concern:

Be it known that we, HARVEY HILLARD WHITACRE and ANDREW CURTIN WOLFE, citizens of the United States, residing at Wellsville, in the county of Columbiana and State of Ohio, have invented certain new and useful Improvements in Electromagnets for Separating Metals; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the letters of reference marked on the accompanying drawings, which form a part of this specification.

The object of our invention is to provide a hand electromagnet for the purpose of separating iron or steel filings or shavings, particles, or the like from substances, compositions, &c., in which they may be loosely held or intermixed. For this purpose our improvements consist in the following construction and combination of parts, the features of which will first be fully set forth and described, and the points of novelty contained therein then indicated and claimed.

Figure 1 represents a side elevation and partial section of an electromagnet to which we have applied our improvements. Fig. 2 represents an end view of the same.

In the drawings, A represents a soft-iron magnet, preferably of horseshoe shape, as shown, and B is a similarly-shaped magnet of the same material set at right angles thereto. The upper ends of these magnets project up into the spool C and form a core for the same. At the upper end of this core a handle D is rigidly attached. The spool C is wound with wire in the usual way and the wire connections are connected to said spool and led out through the interior of the handle into the conductor E, which is connected with any suitable source of electrical energy.

G is a casing or shell which envelops the spool C and hermetically seals it from the action of moisture or other deleterious effect during the manipulation of the hand-magnet.

In operation the current is switched onto the conductor E and spool C, thereby exciting the poles of the magnets. It is then grasped by the hand and moved to and fro, here and there, throughout the mass of material containing the iron or steel particles. The latter are drawn to the poles in accumulations of more or less extent. After a sufficient quantity has gathered thereon the particles are wiped off the magnet with some suitable brush, either against the excitation of the magnet, or, if preferred, the current may be switched off, when the particles either are precipitated or are thereby more easily removed.

Our invention affords a simple and expeditious means of separating by hand iron or steel particles which are intermixed with other substances, such as clays, non-magnetic metals, and the like.

We claim—

In a hand-manipulated magnetic separator, the combination of a series of magnets radially disposed about and parallel with a central axis, core extensions of said magnets coincident with the central axis of the separator, radially-disposed intermediate pieces connecting said core extensions and said series of magnets, a coil surrounding the core extensions and abutting against the radial intermediate pieces, a hermetic jacket inclosing the coil, a handle secured to the core extensions, and projecting axially beyond the coil and the magnets, and wires leading from the end of the handle, substantially as described.

In testimony whereof we affix our signatures in the presence of two witnesses.

HARVEY HILLARD WHITACRE.
ANDREW CURTIN WOLFE.

Witnesses:
NELLIE J. WELLS,
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