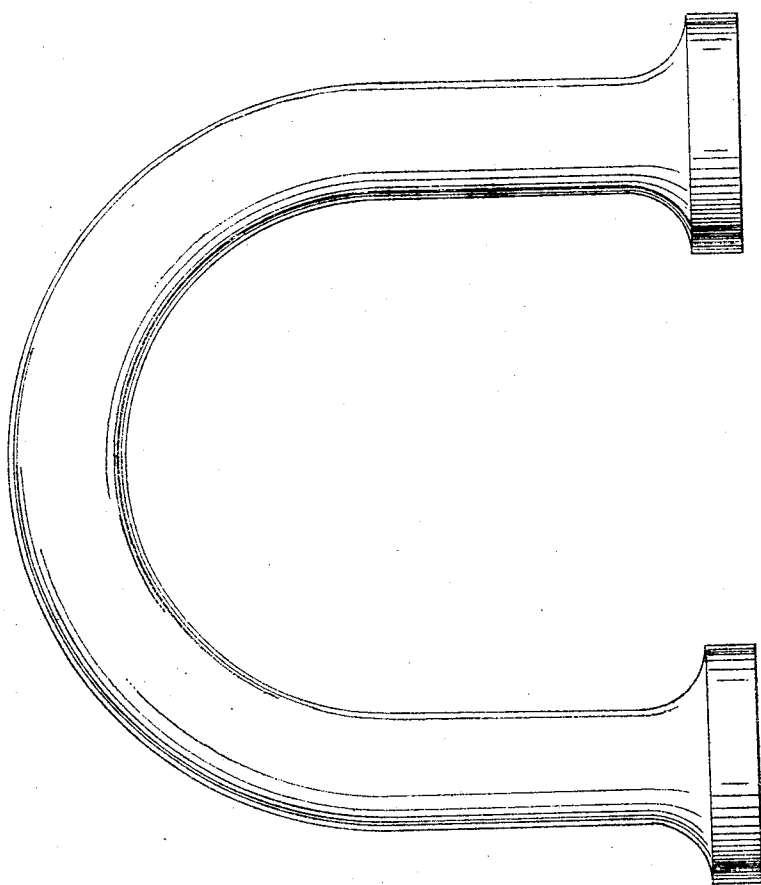


[31.]

Emile Prevost's Imp. in Electro Magnet.

No. 119,176.

Patented Sep. 19, 1871.



Witnesses.

L. Wahlers
E. F. Kastinbauer

Inventor.

Emile Prevost
per
Wm. S. Woodward & Co.
Attys

UNITED STATES PATENT OFFICE.

EMILE PREVOST, OF NEW YORK, N. N.

IMPROVEMENT IN ELECTRO-MAGNETS.

Specification forming part of Letters Patent No. 119,176, dated September 19, 1871.

To all whom it may concern:

Be it known that I, EMILE PREVOST, of the city, county, and State of New York, have invented a new and useful Improvement in Electro-Magnets; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification, which drawing, consisting of one figure, represents an electro-magnet made according to my invention.

This invention relates to certain improvements in electro-magnets suitable for electro-magnetic machines and apparatus for telegraphing, imparting motion, and other purposes where electro-magnets are required; and the object of the invention is to produce an electro-magnet which shall have greater attracting and repelling power than electro-magnets of equal size made in the ordinary manner.

In making an electro-magnet according to my invention, I take a bar of iron of the best quality and of the requisite diameter, according to the surface desired, and bring it to the shape of a horseshoe, which form I find to answer best; but when forging or bending it care must be taken not to overwork or burn the metal. After each heat I immediately immerse it in a bath of molten lead or fusible metal, wherein it is allowed to cool. Care must be taken to prevent the said bar from floating on the surface of the bath and thus coming in contact with the air. I repeat the operation of heating the bar, and the subsequent cooling of the same in said bath, six or seven times. During the last reheating the temperature of the lead must be about the melting point, and I add flour of sulphur to the bath from time to time, until the bar bends with ease.

The bar of iron having been prepared as above described, and having been well polished after the last cooling, is next plunged into a bath of alcohol at an elevated temperature until the metal assumes a yellowish color, whereupon finely-divided sal-amoniac is to be added to the alcoholic bath, and the whole is allowed to cool as slowly as possible. After this it will be found that the bar or horseshoe when under the influence of an electric current will become powerfully attractive and repulsive.

In lapping my improved electro-magnet I take a three-strand copper wire—that is say, a twisted wire made of three copper wires twisted together—and with these combined wires I lap the horseshoe-shaped bar above described. For electro-magnets of comparatively small power six coils or layers will be sufficient, but for powerful magnets I employ ten of such coils or layers. The diameter of the copper wire for lapping small magnets should be about one-sixteenth of an inch, but for large and powerful magnets one-eighth of an inch copper wire should be employed. One of the three twisted wires may be applied, if required, to an induction-coil whereby a return current toward the battery will be obtained at the moment of production of the spark on the commutator.

What I claim as new, and desire to secure by Letters Patent, is—

The process, substantially as above described, for treating and preparing bars for electro-magnets.

This specification signed by me this 21st day of December, 1869.

EMILE PREVOST.

Witnesses:

W. HAUFF,
C. WAHLERS.

(31.)