

M. A. RICE.
Electro-Magnet.

No. 160,120.

Patented Feb. 23, 1875.

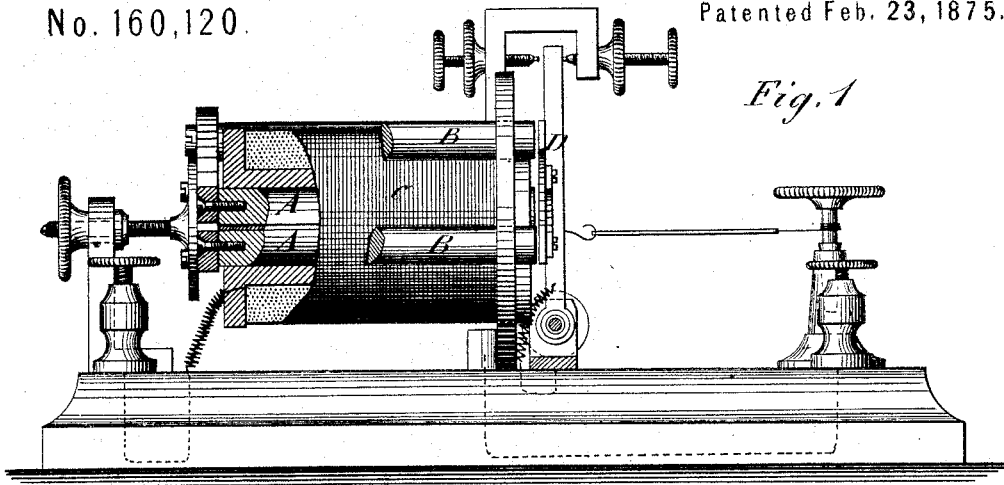


Fig. 1

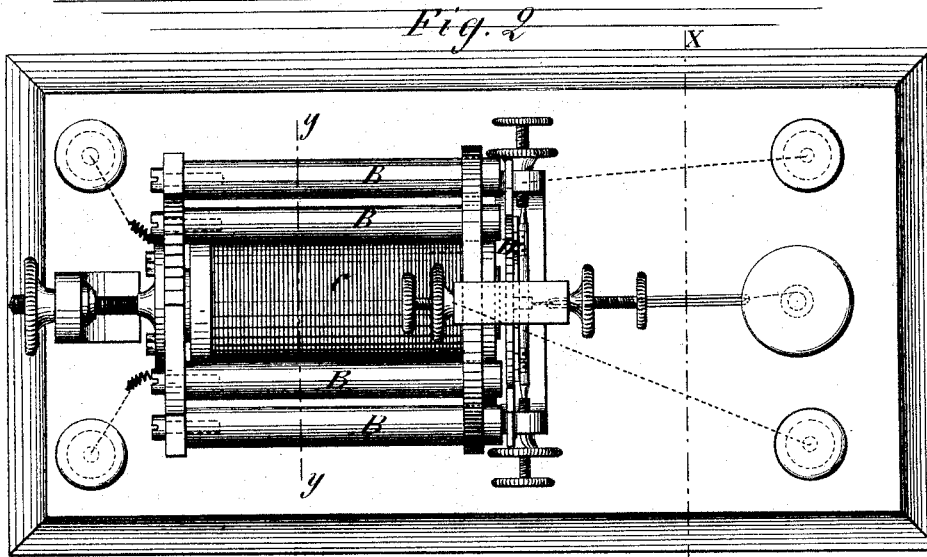


Fig. 2

Fig. 3

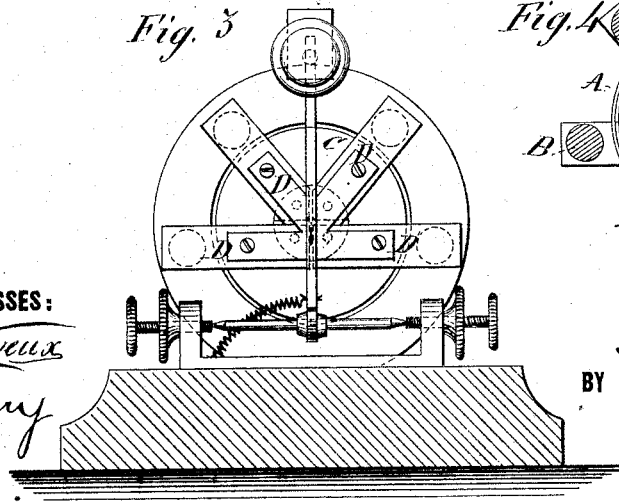
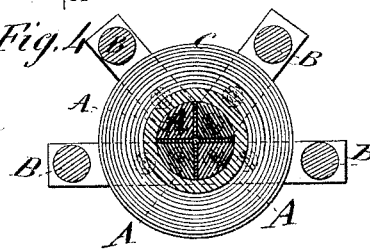


Fig. 4



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UNITED STATES PATENT OFFICE.

MARK A. RICE, OF PENT WATER, MICHIGAN.

IMPROVEMENT IN ELECTRO-MAGNETS.

Specification forming part of Letters Patent No. **160,120**, dated February 23, 1875; application filed December 23, 1874.

To all whom it may concern:

Be it known that I, MARK A. RICE, of Pent Water, Oceana county, Michigan, have invented a new and Improved Electro-Magnet, of which the following is a specification:

My invention consists of making a number of electro-magnets with one coil, by introducing any part of each of several bars into a coil of insulated wire while other portions are outside of the coil, say, one leg of each of several U-shaped bars will be in the coil, and the other legs out along the exterior, or the wire may be coiled around the parts which connect the legs, leaving the two legs out, so that they project radially from the ends of the coil.

By this plan I find each magnet is nearly as strong as it would be if the others were not inclosed, by which I get a much greater magnetic force from a given coil than can be obtained in the usual manner, and I obtain a given force with less battery-power.

In the drawing, Figure 1 is partly a side elevation, and partly a sectional elevation, of a magnet contrived according to my invention. Fig. 2 is a plan view. Fig. 3 is a transverse

section of Fig. 1 on the line *xx*; and Fig. 4, is a section of the magnet taken on the line *yy*.

Similar letters of reference indicate corresponding parts.

A represents the inclosed legs, and B the exterior legs of four U-shaped magnets, the said legs A being all inclosed in the insulated coil C. D represents an armature for each magnet.

By arranging the bars connecting the two legs in the coil I can separate the poles of the magnet, and probably make each one work stronger.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

The combination of two or more bars and an insulated coil, one leg or arm of each bar being arranged within the coil, and one exterior to it, in such manner as to make two or more magnets in one coil, substantially as specified.

Witnesses: MARK A. RICE.

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