

(No Model.)

C. P. BOSTIAN.
ELECTROMAGNET.

No. 584,848.

Patented June 22, 1897.

Fig. 1.

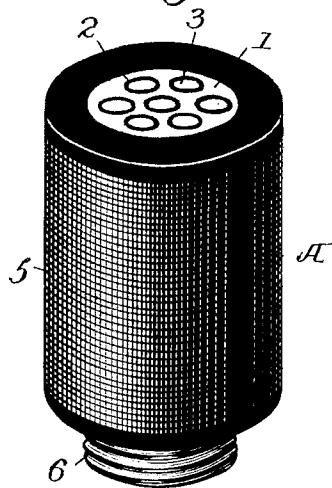


Fig. 2.

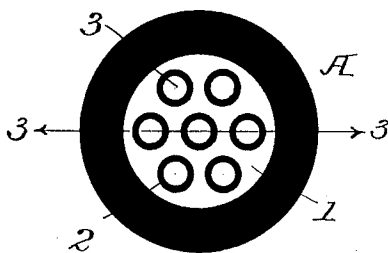


Fig. 4.

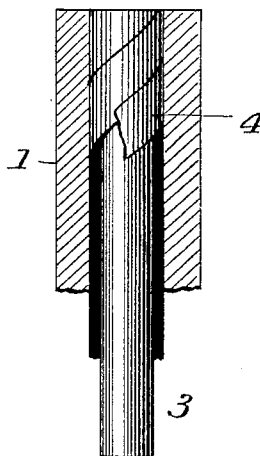
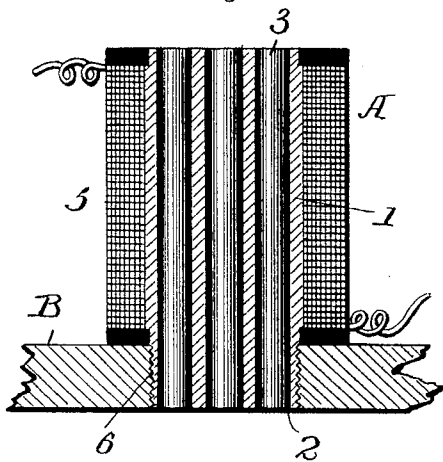


Fig. 3.



Witnesses

J. Hinkel

William E. Neff

Inventor

Charles P. Bostian

Watson & Watson

Attorney

UNITED STATES PATENT OFFICE.

CHARLES P. BOSTIAN, OF MILTON, PENNSYLVANIA, ASSIGNOR TO BOSTIAN
AUTOMATIC BURGLAR AND FIRE ALARM CO., OF SAME PLACE.

ELECTROMAGNET.

SPECIFICATION forming part of Letters Patent No. 584,848, dated June 22, 1897.

Application filed April 22, 1897. Serial No. 633,366. (No model.)

To all whom it may concern:

Be it known that I, CHARLES P. BOSTIAN, a citizen of the United States, residing at Milton, in the county of Northumberland and State of Pennsylvania, have invented certain new and useful Improvements in Electromagnets, of which the following is a specification.

The object of this invention is to increase the power of electromagnets without increasing the weight, or, in other words, to reduce the weights of magnets of a given power. I accomplish this object by using a core having perforations therethrough and inserting in the perforations insulated soft-iron rods.

The invention further consists in details of construction and in the manner of connecting the magnets to any desired base.

In the accompanying drawings, which form a part of this specification, Figure 1 is a perspective view of a magnet embodying my invention. Fig. 2 is a plan view of the same. Fig. 3 is a vertical section on the line 3 3, Fig. 2; and Fig. 4 is an enlarged detail view of a part of Fig. 3.

Referring to the drawings, A indicates an electromagnet constructed according to my invention, and B a portion of the base or frame to which the magnet is connected. As illustrated in the drawings, the magnet is provided with a cylindrical soft-iron core 1, having a number of holes 2, extending through from pole to pole. The holes may be of any desired size and number. The desired size being selected, it is preferable to have as many holes as can be bored without weakening the core. Within each hole is a soft-iron rod 3, nearly filling the hole, but suitably insulated from the core 1. I prefer to insulate the rods by wrapping them with paper or other insulating fabric 4. The winding 5 should be proportioned to the size of the core and the requirements of each particular magnet. For most purposes it is desirable to provide means for securing the magnets to a base or frame, such as B. I accomplish this by extending the core 1 beyond the winding and threading it, thus forming a threaded shank 6, which can be screwed into the base or frame.

In operation I have found these magnets to be much more powerful than magnets of ordinary construction having a solid core. I am aware that it has been proposed to make

a hollow magnet-core and insert a rod therein; but in such case the rod was not insulated from the core, but magnetically connected to it at one or more points. It is an essential feature of my invention that a plurality of rods be used and that they be insulated from the core, so that each rod will serve as a supplemental core. I attribute the great power of my improved magnet partially to the increase of surface afforded by the cores and also to the fact that the several rods constitute cores, each operating in a sense independently.

While I have illustrated simply an ordinary cylindrical magnet, it will be understood that my invention is not limited to magnets of any particular form. I contemplate using it on motors and dynamos, especially street-car motors, and other electromagnetic machines where it is desirable to economize weight or space.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. An electromagnet having one or more perforations through its core and a rod of magnetizable material within and nearly filling each perforation, said rod or rods being insulated from the core, substantially as described.

2. An electromagnet having a core provided with a plurality of holes extending therethrough from pole to pole and rods of magnetizable material within said holes, and separated from the core proper by a wrapping of paper or other insulating material, substantially as described.

3. An electromagnet having a core, one end of which is provided with a screw-threaded portion extending beyond the winding to form a shank for attachment to a base or frame, a plurality of holes through said core, and rods of magnetizable material inserted in said holes and insulated from the core, substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses, this 14th day of April, 1897.

CHARLES P. BOSTIAN.

Witnesses:

J. A. WATSON,
ROBERT WATSON.