J. M. FAIRCHILD'S SELF ADJUSTING MAGNET

PATENTED
DEC 10 1867

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Fig 1

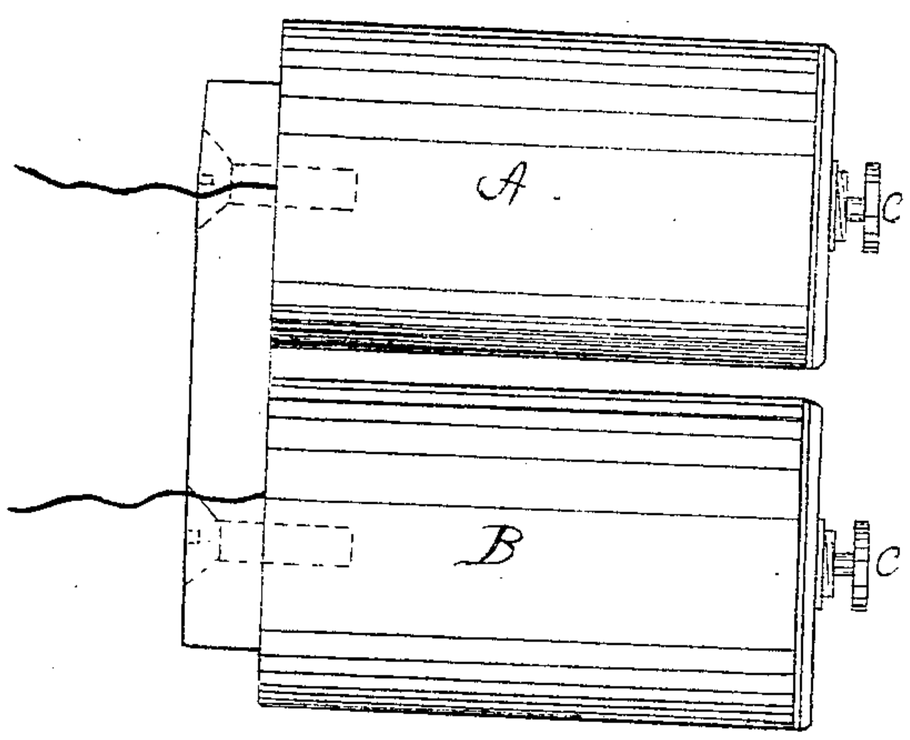
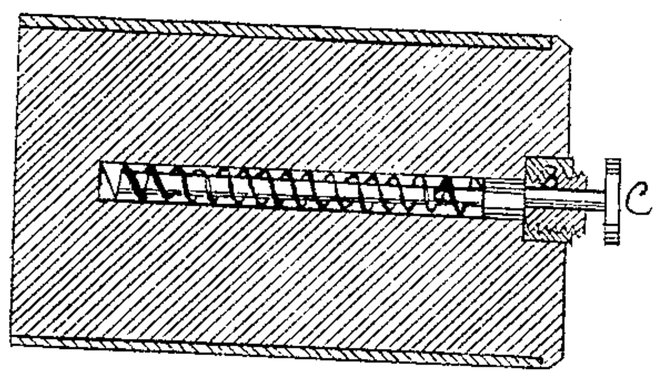


Fig. 2



Witnesses
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J. M. FAIRCHILD, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO HIMSELF, J. K. BUNDY, AND J. M. TOWNSEND, OF SAME PLACE.

Letters Patent No. 71,863, *dated December* 10, 1867.

IMPROVEMENT IN SELF-ADJUSTING RELAY-MAGNETS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, J. M. FAIRCHILD, of New Haven, in the county of New Haven, and State of Connecticut, have invented a new Improvement in Self-Adjusting Magnet; and I do hereby declare the following, when taken in connection with the accompanying drawings, and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a top view, and in

Figure 2 a longitudinal central section of one of the magnets.

This invention relates more particularly to improvement in the magnets such as are used in Morse's telegraphing instruments. It is well known to those experienced in the use of such magnets, that upon any variation of strength of the current it is necessary to adjust the magnet in order to the proper working of the instrument, that is, to place the magnet farther from the armature according as the current is stronger. To avoid this adjustment, and at the same time to cause the machine to be always in condition to operate, is the object of my invention, and consists in the arrangement of a spindle within the core of the magnet, so that the said spindle will by the action of the magnet upon the soft-iron head of the spindle tend to draw the said spindle into or the head of the spindle nearer to the magnet and farther from the armature in proportion as the strength of the current on the line may be increased, or relieve the head so as to approach the armature in proportion as the current is diminished.

In order to the clear understanding of my invention, I will proceed to describe the same as illustrated in the accompanying drawings.

A A represent two ordinary magnets to be placed in the usual relation to the armature. Centrally in the core of each of the magnets I arrange a spindle, *a*, supported in a bearing, *b*, and upon a spring acting upon the said spindle, the tendency of which is to force the spring from the magnet. Outside the magnet, and upon the spindle, I fix a soft-iron head, C, or other suitable metal. The spring upon the spindle should only be sufficient to throw the magnet out when the magnet is not charged, but when the magnet is in circuit, in proportion as the current is stronger, so will the head C be drawn toward the magnet and away from the armature, and consequently, as the current diminishes, the head C will be forced from the magnet nearer to the armature, thus causing the magnets to be always in the most perfect adjustment relative to the armature. Thus, by this simple means I am enabled to overcome one of the principal difficulties in telegraphing, that is, the adjustment of the magnet, which now requires a skillful operator.

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

The arrangement of the head C combined with the magnet, so as to be self-adjusting in relation to the armature, substantially as herein set forth.

J. M. FAIRCHILD.

Witnesses:

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