(No Model.)

M. M. WOOD.

ELECTRICAL ANNUNCIATOR.

No. 385,894. Patented July 10, 1888.

Fig. 1

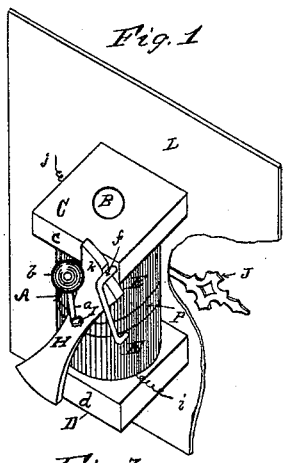


Fig. 2.

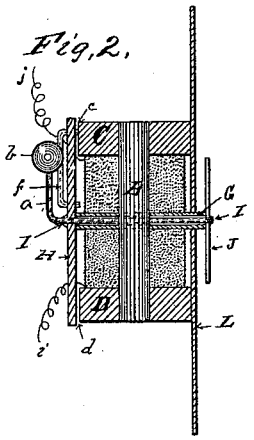


Fig. 3.

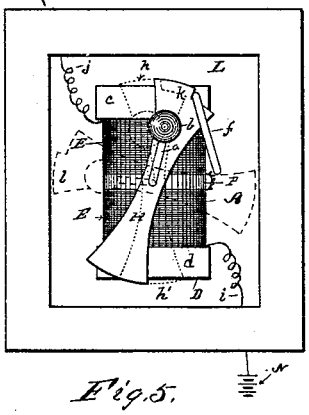


Fig. 4.

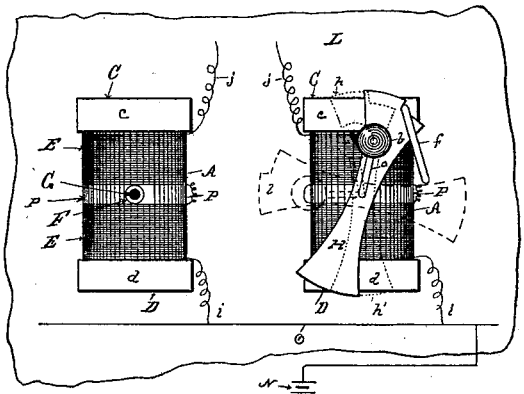


Fig. 5.

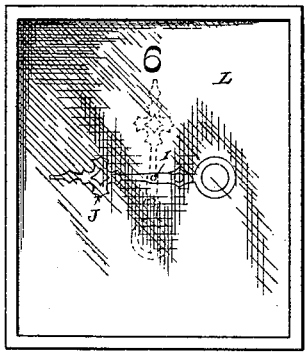
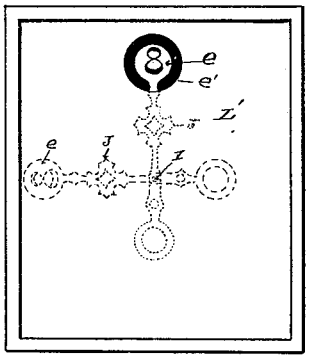


Fig. 6.



Witnesses.

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UNITED STATES PATENT OFFICE.

MONTRAVILLE M. WOOD, OF ERIE, PENNSYLVANIA.

ELECTRICAL ANNUNCIATOR.

SPECIFICATION forming part of Letters Patent No. 385,894, dated July 10, 1888.

Application filed March 1, 1888. Serial No. 265,829. (No model.)

To all whom it may concern:

Be it known that I, MONTRAVILLE M. WOOD, a citizen of the United States, residing at Erie, in the county of Erie and State of Pennsylvania, have invented certain new and useful Improvements in Electrical Annunciators; and I do hereby 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 accompanying drawings, and to the letters of reference marked thereon, forming part of this specification.

My invention consists in the improvements in "electrical annunciators" hereinafter set forth and explained, and illustrated in the acpanying drawings, in which—

Figure 1 is a perspective view of the mechanism of my improved annunciator with parts broken away. Fig. 2 is a vertical central section of same. Fig. 3 is a rear view in elevation of a single annunciator. Fig. 4 is a like view of the same arranged in a series. Fig. 5 is a front view in elevation showing the movement of the hand or pointer. Fig. 6 is a like view of the same, showing the pointer having figures thereon operating behind an opaque face having an opening therein at which the hand presents the figure.

Like letters refer to like parts in all the figures.

In the construction of my improved electrical annunciator shown, A is an electro-magnet of ordinary construction, having a core, B, and positive and negative poles C and D, the core B being wound with coils E of fine insulated wire, in the usual manner. Through the center of the core B, I make a small transverse hole, F, in which I preferably insert a section of small tube, G, of copper or other non-magnetic metal, which serves as a bearing for the axis of an oscillating armature, H. This armature H is made of soft iron and is preferably mounted on a wire, I, secured centrally thereto, of brass or other non-magnetic metal, which rotates freely in the tube or bearing G, and carries on its opposite end a hand or pointer, J. A small adjustable arm, *a*, having thereon a small weight, *b*, is also secured to the outer face of the armature H, as and for the purpose set forth. A stop, *f*, is also preferably secured to one of the poles of the magnet A, which serves to limit the movement of the armature H.

The face L is made in the usual manner, and the magnet A, with the mechanism hereinbefore described, is secured to the back side of the face L, the tube or bearing G projecting through a small opening in the face L, through which the wire I projects sufficiently to receive the hand or pointer J, which is then secured thereto, the parts being so adjusted that the armature H will oscillate in close proximity to the faces *c* and *d* of the poles C and D of the magnet A, but will not contact therewith. The weight *b* on the armature H is also adjusted to one side of the center of the upper end of the armature, so that when the armature H is in a position parallel with the poles of the magnet A, as shown by the dotted lines *h h'* in Figs. 3 and 4, its center of gravity is at one side of the center of the armature H, so that on its being released the upper end, *k*, thereof will fall over to one side until it comes into contact with the stop *f*, as shown by the dotted lines *l l* in Figs. 3 and 4, moving the hand J, attached to its axis I, a like distance over the face of the plate L.

The hand J, I make of any convenient shape, either, as shown in Fig. 5, adapted to point to a figure on the outside of the face L or with a disk, *e*, having the figure thereon, so that the movement of the hand J shows the figure through an opening in an opaque face, L', behind which the hand J moves.

In operation the armature H normally rests in the position shown in Figs. 1, 3, and 4, with the hand or pointer J in the position shown in Figs. 1, 5, and 6. When in this position, the upper end of the armature H, balanced as hereinbefore described, rests against the upper part of the stop *f*, and in that position it is so nearly balanced that an electric current sent through the coils E of the magnet A will move the armature on its axis I until it assumes a position parallel with the core B of the magnet, as shown by the dotted lines *h h'* in Figs. 3 and 4, where it remains until the current is broken, when it falls over to one side until it contacts with the lower end of the stop *f*, turning the pointer around from the position shown in full lines to that shown by the dotted lines in Figs. 5 and 6, where they

remain until restored to the position shown in Fig. 1.

I have not shown any device for raising the armature H from the position shown by dotted lines *l l* in Figs. 3 and 4 to its normal position against the stop *f*, that being no part of my invention, as any of the well-known devices now used in electrical annunciators for that purpose can be applied to and used with the mechanism hereinbefore described.

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

1. The combination, in an electrical annunciator, of a magnet consisting of a soft-iron core having coils wound thereon, with an armature pivoted on its center, so that both of its arms will oscillate in close proximity to the poles of said magnet, substantially as and for the purpose set forth.

2. The combination, in an electrical annunciator, of a magnet consisting of a soft-iron core and coils of wire, with a centrally-pivoted armature oscillating on an axis at right angles to and passing through an opening in the magnet-core between the coils in a plane parallel to and in close proximity to the poles of the magnet, stops for limiting the movement of the armature, and an indicator secured to the axis of the armature, substantially as and for the purpose set forth.

3. The combination, in an electrical annunciator, of a magnet, A, consisting of a soft-iron core, B, poles C and D, at right angles thereto and to the coils E, wound on the core B, with an oscillating armature, H, mounted on an axis, I, passing through said core B at right angles therewith, and a hand or pointer, J, secured to said axis, substantially as and for the purpose set forth.

4. The combination, in an electrical annunciator, of a magnet consisting of a straight-bar core, B, poles C D, and coils of wire E E, wound around the bar B, with an armature, H, having an adjustable weight, *b*, thereon, and centrally mounted on a wire, I, rotating in the tube G, passing through the core B between the coils E E and at right angles therewith, a hand or pointer, J, secured to said wire I, and a stop, *f*, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

MONTRAVILLE M. WOOD.

Witnesses:
HENRY A. CLARK,
WM. E. WILSON.