

(No Model.)

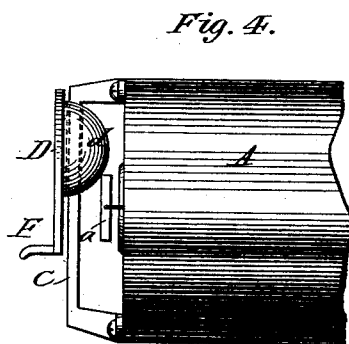
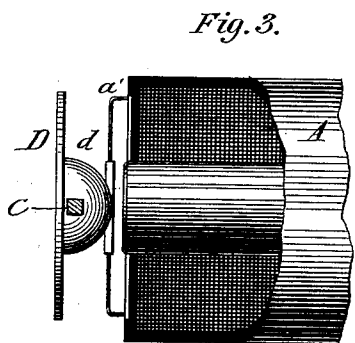
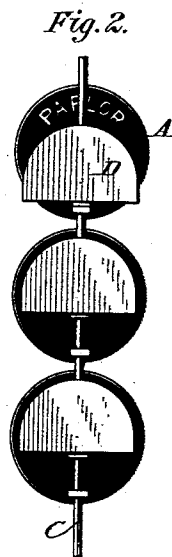
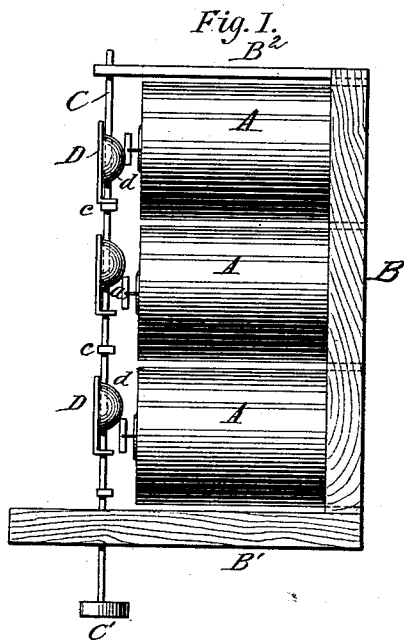
2 Sheets—Sheet 1.

J. C. KUNKLE.

ELECTRIC ANNUNCIATOR.

No. 360,448.

Patented Apr. 5, 1887.



WITNESSES:

Raymond Barnes.
George H. Stockbridge

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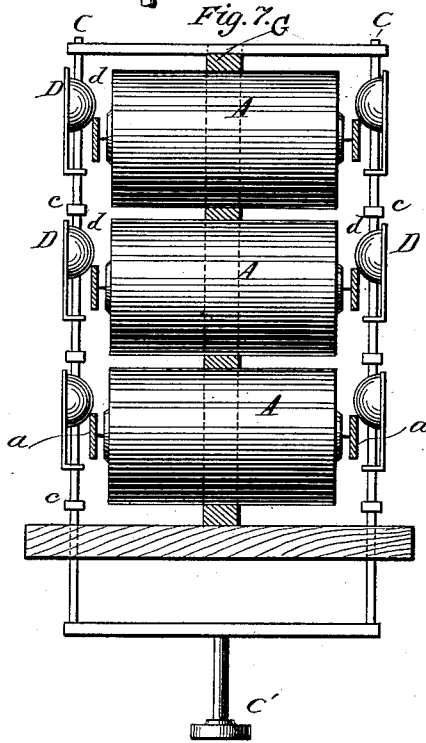
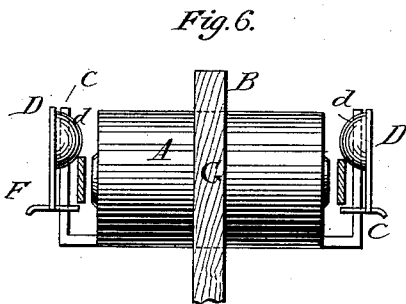
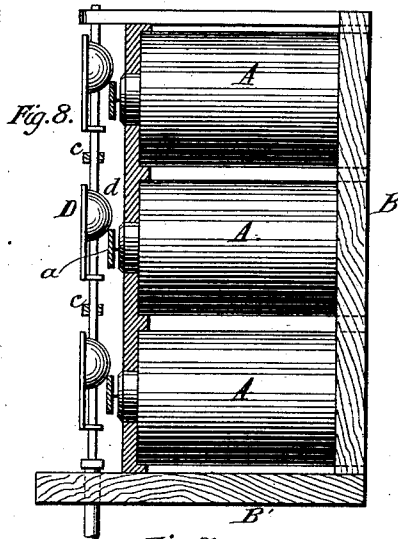
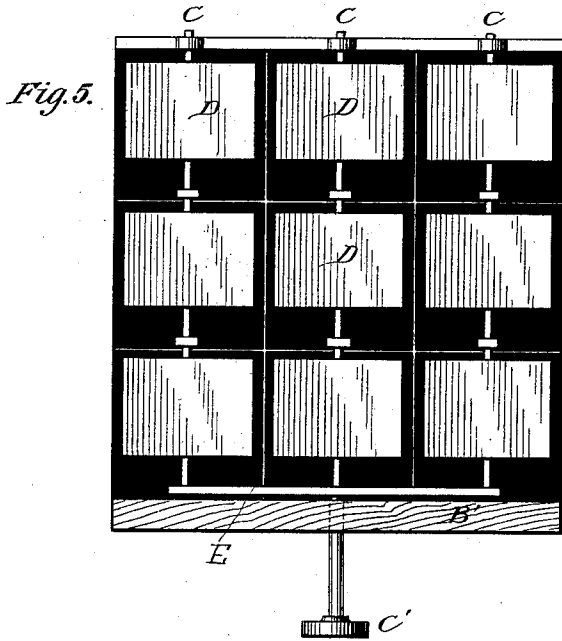
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UNITED STATES PATENT OFFICE.

JOHN C. KUNKLE, OF HOBOKEN, NEW JERSEY.

ELECTRIC ANNUNCIATOR.

SPECIFICATION forming part of Letters Patent No. 360,448, dated April 5, 1887.

Application filed November 19, 1886. Serial No. 219,340. (No model.)

To all whom it may concern:

Be it known that I, JOHN C. KUNKLE, a citizen of the United States, residing in Hoboken, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Electric Annunciators; and I do hereby declare that the following is a full, clear, and exact description of my invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The main objects of my invention are compactness of construction, simplicity of operation, and ease of manipulation in restoring the annunciator-drops. I accomplish these objects by making the face of each operating-magnet serve also as the annunciating-surface, and by various other means, which will be fully described hereinafter, and more particularly pointed out in the claims.

In the drawings which accompany and form a part of this specification, Figure 1 is a side elevation of an annunciator constructed in accordance with my invention. Fig. 2 is a front elevation of the same. Fig. 3 is a plan. Fig. 4 shows a single-magnet annunciator. Fig. 5 is a front elevation of a series of annunciators arranged in rows and tiers. Fig. 6 shows a modified form of single-magnet annunciator. Fig. 7 is a side elevation of an annunciator having my devices applied at both ends of the magnets, and Fig. 8 is a side elevation of the apparatus shown in Fig. 5.

Referring more especially to Figs. 1, 2, and 3, A A are electro-magnets, supported in a suitable frame, B. The latter consists of a back, to which the magnets are directly secured, and forward-projecting portions B' and B". B' constitutes a base for the frame, and B" a top. Both projections extend forward in front of the magnets, and there serve as supports or guides for a vertical rod, C, which is loosely mounted in them. The rod C is square in cross-section and passes through similarly-shaped holes in the balls or spheres *d d*. The said balls or spheres are cut away at one side, (which may be considered the front,) and have secured to them plates D D, which in the form illustrated in Figs. 1, 2, and 3 are substantially in the shape of half-disks. The plates are bent in at the bottom, and the bent portions are provided with holes, through which the

rod C passes. The plates, however, may be formed without the bent portions, if preferred, the ball having a sufficiently long bearing on the rod C to steady its action.

The plate and the ball combined constitute the drop of my annunciator. The rear rounded portion of each ball rests normally on the armature *a* of one of the magnets A. It is evident that whenever any armature is attracted the ball resting on it will be released and the drop will fall. Below each plate D and on the rod C is located a stop, *e*, which limits the fall of the drop.

The apparatus may be so constructed that the falling of the drop will bring a sign or legend into view, in which case the plates will be suitably inscribed and will be located behind a case having openings at the proper points; but I prefer to have the inscriptions indicating wants or localities, or whatever else may be desired, made on the face of the magnets, and to have the plates D normally standing in front of the said inscriptions. In this way I make the apparatus as compact as possible, since it is necessary to employ the magnets, whether they are utilized in the manner described or not.

As a simple way of economizing space still further, I support each magnet-armature on a wire, *a'*, which extends in front of the magnet below and has its end bent inward and thrust or riveted into the end of the magnet. This construction is best illustrated in Fig. 3. The wire serves not only as a support for the armature, but also as a spring to carry it back into place after the attraction of the magnet ceases.

The rod C is provided at the bottom with a knob or hand piece, C', by means of which the rod may be pushed upward when it is necessary to restore any of the magnet drops. The stops *e* act upon the plates D and push the drops back into place. The rear of the balls, or spheres being rounded, there will be operatively little friction tending to resist the upward motion of the drops, and for the same reason the drops will be easily released whenever the armatures are attracted.

In Fig. 5 I show a series of annunciators arranged over each other and side by side. Here I make the ends of the magnets square in shape, and thus am enabled to fit them closely together without any waste space. The

square ends of the magnets serve as annunciating-surfaces and the plates are made rectangular in shape. The shape of the plates may, however, be varied to suit different tastes and requirements. In connection with the apparatus shown in Fig. 5 I illustrate a form of restoring device which is adapted to operate the whole series of drops at once, or as many as may have fallen. The rod C in this instance is branched into three rods, secured, as shown, to a common bar or plate, E. Each of the branches carries stops *c c*; but the lowermost stops are dispensed with, being replaced by the bar E itself. It is obvious that the pushing up of the rod C will restore the fallen drops of any of the different annunciators.

In respect to the restoring device and the means by which the balls or drops are mounted in place, my present invention constitutes an improvement on the invention set forth by me in application No. 210,783, filed August 13, 1886, which application has been allowed by the Office. In the construction shown in that application the balls are mounted on a rigid rod and are also traversed by a movable rod carrying stops. Thus each ball, or all except those in the upper row, is perforated twice, and the apparatus is obviously more complex than the present, in which the restoring and supporting rods are united in a single rod.

Fig. 4 shows a form of annunciator designed to be used when only a single annunciating-magnet is employed. The rod C is secured to the end of the magnet, as shown, being bent over and secured by screws or other suitable means. The plate D has a small projection, F, at its lower end, by means of which it can be restored to position after release.

Fig. 6 shows a modified form of single-magnet annunciator. In this case the rod C is secured to the end of the magnet only at the bottom, instead of being secured as shown in Fig. 4. In connection with this magnet I also show a central support, G, and show the magnet provided with annunciating apparatus at both ends. This is designed to provide for the needs of a place where it might be desirable to have drops fall on opposite sides of an annunciator, so that persons located in different rooms or in different parts of the same room might all be able to read the signal when the drop is actuated. This arrangement might be

utilized in hotels where a large system of annunciators is employed, and in Fig. 7 I have shown a similar arrangement applied to an annunciator system as distinguished from a single annunciator-magnet. The view in Fig. 7 shows such a system looked at in side elevation.

Having now described my invention, what I claim is—

1. In an annunciator, an annunciator-drop having a front plate or disk and a rear bulging or rounded portion, through which a vertical rod passes, the rod having stops to catch the drops and being adapted to move upward for restoring the drops, substantially as set forth.

2. In an annunciator system, a series of electro-magnets arranged in close proximity to each other, the said magnets having annunciating-signals on their front ends, and being provided with drops which normally conceal the signals, whereby a compact series of annunciators is obtained, substantially as set forth.

3. In an annunciator system, a series of electro-magnets arranged in close proximity to each other, the said magnets having their front ends squared and provided with annunciating-signals, in combination with drops which normally conceal the said signals, the said drops being operatively connected with the armatures of the said magnets, substantially as set forth.

4. The combination, with a magnet and a vertical rod attached to one end thereof, of a drop operatively connected with the armature of the said magnet, the said drop being provided with means for lifting it into place, substantially as set forth.

5. The combination, with a series of centrally-supported electro-magnets, of armatures at both ends thereof, the said armatures being operatively connected with annunciator-drops, substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

JOHN C. KUNKLE.

Witnesses:

GEORGE H. STOCKBRIDGE,
CHARLES A. SAAL.