

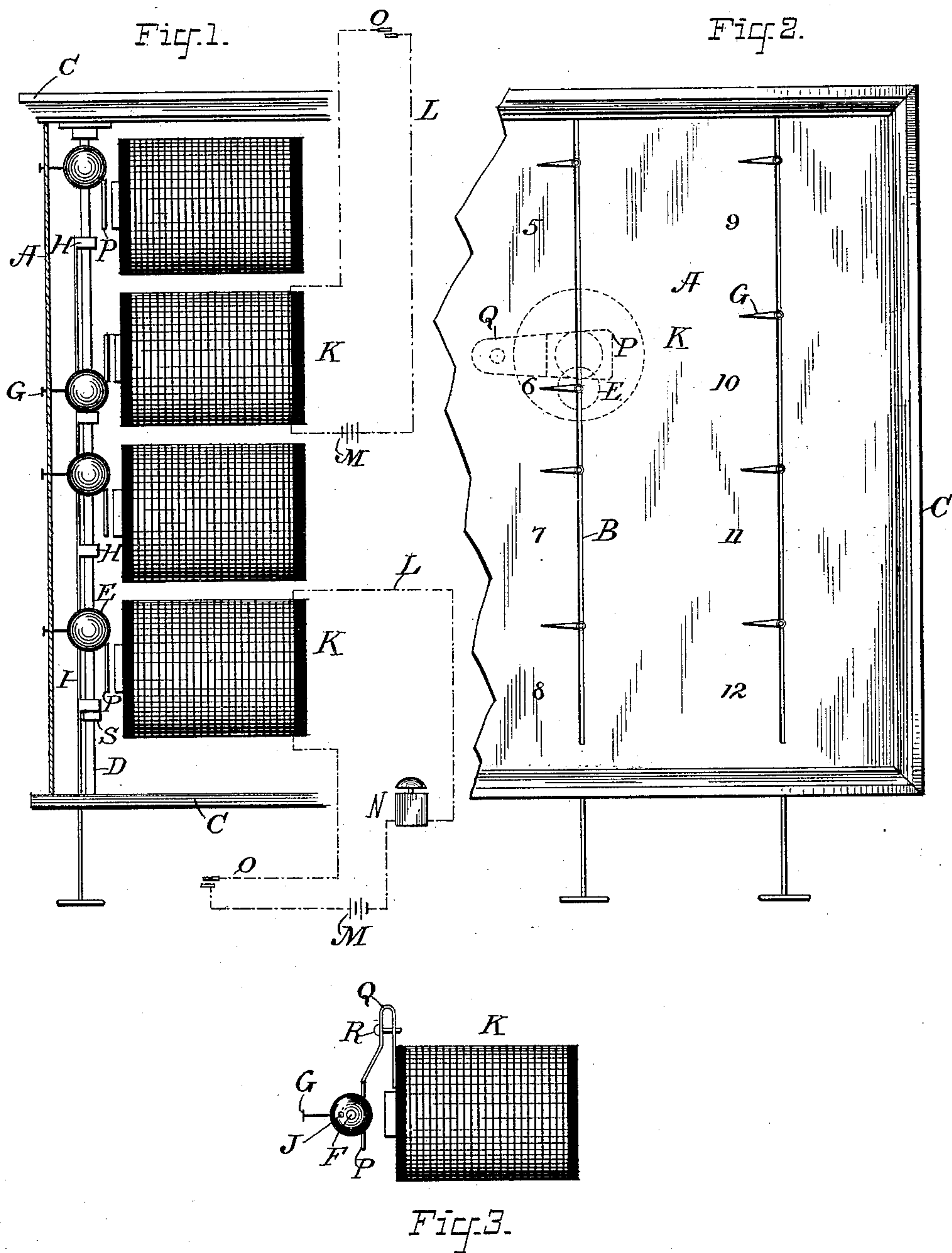
(No Model.)

2 Sheets—Sheet 1.

J. C. KUNKLE.
ELECTRIC ANNUNCIATOR.

No. 360,447.

Patented Apr. 5, 1887.



ATTEST:

J. A. Murdle

Edward P. Thompson

INVENTOR:

J. C. Kunkle

By

W. J. Johnston

Attorney

(No Model.)

2 Sheets—Sheet 2.

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Fig. 4.

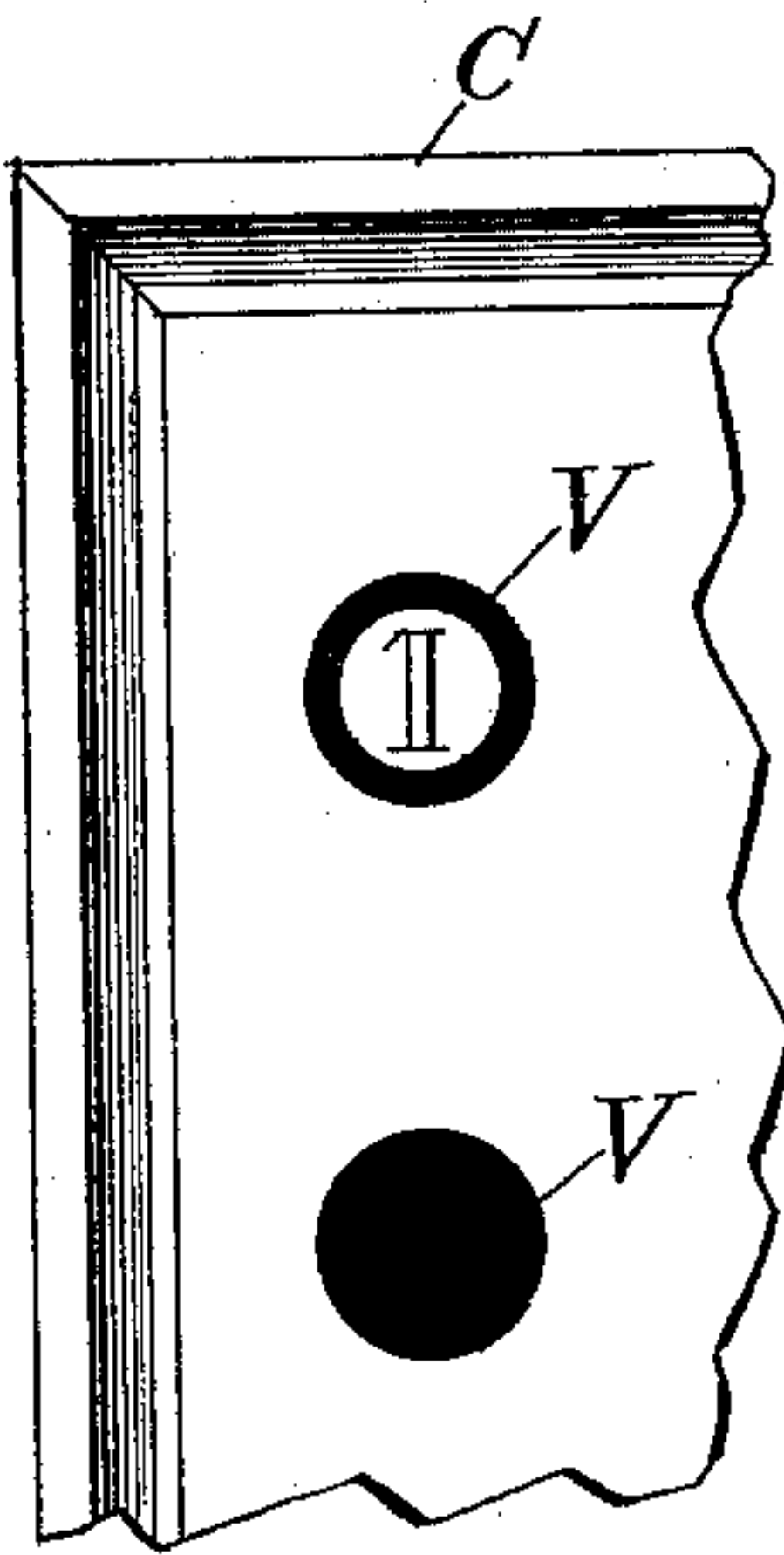
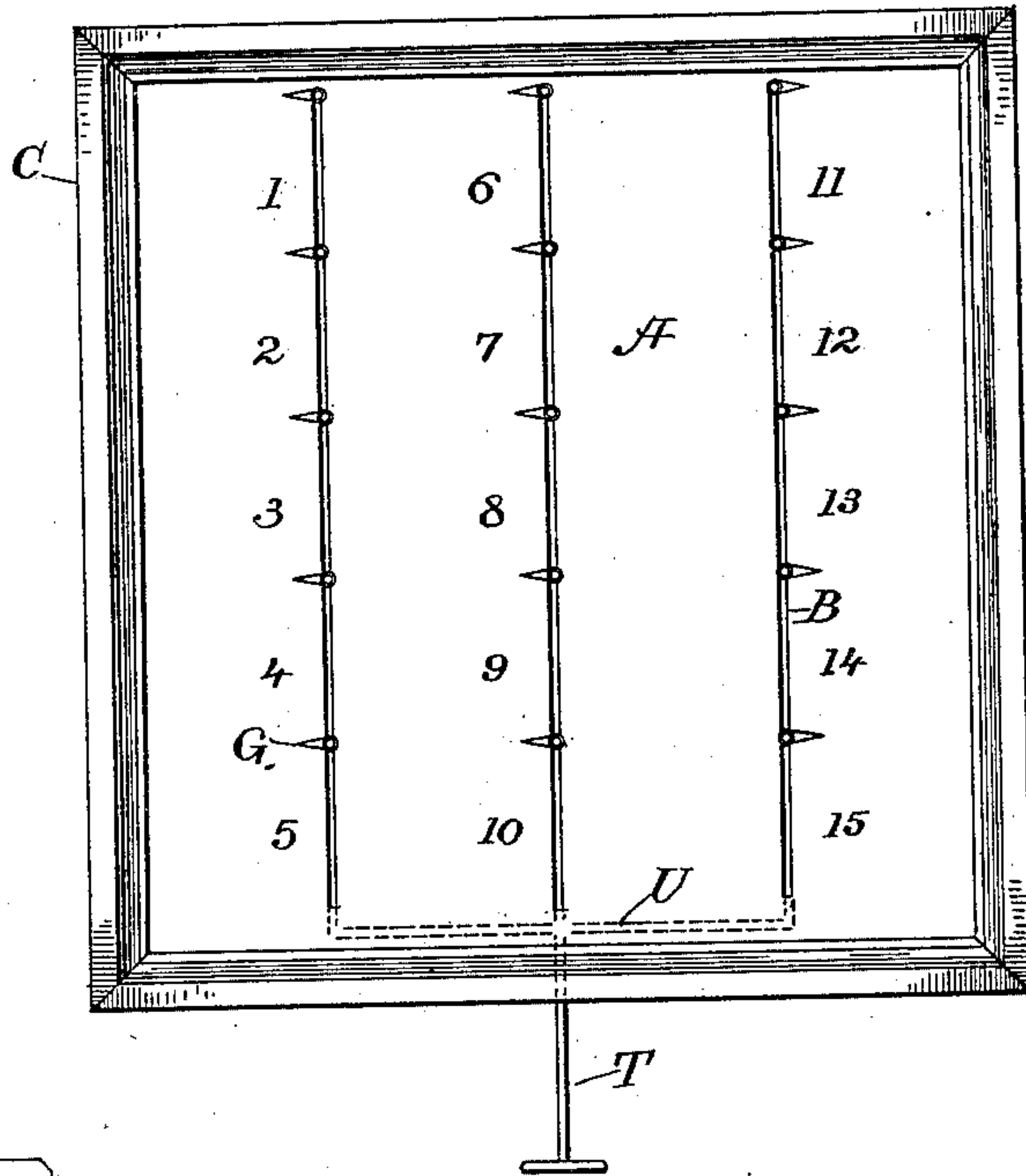


Fig. 5.

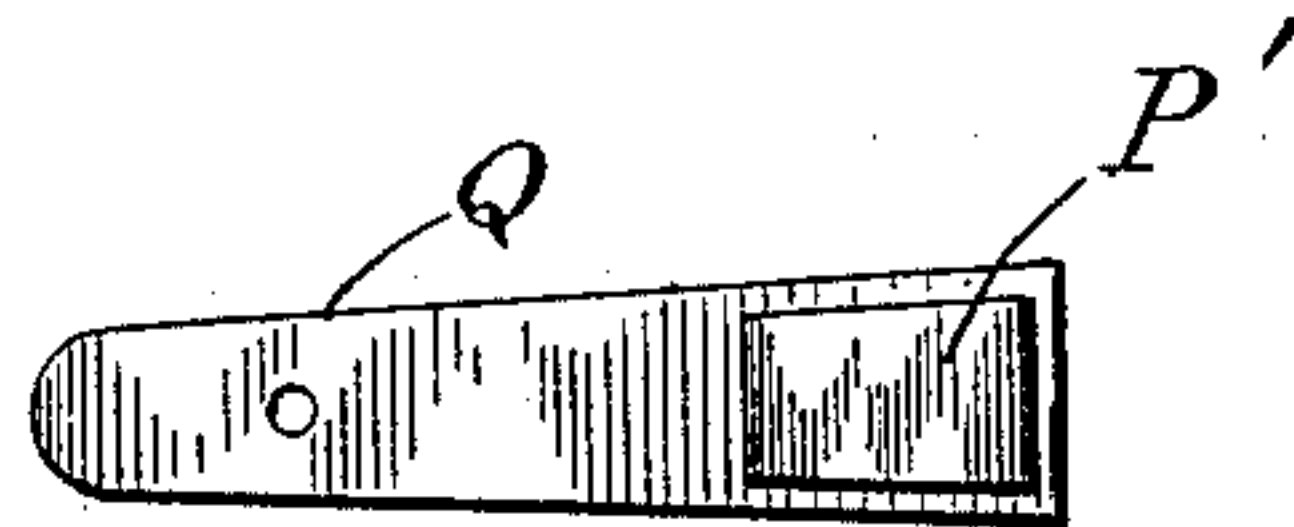
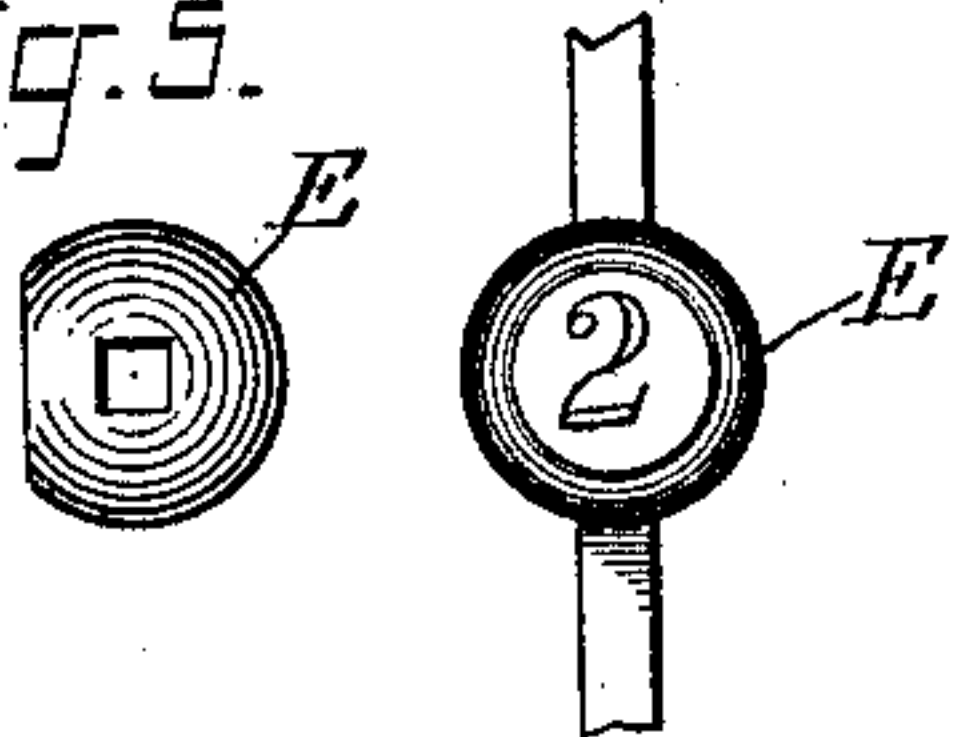


Fig. 8.

Fig. 5.

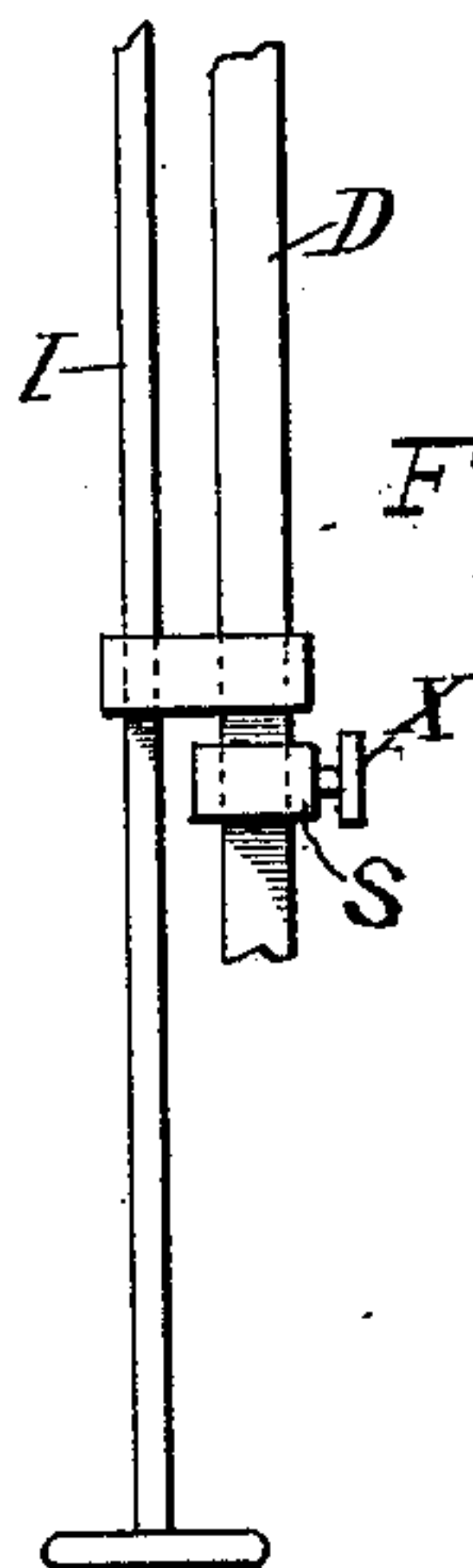
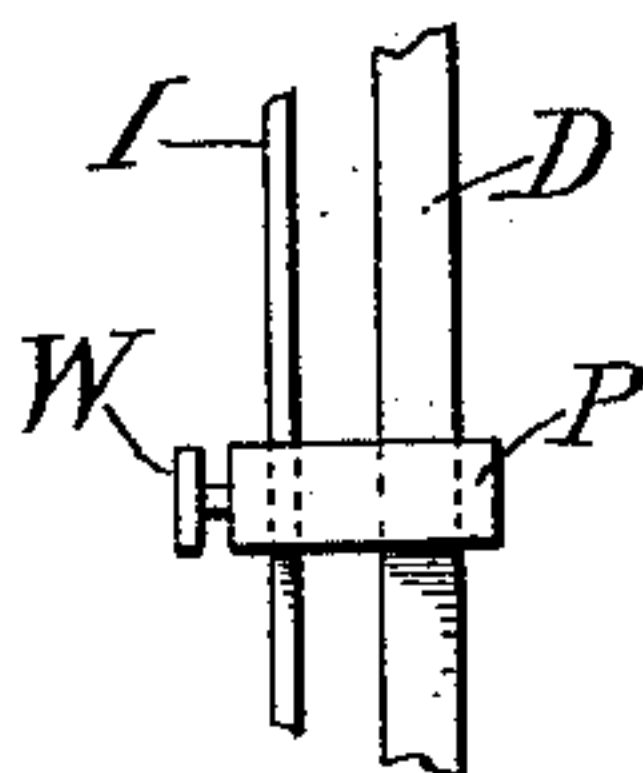


Fig. 7.

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UNITED STATES PATENT OFFICE.

JOHN C. KUNKLE, OF HOBOKEN, NEW JERSEY.

ELECTRIC ANNUNCIATOR.

SPECIFICATION forming part of Letters Patent No. 360,447, dated April 5, 1887.

Application filed August 13, 1886. Serial No. 210,783. (No model.)

To all whom it may concern:

Be it known that I, JOHN C. KUNKLE, a citizen of the United States, and a resident of Hoboken, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Electric Annunciators, of which the following is a complete, clear, and exact description, setting forth in general and in detail my invention.

10 The invention relates to improvements in electro-magnetic annunciators employed usually in hotels for the purpose of enabling guests to call the porters. It may also be employed in the art of telephony.

15 The object of the invention is to provide a new combination of elements adapted to form an annunciator of simplified construction, and one which shall be more universally sure of action or operation in the manner and for the purpose intended. The object, otherwise stated, is to provide means which shall be such an improvement upon those heretofore invented that the result accomplished will be so practical and superior that it will at once become 25 the popular annunciator and be common to all hotels.

The invention consists of the combination, construction, and arrangement of parts, as hereinafter described.

30 In order to illustrate the practical manner of carrying out the invention, drawings are hereunto annexed and described, in which similar letters of reference represent corresponding elements, and in which each part referred to is designated by a single letter.

35 Figure 1 is a side view, partly in section and parts being removed, showing some of the operating - magnets, electrical connections, drops or indicators, and other details of construction. Fig. 2 is a front view of the annunciator-board, a portion of the operating parts being dotted, the index-hands or pointers, and the means for setting or adjusting the device normally, the two above views being 40 at right angles to each other. Fig. 3 is a top view of one of the magnets, operating-armature, and drop. Fig. 4 is a full front view of the annunciator, showing also a modification. Fig. 5 shows details of a modified form of drop. 45 Fig. 6 shows a modification or a means of adjusting the distance of fall of any particular drop, and Fig. 7 shows a means of adjusting

the distance of fall of all drops on one central rod; and Fig. 8 shows a modification of the armature employed.

Referring to Figs. 1, 2, and 3, the annunciator consists of the combination of a face-board or front, A, provided with vertical slots B; a suitable frame, C, for the purpose of supporting said face-board; a stationary rod, D, fixed in said frame and located directly behind each slot in said face-board; balls E, having each a hole, F, through which passes said rod loosely; index-hands G, rigidly fixed to said balls and extending through said slots; figures—such as 5 6 7 8 9 10 11 12—or similar characters, each normally located below each index-hand; stops H, movable upon the rod D and rigidly secured to a movable rod, I, provided with a handle and passing through the hole J in ball F; electro-magnets K, located behind said balls or drops and a little below the same; electric circuits L, passing through said magnets, and including each an electric generator, such as an electric battery, M, an electric bell, N, (seen in the lower circuit,) and a circuit-closer, such as a push-button, O; and armatures P to said magnets, each having a piece of spring metal, Q, preferably brass—i. e., the armatures P are elastically supported.

The balls or drops E normally rest upon the armatures P, and the rod I is normally in its lower position, while the push-buttons O, as usual, are normally open. Each brass support Q has an adjusting-screw, R, by which the relative position of its corresponding drop and itself may be adjusted. The relative position of an armature and a ball is such that if the former is attracted to its magnet the ball will be released from resting upon the armature.

In Figs. 1 and 2 the second ball from the top is shown in an abnormal position. In this position it indicates that the person in room 6 of the building is calling.

The *modus operandi* is as follows: When the upper push-button O is closed, a current passes through the second magnet from the top and attracts its armature to itself, so that the said armature no longer supports the drop, which falls until it reaches the stop directly beneath it. The corresponding index-hand consequently points to the figure 6. The porter becomes aware of the call by hearing a bell ring (a bell being in circuit with each magnet,

for illustration it being shown in the drawing in circuit with the lowest magnet) and looking at the figure opposite the fallen index-hand. He then pushes up the handle directly on the left
 5 in Fig. 2, and therefore the ball or drop is pushed past and above its armature-support and rests on the same, while the rod I is allowed to fall again to its normal position—i. e., until the part H comes in contact with the
 10 part S, located upon the rod D.

In Fig. 4 it may be noticed that the several rods I are connected to a common handle, T, by means of the cross-piece U, (shown dotted,) so that any number of fallen drops may be set
 15 in their normal positions by one upward movement of the said handle.

In Fig. 5 the index-hand G is replaced by a flattened surface upon the front side of the ball, while the said surface has upon it a characteristic figure—such as large 1 or 2—and the
 20 several small figures shown in Figs. 2 and 4 upon the face-board A are omitted, as well as the slots B, so that when a ball falls it shows its number through one of the holes V, which
 25 are substituted for the said slots.

In Fig. 6 is shown how the stops H are made adjustable. One is shown. It is movable upon both the rod D and rod I, and it is provided with a clamping-screw, W, by which it may
 30 be fixed at any suitable point upon the rod I. The object of having the stops H adjustable is that the distance of the fall of any one drop may be predetermined accurately.

In Fig. 7 is shown a similar adjusting-rest or limiting-stop for the movement of the rod
 35 I, so that all the balls in any one vertical line may be governed as to the distance of the fall. The stop S is provided with a clamping-screw X.

40 In Fig. 8 the armature P' is shown mounted upon one surface of the elastic brass support Q, instead of forming an extension thereof, as shown in Fig. 3.

It should be understood that I do not confine myself to the exact construction hereinbefore set forth, but that I am entitled to all the devices whose nature conforms in principle to that of the particular means set forth.

Having now stated the object of the said invention, having described its practical realization by reference to the accompanying drawings, and having particularly ascertained the manner in which the same operates to accomplish the said object, what I claim is—

55 1. In an annunciator, the combination of an electric circuit, a bell, battery, push-button, and magnet in said circuit, an armature to said magnet, a fixed rod adjacent to said armature,

said armature being elastically supported, a ball or drop through which passes said fixed
 60 rod, a second rod having a projection fixed to itself, the said fixed rod passing loosely through said projection and the latter being located below said drop, an index-hand or pointer secured to said drop, and a stop fixed upon the
 65 fixed rod below said projection, the said drop normally resting upon said armature, substantially as and for the purpose described.

2. In an annunciator, the combination of an electric circuit, a bell, battery, push-button,
 70 and magnet in said circuit, an armature to said magnet, an adjustable elastic support for said armature, a fixed rod adjacent to said armature, a ball or drop through which passes loosely
 75 said rod, the said ball normally resting upon the edge of said armature, an index-hand or pointer fixed to said drop, a face-board having a slot through which passes said pointer, a second rod movable upon the first and passing
 80 loosely through said drop, a suitable handle for said movable rod, and a stop for said movable rod, located and fixed upon said first or fixed rod, substantially as and for the purpose set forth.

3. In an annunciator, the combination of
 85 electric circuits, a bell, battery, push-button, and magnet in each circuit, an adjustable elastic support for each armature of said magnets, said magnets being horizontal as to their axes,
 90 and the armatures being flat and having their flat sides vertical, drops in the form of spheres normally resting upon the upper edges of said
 95 armatures, a stationary rod passing loosely through said balls, and having movable stops, one located below each ball, for the purpose already mentioned, a vertical second rod connected to all of said stops and passing through
 100 said drops, indicators fixed to said drops, a face-board provided with numerals or similar characters, one below each pointer which projects through a slot in said face-board, and a stop for said first-mentioned stops, located upon
 105 the stationary rod and located below one of the said first stops, the first-mentioned stops being adjustable upon the movable rod and the last-mentioned stop being adjustable upon the stationary rod, as and for the purpose described.

In testimony whereof I have hereunto signed my name and affixed my seal, in the presence of two subscribing witnesses, this 2d day of
 110 July, A. D. 1886.

JOHN C. KUNKLE. [L. S.]

Witnesses:

EDWARD P. THOMPSON,
 SAMUEL A. BESSON.