No. 883,539. PATENTED MAR. 31, 1908.

S. J. HEINRICH.

ANNUNCIATOR.

APPLICATION FILED MAR. 14, 1906. RENEWED FEB. 15, 1908.

2 SHEETS—SHEET 1.

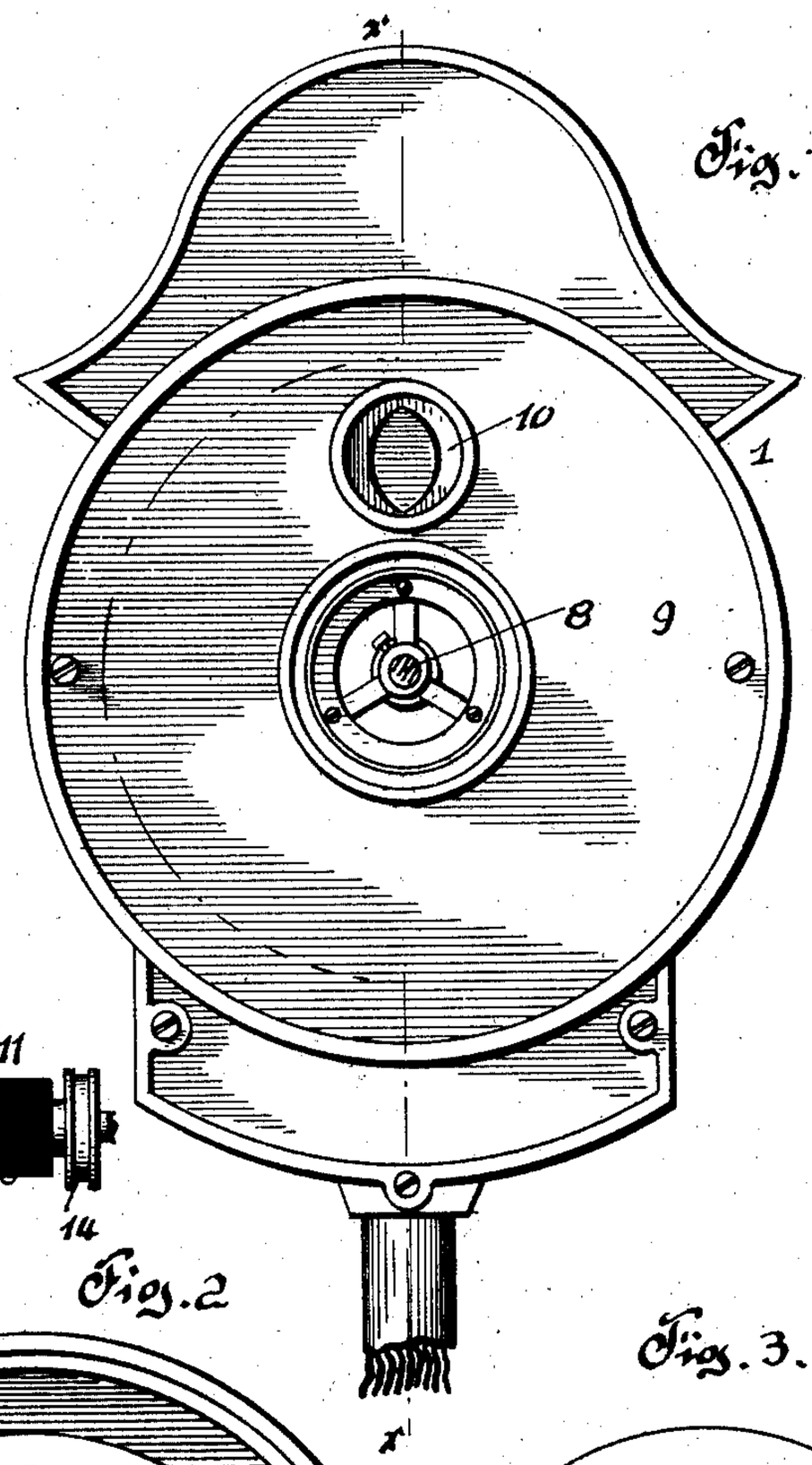


Fig. 1.

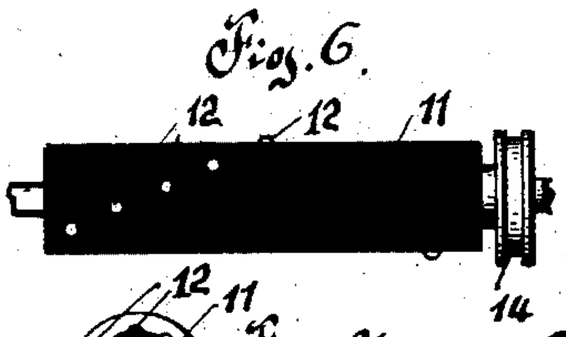


Fig. 6.

Fig. 7

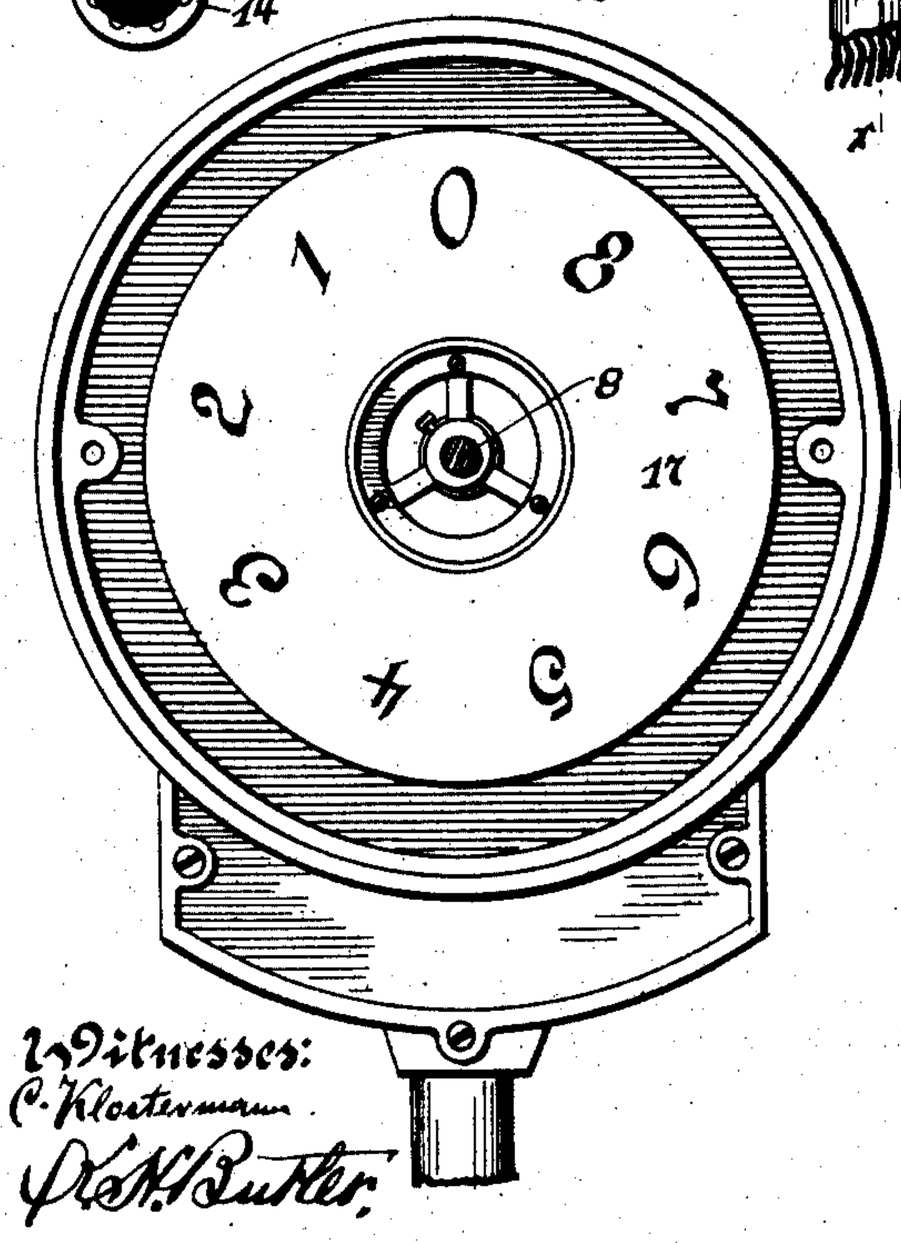


Fig. 2.

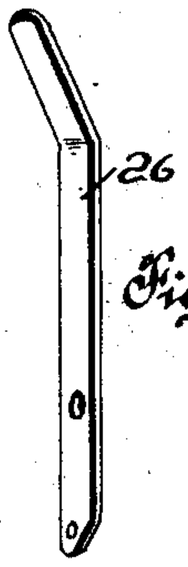


Fig. 5.

Fig. 3.

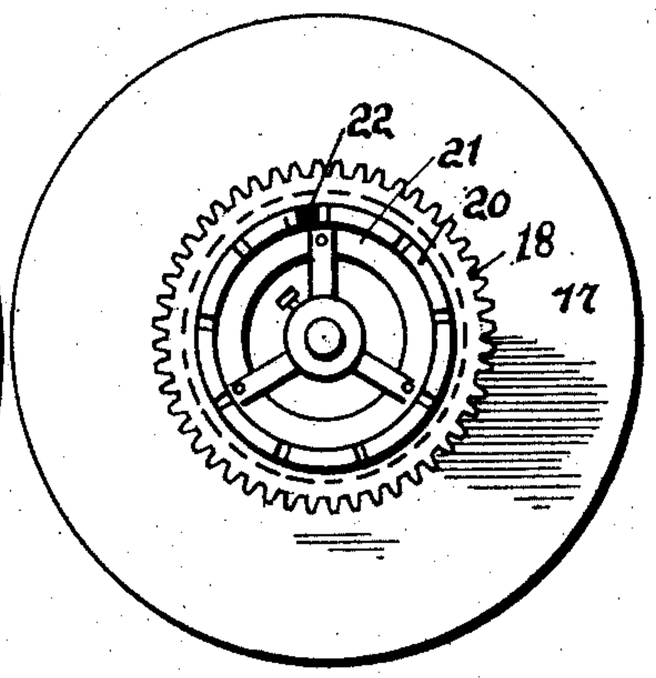
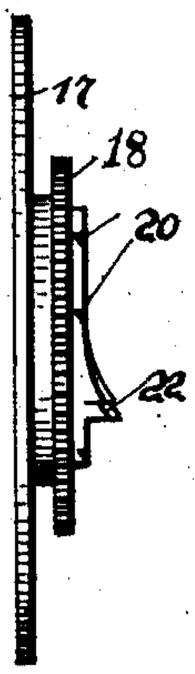


Fig. 4.



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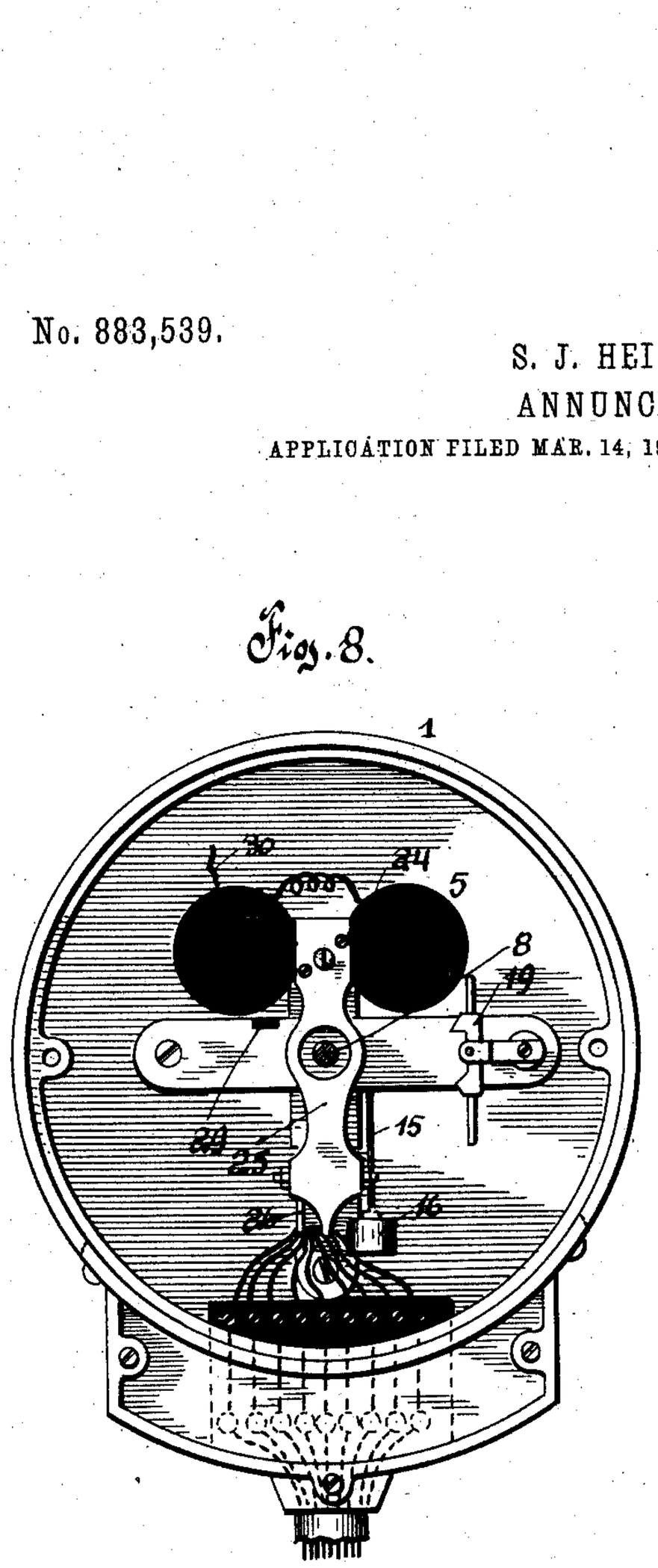
2 SHEETS—SHEET 2.

Fig. 8.



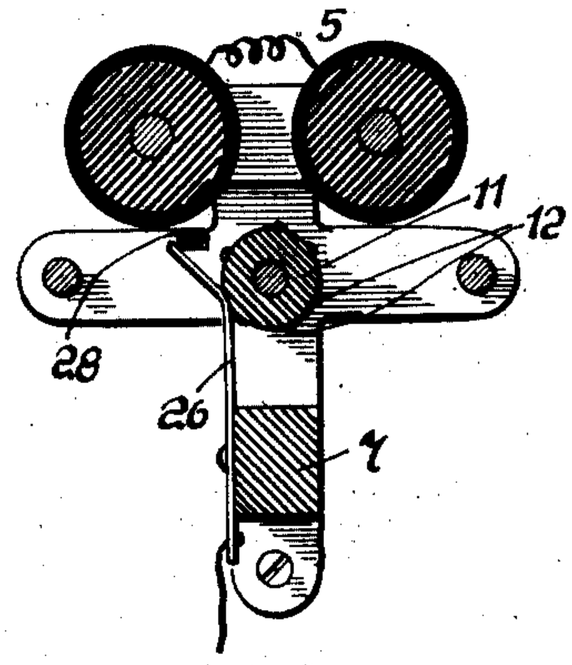
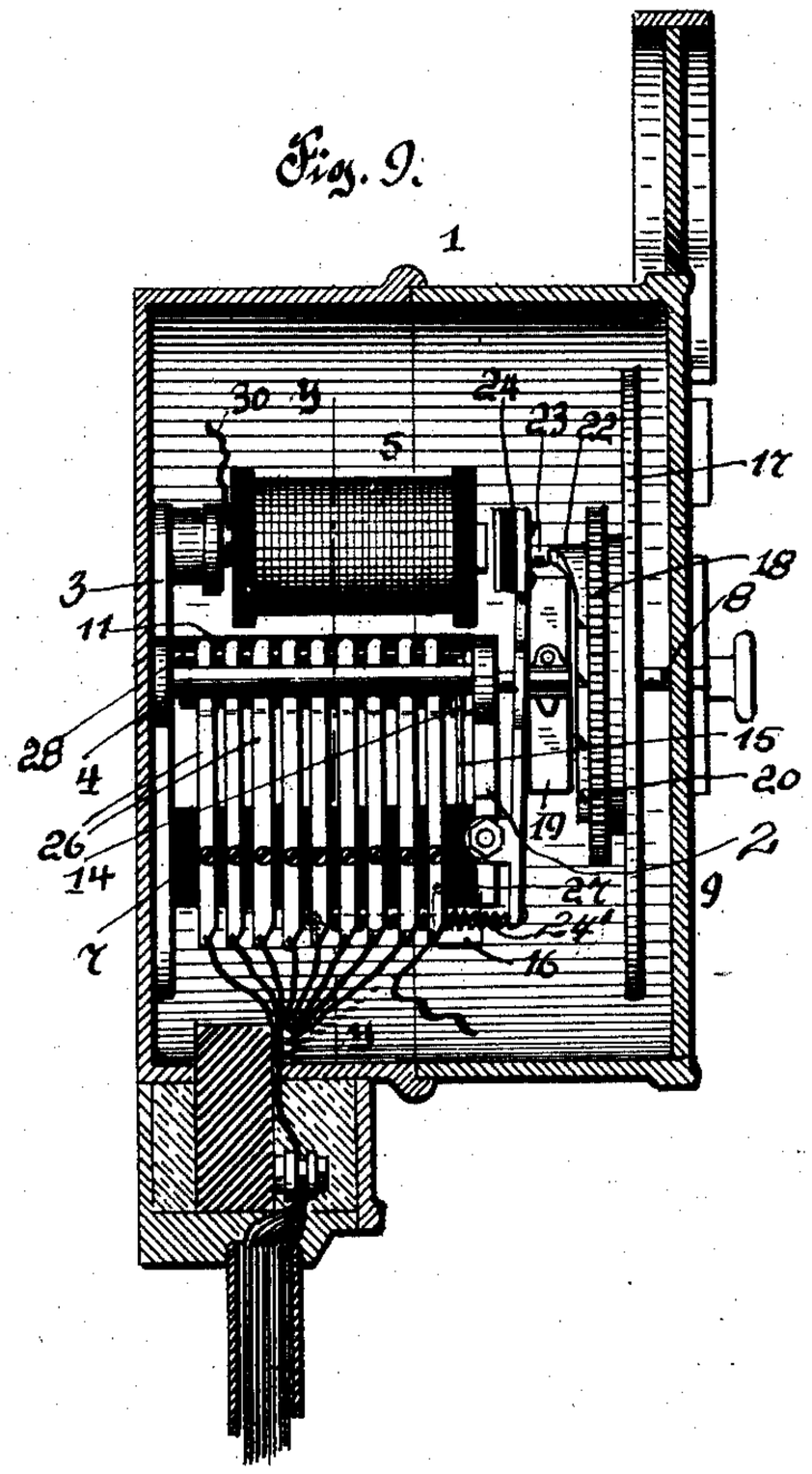


Fig. 10

Fig. 9.



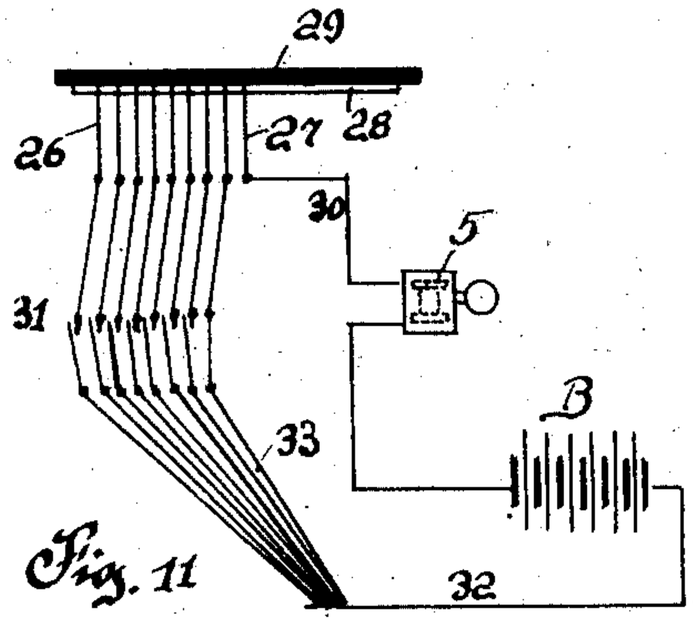


Fig. 11

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UNITED STATES PATENT OFFICE.

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ANNUNCIATOR.

No. 883,539. Specification of Letters Patent. Patented March 31, 1908.

Application filed March 14, 1906, Serial No. 306,020. Renewed February 15, 1908. Serial No. 416,109.

To all whom it may concern:

Be it known that I, STEPHEN J. HEINRICH, citizen of the United States of America, residing at Bellevue, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Anunciators, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to certain new and useful improvements in annunciators, and has for its main object to provide an annunciator in which a single electro magnet is employed for operating the annunciator.

The annunciator shown in the present illustration of my invention is of a type particularly adapted for use in connection with fire alarms, though the invention is by no means limited or confined to such use, as it is equally adapted for use in hotels, offices, private dwellings or in any sphere where such devices are employed.

The invention resides in the particular construction, arrangement and combination of parts as will be hereinafter more specifically described and then particularly specified in the claims, and in describing the invention in detail, reference will be had to the accompanying drawings forming a part of this application, and wherein like numerals of reference indicate like parts throughout the several views, in which:—

Figure 1 is a front elevation of an annunciator constructed in accordance with my invention, Fig. 2 is a similar view with the front plate removed showing the dial, Fig. 3 is a rear elevation of the dial and the stop-ratchet carried thereby, Fig. 4 is a side elevation of the same, Fig. 5 is a detached detail perspective view of one of the contact fingers, Fig. 6 is a detached detail side view of the controller-drum, Fig. 7 is an end view of the same, Fig. 8 is a front view of the annunciator with the front plate and dial plate removed, Fig. 9 is a central vertical sectional view of the annunciator on the line *x*—*x* of Fig. 1, Fig. 10 is a cross sectional view taken on the line *y*—*y* of Fig. 9, Fig. 11 is a diagramatical view showing the manner in which the circuits are connected with the annunciator.

I have shown the annunciator mechanism suitably supported within and inclosed by a casing 1 which may be of any desired form, shown in the present illustration as formed in two parts or sections suitably joined together.

The mechanism of the annunciator is supported in the case by a front frame-plate 2 and a rear frame-plate 3 the latter being suitably connected to the case, and the plate 2 connected rigidly to the plate 3 as by tie bolts 4. From the upper end of the rear plate 3 the magnet 5, is supported in a suitable manner, and held securely between the lower portions of these frame-plates is an insulation bar 7 on which the contact fingers are mounted. A shaft 8 is journaled in the frame-plates and extends through the face plate 9 of the case, this face plate being detachably held to the case, and being provided with a sight-opening 10 through which the dial numbers or other designations are displayed. The shaft 8 has fixed thereon to rotate therewith, a controller drum which comprises a cylindrical insulation body 11, provided with contact-pins 12 spirally arranged thereon, and so placed in their spiral arrangement as to conform to notches provided in the stop-ratchet as will more presently appear. On the shaft 8, adjacent to one end of the controller drum, is a pulley 14 to which is attached a cable or equivalent device 15 carrying a counter-weight 16.

The dial 17 is provided with the usual indicating numbers or other data, and this dial is fixed to a stop-ratchet 18 keyed or otherwise rigidly fixed on shaft 8. This stop ratchet 18 is of a particular and peculiar construction, being provided peripherally with the usual teeth to eagage the usual pawl mechanism 19. On its inner face the ratchet wheel is provided with circumferentially arranged notches 20, as many of these notches being provided as there are numbers or other indicating data on the dial. These notches in the present practice, I have generally formed in a circumferential flange 21 formed on the inner face of the wheel, and this flange terminates at one end in a notched-cam 22 with which a pin 23 carried by the armature 24 engages and holds the mechanism in the normal position.

The armature 24 is carried on a pivoted armature lever 25 hung on the front plate 2 of the frame, as by lugs as shown in Figs. 8 and 9 of the drawings. I have shown an annunciator having eight numerals on the dial, and adapted to represent, for instance, eight floors of a building. Consequently, eight

contact fingers 26 must be employed, one for the circuit of each floor, and a supplemental contact finger 27 through the medium of which the circuit is broken, the magnet de-energized and the armature released to permit stop-pin 23 to engage in one of the notches 20 and arrest the movement of the actuating train and dial. The fingers 26, and the supplemental finger 27 are mounted on the insulation bar 7 and have their upper portions bent (as shown in detail in Fig. 5) the said fingers at their point of bend resting on the controller drum (see Fig. 10) and near their upper ends contacting normally with a contact bar 28 carried on an insulation bar 29 fastened in the frame of the mechanism. The wires forming the several floor circuits are led into the case and connected one to each of the fingers 26 while the supplemental contact finger 27 is connected by wire 30 with one of the terminals of the magnet and the other terminal connected by a wire to the operating switch, push-button or the like. If the device is used in connection with a fire alarm system then the magnet is in circuit with the thermostat or other break device in the circuit.

To more clearly illustrate the operation, I have shown diagrammatically in Fig. 11, circuit leading from a battery to the several contact fingers, conventionally showing the contact-bar 28, contact fingers 26, finger 27, and the annunciator. In this view is also shown conventionally, a series of switches 31, one for each contact finger 26. We will assume now that the switch 31 for the first floor circuit is closed as shown, and the remaining switches are all open. The closing of this switch in the first floor circuit, completes a circuit from battery B over wires 32, 32, through switch 31 to finger number one of the series of fingers 26 and over contact bar 28 to supplemental finger 27 and over wire 30 to the electro-magnet, which being energized, attracts armature 24 thereto, thus withdrawing stop-pin 23 out of engagement with notched cam 22, and the counter weight 16 sets the actuating train in motion. The shaft 8 in revolving carries with it the controller drum, and when the pin 12 in this drum corresponding to the first finger 26 engages said finger, it forces the finger away from bar 28, thus momentarily breaking the circuit, and thereby deënergizing the electro-magnet and releasing the armature so that the pin 23 engages flange 21, on which it rides until the pin 23 engages in the first notch in the flange, and arrests the actuating train. The rotation of shaft 8 and ratchet carries the dial therewith and causes the numeral 1 to be displayed through the sight opening, indicating that the signal was sent from the first floor of the building.

It will be observed by reference to Fig. 9 of the drawings, that the armature 24 is held normally out of its release position, by means of a spring 24′, the notched cam 22 holding said armature close to the cores of the magnets of the magnet, and within range of the field of said magnet so that the armature is instantly attracted upon the energizing of the magnet. When the magnet is deënergized however, as heretofore described, the pin 23 passes the notched cam and when it engages in one of the notches the armature is in full release position and substantially out of the range of the field of the magnet being pulled out of range by a spring 24′. When the dial is reset, and the actuating train rewound, which may be accomplished by a knob on the end of shaft 8, the engagement of the notched-cam with the pin 28 forces the armature again into position within the range of the magnet so as to be quickly attracted thereby when the magnet is energized.

What I claim and desire to secure by Letters Patent, is:—

1. In an annunciator, an actuating shaft and a dial operated thereby, a stationary contact-bar, a plurality of contact-fingers and a supplemental contact-finger all normally engaging said contact-bar, a single magnet in circuit with the supplemental contact-finger, and a controller-drum mounted on the same shaft as the dial and having contact pins for each contact finger.

2. In an annunciator, an actuating train including a shaft, and a dial operated thereby, a weight, a cord connected to the weight and wound around the shaft, a stop-ratchet carried by the dial, a magnet, an armature having a stop-pin for engagement with the ratchet, a single stationary contact-bar, a plurality of contact-fingers, and a supplemental contact-finger, and a controller-drum having independent contact-pins for each contact-finger.

3. In an annunciator, a rotary shaft, means for rotating said shaft in one direction, a dial carried by said shaft, a ratchet wheel carried by the shaft, a notched-cam carried by said wheel, an electro-magnet, an armature, adapted when the magnet is deenergized to engage the notches in said cam, said cam being so constructed and arranged, that when the armature is in engagement with any one of the notches, it will be out of range of operation by the magnet, and said cam adapted at one position to hold the armature within the range of operation by the magnet.

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

STEPHEN J. HEINRICH.

Witnesses:

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K. H. BUTLER.