(No Model.) 2 Sheets—Sheet 1.

W. E. GILL & R. SEGERDAHL.

ELECTRICAL NEEDLE ANNUNCIATOR.

No. 383,725. Patented May 29, 1888.

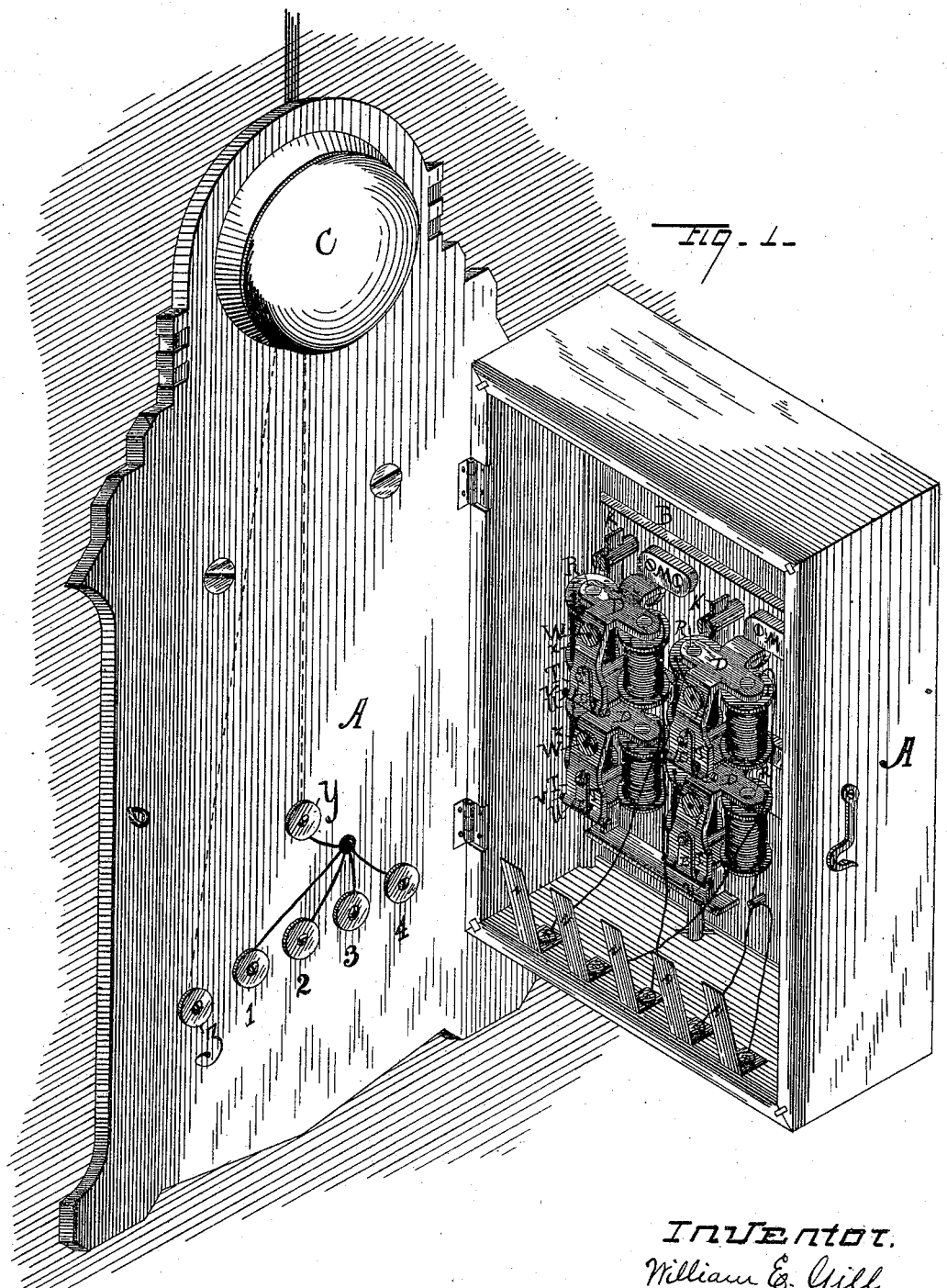

Fig. 1.

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(No Model.) 2 Sheets—Sheet 2.

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FIG. 4.

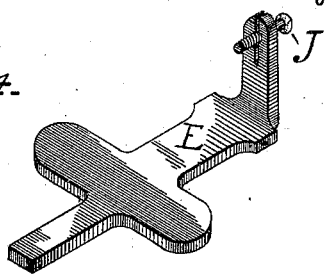


FIG. 2.

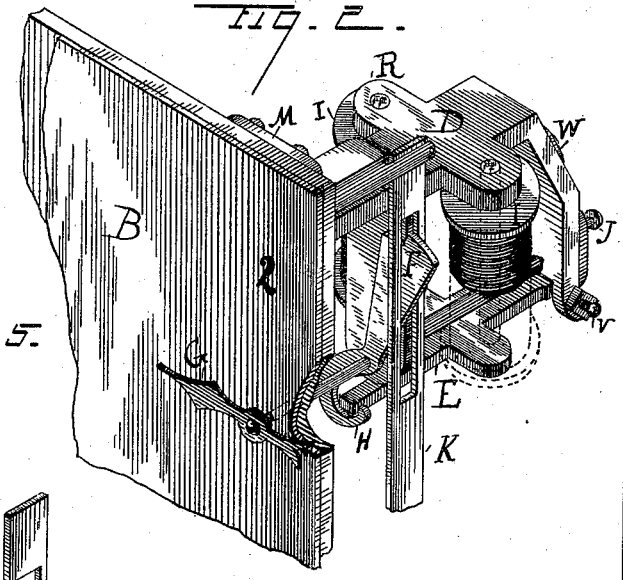


FIG. 5.

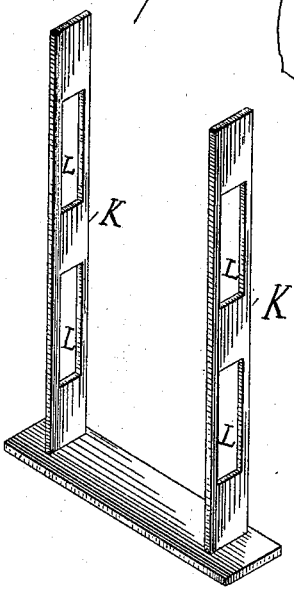
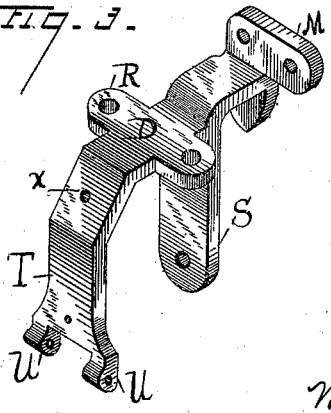


FIG. 3.



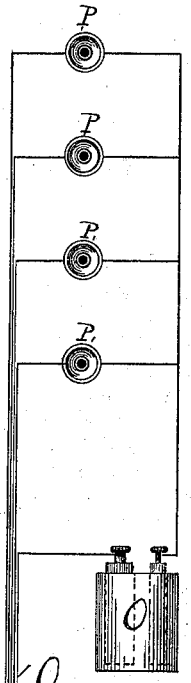
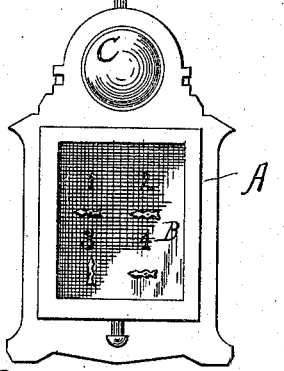


FIG. 6.



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UNITED STATES PATENT OFFICE.

WILLIAM E. GILL AND RUDOLPH SEGERDAHL, OF CHICAGO, ILLINOIS, ASSIGNORS TO JOHN F. WOLLENSAK, OF SAME PLACE.

ELECTRICAL NEEDLE ANNUNCIATOR.

SPECIFICATION forming part of Letters Patent No. 383,725, dated May 29, 1888.

Application filed November 14, 1885. Serial No. 182,782. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM E. GILL, a citizen of the United States, and RUDOLPH SEGERDAHL, a subject of the King of Sweden, both residing at Chicago, Illinois, have invented certain new and useful Improvements in Electrical Needle Annunciators, of which the following is a specification.

The object of our invention is to make a movement for electrical needle annunciators (and it is to needle annunciators that our invention specially relates) in which all of the parts may be assembled or put together on the bench and kept in stock ready for use as the same may be required; and our invention consists in the features and details of construction hereinafter described and claimed.

In the drawings, Figure 1 is a perspective view of an annunciator-case with four annunciator-movements in place, the case being open to exhibit them. Fig. 2 is a perspective view of the front portion of the face-plate of the annunciator-case, showing one annunciator-movement attached thereto. Fig. 3 shows the frame which we cast for assembling the parts of the annunciator-movement thereon. Fig. 4 is a detail view of the armature of the annunciator-movement. Fig. 5 is a detail view of the lifting-bar or restoring mechanism by which the needles are brought back to their normal positions; and Fig. 6 is a front elevation of the annunciator-case, the battery, and the call-buttons, showing the arrangement and connection of the wires with the corresponding needles in the annunciator-case.

In the drawings, A is the annunciator-case; B, the face-plate of the annunciator case.

C is the bell.

D is the assembling-frame of the annunciator-movements.

E is the armature.

F is the weighted lever, which turns the shaft to which the needle is attached when the armature is raised to release the same.

G is the needle.

H is the hooked end of the weighted lever where it engages with the armature.

I is the electro-magnet by which the armature is raised and the needle permitted to turn when the electric current passes from the battery through the circuit.

J is a screw to adjust the fall of the armature.

K is the restoring-bar; L, slots in the same; M, the end of the assembling-frame, by which it is attached to the face-plate of the annunciator-case; N, springs that lie against the connecting-screws 1 2 3, &c., in the back of the annunciator-case, to which the wires from the call-buttons are attached, and by which their connection with the annunciator-movements is effected.

O is the battery.

P P are the call-buttons.

Q are wires.

R are ears or projections on the assembling-frame, to which the electro-magnets are attached.

S is a downwardly-projecting branch of the assembling-frame, to support the front end of the needle-shaft.

T is another downwardly-projecting branch of the assembling-frame, in which the rear end of the needle-shaft is supported.

U are lugs on the downwardly-projecting piece T, between which the pivoted end of the armature is placed.

V in Fig. 2 are the screws by which such pivoting is accomplished.

W is a screw on the assembling-frame, to which one end of the wire of the electro-magnet is attached.

X is the hole in the assembling-frame for such connecting-screw.

Y is a screw in the back frame of the annunciator-case, forming the terminal of one end of the wire from the battery; and Z, another receiving-screw.

In making our invention we cast a frame on which the various parts of the annunciator-movement are to be assembled. This frame is preferably cast in one piece and in the shape shown in Figs. 2 and 3 of the drawings. At one end, M, holes are provided for screwing or otherwise properly attaching the frame of the annunciator-movement to the face-plate of the annunciator-case. The attachment is shown in Figs. 1 and 2. A short distance from this attaching end of the assembling-frame ears or projections R are provided with holes, in which one end of the electro-magnet may be riveted or fastened to sustain the same in

its proper position. These projections may extend out on both sides of the assembling-frame, or at one side only, as may be desired, or may even be dispensed with where only one electro-magnet is used, as in such case it can be riveted in the body or main portion of the assembling-frame. The electro-magnet is shown in position in Figs. 1 and 2. On either side of the electro-magnet we prefer to have branches depending from the main portion of the assembling-frame, (designated by the letters S and T in Fig. 3,) for the purpose hereinafter described. The branch T terminates preferably in one or more ears or lugs near the bottom of each of these depending branches, in which the holes are provided for supporting the needle-shaft, as shown in Fig. 3. The needle-shaft, when in position and journaled in the holes in the depending branches S and T, passes between the two electro-magnets, where two are used, as shown in the drawings. Where only one is used, as may be the case, it will of course pass at one side or in front of the same. Between the lugs or ears U on the branch T of the assembling-frame, where two ears or lugs are employed, the pivoted end of the armature is placed and held in position by screws V, preferably rounded or pointed at their ends, so that the armature may freely turn thereon. Where the branch T terminates in a single piece or end, the armature will of course be pivoted on it, while where two are used it should be pivoted between them. The armature, when in its normal position, lies a short distance below the lower ends of the electro-magnets. On the needle shaft a weighted lever, F, is attached. The lower end of this weighted lever terminates in a hook, H, that engages with the free end of the armature when the armature is not affected or raised by the electro-magnets, and which is released whenever the armature is so raised. A screw, U, is arranged in the pivoted end of the armature to determine the extent to which it can fall after being acted upon by the electro-magnet, and when the hooked end of the weighted lever is not in place to receive it. The upper end of this weighted lever lies in a slot in the restoring-bar K. When the armature has been raised, the weighted lever is released and, owing to its heavy upper end, falls forward, turning the needle-shaft with it, and consequently turning the needle at the same time. As soon as the armature ceases to be acted upon by the electro-magnets its free end falls into its normal position, and by lifting the restoring-bar K the weighted lever is brought into position and its hooked end H into engagement with the armature.

The lifting or restoring bar is made with any desired number of slots at proper intervals to permit the several weighted ends of the weighted levers to be in them. They should of course be made long for annunciator-cases which have a large number of annunciator-movements in them, and short for those which have few. In each case, however, the operation is the same, the weighted levers being raised to their normal position by the restoring-bar.

In operation whenever a call-button is touched an electric circuit is made through the wire connecting with the battery. An electric current is generated and passed from the battery down the wire to the terminal receiver-screw Y. The current then preferably passes upward through the bell, ringing the same, and down the wire (shown in dotted lines) to the receiver-screw Z, which rests against the right-hand spring N in the annunciator-case when the case is closed. The current passes from this spring to the metallic face-plate of the annunciator through the assembling-frame of the annunciator-movement corresponding to the call-button touched, thence through the wires coiled around the electro-magnets, thereby magnetizing the iron cores of the same, and thence back to the battery. While the iron cores of the electro-magnets are magnetized the armature is thereby attracted and raised, the hooked end of the weighted lever is released, the weighted end of such lever falls forward, and the needle is turned to indicate the position of the call-button touched.

What we claim as new, and desire to secure by Letters Patent, is—

In electrical needle annunciators, a slotted restoring-bar, in combination with weighted levers, the weighted ends of the weighted levers being in the slots, and being restored thereby to their normal position, substantially as described.

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