

(No Model.)

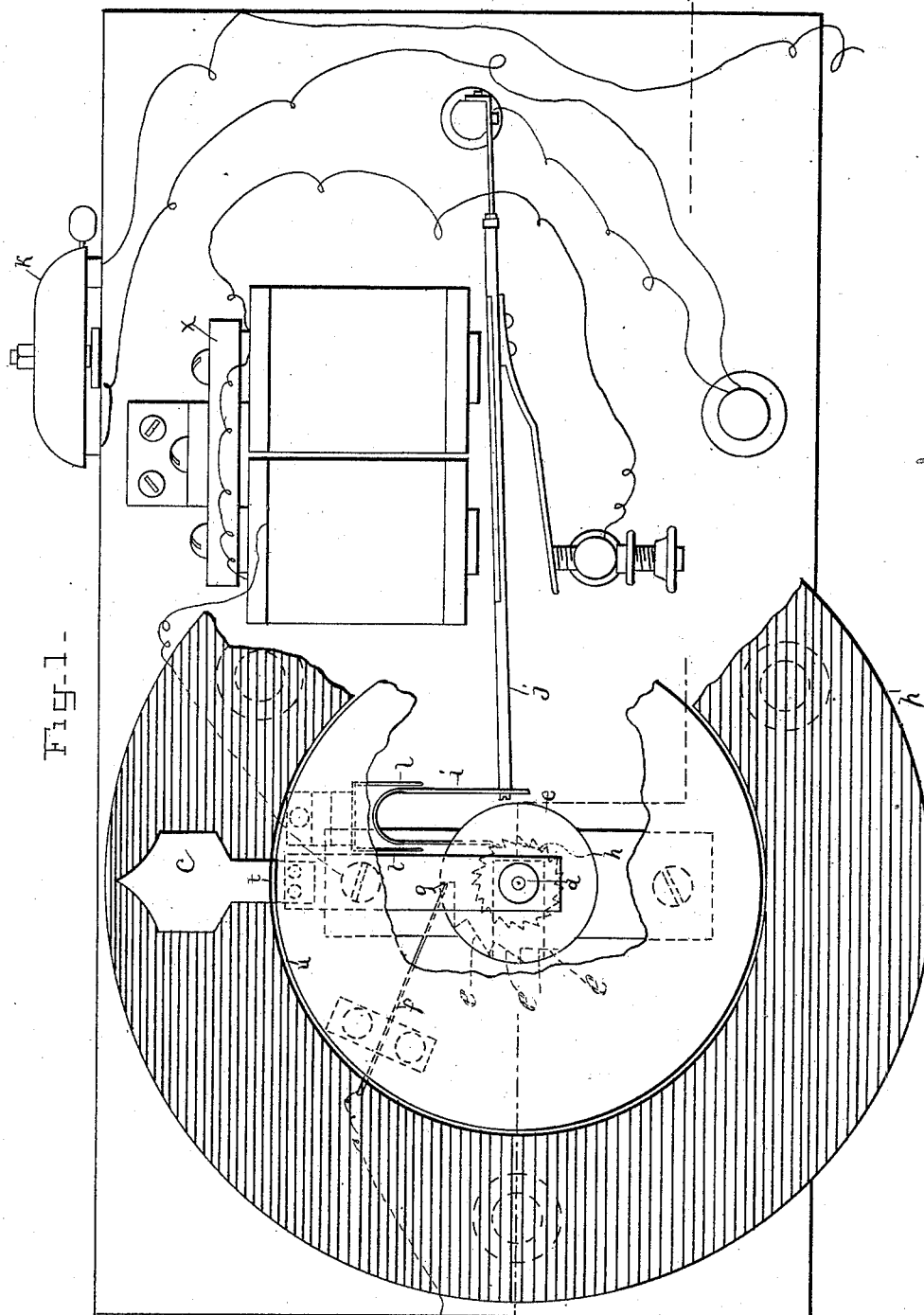
B. F. SHAFER.

2 Sheets—Sheet 1.

AUTOMATIC ELECTRICAL ANNUNCIATOR.

No. 422,981.

Patented Mar. 11, 1890.



WITNESSES=

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 Milfred S. Earll
 Ch. J. Morgan

INVENTOR=

Reg. F. Shafer
 By A. P. Shafer atty

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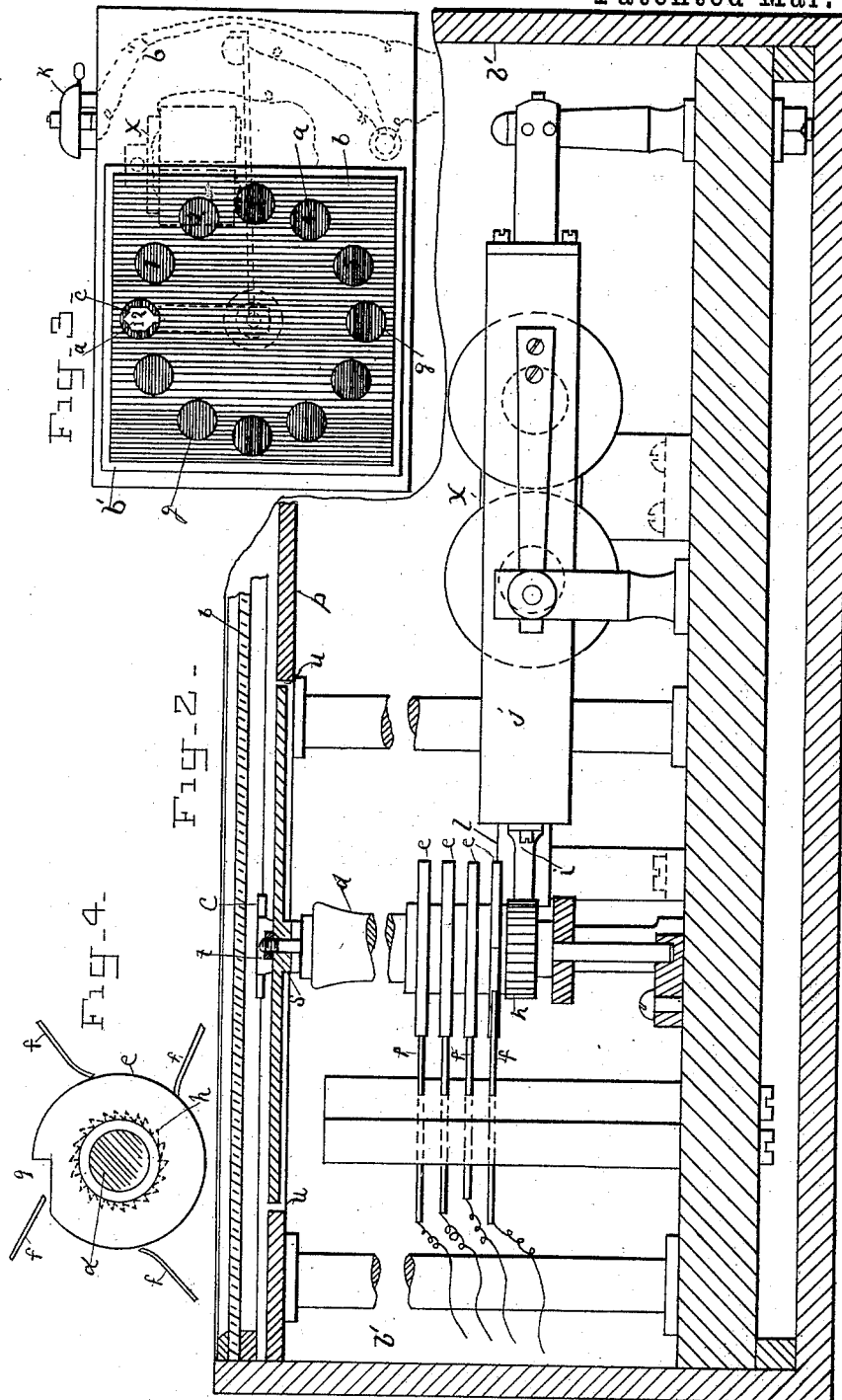
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AUTOMATIC ELECTRICAL ANNUNCIATOR.

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WITNESSES:
Wilfred B. East
J. H. Morgan

INVENTOR:
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UNITED STATES PATENT OFFICE.

BENJAMIN FRANKLIN SHAFER, OF NEW YORK, N. Y.

AUTOMATIC ELECTRICAL ANNUNCIATOR.

SPECIFICATION forming part of Letters Patent No. 422,981, dated March 11, 1890.

Application filed January 10, 1889. Serial No. 296,026. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN FRANKLIN SHAFER, a citizen of the United States, residing at New York city, in the county and State of New York, have invented certain new and useful Improvements in Automatic 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.

My invention consists of a dial on which the numbers are registered and around which a rotating pointer is electrically impelled and automatically stopped on the number corresponding with the room or other station from which the instrument is temporarily put in electrical connection by the caller, all as hereinafter fully described, reference being made to the accompanying drawings, in which—

Figure 1 is a plan view of my improved annunciator with the inclosing-case removed and a part broken out. Fig. 2 is a sectional elevation on the line 2 2, Fig. 1, and including the inclosing-case, except a part that is broken out. Fig. 3 is a plan view of the complete instrument on a reduced scale. Fig. 4 is a detail representing a more concentrated arrangement of some of the parts.

The numbers of the rooms or stations to be called or announced are registered at *a* on the dial, consisting of the glass cover or front *b* of the inclosing-case *b'*, with which a pointer *c* is arranged on a rotating shaft *d* for traversing the register. The shaft has one or more circuit making and breaking disks *e*, connected in circuit with the rooms or stations by a contact-brush *f* for each room or station, except when broken by the notch *g* of the disk, when the notch stands in the relation to the bearing-point of a brush to prevent contact. The shaft *d* also has a ratchet-wheel *h* of fine mesh, with which a spring-pawl *i* engages to turn the shaft with its disks and pointer, said spring-pawl being carried on the free end of the armature-lever *j*, connected for continuous rapid vibration, while the magnet *x* is energized by the electric current, said magnet being in the circuit of the various rooms or stations.

It will be seen that when the electric current is established by the push-button or other

means in any room or station connected with the annunciator it will actuate the armature-lever and the spring-pawl through the disk and the contact-brush corresponding to that room and turn the pointer until the break of the current by the notch of the disk coming to and breaking connection with said brush, when the pointer will stop at the number on the dial of the room making the connection, and all the other brushes will remain in contact ready for similar operation, said brushes and the notches, when more than one disk is used, being so adjusted on the shaft that only one room or station-circuit will be broken at any one time.

In Figs. 1 and 2 I have represented a separate disk for each room or station circuit; but my invention is not limited to such arrangement, for several rooms up to a considerable number may be connected through one disk having only one break-notch, as indicated in Fig. 4, so that one disk of large size and a short break-notch may serve for a large number of rooms, and thus the instrument will be simpler than with a disk for each room; but such arrangement may of course be employed when preferred. A bell *k* is also connected in the circuit to call attention when the annunciator works, and when it happens that a second call occurs from the same room while the circuit remains broken, through lack of change of the pointer by a call from any other room, the bell announces the fact, the bell being connected in series with the instrument, as shown in Fig. 1.

The very rapid motion of the armature-lever enables the shifting of the pointer an entire revolution during the very short period of contact of the push-button, as it is commonly pressed.

The contrivance of pointer and dial for indicating the numbers is very much simpler and cheaper than the drop system, and it saves the trouble of readjusting the drops.

The spring-pawl is necessarily rather delicate in structure for the very sensitive action which the great rapidity of motion demands, and is therefore liable to undue vibration, from which I protect it to some extent by the prongs *l* of a guard set up behind the bow of the pawl, so that it plays forward and backward freely between said prongs, and is there-

by prevented from such vibration. The pointer swings under or behind the glass front *b*, which is thus enabled to be fitted for a dust-proof closure to the case for the protection of the works, and the case can be kept closed, no drops or other thing about the instrument requiring it to be opened or any part exposed to dust.

The pointer is made conspicuous to the view under the dial by being a broad light-colored device with a dark-colored plate *p* below for contrast, and the glass dial is obscured by color or other means, except in the numbered divisions *q*, as indicated in Fig. 3, where the pointer stops, and through which the pointer shows more distinctly for the obscurity of the rest of the dial.

I prefer to mount the pointer-carrying arm *s* on its carrying-shaft *d* under plate *p*, and make said arm with an offset at *t*, extending up through the annular slit *u* in the plate to support and carry the pointer above the margin of said plate, and in such case will support the central part of said plate on the

pointer-shaft either so as to revolve with it or not, as preferred. In this case I represent said plate attached above the arm *s* by the screw and nut, Fig. 2.

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

The combination, with the magnet connected in the circuit of the various rooms or stations, and the rapidly-vibrating armature-lever thereof having a spring-pawl, of the pointer-shaft and ratchet subject to the action of said armature-lever and pawl, one or more notched disks on said pointer-shaft, and a series of contact making and breaking brushes and branch lines connecting the several rooms or stations in the order for breaking the connection of the branch lines individually, substantially as described.

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

BENJAMIN FRANKLIN SHAFER.

Witnesses:

W. J. MORGAN,

W. B. EARLL.