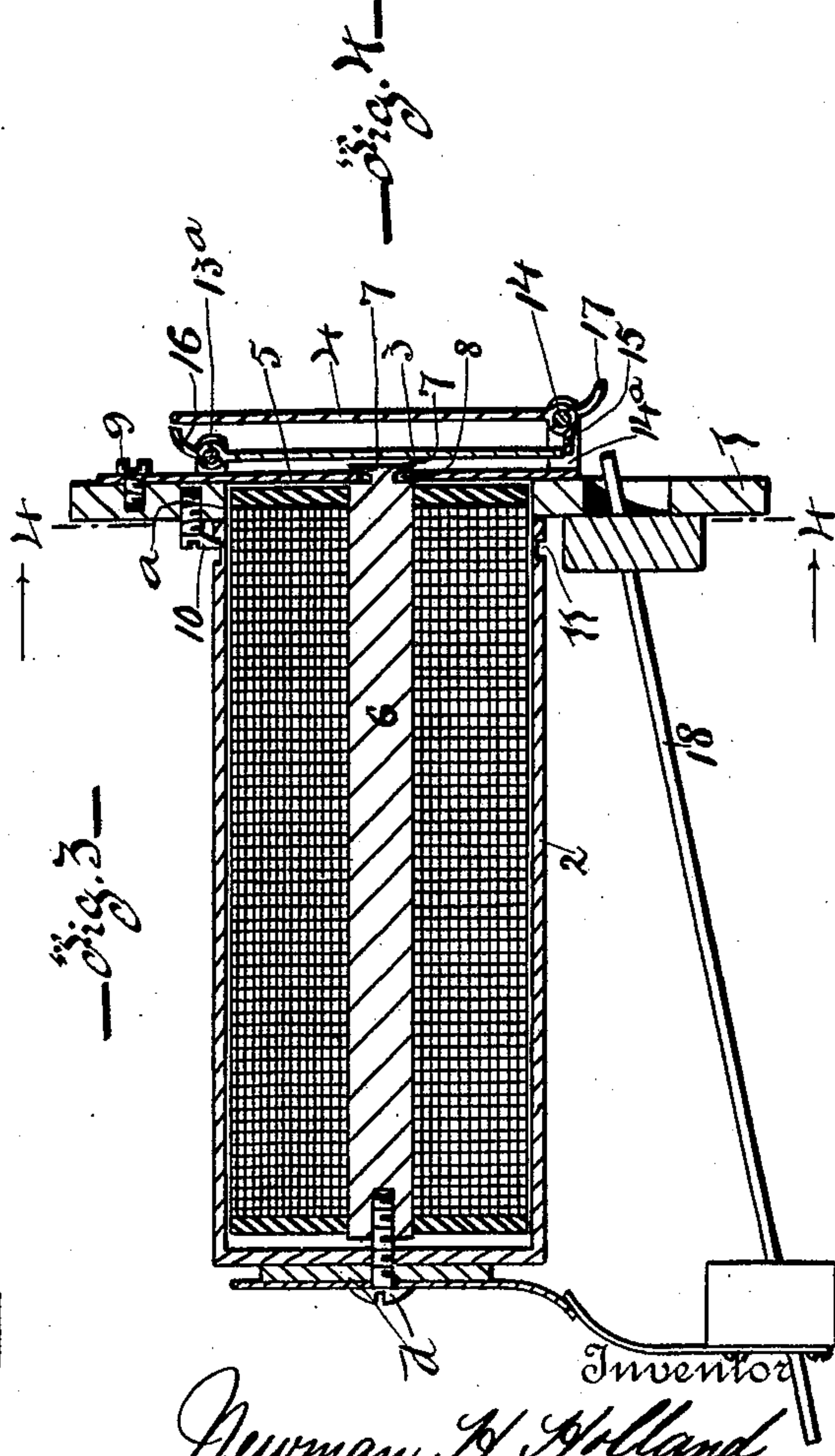
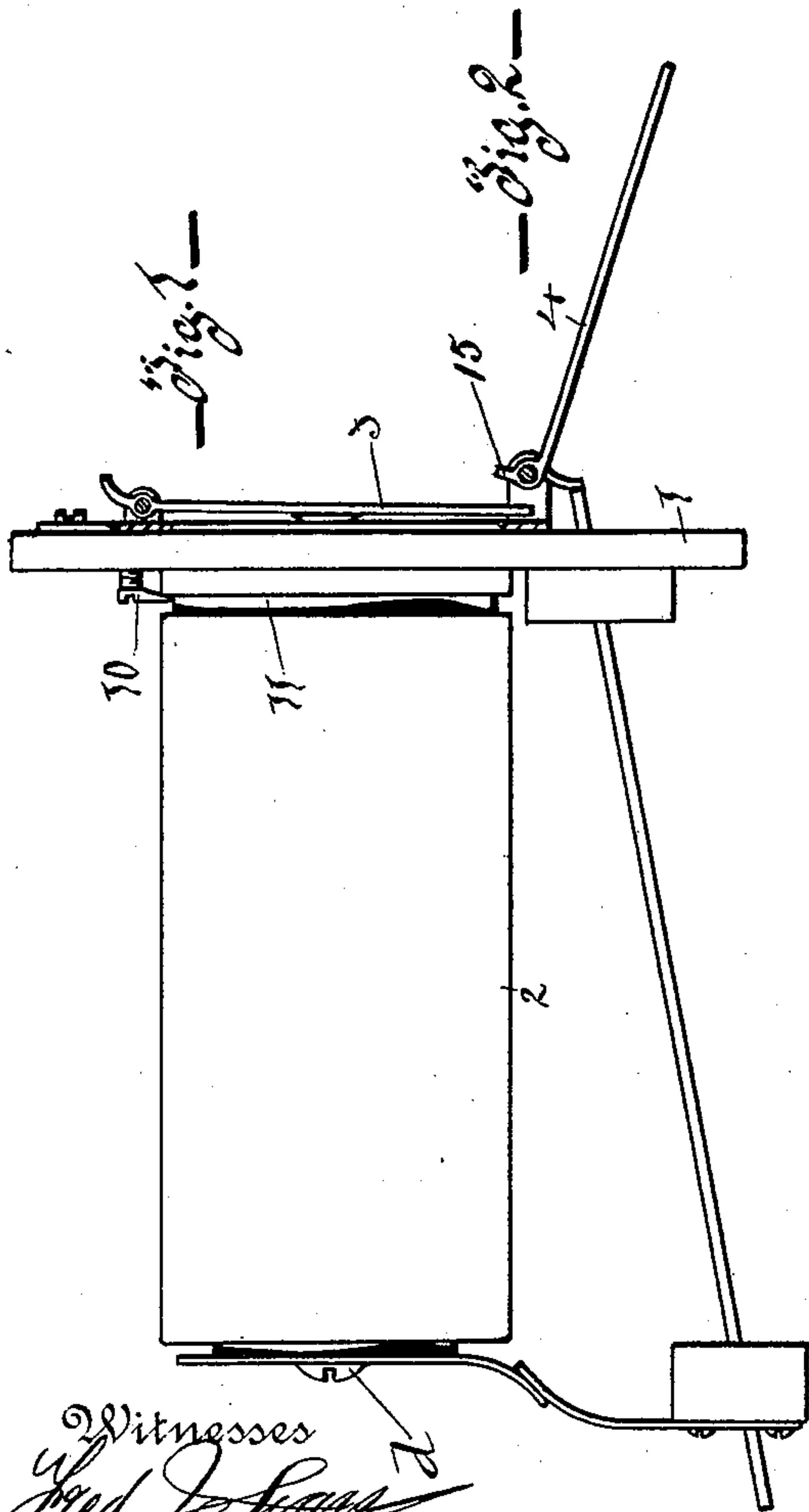
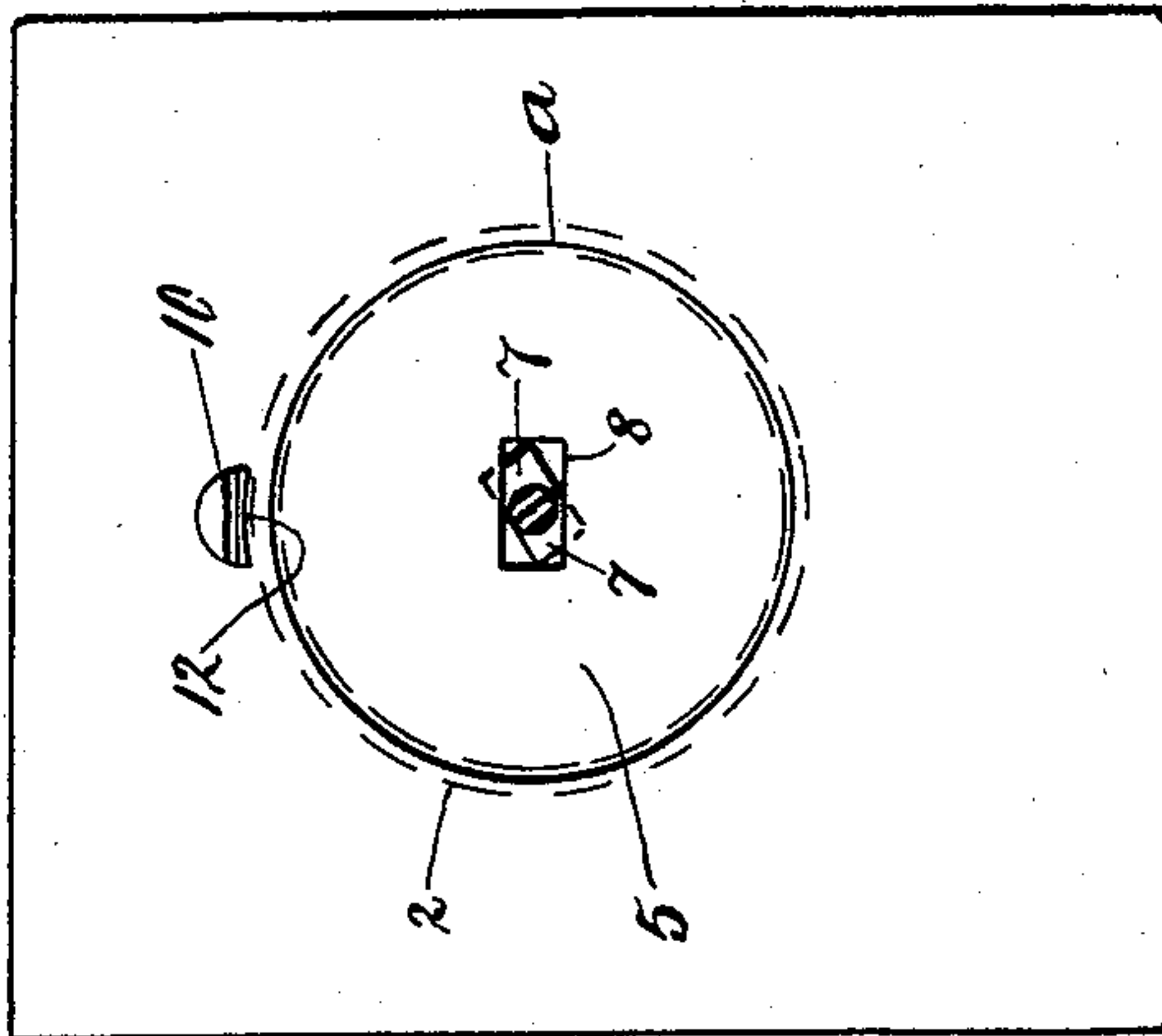
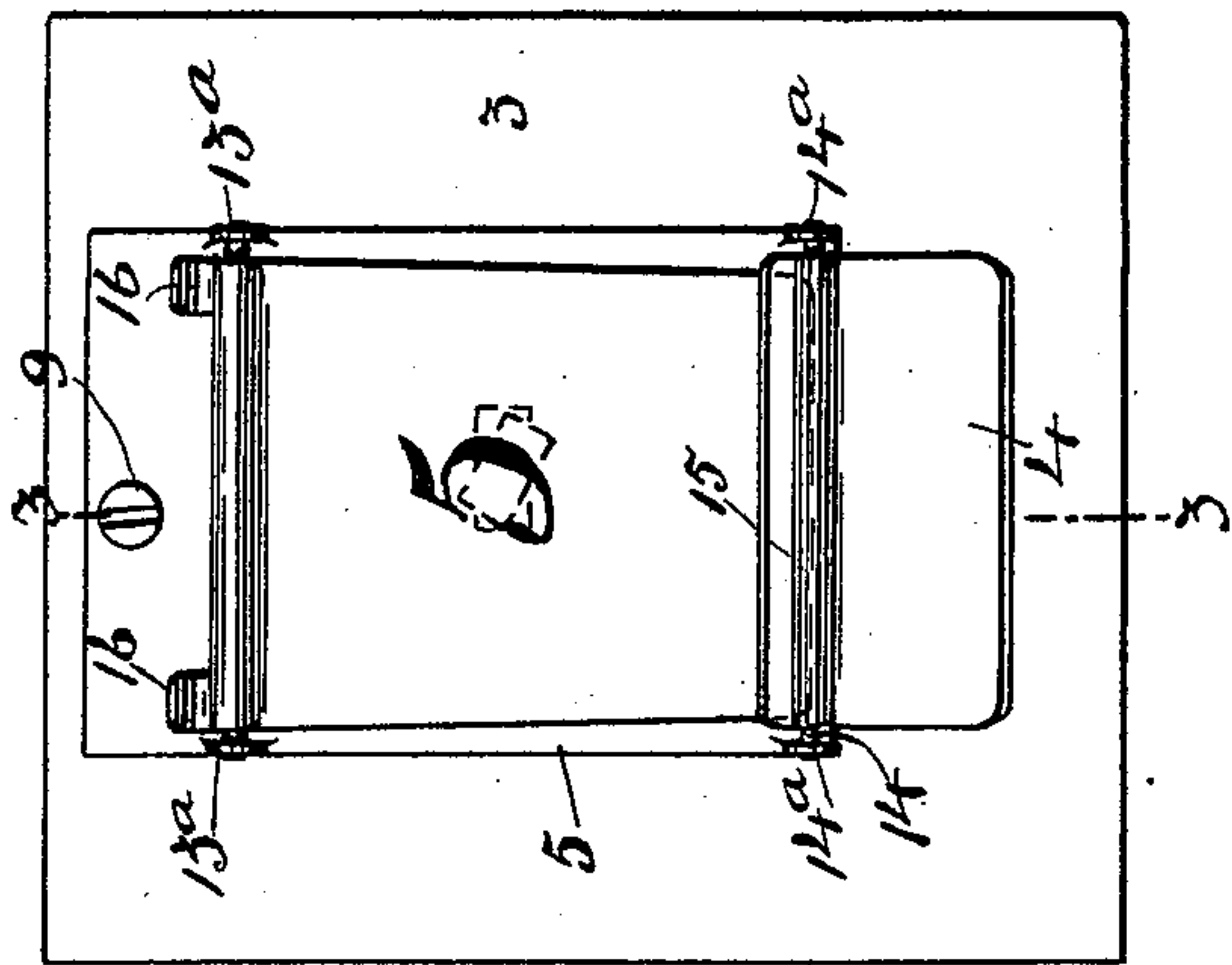


(No Model.)

N. H. HOLLAND.
SWITCHBOARD ANNUNCIATOR.

No. 587,204.

Patented July 27, 1897.



Witnesses
Arthur J. Baker
Arthur J. Baker

Inventor
Newman H. Holland
By *his* Attorney
John H. Swann

UNITED STATES PATENT OFFICE.

NEWMAN H. HOLLAND, OF MONTREAL, CANADA, ASSIGNOR OF ONE-HALF TO CHARLES BATE, OF SAME PLACE.

SWITCHBOARD-ANNUNCIATOR.

SPECIFICATION forming part of Letters Patent No. 587,204, dated July 27, 1897.

Application filed September 5, 1896. Serial No. 604,987. (No model.)

To all whom it may concern:

Be it known that I, NEWMAN HENRY HOLLAND, of the city of Montreal, in the district of Montreal and Province of Quebec, Canada, have invented certain new and useful Improvements in Switchboard - Annunciators; and I do hereby declare that the following is a full, clear, and exact description of the same.

This invention relates more particularly to telephone switchboard - annunciators, although capable of other applications, and has for its object to lessen the work entailed in setting the annunciator in place in a switchboard and to overcome the difficulties at present experienced in making repairs to such parts, besides simplifying to a considerable extent the construction of the annunciators and avoiding chances of inoperativeness.

To such ends the invention consists, first, in arranging for the location of the electromagnet on one (the back) side of the switchboard, while its armature is located at the front of same in direct operative connection with the shutter or drop of the annunciator; secondly, in making the annunciator in two readily-separable and independently-removable portions, one of which consists of the magnet, while the other comprises the armature, the shutter, and a carrying frame or plate; thirdly, in the particular construction of and operative connection between the armature and the shutter; fourthly, in the particular means for securing in place and detaching the removable portions above mentioned, and incidentally in an arrangement for operating the usual alarm.

For full comprehension, however, of the invention reference must be had to the annexed drawings, forming a part of this specification, in which like symbols indicate corresponding parts, and wherein—

Figure 1 is a side elevation of an annunciator constructed according to my invention and with the shutter thereof down; Fig. 2, a front elevation thereof; Fig. 3, a longitudinal vertical sectional view thereof, taken on line 3 3, Fig. 2, and with the shutter thereof up; and Fig. 4, a transverse vertical sectional view thereof, taken on line 4 4, Fig. 3.

1 is the metal face-strip of the switchboard.
2 is the retaining frame-piece for the elec-

tromagnet of the annunciator, such frame-piece in the present instance being in the form of the usual metal sleeve which incloses such electromagnet.

3 is the armature, and 4 the shutter thereof, 5 being the carrying-plate for such armature and shutter.

The core 6 of the magnet has its forward end projecting through an aperture *a* in the face-strip 1, and such end is annularly grooved and two side portions cut away to form a pair of lugs 7 7, adapted to be passed through a rectangular opening 8 in the carrying-plate 5 and by a slight rotation of the magnet to engage over the face of the carrying-plate on either side of the opening.

The location of the armature in front of the switchboard and in direct operative connection with the shutter dispenses with the usual intermediate hook and other parts necessary when the armature is located at the back end of the magnet, as will be readily apparent. The arrangement or method of connection also between the part (the magnet) behind the switchboard-strips and the portion (comprising the armature, shutter, and their carrying-plate) in front of same is extremely simple and dispenses with considerable work and a number of parts in setting the annunciators in place.

As a ready means of tightening the connection between the front and back portions of the annunciator the lugs 7 7 may be beveled or wedge-shaped, so that as they are rotated they will tend to draw the parts together, or the screw *d*, securing the magnet to the sleeve, may be used for the same purpose.

It is of course desirable to provide for convenience in making repairs, in which case it may be necessary to remove either the front or back portion of the annunciator, and I accordingly prefer to use a screw 9 for holding the carrying-plate 5 or front portion in place upon the face-strip 1 when the magnet is disconnected from such plate, and to retain the magnet or back portion in position when the front part is removed it is preferable to employ a flat-headed screw 10, screwed into the back side of the face-strip 1, close beside the sleeve 2, inclosing the magnet, and with the edge of its head engaging an annular groove

11 in such sleeve, one side of the screw-head being cut away, as at 12, so that the sleeve can be disengaged by turning the screw until the projecting portion of the head is free from the groove.

The armature and shutter are pivotally connected with the carrying-plate, respectively, by spindle ends or trunnions 13 and 14, having bearings in ears 13^a and 14^a, projecting at right angles from the plate, the armature being hung by its top end and the shutter, as usual, pivoted at its lower end.

To hold the shutter up, its lower end is bent inward, forming a ledge 15 at right angles thereto, so that the lower edge of the armature when hanging vertically in its normal position will be located over such ledge and so hold the shutter up until it (the armature) is drawn toward the magnet, when the shutter will fall, receiving a starting push from a pair of outwardly-bent fingers 16 16 at the upper end of the armature, thus avoiding all chance of inoperativeness by the shutter sticking in any way. In returning the shutter, also, the armature, should it have stuck in any way, can be started by the shutter hitting the fingers 16 16 projecting therefrom.

To provide for the operation of the usual alarm-signal, a small finger 17 projects from the lower edge of the shutter and when the latter falls makes contact with the terminal rod 18 in the customary manner, closing the usual local alarm-circuit.

What I claim is as follows:

1. In combination with a switchboard face-strip, an annunciator-magnet, a retaining frame-piece for said magnet, said frame-piece being grooved at right angles to the length of the magnet and a screw adapted to take into a screw-threaded boring in said face-strip adjacent to said frame-piece and having a head with a portion thereof cut away, the remaining portion of the head being adjustable into said groove, for the purpose set forth.

2. The combination with the switchboard face-strip having an aperture therethrough, of an annunciator-magnet located on the rear side thereof and with its core end projecting through such aperture; a carrying-plate for the armature and shutter of the annunciator located on the front side of such face-strip, and said core end and said carrying-plate being adapted to interlock, for the purpose set forth.

3. An annunciator having an electromagnet, with a projecting core end, an armature, a shutter and a carrying-plate for the two latter, the projecting core end being annularly grooved and formed with lugs and the carrying-plate having an opening through which such lugs can be passed, for the purpose set forth.

4. An annunciator having an electromagnet, with a projecting core end, an armature, a shutter and a carrying-plate for the two lat-

ter, the projecting core end being annularly grooved and formed with tapered lugs and the carrying-plate having an opening through which such lugs can be passed, for the purpose set forth.

5. In an annunciator, the combination with the magnet thereof, of an armature and a shutter, said armature and shutter consisting of a pair of pivotally-mounted vertical plates arranged parallel to one another and with the ends of each in approximate horizontal line with the ends of the other; the plate constituting the armature being fulcrumed adjacent to its upper end and provided at its upper end with one or more fingers projecting in the direction of and adjacent to the shutter, and an operating connection between said armature and shutter whereby the shutter will be normally held in a vertical position and allowed to drop when the magnet is energized, and said finger or fingers being caused to bear upon and displace the shutter simultaneously with the movement of the armature, for the purpose set forth.

6. In an annunciator, an armature, a shutter and a carrying-plate; said armature and shutter consisting of a pair of vertical plates arranged parallel to one another and with the ends of each in approximate horizontal line with the ends of the other; the plate constituting the armature being fulcrumed adjacent to its upper end to the said carrying-plate and provided at its upper end with one or more fingers projecting in the direction of the shutter; and the plate constituting the shutter being fulcrumed adjacent to its lower end to said carrying-plate and provided at its lower end with an offset portion adapted to project in the direction of and take under the lower end of the armature, substantially as and for the purpose set forth.

7. The combination with the switchboard face-strip having an aperture therethrough, of an annunciator-magnet located on the rear side thereof and with its core end projecting through such aperture, an inclosing casing adapted to inclose said magnet and bear at its forward end upon the rear side of said face-strip; a carrying-plate upon which said armature and shutter are operatively mounted, and said carrying-plate being located on the front side of such face-strip; means for detachably connecting said carrying-plate to the forward end of said magnet; the rear end of said core being provided with a screw-threaded boring longitudinally thereof; a screw adapted to project through an opening in said inclosing casing and take into said screw-threaded boring, substantially as and for the purpose set forth.

NEWMAN H. HOLLAND.

Witnesses:

FRED. J. SEARS,
R. S. C. KIMBER.