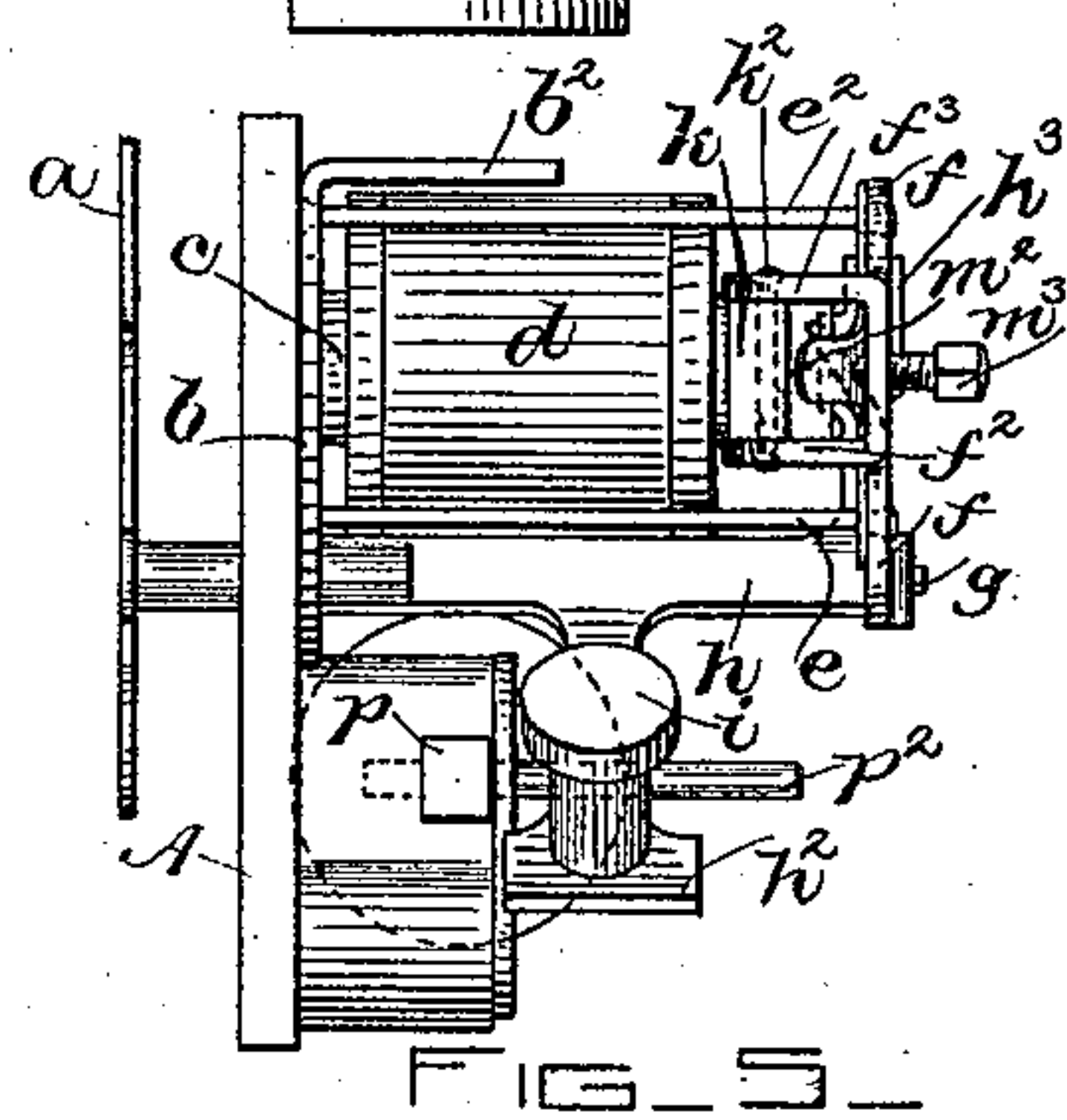
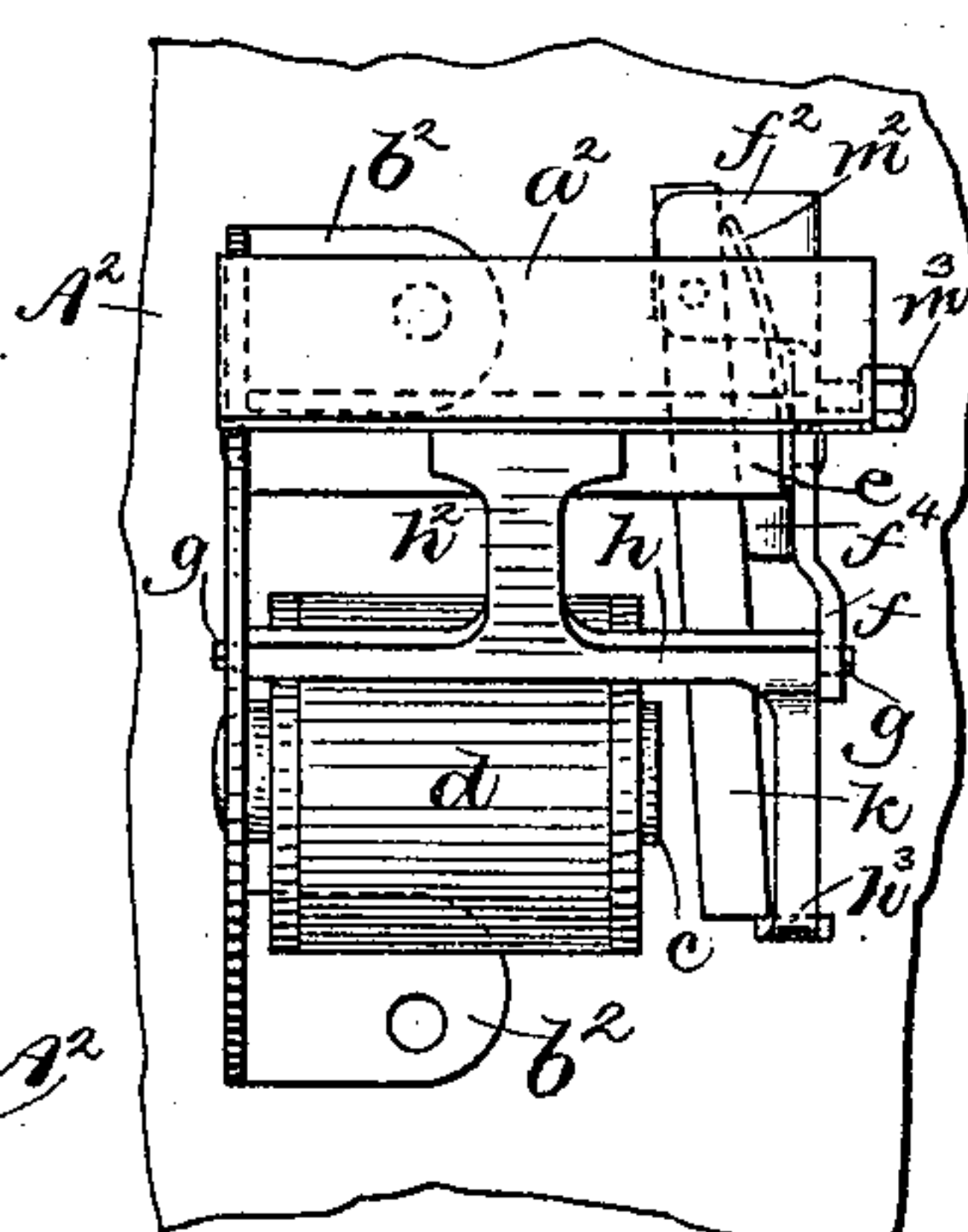
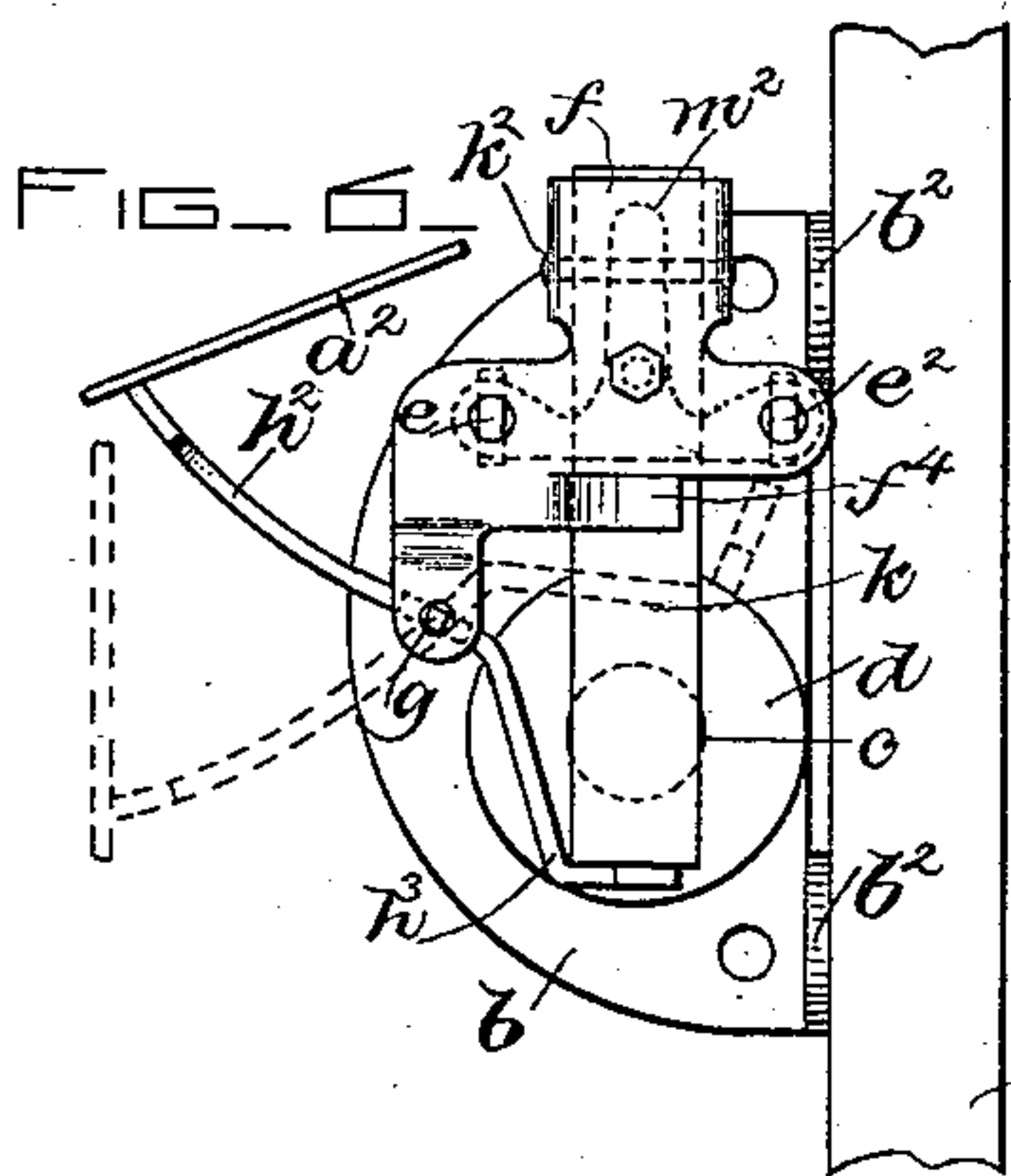
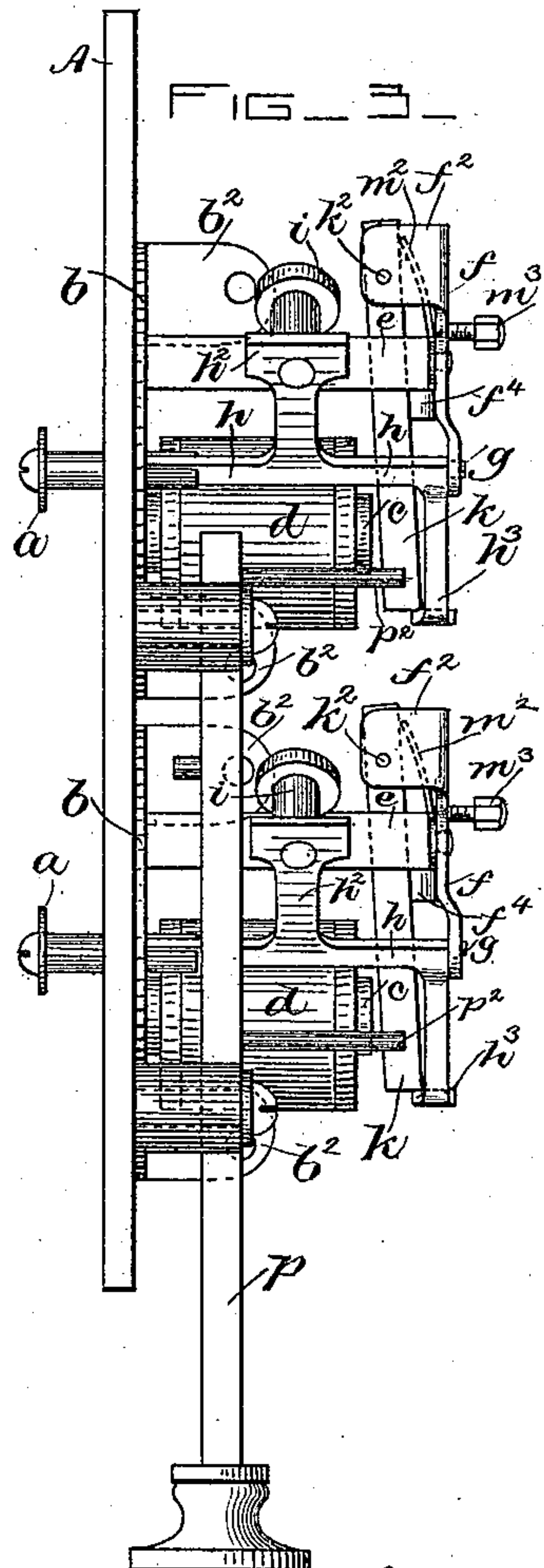
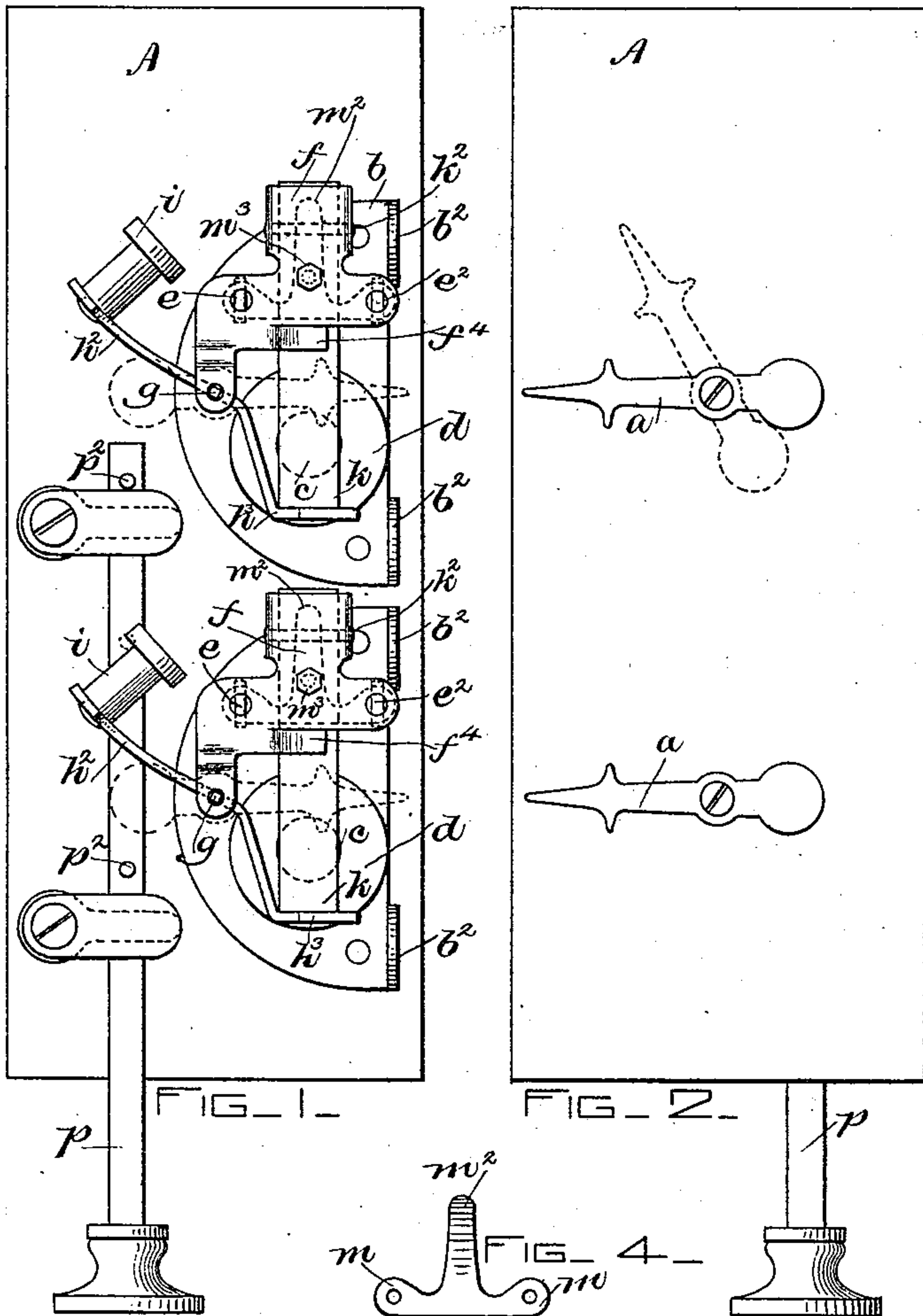


(No Model.)

C. W. HOLTZER.
ANNUNCIATOR.

No. 441,304.

Patented Nov. 25, 1890.



WITNESSES

A. C. One
Jas. J. Maloney

FIG. 7

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Att'y.

UNITED STATES PATENT OFFICE.

CHARLES W. HOLTZER, OF BROOKLINE, MASSACHUSETTS.

ANNUNCIATOR.

SPECIFICATION forming part of Letters Patent No. 441,304, dated November 25, 1890.

Application filed August 19, 1890. Serial No. 362,379. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. HOLTZER, of Brookline, county of Norfolk, State of Massachusetts, have invented an Improvement in Annunciators, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My invention relates to an annunciator adapted for use in elevators and for other purposes, the object of the invention being to simplify the construction of the annunciator-instruments while increasing their reliability and certainty of operation, to thereby produce a satisfactory instrument at low cost.

The invention is embodied in an instrument comprising an indicator or drop which is normally retained in one position by a detent, one member of which detent is connected with the said drop and the other member of which is connected with or forms a part of an armature of an electro-magnet, which when energized disengages said detent by the attraction of the armature and permits the drop to fall, such general features of construction and operation being common to annunciators now in use.

The invention consists, mainly, in details of construction of the frame-work for supporting the magnet and armature and the drop in the proper relations to one another, the said parts being so arranged and constructed that the detent, although easily operated by the magnet to release the drop, holds firmly when engaged, so as not to be accidentally released by the jar of the building or structure in which the annunciator is used, thus making the apparatus especially useful in elevators or in other places where the whole apparatus is exposed to considerable movement and jar.

Figure 1 is a rear elevation of an annunciator containing two indicating-instruments embodying this invention and showing the working parts of said instrument in end elevation. Fig. 2 is a front elevation showing the indicators, which are exposed to view in the use of the apparatus; Fig. 3 a side elevation of the annunciator shown in Figs. 1 and 2; Fig. 4, a detail of the retracting-spring for the armature; Fig. 5, a plan view of the annunciator shown in Fig. 3; and Figs.

6 and 7, a side and front elevation, respectively, of an annunciator having the same construction as shown in the other figures, but provided with a different kind of target or visual sign.

The different instruments constituting one annunciator are supported on a frame-plate A, which forms the front of an inclosing case or box (not shown) containing the working devices, and in the construction represented in Figs. 1, 2, 3, and 5 the indicators proper or visual signs are arrows or pointers a , which normally remain in one position—as, for example, in the horizontal position represented in full lines—and are turned to an inclined position, as shown in dotted lines at the upper part of Fig. 2, to indicate a call.

In some cases it is preferred to use a plate or tablet as the indicator, as represented at a^2 in Figs. 6 and 7, said tablet being normally retained in the position shown in full lines, Fig. 6, and dropped to the position shown in dotted lines in said figure to indicate a call, the inclosing-case being provided with openings, through which the tablet is visible when dropped to the dotted-line position.

With either form of indicator a or a^2 it will be seen that an oscillating or pivotal movement carries the same from normal position to the call-indicating position, and the apparatus for producing and controlling this rocking operation is identical with the two kinds of indicators.

The working devices for controlling the movement are all connected with a main frame-plate b , which is preferably of iron, and is provided with lugs b^2 at right angles to the body of the plate, so that it may be secured to the frame-plate A, Figs. 1, 2, 3, and 5, or the frame-plate A^2 , Figs. 6 and 7, in positions that are right angles to one another in relation to the said frame-plate A or A^2 , in order to properly present the different kinds of indicators a and a^2 to view. The said frame-plate b has rigidly connected with it, as by riveting, an iron rod c , constituting the core of the electro-magnet d , by which the armature is caused to release the drop, and it also has rigidly connected with it two posts e e^2 , which support a second frame-plate f . The said posts e e^2 are substantially parallel with the axis of the magnet d , and the frame-plates

b and f constitute the two members of the frame, one at the rear and the other at the front of said magnet. The said frame-plates b and f are provided with pivot sockets or bearings at g for a rock-shaft h , which carries the indicator a or a^2 , the indicator a being connected with the end of said rock-shaft, as shown, while the indicator a^2 is connected with a lateral arm h^2 , extending from said shaft, said arm h^2 being also employed in the construction shown in Figs. 1, 3, and 5 to support a counter-weight i , the action of gravity on which tends to turn the indicator a from full to the dotted line position in Fig. 2. The said rock-shaft h is also provided with an arm h^3 , which constitutes one member of the detent and also one member of the stop for limiting the movement of the rock-shaft when the detent is released, and said rock-shaft h , with its arms h^2 h^3 , is shown as cut or stamped from a single piece of sheet metal, thus enabling it to be made at very moderate expense when the annunciators are manufactured in considerable quantities.

It will be observed that the rock-shaft h is parallel with the axis of the magnet, and the arrangement of the frame-plates b and f with relation thereto affords a long space between the two pivotal bearings, so that the said bearings may be fitted to work easily without permitting any great lateral movement of the arms h^2 h^3 , thus providing for an accurate adjustment of the detent member h^3 , so that it may be engaged and held with great certainty by the other detent member k , which is the end of the armature of the magnet d , the said armature being pivoted at k^2 in lugs f^2 , formed in the frame-piece f . The said frame-piece f is also formed from sheet metal cut and shaped by dies, and is provided with all the parts necessary to afford the bearing for the rock-shaft h , the bearing for the armature, and the back-stop to limit the retractive movement of the armature k to afford the proper engagement between said armature and the detent h^3 of the indicator. The said back-stops for the armature consist of a projection f^4 , formed by cutting the frame-plate f below its points of connection with the posts e e^2 , said projections f^4 being readily bent by pliers or otherwise to such position as is necessary to properly limit the retractive movement of the armature k to afford the proper engagement between said armature and the detent-arm h^3 of the indicator.

The armature-retractor consists of a three-armed plate of spring metal, (shown in Fig. 4,) two of the arms m of which are properly formed to be secured upon the ends of the posts e e^2 under the frame-plate f , as shown, while the arm m^2 extends out so as to bear with spring-pressure upon the magnet-armature above its pivot k^2 , thus tending to throw the armature away from the pole of the magnet d . The pressure of said spring is adjusted by a screw m^3 , working in a threaded

socket in the frame-plate f . The magnets d are normally in open circuit, the armatures retracted, and the detent-arms h^3 engaged by the ends of said armatures. When one of the armatures is attracted, its end is disengaged from the detent-arm h^3 , releasing said arm and permitting the drop to fall, such falling movement of the drop being limited by the engagement of the end of the arm h^3 with the arm f near its point of connection with the post e^2 , as shown in dotted lines, Fig. 6. After the drops have fallen they may be restored by a slide-bar p , provided with projections p^2 , standing beneath the arms h^2 , so that the upward movement of said slide-bar lifts any of the arms h^2 that may have fallen, the detent-arm h^3 in such movement passing along the back of the armature k , which stands in an inclined position with relation thereto, as shown, thus moving the armature forward toward the pole of the magnet until the detent-arm h^3 has passed by the end of the armature, when the latter is thrown back by its retracting-spring and again engages with the detent-arm and holds the same until again released by the attraction of the magnet.

By making the drop-carrying rock-shaft and its arms and the frame-piece f with the various connected parts of sheet metal, as shown, the said parts are very inexpensive and capable of ready adjustment in putting the instruments together and retain said adjustment permanently, and the detent members are not likely to become displaced with relation to one another, so that they always remain securely in engagement without danger of becoming disengaged by any jarring or shaking of the apparatus, or in any other way except by the direct pull of the magnet, and the instrument, although inexpensive, is thus very reliable in operation, and not subject to the annoying defect of releasing the indicators when the corresponding magnets have not been energized.

I claim—

1. An annunciator comprising a main frame-plate and electro-magnet connected therewith, a second frame-plate connected with the first and provided with lugs constituting a pivot-bearing for the armature of said magnet, and a stop for arresting the said armature integral with said frame-plate, a rock-shaft having its pivot-bearings in said plates, and having connected with it an indicator and a detent-arm forming an integral portion of said rock-shaft, and a magnet-armature pivoted in said lugs of the second frame-plate independently of said rock-shaft and constituting the other member of said detent, substantially as described.

2. The combination of the main frame-plate and magnet-core fixed therein substantially at right angles thereto, with a second frame-plate connected with the main frame-plate by posts and provided with pivot-bearings for the armature of said magnet, the re-

tracting-springs having arms secured to said
posts by said second frame-plate, and a rock-
shaft carrying an indicator having pivoted
bearings in said frame-plate and provided
5 with a detent-arm co-operating with the ar-
mature of said magnet, substantially as de-
scribed.

In testimony whereof I have signed my
name to this specification in the presence of
two subscribing witnesses.

CHARLES W. HOLTZER.

Witnesses:

C. E. BIBBER,

JOS. P. LIVERMORE.