(No Model.) 2 Sheets—Sheet 1.

J. W. LATTIG.

RAILWAY TRACK ELECTRIC ANNUNCIATOR.

No. 502,627. Patented Aug. 1, 1893.

Fig. 1.

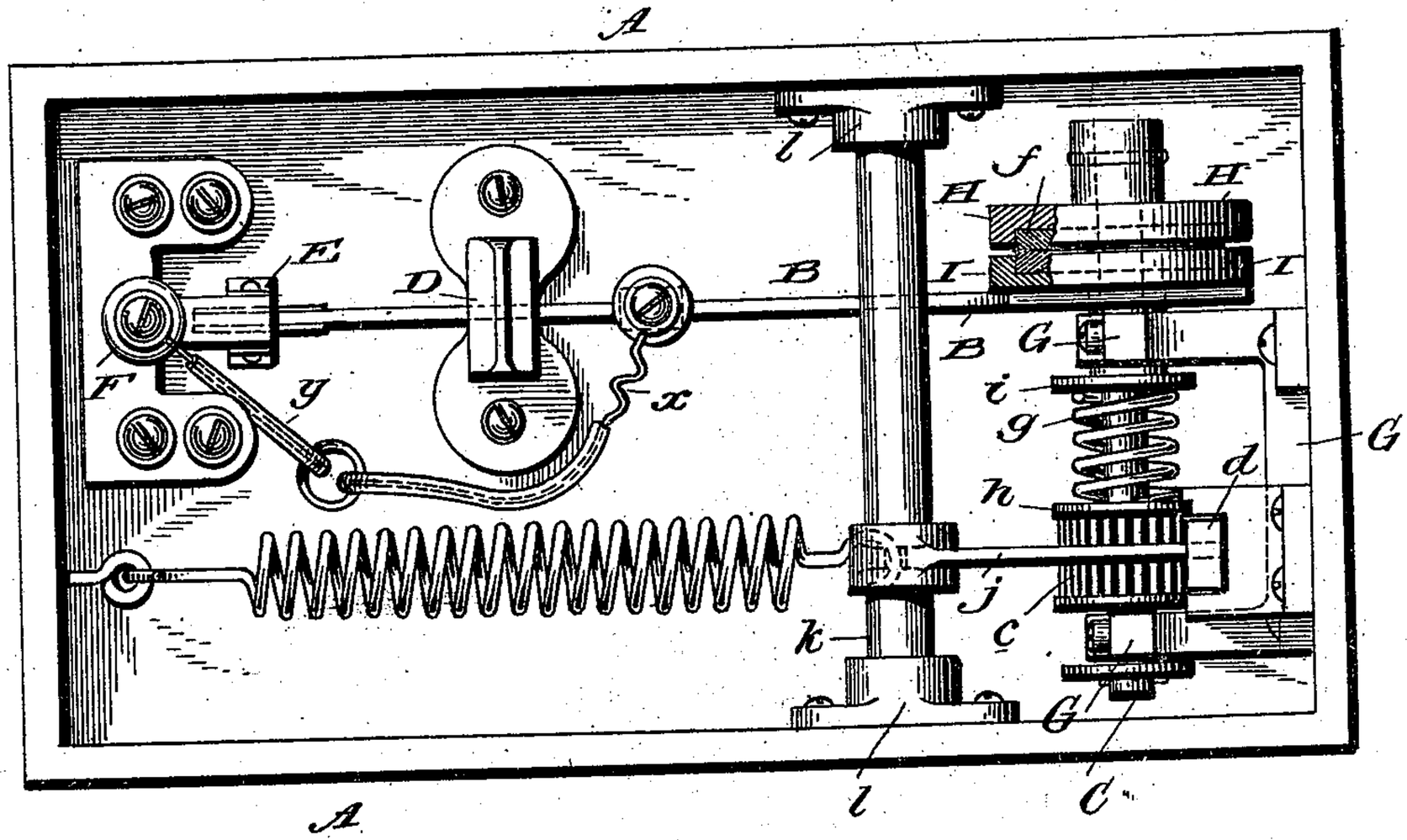
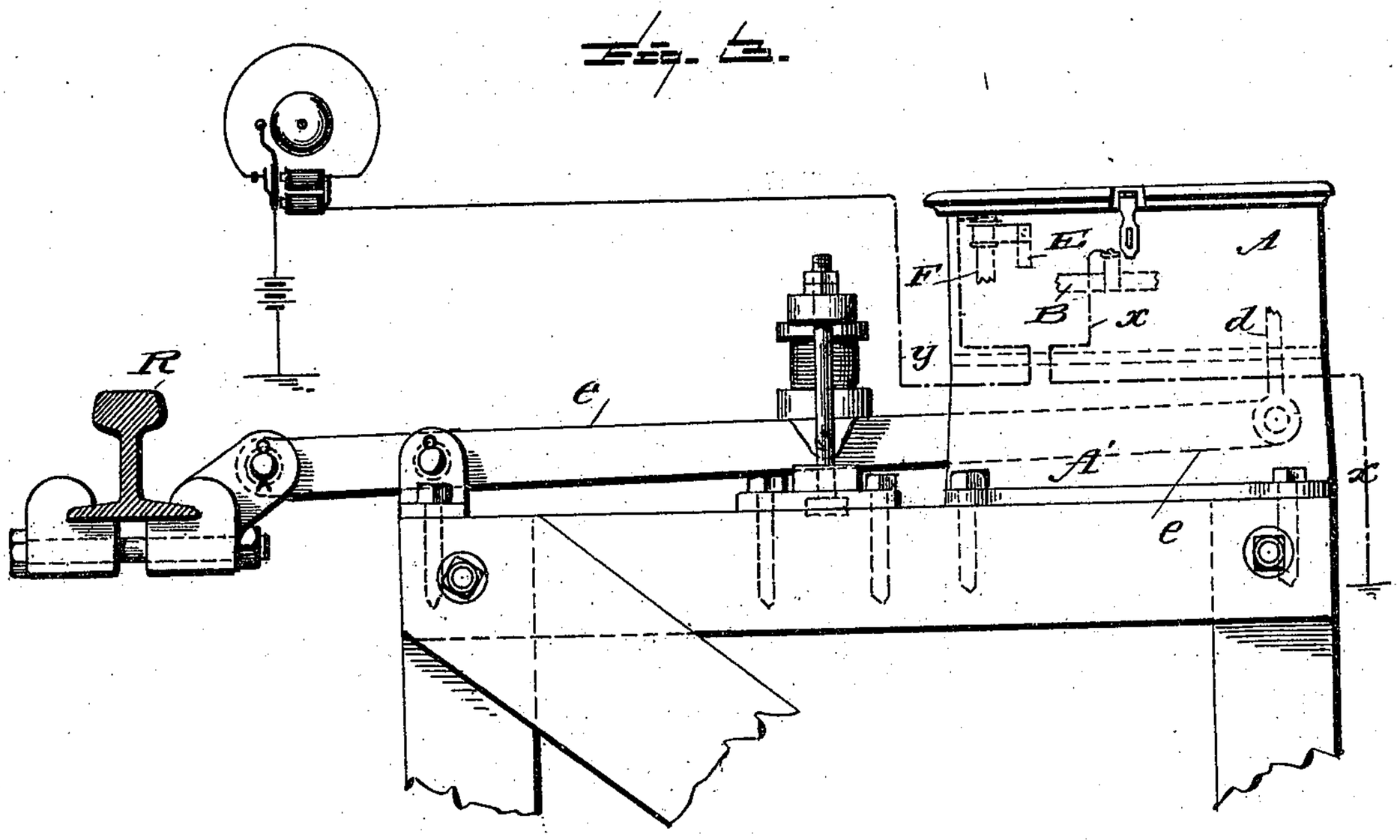


Fig. 3.



Witnesses
L. C. Hills.
E. W. Dick

Inventor
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(No Model.) 2 Sheets—Sheet 2.

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Fig. 1.

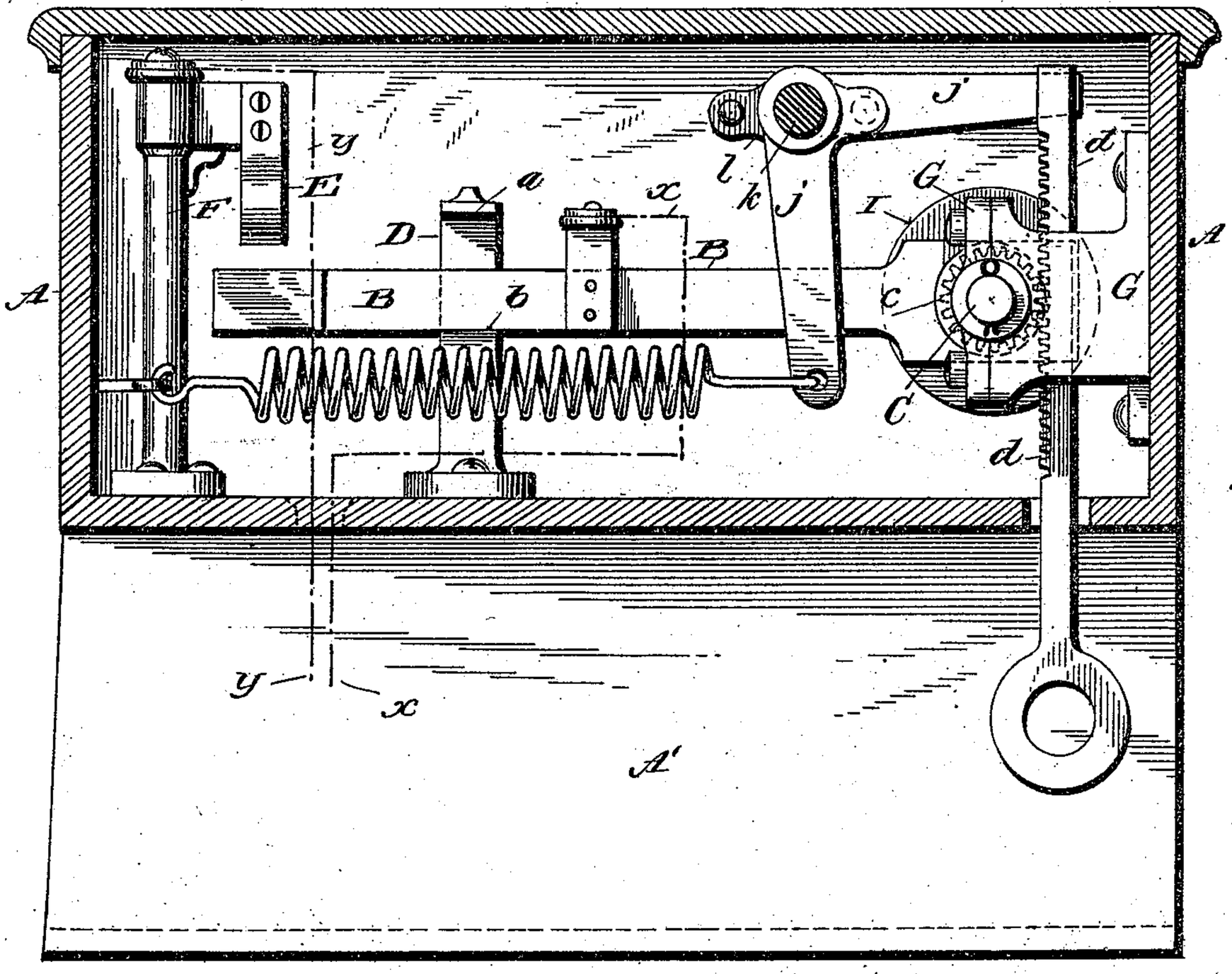
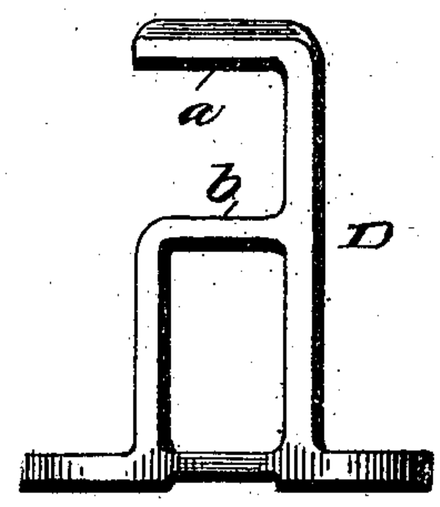


Fig. 2.



Witnesses.
L. C. Hills
Everlad Dick

Inventor
Jacob W. Lattig
by Marcellus Bailey
his Attorney

UNITED STATES PATENT OFFICE.

JACOB WILLIAM LATTIG, OF EASTON, PENNSYLVANIA.

RAILWAY-TRACK ELECTRIC ANNUNCIATOR.

SPECIFICATION forming part of Letters Patent No. 502,627, dated August 1, 1893.

Application filed June 14, 1893. Serial No. 477,572. (No model.)

To all whom it may concern:

Be it known that I, JACOB WILLIAM LATTIG, of Easton, in the State of Pennsylvania, have invented certain new and useful Improvements in Railway-Track Electric Annunciators, of which the following is a specification.

My invention relates to what is known as a track annunciator, which may be generally described as an instrument for controlling the circuit of an electric bell or other device for announcing the approach of trains to stations—the instrument itself being connected to the track by intermediaries through which the depression of the rails due to the passage of a train is caused to actuate the instrument to open or close, as the case may be, the circuit controlled by it, the arrangement being such that the instrument is restored to its normal condition after the train has passed the point in the track where the instrument is connected. Such an annunciator broadly considered is not new with me. Many attempts have been made in this direction, but so far as I am aware, they all have been more or less defective in that the instruments have required frequent readjustment to adapt them to the changed condition of the track brought about from time to time by frost, retamping, &c.

It is my object to provide against this difficulty, and to make the instrument one which will automatically compensate for changes in the track, or in other words will automatically adapt itself to such changes. To this end I combine with the vibratory contact lever by whose movement the circuit is closed and opened, stops which limit the range of vibration of the lever; and at some point in the mechanism by which motion is imparted from the track rail to the lever. I interpose a friction joint whereby after the lever has been moved to its extreme limit in either direction, further movement of the actuating mechanism between the track and the point where the friction joint is located is permitted by the slip of the one part of the joint upon the other. With such an instrument as this, if the track has been in anywise altered by the frost or otherwise, the first train thereafter passing will readjust the instrument to suit such changed condition, after which it will work just the same as when originally applied and adjusted to the track.

The nature of my invention will be readily understood by reference to the accompanying drawings in which—

Figure 1 is a plan of the instrument with the cover removed. Fig. 2 is a side elevation of the same with the side of the box or case of the instrument removed. Fig. 3 is a view representing the manner of connecting the instrument to the track. Fig. 4 is a front elevation of the stop post, between stops on which the contact lever plays.

A is the box or case which contains the working parts. Its bottom is raised some distance above the base or pedestal A′ in order to make room for the connection by which the moving parts of the instrument are worked.

B is the contact lever, fulcrumed on the shaft C, and playing between the stops *a*, *b*, of the stop post D, by which its range of movement is limited.

E is a spring jawed contact fixed to a supporting bracket F and adapted to be entered by the contact lever when the latter is raised. The terminal wires of the circuit to be controlled (this circuit containing the electric bell or other analogous device) are shown at *x*, *y*, electrically connected the one *x* to the lever, the other *y* to the fixed contact E. When the lever is up and between the jaws of the fixed contact, the circuit is closed. When it is down (as in Fig. 2) the circuit is open. The supporting bracket F, the stop post D, and the contact lever are of course suitably insulated, as will be understood without further explanation.

I pass now to the mechanism for actuating the contact lever. The shaft C is supported by and journaled in suitable bracket bearings G. Upon it is fixed a pinion *c*, which is engaged by a vertical rack bar *d* supported in suitable guides in which it can move up and down. The lower end of this rack bar, passes down through the bottom of the box, and to it is connected the rail by some suitable intermediary by which the movement of the rail due to the passage of a train, is caused to impart vertical movement to the rack bar. This intermediary in the present

instance consists of the lever *e*, which as shown in Fig. 3 is fulcrumed on a suitable foundation independent of the rail, and has its longer arm pinned to the lower end of the rack bar, and its shorter arm clipped to the rail R. In this way when the rail is depressed, the lever *e*, will be caused to lift the rack bar, thus revolving the pinion *c* and its shaft C in a direction to move the contact lever down against its lower stop *b*, and out of connection with contact E, in which position it is represented in Fig. 2. As soon as the train passes, the rail will rise, with the effect of moving the lever *e* in a direction to pull down the rack bar *d*, thus causing the contact lever to rise and make connection with the contact E.

It remains to describe the friction joint which, as hereinbefore stated, is to be interposed in the operating mechanism at some point between the contact lever and the rail. In this instance it is formed by the two friction disks H, I, mounted on shaft C. The disk H is fast to and moves with the shaft C; the disk I is loose on the shaft, and to it is solidly fixed the contact lever. The disk I is spring pressed toward the disk H, and their meeting faces are armed with friction pads formed in this instance by circular pieces of leather *f* inserted in recesses formed in the interior opposite faces of the two disks H I. The spring pressure upon the loose member I of this friction joint is exerted by a spiral spring *g* encircling the shaft C and confined between a washer *h* at the end next to the cog wheel *c*, and a loose washer *i* at the opposite end, this washer bearing against the end of the hub of the loose member I of the friction joint. Under this arrangement it will be seen that all movement of the actuating mechanism in excess of that required to move the contact lever against one or the other of its stops *a*, *b*, is taken care of at the friction joint, the one disk in this case slipping on the other after the contact lever has brought up against its stop *a* or *b*. Thus when the depression or rise of the rail exceeds the limit requisite to carry the contact lever from *a* to *b* or vice versa, the balance of the movement is expended at the friction joint and does not pass beyond that point; and in whichever direction the movement may be, the instrument, at the completion of that movement, will be adjusted and ready to move in the opposite direction upon the very slightest movement in the opposite direction of the rail. In this connection it should be noted that the movement of the rail necessary to move the contact lever between limits is exceedingly small, the motion being greatly exaggerated or multiplied by the levers B and *e;* and in practice this movement of the rail due to the passing of a train will be in excess of that required to move the contact lever from one stop to the other. If then by retamping, or the action of frost or other causes, the condition of the track should be changed to such an extent as to throw the instrument out of adjustment, it will by the passing of the next train be readjusted and adapted to the new condition of things. The movement of the rail being at least sufficient to move the contact lever at least a distance equal to that between its two stops *a* and *b*, then, whenever the lever brings up against the stop *a* or *b*, the balance of the movement beyond that needed to bring the lever to the specified position will be expended at the friction joint, and the lever will be in adjusted position, to respond instantly to the return movement of the rail.

The normal condition of the circuit may be either open or closed. In the example given in the drawings, it is normally closed—the normal position of the contact lever being up and in contact with the fixed contact E. In Fig. 2 the lever is shown down and in the position it will occupy whenever the rail is depressed. If the circuit is one which should be normally open, then the contact E would be below, instead of above the contact lever, and the down movement of the latter would close instead of open the circuit.

For the purpose of taking up all lost motion, so that the contact lever may respond at once to the movement of the rail, I find it desirable to exert a downward spring or yielding pressure upon the rack bar *d*. The spring pressure device for this purpose consists in the present instance of an angle or elbow lever *j*, fast upon a shaft or axle *k* journaled in bearings *l* attached to the sides of the box; one arm of the lever overhangs the top of the rack bar, and to the other arm is connected a pull spring, by which the overhanging arm is caused to bear down upon the rack bar. To further insure the taking up of lost motion I can employ in connection with the lever *e* (Fig. 3) a rubber or other spring *s* placed above the long end of the lever and there held in place by a suitable yoke *t* straddling the lever and bolted at its lower ends to the lever supporting frame. This spring bears downwardly on the long end of the lever and tends to take up lost motion, if any there be.

Having described my invention and the best way now known to me of carrying the same into effect, what I claim, and desire to secure by Letters Patent, is—

1. In combination with the rock shaft and mechanism for imparting movement thereto, two disks, one fast on the shaft, the other loose thereon and spring pressed toward its fellow, the contact lever carried by the loose disk, and stops for limiting the movement of said lever, substantially as and for the purposes hereinbefore set forth.

2. The combination with the rock shaft, the pinion thereon, and the sliding rack-bar engaging the pinion, of the friction joint comprising the two disks H, I, the one fast on the shaft, the other loose thereon and spring pressed toward its fellow, the contact lever or arm carried by the loose disk, and stops for

limiting the movement of said contact arm, substantially as and for the purposes hereinbefore set forth.

3. In combination with the rack bar, the mechanism operated thereby, the rail, and connections between said rail and rack bar, the spring pressure device for taking up lost motion, arranged to exert constant pressure upon the rack bar in a direction opposite to that in which the bar is caused to move by the depression of the rail to which it is connected, substantially as and for the purposes hereinbefore set forth.

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

JACOB WILLIAM LATTIG.

Witnesses:
JOHN BRUNNER,
CHAS. B. BRUNNER.