

(No Model.)

E. C. WILEY.
ELECTRIC SIGNAL SYSTEM FOR RAILROADS.

No. 446,313.

Patented Feb. 10, 1891.

Fig. 2.

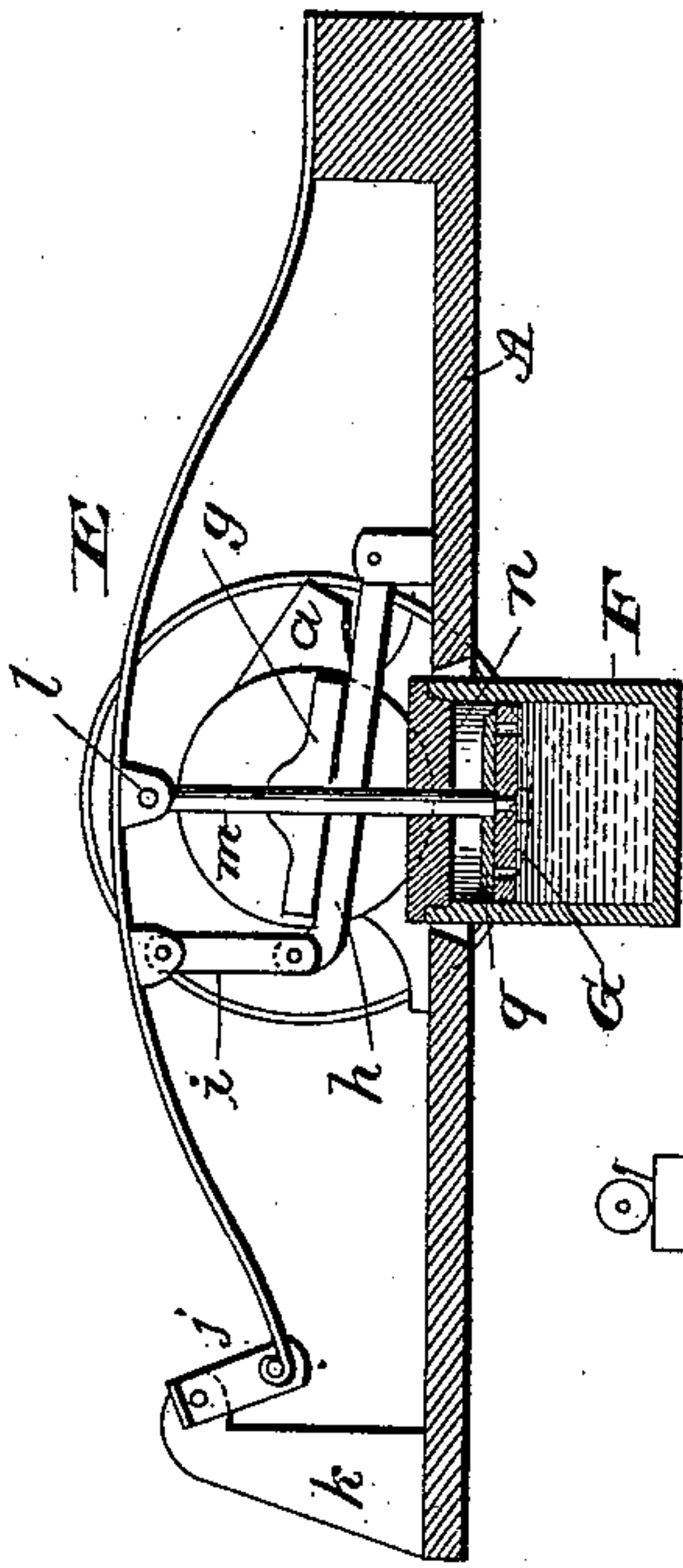
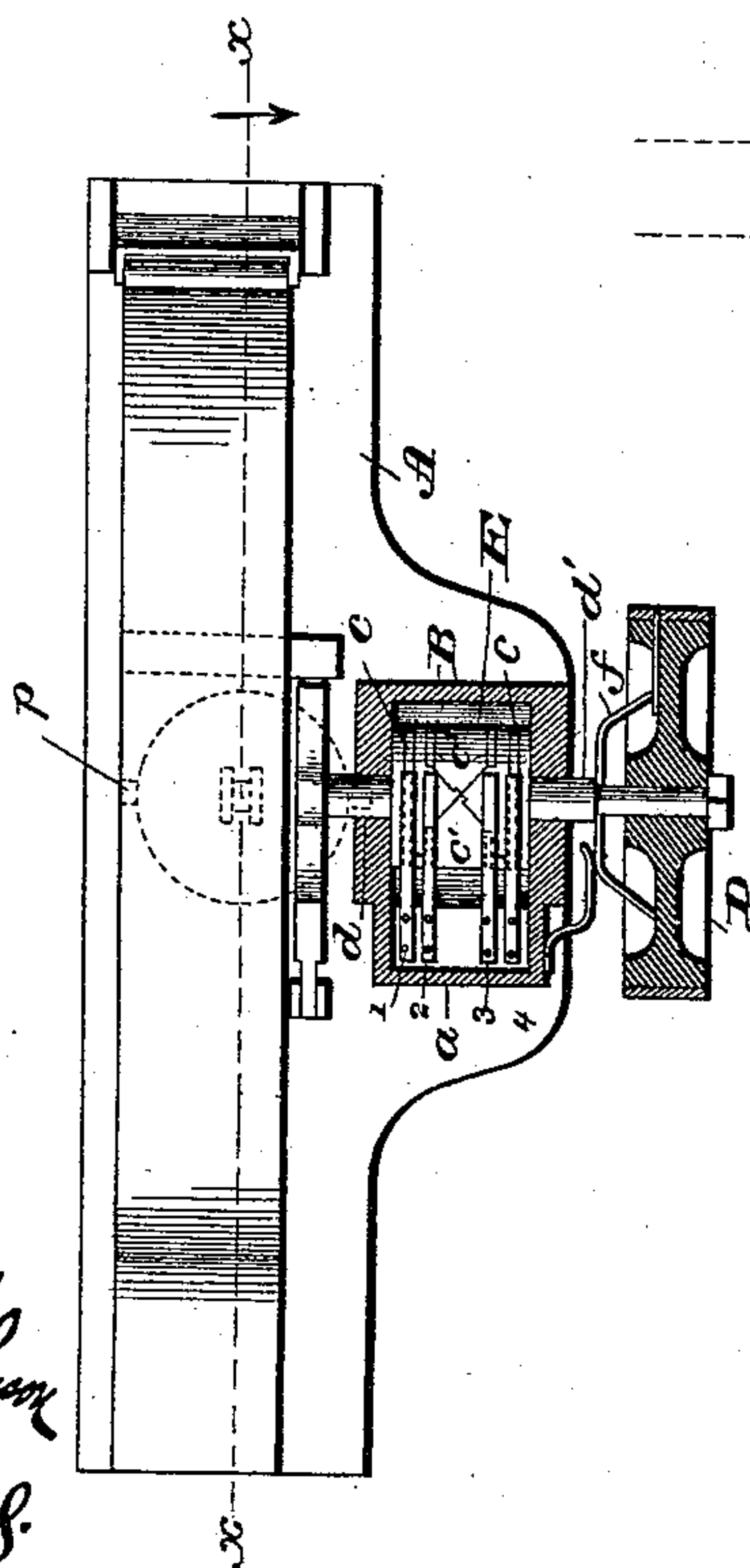
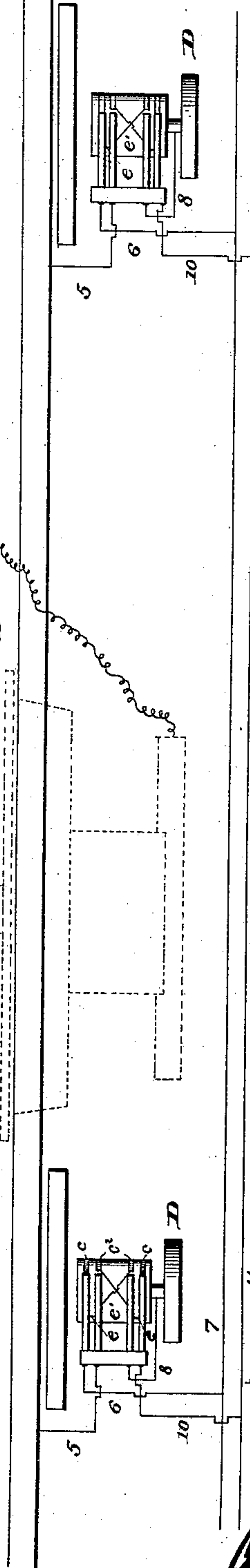


Fig. 1.



Witnesses
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Fig. 3.



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ELECTRIC SIGNAL SYSTEM FOR RAILROADS.

SPECIFICATION forming part of Letters Patent No. 446,313, dated February 10, 1891.

Application filed November 13, 1890. Serial No. 371,336. (No model.)

To all whom it may concern:

Be it known that I, EDGAR C. WILEY, a citizen of the United States of America, residing at Bristol, in the county of Sullivan and State of Tennessee, have invented certain new and useful Improvements in Electric Signal Systems for Railroads; 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, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to circuit-closing devices to be used in connection with electric signals for railways; and it consists in certain improvements adapted more particularly for use in connection with the system set forth in my application for patent filed May 15, 1890, Serial No. 351,964, the object of the present improvements being to insure the connection of the circuits with the least possible jar or shock to the parts and to maintain the circuits connected for the proper period of time.

The invention further contemplates an arrangement that will prevent the accidental or unwarranted operation of the device.

In the accompanying drawings, forming part of this specification, Figure 1 is a plan view of a circuit-closing device embodying my improvements, part being shown in section to more clearly illustrate the construction of the commutator and contact-wheel. Fig. 2 is a side view in part section of said improvement, looking in the direction of the arrow, Fig. 1; and Fig. 3, a plan view showing the connection of two of the improved circuit devices.

Each of the improved circuit-closing devices is mounted on a base A, located adjacent to the outside of one of the track-rails, and comprises a circular case B, having an offset a at one side, in which are secured four insulated brushes 1, 2, 3, and 4, registering with insulated contacts c c' c^2 , carried by commutator-cylinder C. The journals d d' extend through and beyond the ends of the circular case B. The commutator-contacts

c c' c^2 are arranged and connected the same as explained in my application before referred to—that is to say, the end contacts c are continuous and are connected by short wires e with the contact c' next adjacent, and then by cross-wires e' with contact c^2 farthest away. A wire 5 connects the rail with brush 2. Brush 1 is connected by branch wire 6 to one of the line-wires 7; brush 3 by wire 8 with a copper band g , forming the rim of a contact-wheel D, turning on the end of journal d' , and brush 4 by means of wire 10 with second line-wire 11.

The inner side of the wheel D is provided with a spring-plate f , which bears against a shouldered portion of the journal d' , as shown in Fig. 1. A horizontal block g is centrally mounted on the inner journal d and is located above a horizontal arm h , secured permanently at one end to the base, while the other end is secured by a link i to a horizontally-extending leaf-spring E, secured as shown in Fig. 2, and having one end connected permanently to the base A, while the other end is hung by a suspending link j , pivoted in a bracket k . A pair of ears l depend centrally from the under side of the leaf-spring E and have pivotally connected thereto the upper end of a piston-rod m , depending through the head n of a dash-pot F, seated in an opening in the base A. By reference to Fig. 1 it will be seen by the dotted lines that the dash-pot F has side trunnions p , which rest in depressions therefor in the upper face of the base, so that the pot F can have a limited rocking movement in the opening in the base. The piston G, secured on the lower end of the rod m , is provided with a series of ports and is of such diameter as to have a loose fit in the pot. A valve-disk q is loosely mounted on rod m on the upper side of the piston. Oil or similar liquid is contained in the dash-pot on the under side of the piston.

Having described the construction of the present improvements, it is to be noted that each of the locomotives is provided with an alarm-bell and circuit, as set forth in the pending application referred to, and that one of the circuit-wires is grounded through the rail by means of the wheel, while the other wire is connected with the circuit-closing con-

tact-brush. As the locomotive passes along the track its wheel will depress the spring E, which is ordinarily slightly higher at its center than the track, and also the arm *h*, which ordinarily forms a latch against the rotation of the commutator-cylinder. The succeeding contact between the brush carried by the locomotive and the wheel D enables the wheel to be turned to an extent limited by the blocks *g* and the journal of the same, and this limited movement of course results in a rotation of the cylinder C sufficient to secure the proper commutator-connections. By having the wheel D turn on the journal *d'* and by employing the plate *f*, as previously set forth, the frictional contact of the plate will be sufficient to enable the wheel to turn the cylinder to its full extent, after which any further rotation of the wheel will simply result in its slipping upon the journal. The depression of the spring also occasions the piston to descend into the dash-pot and lift the disk *q* away from said piston and enables the oil to be forced through and around said piston to the upper side of the same, this change of the position of the oil being a comparatively quick one. When, of course, the spring E is released from the action of the car-wheel, the rising tendency of the spring will insure the lifting of the piston, causing the valve to be seated against the same, and compel the oil to circulate slowly and only around the marginal portions of the piston, so as to retain the commutator-contact sufficiently long in position to enable the locomotive to reach another of these devices and similarly operate it, so that at least one set of connections will be always made, the importance of which is also fully set forth in said pending application. The rising of the spring through the medium of arm *h* and block *g* restores the commutator-cylinder to its first position.

By having the dash-pot pivotally suspended it may partake of all the movements and vibrations of the other parts, so as to enable them to work readily and easily.

As will be noted, the arm *h* positively locks the parts in such position that accidental or unwarranted operation will be avoided.

The spring E will generally be made of sufficient strength to require the weight of the locomotive to depress it. Hence it will not be easy to operate the parts any other way.

I claim—

1. In a circuit-closing device for railway systems, the combination of the commutator-cylinder and contact-brushes, a block located on one of the journals of said cylinder, a pivoted arm *h* below said block to latch it, and a curved spring connected with said arm *h* and adapted to be depressed by the car-wheel to release said block and permit the cylinder to be turned, substantially as set forth.

2. In a circuit-closing device for electric signals for railroads, the combination, with the commutator-cylinder and contact-brushes, of a block located on one of the journals of the cylinder, a pivoted latch-arm engaging said block and a curved spring connected to said latch-arm, a piston-rod pivotally depending from said spring and connected with a piston in the cylinder containing oil, and a valve *q*, playing loosely on the rod at the upper side of said piston, substantially as set forth.

3. In a circuit-closing device for electric signals for railroads, the combination, with the commutator-cylinder and contact-brushes, of a block located on one of the journals of said cylinder, a pivoted latch-arm engaging said block and a curved spring connected to said latch-arm, a pivotally-suspended dash-pot located below said spring and containing oil, and a piston, together with a piston-rod connected with said piston and pivotally attached to the leaf-spring, substantially as set forth.

4. In a circuit-closing device for electric signals for railroads, the combination of the commutator-cylinder and contact-brushes, a block *g*, located on one of the journals of said cylinder for limiting its rotation, together with a wheel located on the other journal, and a spring-plate *f*, interposed between said wheel and journal to rotate together to the limit of the rotation of the cylinder and thereafter to permit the wheel to slip on the journal, substantially as set forth.

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

EDGAR C. WILEY.

Witnesses:

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