

(No Model.)

2 Sheets—Sheet 1.

T. H. PATENALL.

CIRCUIT CLOSING AND BREAKING DEVICE FOR RAILWAY TRACKS.

No. 480,507.

Patented Aug. 9, 1892.

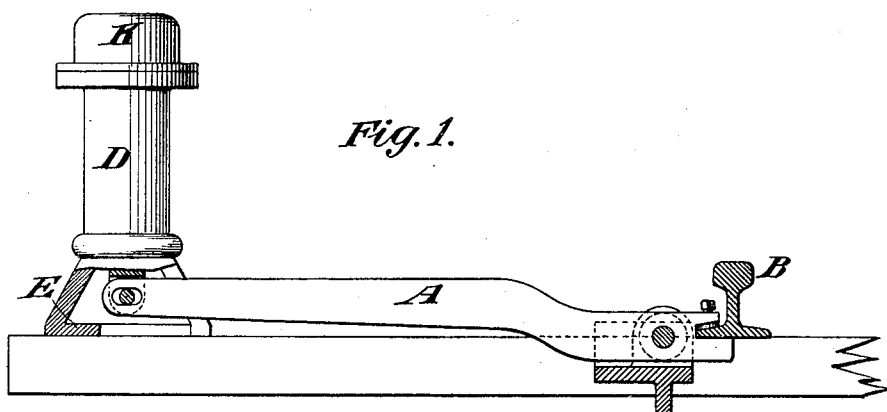


Fig. 1.

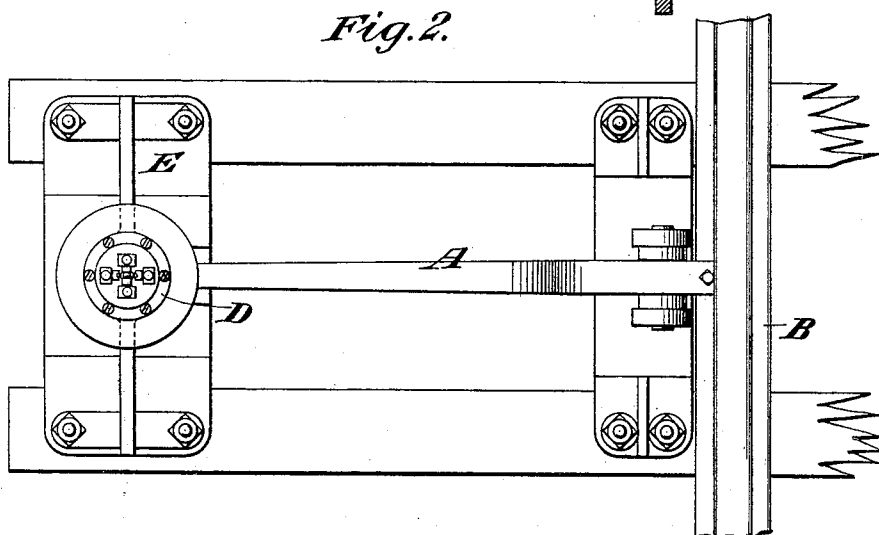


Fig. 2.

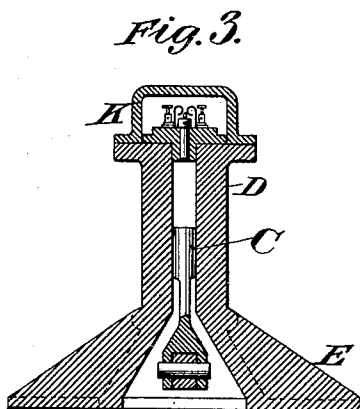


Fig. 3.

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Inventor:
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Brown & Reward

(No Model.)

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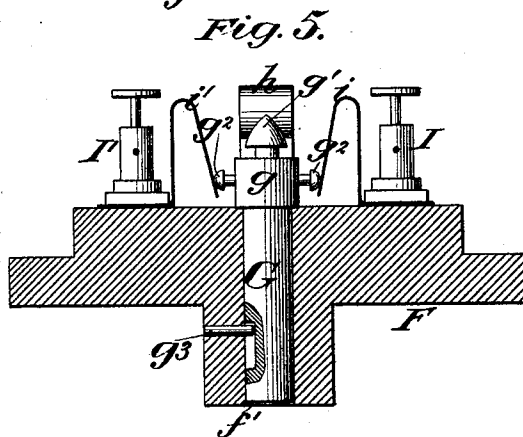
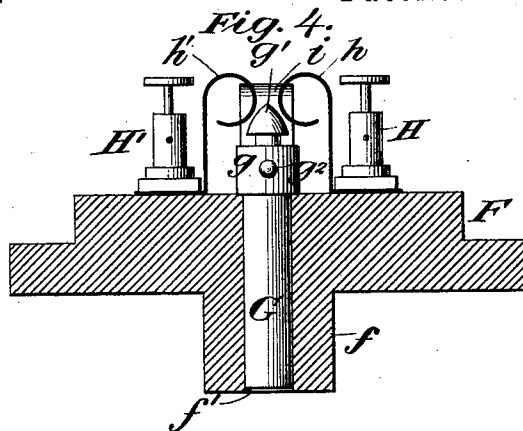
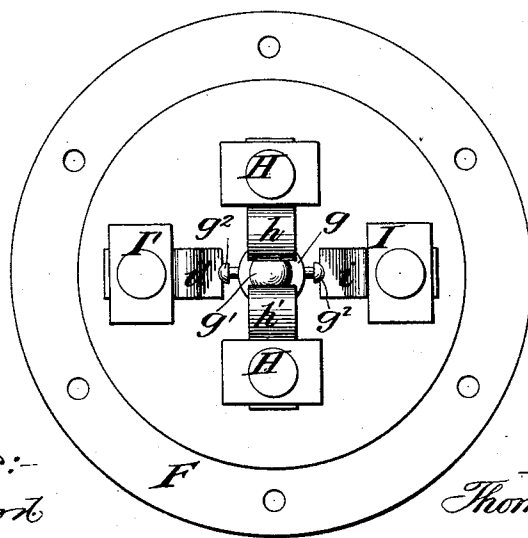


Fig. 6.



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UNITED STATES PATENT OFFICE.

THOMAS H. PATENALL, OF RAHWAY, NEW JERSEY.

CIRCUIT CLOSING AND BREAKING DEVICE FOR RAILWAY-TRACKS.

SPECIFICATION forming part of Letters Patent No. 480,507, dated August 9, 1892.

Application filed October 20, 1891. Serial No. 409,296. (No model.)

To all whom it may concern:

Be it known that I, THOMAS H. PATENALL, of Rahway, in the county of Union and State of New Jersey, have invented a new and useful Improvement in Circuit-Closing and Breaking Devices for Railway-Tracks, of which the following is a specification.

My invention relates to an improvement in circuit closing and breaking devices for railway-tracks in which a reciprocating plunger operated by the passing train or other force compresses the air within a cylinder or socket and thereby forces a circuit maker and breaker out of engagement with one pair of contact-plates and into engagement with another pair.

A practical embodiment of my invention is represented in the accompanying drawings, in which—

Figure 1 is a view of the device in side elevation as it appears in connection with one of the rails of a railway-track. Fig. 2 is a top plan view, the cap covering the circuit making and breaking device being removed. Fig. 3 is a view in vertical section transversely through the cylinder and circuit making and breaking device and cap. Fig. 4 is an enlarged view in detail in transverse section through the circuit making and breaking device. Fig. 5 is a view in transverse section through the same, taken at right angles to the section represented in Fig. 4; and Fig. 6 is an enlarged top plan view of the same.

I have shown the operating-lever A, having its short arm connected with the edge of a railway-rail B and its long arm connected with a vertically-movable plunger C, located within a cylinder D, uprising from a suitable base E, constructed and arranged in a manner quite similar to the corresponding parts in my patent, No. 462,850, granted November 10, 1891.

My present invention contemplates the employment of one or more pairs of contact-plates in position to be connected or disconnected by means of a movable circuit-closer under the impulse of the air within the cylinder D when compressed by the movement of the plunger C. To this end I employ a base-plate F, having a downwardly-extended stem *f*, adapted to fit within the upper end of the cylinder D. A bore *f'* is formed trans-

versely through the plate F and its stem *f* and communicates with the interior of the cylinder D above the plunger C. Within the bore *f'* in the plate F a vertically-moving circuit-closing piece G is located, the stem of which is intended to fit the bore with an easy longitudinal sliding movement. The upper end of the piece G is provided with an enlarged portion or with a collar *g*, the lower end of which is intended to seat upon the upper side of the plate and limit the downward movement of the piece G. Its upward movement is limited by a stop *g*³. The said piece G is provided at its upper end with a head *g'*, preferably of conical shape, as shown. Where it is intended to both make and break a circuit by a single movement of the piece G, I further provide its upper end with laterally-projecting pins *g*², extending from its opposite sides.

To the upper side of the plate F, I secure binding-posts H H', and in case of utilizing the device to break one circuit and close another, the form which I prefer, I provide a second set of binding-posts I I'. I find it convenient to locate the members of each set of binding-posts diagonally opposite each other upon opposite sides of the piece G. Contact-plates *h h'* and *i i'*, preferably of some suitable resilient metal, as is common, are secured to the binding-posts and have their free ends projected toward the circuit-closer G, so as to come in contact with it or with the head and pin with which it is provided as it is moved longitudinally within its seat.

In the preferred form which I have herein presented I give the free ends of the contact-plates *h h'* a curve over toward each other and then away from each other, so that they will rest a short distance apart from the head *g'* of the piece G when the latter is in its depressed adjustment. This position is shown clearly in Fig. 4. The free ends of the plates *i i'* are drawn downward and gradually approach each other, so as to rest and come in contact with the pins *g*² when the piece G is in depressed adjustment. This position is clearly represented in Fig. 5. From the above it will be seen that when an upward motion is imparted to the piece G it will throw the pins *g*² out of contact with the plates *i i'* and

will move the head g' into contact with the plates $h h'$, thereby breaking the circuit in which the plates $i i'$ are located and closing circuit in which the plates $h h'$ are located.

- 5 When the piece G falls, the effect will be the opposite of that just explained.

In practice suppose the signal in the block-signal system in common use be held to "safety" by the closed circuit in which the plates i and i' are located and the preceding signal be set to "danger" by a circuit in which the plates $h h'$ are located. A train in passing the device would compress the air in the cylinder D, and thereby lift the piece G, closing the circuit $h h'$, and setting the previous signal to "safety," while at the same time breaking the circuit in which the plates $i i'$ are located and setting the signal which it is about passing to "danger."

A cap K is adapted to fit over the circuit making and breaking mechanism to prevent the access of dust and rain thereto.

What I claim is—

The combination, with a cylinder, and a plunger for compressing the air within the cylinder, of a movable piece seated in an opening in the end of the cylinder opposite the plunger, a pair of contact-plates with which the said movable piece is normally in engagement, and a pair of contact-plates with which the said movable piece is adapted to be thrown into engagement under the impulse of the compressed air within the cylinder, substantially as set forth.

THOMAS H. PATENALL.

Witnesses:

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