

No. 611,844.

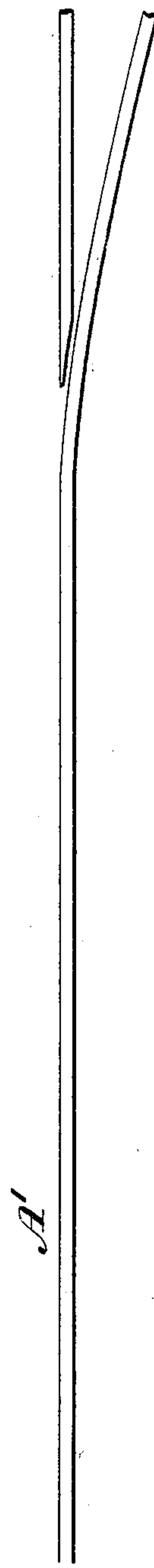
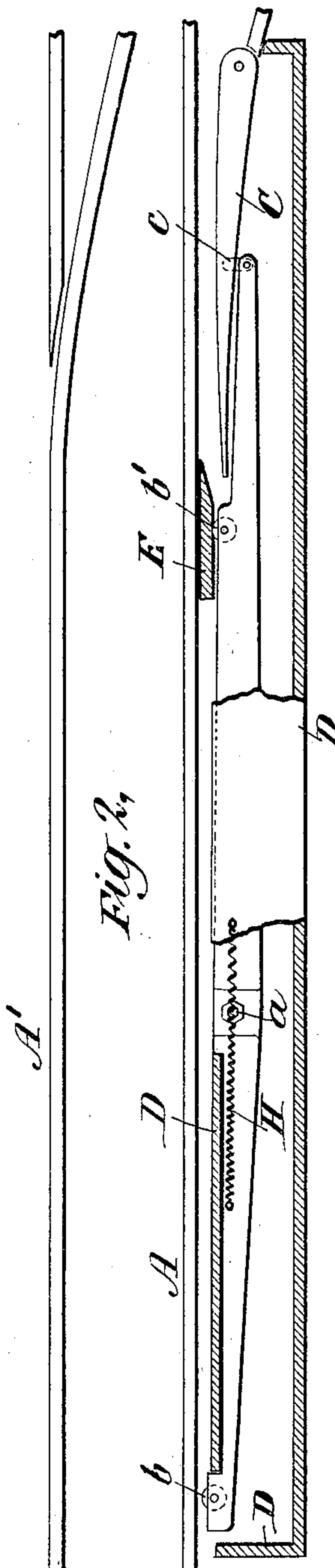
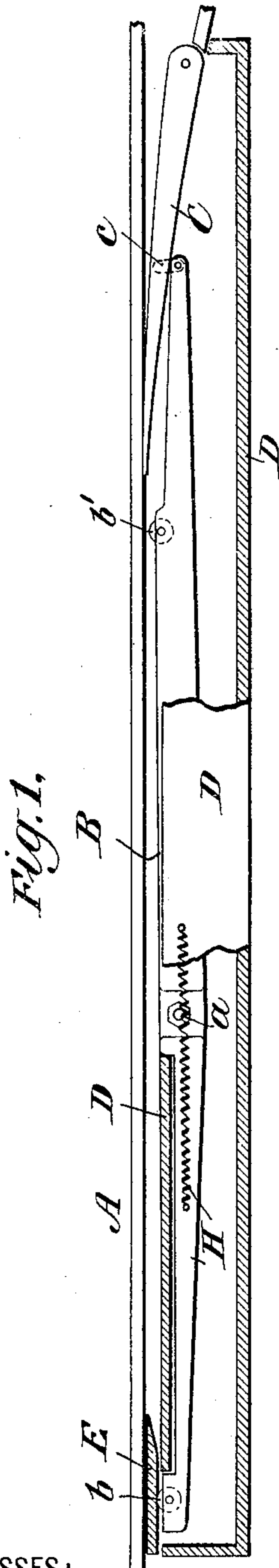
Patented Oct. 4, 1898.

W. PRESTON.
RAILWAY SWITCH.

(Application filed Jan. 29, 1897.)

(No Model.)

3 Sheets—Sheet 1.



WITNESSES:

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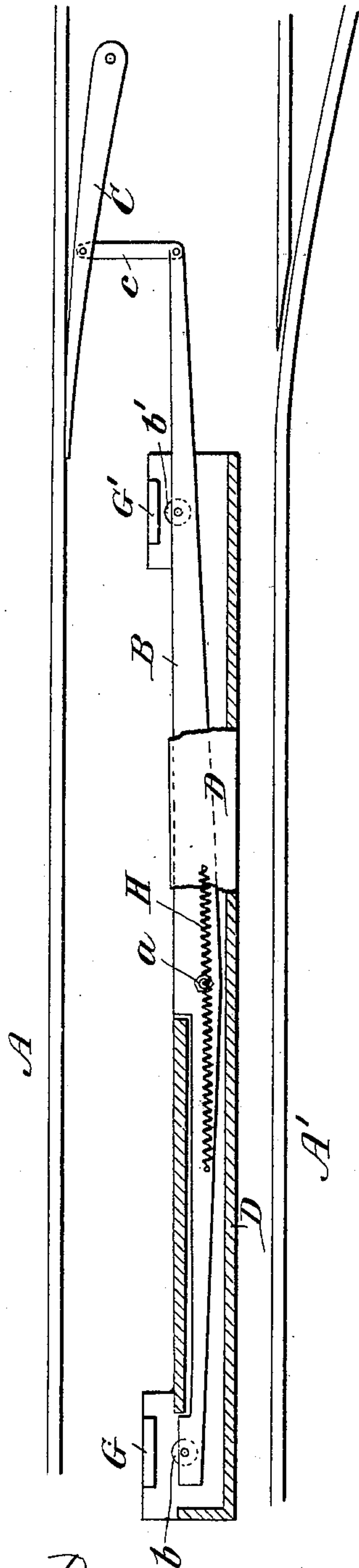
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3 Sheets—Sheet 2.

Fig. 3,



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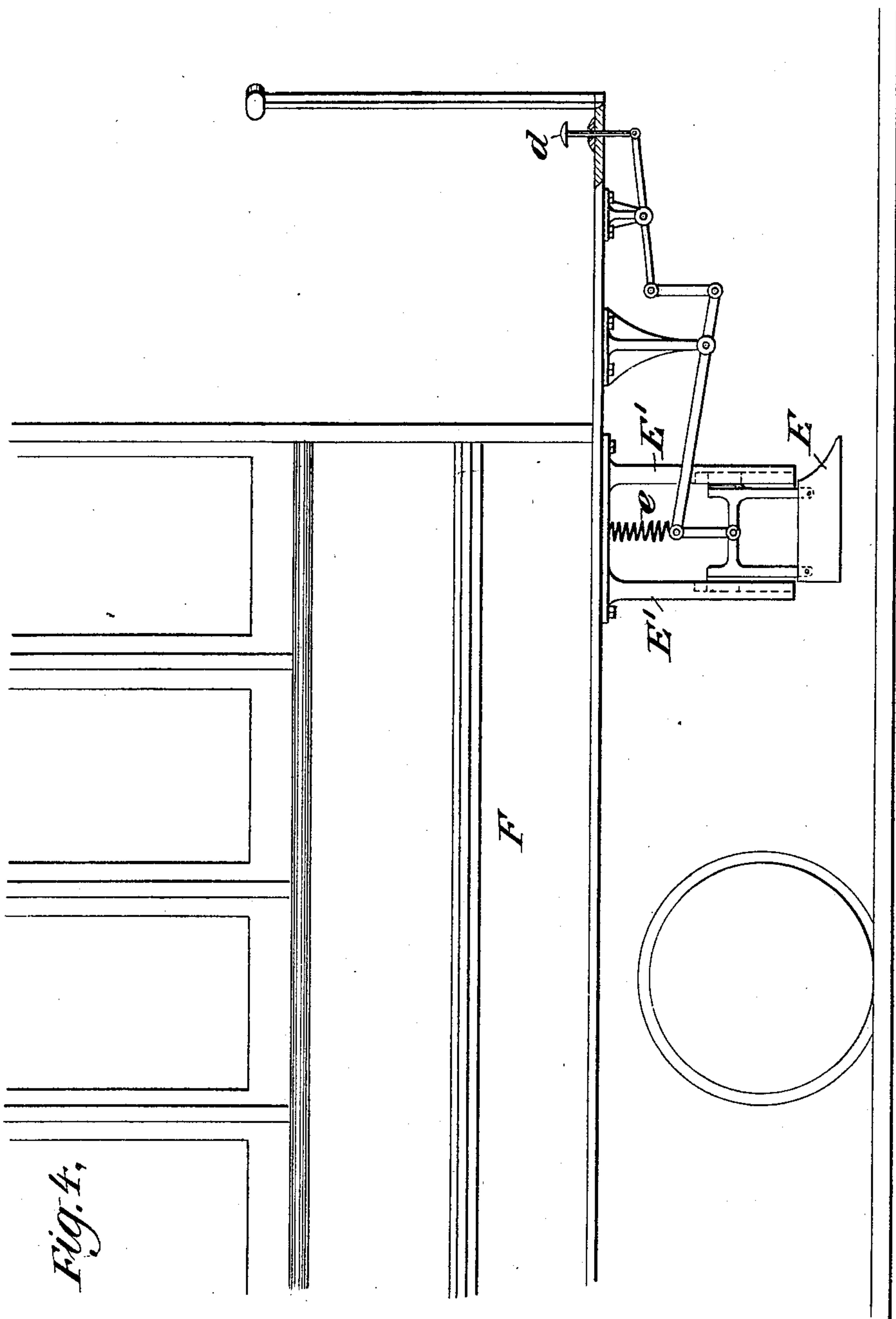
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UNITED STATES PATENT OFFICE.

WILLIAM PRESTON, OF NEW YORK, N. Y.

RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 611,844, dated October 4, 1898.

Application filed January 29, 1897. Serial No. 621,144. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM PRESTON, a citizen of the United States, and a resident of New York, (Brooklyn,) county of Kings, and State of New York, have invented a new and useful Improvement in Railway-Switches, of which the following is a specification.

This invention relates to switches for railway-tracks, and especially those adapted for tram-cars, such as horse-cars, cable-cars, electric cars, &c.

The object of the invention is to provide a simple, inexpensive, and efficient apparatus of the kind described and one that may be easily and positively operated by a car moving on the track.

The invention consists of the construction hereinafter set forth.

In the drawings representing one embodiment of the invention and forming part of this specification, and in which like letters designate similar parts, Figures 1 and 2 are plan views of portions of a track, showing my invention applied thereto, the switch being open in one case and closed in the other case; and Fig. 3 is a plan view of a modified arrangement. Fig. 4 is a side elevation of a car adapted to automatically operate the switch.

Referring now to the particular construction shown in the drawings, A A' are the rails of the track, over which the car is adapted to travel.

B is a long lever pivoted at a point *a* in the rear of the switch-point to a suitable supporting-base, so as to swing in a horizontal plane. This lever extends lengthwise along the track and generally between the rails; but it could of course be located outside the rails and near to one of them, if desired. The lever is connected on one side of its pivot *a* to the switch-point C by a link or other suitable means and is generally inclosed in a housing D. It is provided for the purpose hereinafter described with bearing-points *b b'*, which are generally in the form of antifriction-rollers and are located one on each side of the pivot *a* and both preferably at the rear of the switch-point.

E is a shoe carried by the car F and adapted to be brought in contact with the lever on one side at the points *b b'*, the shoe as it moves forward with the car operating to push one or the other of the bearing-points laterally

and so move the lever and switch-point. Thus the momentum of the car furnishes the power to operate the switch. The shoe should generally be beveled at its forward end and on the side opposite the bearing-points *b b'*, as shown, in order to gradually exert its force.

As shown in Figs. 1 and 2, the bearing-points *b b'* are disposed close to the rail *a*, so that the shoe may move in between the rail and the bearing-points, and the shoe is just of sufficient thickness to pass freely between the rail and that one of the bearing-points which may at the time be swung out from the rail; but the shoe is not able to pass in between the rail and that one of the bearing-points *b* and *b'* which at the time may be swung close against the rail without moving the lever on its pivot and operating the switch. Thus the shoe when moving the lever acts as a wedge. The rail A thus provides braces for the shoe opposite the points *b b'*, so that the shoe may be braced against lateral strain when wedging or bearing against the points *b b'* to operate the switch.

In Fig. 3 the lever B is disposed so as to bring its bearing-points *b b'* midway between the rails, so that a car may operate the switch, running either end forward, and not require more than two shoes, one at each end of the middle of the car. In this case braces G G', opposite the bearing-points *b b'* of the lever B, serve to brace the shoe when wedging against these bearing-points in the same way as the rail A above described.

F is a car carrying a shoe E, designed to be moved up and down, so that it may be brought into contact with the lever. The shoe as here shown is connected with an operating-treadle *d* on the platform by means of levers or other suitable means. The shoe slides in ways E E and has a spring *e* to normally hold the shoe above the track.

In order that the lever may be positively held in either position to which it may be moved, I may employ a spring H, connected at one end to the lever on one side of its pivot *a* and at its other end to the casing D on the opposite side of the pivot. As the lever moves from side to side the spring is carried from one side of the pivot to the other side, and thus serves to hold the lever in either position to which it is moved. The lever B may be located on either side of the switch-point

but with respect to the direction of the car's movement, and its pivot *a* should always be located in the rear of the switch-point—*i. e.*, an approaching car should reach the lever before it reaches the switch-point.

The bearing-points *b b'* of the lever, it will be seen, are both located at the rear of the switch-point. This enables the shoe of the car approaching the switch to strike either of the bearing-points and open and close the switch before the car reaches the switch. Suppose, for example, the switch were closed, as shown in Fig. 2—*i. e.*, thrown for main-line traffic—and an approaching car was to be turned off upon the branching track. The carman without seeing the switch or knowing its condition would only have to hold his shoe down till he had passed the bearing-point *b* and the switch would be turned for the branch track. If the car were designed to continue on the main track, the shoe would be kept down while passing the bearing-point *b'*, and the carman need not wait to lower his shoe till he had passed point *b*, because whatever the position of the switch-point if the shoe were kept down while passing point *b'* the car would be kept on the main track. Thus it will be seen that the switch, while very simple in construction and inexpensive, enables a carman with absolute certainty to open or close the switch so as to turn his car onto the side track or keep it on the main track, as he may desire, and this without requiring him to know the condition of the switch before he reaches it. This is a very important advantage. With the automatic devices now in use or heretofore proposed it is absolutely essential for the carman to know the condition of the switch before he reaches it, so that he may take the proper action to guide his car at the switch as he desires. In crowded streets, where a carman must be always prepared at a moment's notice to stop his car to prevent collision or take on passengers, it is very difficult for him to take note of the switches as he approaches them, and with wagons on the track ahead of him it might indeed be impossible for him to see the switch-points without stopping for the purpose. Again, at night the darkness would of course make it impossible for him to see the switch ahead of him. The result is that these old devices often cannot be depended upon in the daytime and are useless at night. With my invention, however, it is not necessary for the carman to see the switch at all. If he is to keep on the main track, he knows he must keep his shoe down while passing point *b'*, and he may put it down before he reaches point *b* and not take it up till he has passed some distance beyond the switch. If he is to take the side track, he knows he must keep his shoe down while passing point *b* and take it up before he reaches point *b'*, which he can easily do.

While I have shown the point *b'*, as well as the point *b*, disposed in the rear of the switch-

point and prefer this arrangement, yet in some cases the point *b'* might be located directly opposite the free end of the switch-point or even a short distance—as, say, a foot or so—in advance thereof, provided the shoe *E* were located on the car in advance of the front wheels, so that the shoe could strike the point *b'* before the front wheels reached the switch-point.

Various changes may be made in the form and arrangement of the apparatus without departing from my invention, as will be readily appreciated.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a switch, the combination with a switch-point, of a lever medially pivoted at the rear of the switch-point so as to swing in a horizontal plane and located lengthwise of the track, said lever being connected in advance of its pivot with the switch-point, so as to open or close the switch when it swings on its pivot, braces opposite the lever on each side of its pivot, and a shoe carried by a car and adapted to pass in between the lever and the braces to wedge the lever over and operate the switch, said lever being provided with two lateral bearing-points opposite the braces, one on each side of its pivot and both so disposed with respect to the switch-point that the said shoe may strike both bearing-points and throw the switch in either direction as desired before the front wheels of the car reach the switch, substantially as set forth.

2. In a switch, the combination with a switch-point, of a lever medially pivoted at the rear of the switch-point so as to swing in a horizontal plane and located lengthwise of the track in proximity to a rail thereof, said lever being connected in advance of its pivot with the switch-point so as to open or close the switch when it swings on its pivot, and a shoe carried by a car and adapted to pass in between the said rail and the lever on either side of its pivot to wedge the lever over and operate the switch, said lever being provided with two lateral bearing-points one on each side of its pivot and both so disposed with respect to the switch-point that the said shoe may strike both bearing-points and throw the switch in either direction as desired before the front wheels of the car reach the switch, substantially as set forth.

3. In a switch, the combination with a switch-point, of a lever medially pivoted at the rear of the switch-point so as to swing in a horizontal plane and located lengthwise of the track, said lever being provided with anti-friction-rollers on both sides of its pivot and connected in advance of its pivot with the switch-point so as to open or close the switch when it swings on its pivot, braces opposite the lever on each side of its pivot, and a shoe carried by a car and adapted to pass in between the anti-friction-rollers of the lever and the braces to wedge the lever over and operate the switch, the anti-friction-rollers of the

lever being so disposed with respect to the switch-point that the said shoe may pass between them and the braces and operate the lever to throw the switch in either direction before the front wheels of the car reach the switch, substantially as set forth.

4. In a switch, the combination with a switch-point, of a lever medially pivoted at the rear of the switch-point so as to swing in a horizontal plane and located lengthwise of the track, said lever being connected in advance of its pivot with the switch-point so as to open and close the switch when the lever swings on its pivot, and a spring connected with the lever and operating to maintain the lever in either position, the lever being provided with two lateral bearing-points both in the rear of the switch-point and one on each side of the pivot whereby a moving car by applying lateral pressure against the lever at its bearing-points may throw the switch in either direction as desired before the front wheels of the car reach the switch, substantially as set forth.

5. In a switch, the combination with a switch-point, of a lever medially pivoted at the rear of the point so as to swing in a horizontal plane and located lengthwise of the track, said lever being connected in advance of its pivot with the switch-point so as to open and close the switch when it swings on its pivot, and a shoe carried by a car and adapted to operate the switch, and a spring connected with the lever and operating to maintain the lever in either position, said lever being provided with two lateral bearing-points one on each side of its pivot and both so disposed with respect to the switch-point that the said shoe may strike both bearing-points and throw the switch in either direction as desired before the front wheels of the car reach the switch, substantially as set forth.

6. In a switch, the combination with a switch-point, of a lever medially pivoted at the rear of the point so as to swing in a horizontal plane and located lengthwise of the track, said lever being connected in advance of its pivot with the switch-point so as to open and close the switch when it swings on its pivot, and a shoe carried by a car and adapted to push against the lever on either side of its pivot and operate the switch, and a spring connected with the lever and operating to maintain the lever in either position, said lever being provided with two lateral bearing-points one on each side of its pivot and both so disposed with respect to the switch-point that the said shoe may strike both bearing-points and throw the switch in either direction as desired before the front wheels of the car reach the switch, substantially as set forth.

7. In a switch, the combination with a switch-point, of a lever medially pivoted at the rear of the switch-point so as to swing in a horizontal plane and located lengthwise of the track, said lever being connected in advance of its pivot with the switch-point, so as

to open and close the switch when it swings on its pivot, braces opposite the lever on each side of its pivot, and a shoe carried by a car and adapted to pass in between the lever and the braces to wedge the lever over and operate the switch, and a spring connected with the lever and operating to maintain the lever in either position, said lever being provided with two lateral bearing-points opposite the braces, one on each side of its pivot and both so disposed with respect to the switch-point that the said shoe may strike both bearing-points and throw the switch in either direction as desired before the front wheels of the car reach the switch, substantially as set forth.

8. In a switch, the combination with a switch-point, of a lever medially pivoted at the rear of the switch-point so as to swing in a horizontal plane and located lengthwise of the track in proximity to a rail thereof, said lever being connected in advance of its pivot with the switch-point so as to open and close the switch when it swings on its pivot, and a shoe carried by a car and adapted to pass in between the said rail and the lever on either side of its pivot to wedge the lever over and operate the switch, and a spring connected with the lever and operating to maintain the lever in either position, the lever being provided with two lateral bearing-points both in the rear of the switch-point and one on each side of the pivot whereby a moving car by applying lateral pressure against the lever at its bearing-points may throw the switch in either direction as desired before the front wheels of the car reach the switch, substantially as set forth.

9. In a switch, the combination with a switch-point, of a lever medially pivoted at the rear of the switch-point so as to swing in a horizontal plane and located lengthwise of the track, said lever being provided with anti-friction-rollers on both sides of its pivot and connected in advance of its pivot with the switch-point so as to open and close the switch when it swings on its pivot, braces opposite the lever on each side of its pivot, and a shoe carried by a car and adapted to pass in between the antifriction-rollers of the lever and the braces to wedge the lever over and operate the switch, and a spring connected with the lever and operating to maintain the lever in either position, the antifriction-rollers of the lever being so disposed with respect to the switch-point that the said shoe may pass between them and the braces and operate the lever to throw the switch in either direction before the front wheels of the car reach the switch, substantially as set forth.

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

WILLIAM PRESTON.

Witnesses:

NICHOLAS M. GOODLETT, Jr.,
EDWIN SEGER.