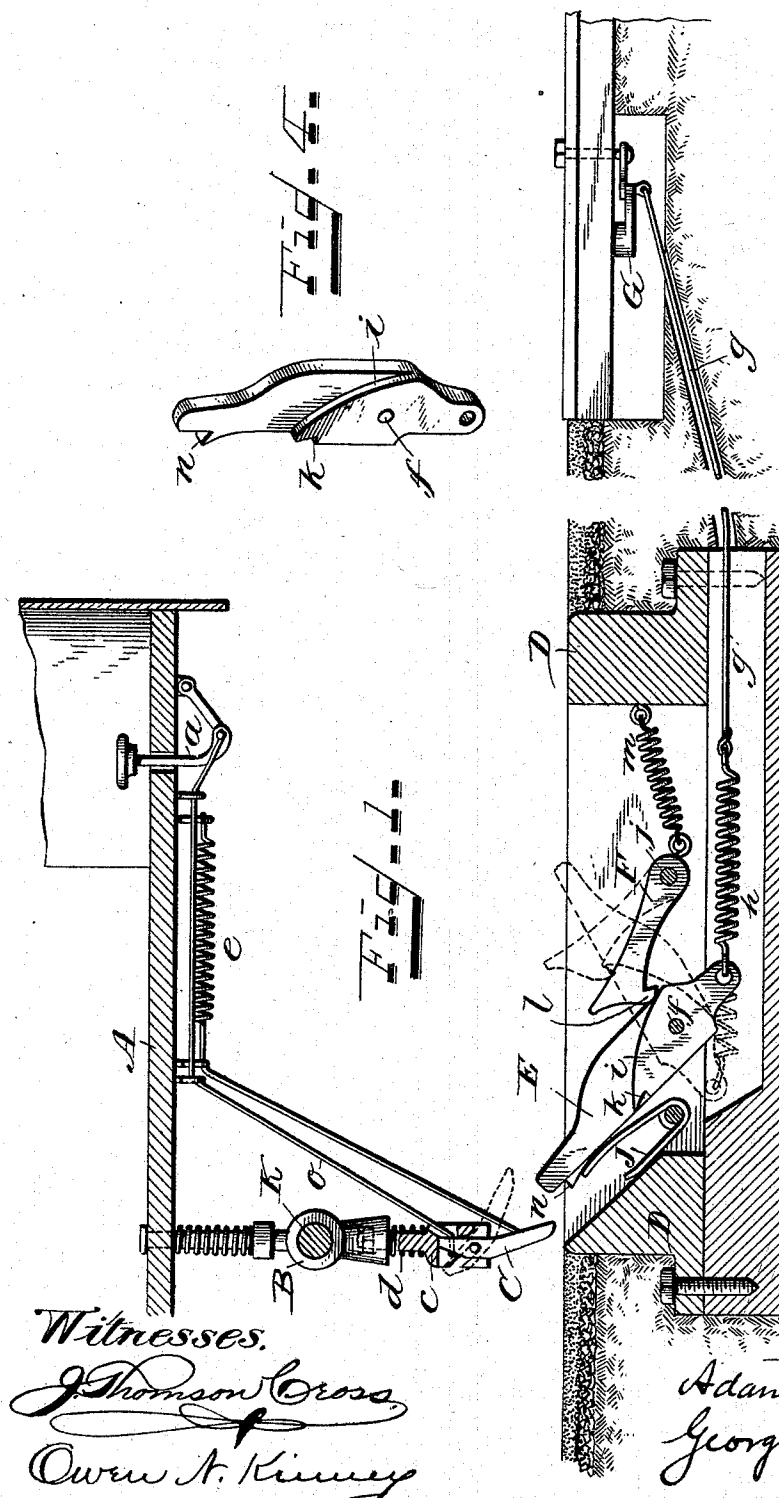
(No Model.) 2 Sheets—Sheet 1.

A. MATZ.

SWITCH ACTUATING MECHANISM.

No. 528,005. Patented Oct. 23, 1894.



Witnesses.
J. Thomson Cross
Owen A. Kinney

Inventor.
Adam Matz by
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Attorney.

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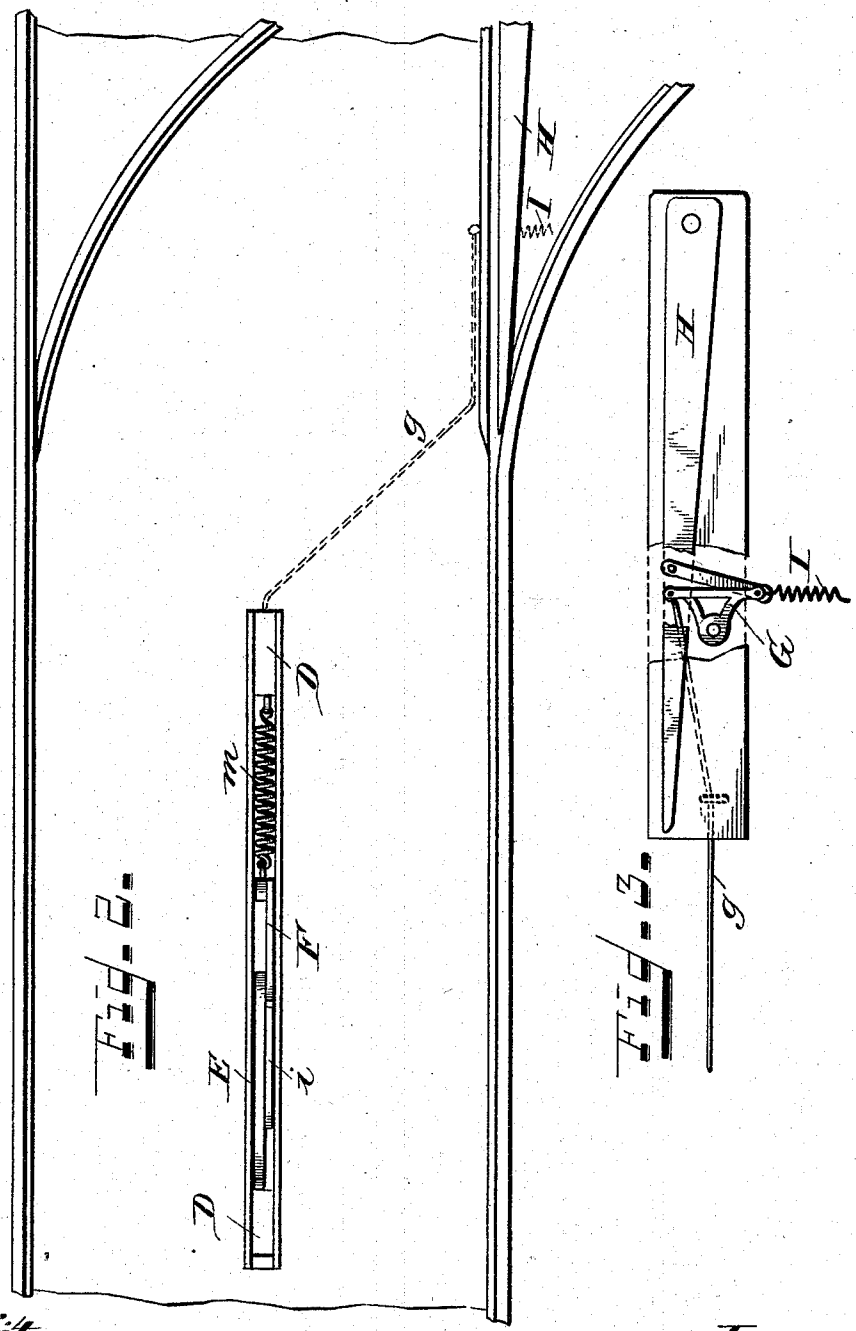

Fig. 2.

Fig. 3.

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UNITED STATES PATENT OFFICE.

ADAM MATZ, OF CINCINNATI, OHIO.

SWITCH-ACTUATING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 528,005, dated October 23, 1894.

Application filed May 14, 1894. Serial No. 511,149. (No model.)

To all whom it may concern:

Be it known that I, ADAM MATZ, a citizen of the United States, residing at Cincinnati, in the county of Hamilton, State of Ohio, have invented a new and useful Improvement in Switch-Actuating Mechanism, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to improvements in switch actuating mechanism.

The object of my invention is to provide a mechanism whereby one operating a car or locomotive, on approaching a switch in a rail road track, over which it is passing, may, from his position on his car, or locomotive, shift the switch open or shut at will, thereby enabling him to direct such car along the same track past such switch or to direct it onto another track. I obtain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1, is a side and partly sectional view of the devices embodying my invention. Fig. 2, is a plan view showing the box, lever, pawl, springs, track and switch. Fig. 3, is an enlarged plan view of the switch-tongue and lever, spring and wire to shift switch-tongue. Fig. 4, is a detailed view of the lever for actuating the switch-tongue.

Similar letters refer to similar parts in each view.

My invention consists, when applied to a street car, of a shank B, projecting above and having freedom of motion through the bottom of the car A, and to its lower end is pivoted the lever or trip dog C, the pivot of which it is desirable to maintain at a nearly uniform height above the box D, and provided with a collar *b*, through which the axle K of the car passes, which maintains said shank at nearly a uniform height—being for the most part free from the up and down motions of the car bed. In order to further guard against undue up and down motion of the pivot of the trip-dog C, when in a vertical position, and yet permit enough vertical motion of the shank to admit of the trip-dog C, engaging and pushing over the lever E, the piece, *c*, is telescopically jointed to the piece above it, with a spring *d*, to normally hold it at a uniform height. The upper end of the trip dog C, is suitably connected with the treadle-lever *a*, by means of a wire or rod *o*, so that when the treadle *a*, which projects above and has free motion through the bottom of the car A, is pressed down, the trip-dog C, is brought into a vertical position, ready to engage the lever E, on the pawl F, and when the pressure is removed from the treadle, the trip-dog C assumes a nearly horizontal position by the action of a spring *e*, which is suitably attached to the lower end of the lever C and the bottom of the car or some other suitable part.

In a case where the car, without being turned around, is to be run over the track, in the opposite direction, switch tongues may be shifted. The piece *c*, carrying the trip-dog C, being telescopically jointed to shank above, may be twisted half way around, when the wires or rods *o*, and *e*, are loosened, so that the trip-dog C, may be made to engage a lever E, or pawl F, on mechanisms arranged for cars coming the other way, by suitably connecting with wires or rods leading to the other end of the car.

The box D, preferably made of iron, is firmly fixed between the rails. Within said box and suitably pivoted therein, by means of a pivotal bolt, or rivet *f*, is the lever E, with its upper end projecting above the box and in the path of travel of the trip-dog C, and with its lower end attached, by means of a suitable wire or rod *g*, with an intervening spring *h*, to a lever, preferably a bell-crank lever, G, which is suitably pivoted so as to pull the switch-tongue H. Working in opposition to the lever G, is a spring I, attached on the opposite side of the tongue H, and of sufficient strength and tension to pull the tongue H, promptly toward its other point of attachment, when not opposed by the superior opposite force exerted through the lever G.

As shown in Figs. 2 and 3, the spring I, is at its least tension, having performed its work of shifting the switch tongue so as to close the switch, permitting the car to pass on the straight track.

The lever E, (see Fig. 4) is provided with a bearing shoulder *i*, upon which bears the tooth *l*, on the upper end of the pawl F, suitably pivoted within said box D, by the bolt or pivot

j, with its other end attached to the box with a spring *m*, always under tension. At the upper end of the shoulder *i*, is a notch *k*, into which the tooth *l* of the pawl catches when the lever E, is sufficiently pushed forward with its shoulder *i*, against said tooth. Said tooth being caught in said notch, the lever and pawl, are held in that position, thereby holding the switch-tongue and the other parts of the device (not connected with the car) in the position they have then reached. When said parts are in the position aforesaid, they have assumed the position shown by the dotted lines in Fig. 1. By the lever E, and pawl F, being forced into said dotted line position, the switch-tongue has been completely shifted and the car may pass on the desired track. Now to shift the tongue back to its former position, as may be necessary for another car to pass on the other track, the trip dog C of the other car, is lowered, so that it will, as it passes, engage the top of the pawl F, as shown by the dotted lines, and pull its tooth *l*, out of the notch *k*, whereupon the lever E, and pawl F, by force of the springs, fly back to the position indicated by the solid lines and the switch-tongue, by force of the spring I, is shifted to its former position.

The lever E, is provided with a shoulder *n*, which, when said lever is engaged by the lever or trip-dog C, holds the trip dog C, up just far enough to prevent its engagement with the top of the pawl F, as the same rises, being pushed up by the shoulder *i*. A strong spring J, is arranged so as to raise the lever E, to its normal position, as shown by the solid lines in Fig. 1, in case it should be pressed down by a wagon wheel or otherwise.

The strength and tension of the spring *h*, is relatively much stronger than the spring I. The former is inserted to prevent rupture of the parts, should the switch tongue fail, on account of cog, or otherwise, to respond to the pull transmitted by the rod or wire *g*.

By suitable modification, readily understood, my invention may be applied to all classes of railways and cars, no matter what the motive power may be.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a switch actuating mechanism, the combination, of the following instrumentalities:—a switch tongue, a pivoted tripping-lever therefor and connected thereto, a locking pawl for said lever, under spring tension, a tripping-dog, carried by the car, and means on the car, connected to said dog, for throwing the same, into or out of engagement with the trip lever or pawl, substantially as described.

2. In a switch actuating mechanism, the combination, of the following instrumentalities:—a switch tongue, a pivoted tripping-lever therefor and connected thereto, a locking pawl for said lever, under spring tension, a vertically yielding tripping-dog, carried by the car, and means on the car, connected to said dog, for throwing the same, into or out of engagement with the trip-lever or pawl, substantially as described.

3. In switch actuating mechanism, the combination, of the lever E, and its locking-pawl F, of a tripping-dog, carried by the car in line with said lever, and pawl, and a shoulder upon said lever to engage the trip-dog and carry it over the top of the pawl, without contact, substantially as described.

4. The combination, with the switch actuating mechanism, of the shank B to which is pivoted the lever or trip dog C provided with suitable connections whereby said trip dog may be raised into a horizontal position or lowered into a vertical position at will, substantially as shown and described.

5. The combination, with the switch actuating mechanism, of the shank, B, consisting of two parts telescopically joined together, with the trip dog C, pivoted thereto, substantially as described.

6. The combination, with the switch actuating mechanism, of the shank B, consisting of two parts telescopically joined together, with the trip dog C, pivoted thereto, with suitable rods or wires connecting the upper end of said trip dog with a suitable treadle lever *a*, and the other end through the spring *e*, to a fixed portion of the car, substantially as shown and described.

7. The combination, of the box D, with the lever E, pivoted within it, with its upper end arranged in the path of travel of the trip dog C, and its lower end connected with the switch-tongue H, by the wire or rod *g*, the intervening spring *h*, the lever G; the pawl F, the spring *m*, the spring I and spring J, substantially as shown and described.

8. In switch actuating mechanism, the lever E, having a bearing shoulder *i*, the notch *k*, the shoulder *n*, in combination with the pawl F, having a tooth *l*, and spring *m*, under tension, substantially as shown and described.

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Witnesses :
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A. B. KURTZ.