

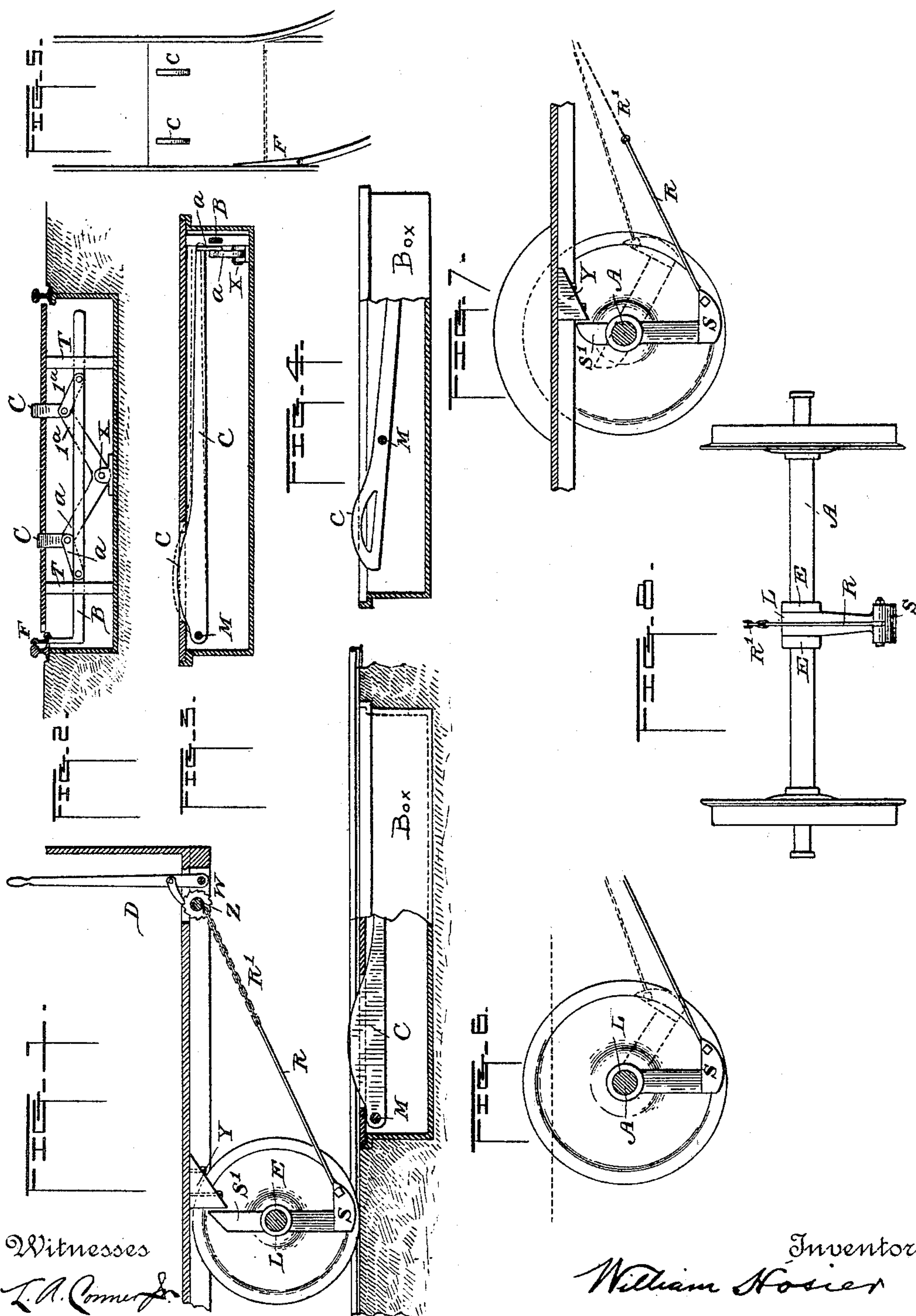
(No Model.)

2 Sheets—Sheet 1.

W. HOSIER.
TRAMWAY SWITCH.

No. 453,775.

Patented June 9, 1891.



Witnesses

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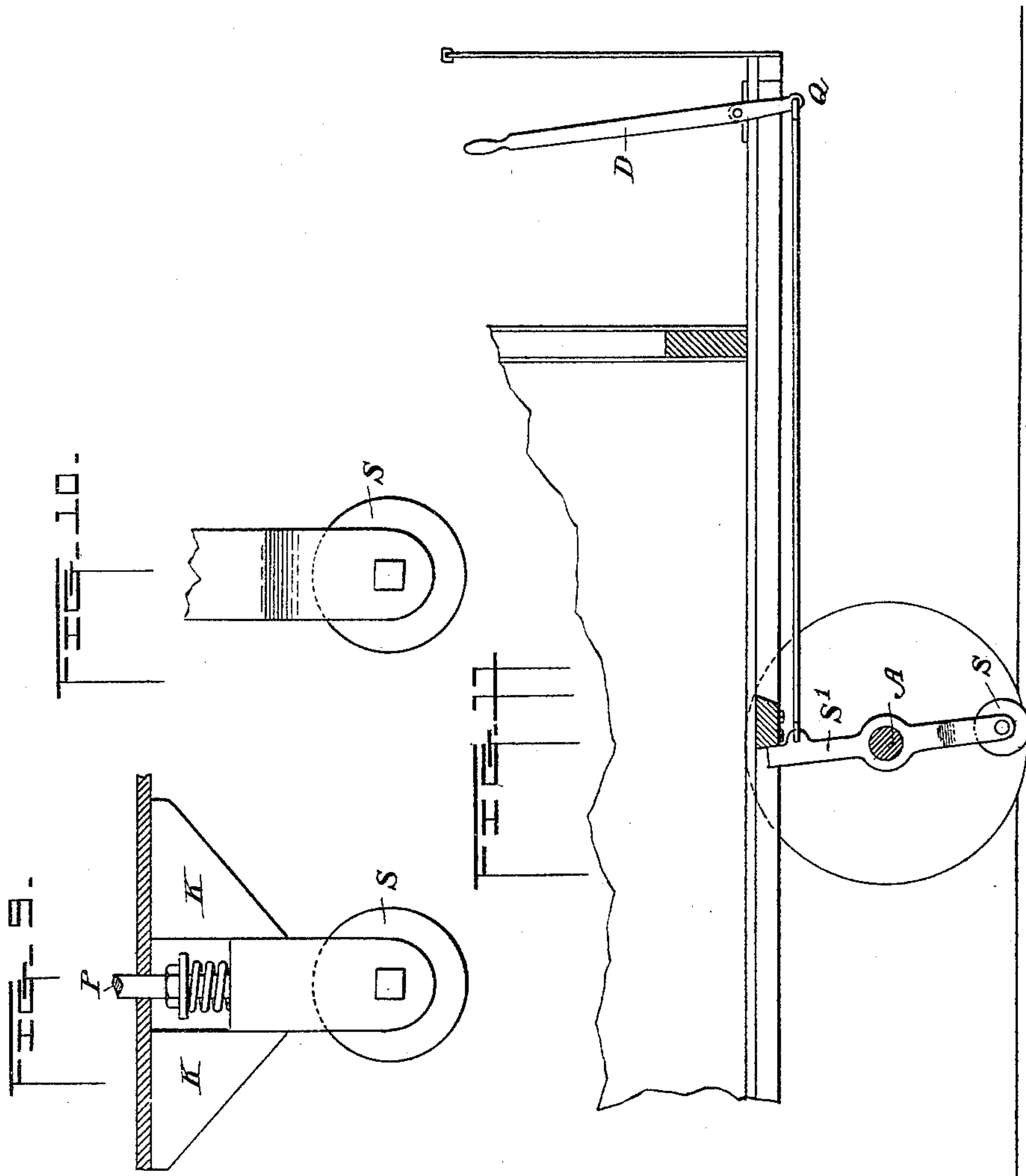
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UNITED STATES PATENT OFFICE.

WILLIAM HOSIER, OF BROOKLYN, NEW YORK.

TRAMWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 453,775, dated June 9, 1891.

Application filed February 6, 1891. Serial No. 380,410. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM HOSIER, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Tramway-Switches, of which the following is a specification.

My invention consists of new and useful improvements in mechanical combinations for the purpose of operating switches or signals on railroads and tramways; and I obtain this result in the combination of mechanical apparatus attached to a moving car with certain suitable attachments in the road-bed or roadway beneath the car for the purpose of operating a frog or switch-point in front of the car to direct it to the right or left, or straight ahead, as may be desired, while the car is in motion.

The accompanying drawings illustrate fully the operation of my invention, similar letters of reference referring to similar parts.

An operating part consisting of a wheel, shoe, or lever, as shown by letter S, Figures 1, 6, and 7, projecting from the underneath part of a car, as shown in Figs. 1, 6, 7, 8, 9, 10, and 11, may be lowered or elevated, as may be desired, with precision by means of screws or levers relieving the jars by springs, as shown in Fig. 10. Such shoe, roller, or operating-lever S is caused to impinge, roll over, or bear upon a lever, or what is termed herein an "actuating-lever" C, having an inclined plane or surface sufficiently above the plane of the roadway to operate by its depression the switch-point F ahead of the car.

Fig. 1 shows a shoe, roller, or operating-lever, as shown in Figs. 1, 6, 7, 8, 9, and 10, marked S. The same, being held rigidly, rolls or glides over the inclined plane of the actuating-lever C. (Shown in Figs. 1, 2, 3, 4, and 5, marked C.) This operates the switch-point F in Fig. 2, and by actuating the toggle *a a* or *I^a I^a*, the bar B B, which lays in two standards T T, is thrust to the right or left, according to the toggle-lever depressed. The bar B B is in one piece with the frog or switch-point F, and by this means it may be operated with precision by the operator on a moving car.

In the roadway across and along the track,

at the place where the frog or switch-point or switches F is or are to be operated, I embed a box or frame-work, marked "Box" in Figs. 1 and 4. In this box I affix two levers, termed herein "actuating-levers" C C. (Shown in Fig. 2 at C C and in Fig. 5 parallel on the track; in Figs. 1 and 3 the side view hinged at the end, preferably, to the fulcrum M, as in Figs. 1 and 3, or it may be as in Fig. 4 at M.) These toggle-joints are first pinioned to a bed-piece fixed on the bottom of the box or frame at X, Fig. 2, and then each on its own side at a proper distance, giving, for preference, an angle of ninety degrees. The joints or elbows are pinioned to a bar B B, Fig. 2, running loosely through standards T T, Fig. 2, horizontally. The standards will not, however, admit of the bar being elevated or depressed, and to this bar B B is attached the frog or switch-point F, designed to guide the car. It will be seen that the depression of either actuating-lever C C will operate the toggle-joint *a a* or *I^a I^a*, Fig. 2, thrusting the bar and with it the switch-point to the right or left, according to which lever is operated.

The car may be supplied with an apparatus by which a man upon the platform may depress a shoe, wheel, or operating-lever S, which by rolling, gliding, or thrusting against the actuating-lever C depresses it for the purpose of operating the frog or switch-point F, as described. An ordinary screw, lever, or any such attachments may be used to thrust down such shoe, skate, roller, or operating part S between standards K K, (see transverse sections,) Figs. 9 and 10, placed for its support beneath the car.

The above means of depression from the front or any part of a car is suitable only where the motion of the car is always steady and level, so that where the car upon its springs is caused by any irregularity to jump or move up and down the following means may be used: Upon the axle A of the front wheels of the car I preferably attach by means of sleeves two pendent wheels, shoes, or levers S S, one on each side and at such positions on the axle A that they may hang immediately in a parallel position above the track relative to that of the said operating-levers C C, one on either side, as shown by

shoe S in Figs. 1, 6, 7, and 8. The sleeves L L in Figs. 1, 6, 7, and 8, to which the shoes or operating part S S are attached, are held in position from sliding along the axle A by shoulders E E, Fig. 8, screwed thereon or suitably attached. The shoe, wheel, or lever S is preferably connected at its upper end by a rod pinioned to it at Fig. 11, which rod may be operated by a lever on the front or rear platform, or the shoe, wheel, or operating-lever S may be connected to the fore part of the car-platform by a rod R and chain R', attached to the lower part of the wheel, shoe, or operating-lever S, and connected to a sleeve, barrel, or windlass W, Fig. 1, upon a bar Z, which is fixed firmly in a transverse position on the front part of the car, as shown in Fig. 1. The windlass is marked W, and the flexible connection marked R R'. (See Figs. 1, 7, and 8.) The chain connection R R' is preferably made of one long link or bar R, hinged to the lower part of the wheel, shoe, or lever S, with small links R' for a space next to the windlass W upon the transverse bar Z, attached to the platform, to enable the chain R' to be wound around the windlass W to hoist the shoe S upon or under the car when not in action, Figs. 1 and 7.

To the sleeve of windlass W, Fig. 1, upon the bar Z, transversely attached to the car-platform, the chain is attached at such a length that when unwound it admits of the wheel, shoe, or operating-lever S falling by its own weight to a vertical position and holds it there firmly with all the strength of the chain against any resistance from the front of the arm to which the wheel, shoe, or lever S is attached pendent by the sleeve L to the axle A of the car, as shown in Figs. 1, 6, 7, and 8, and holds such shoe, wheel, or lever S rigidly down with all the weight of the fore end of the car upon the opposing actuating-lever C, and thereby depressing or operating the switch-point F, as shown in Figs. 1, 2, 3, and 4. This wheel, shoe, or operating part S, may have a continuation S' beyond the sleeve to take against a chock Y, Figs. 1 and 7,

fastened to the bottom of the car, to aid or altogether hold the wheel, shoe, or operating-lever S in the right position for action against the actuating-lever C. (See Figs. 7, extension of wheel, shoe, or lever S, marked S'; see Figs. 1 and 7, chock marked Y.)

The barrel or windlass W, Fig. 1, to which the chain R R' is attached at the front platform of the car, is preferably fitted with a ratchet which admits of the barrel or windlass W being turned and the winding up of the chain R' to hoist the wheel, shoe, or operating-lever S forward and up by means of a lever D, Fig. 1, from the car above.

A simple treadle may be affixed to the windlass W to release the chain when it is desired to lower the wheel, shoe, or operating part S for the purpose of switching.

This device may operate semaphore or other signals by means of a simple lever attachment and connection to the herein-described actuating-lever, either conjointly with switch or separately, and it may be made to operate an actuating-lever which throws up a semaphore-signal arm beside the railway, and farther on operate another lever, which lowers said signal-arm or other signals.

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

1. In a tramway-switch, the combination, with pivoted contact-levers in the road-bed, of toggle-levers, one arm of each of which is connected with a reciprocating bar, to which the switch-point is connected, as set forth and described.

2. In combination with actuating-levers C C, toggle-levers *a a* I^a I^a, and the reciprocating switch-bar operated thereby, of an operating device pivoted to the axle of a car, consisting of a shoe or operating part S, chain or rod R R', windlass W, and hand-lever D, as set forth and described.

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Witnesses:

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