A. VAITAUER.

SWITCH OPERATING APPARATUS.

APPLICATION FILED MAY 24, 1909.

929,522.

Patented July 27, 1909.

2 SHEETS—SHEET 1.

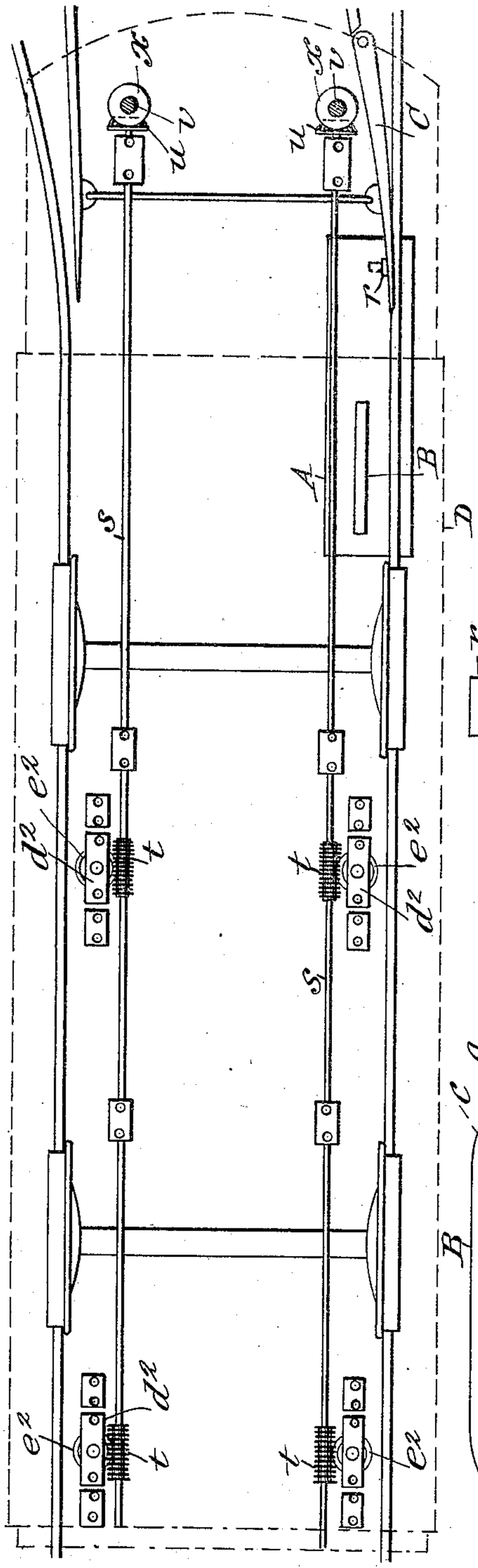

Fig. 1.

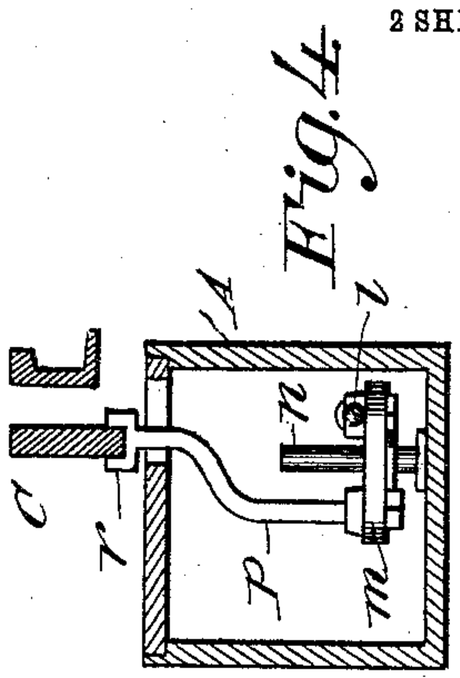

Fig. 4.

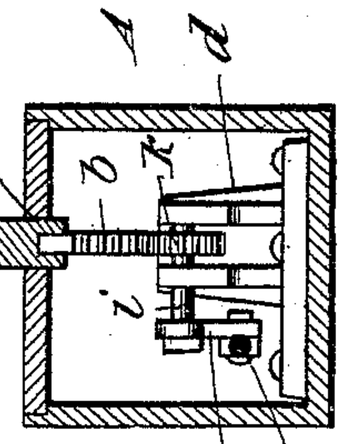

Fig. 3.

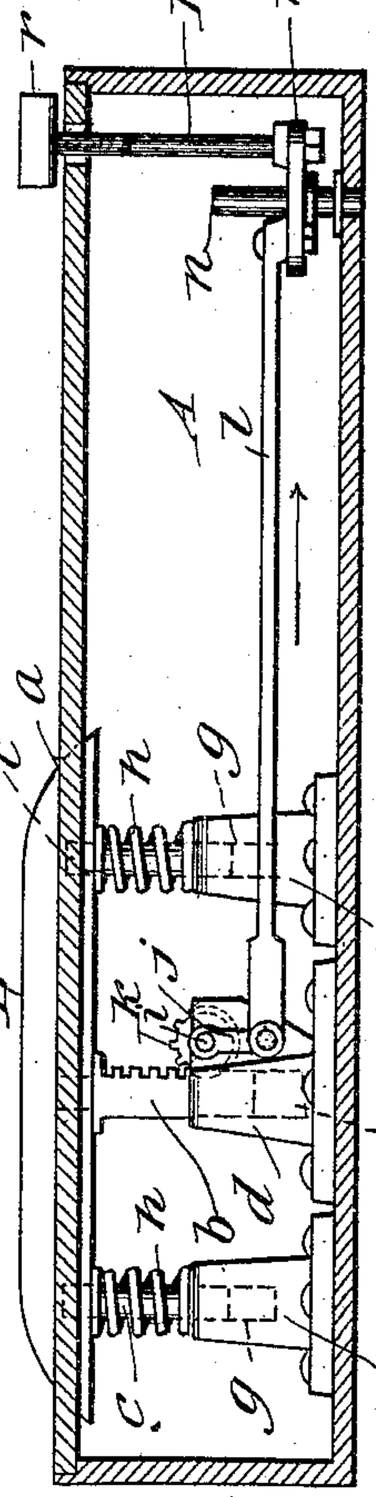

Fig. 2.

Witnesses

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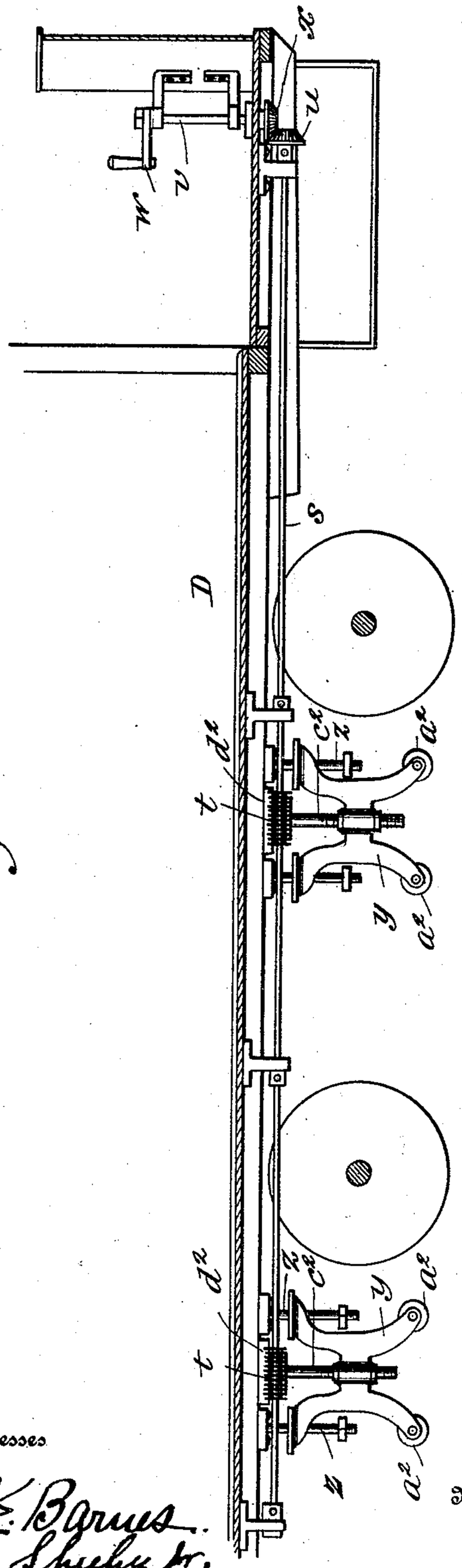

Fig. 5.

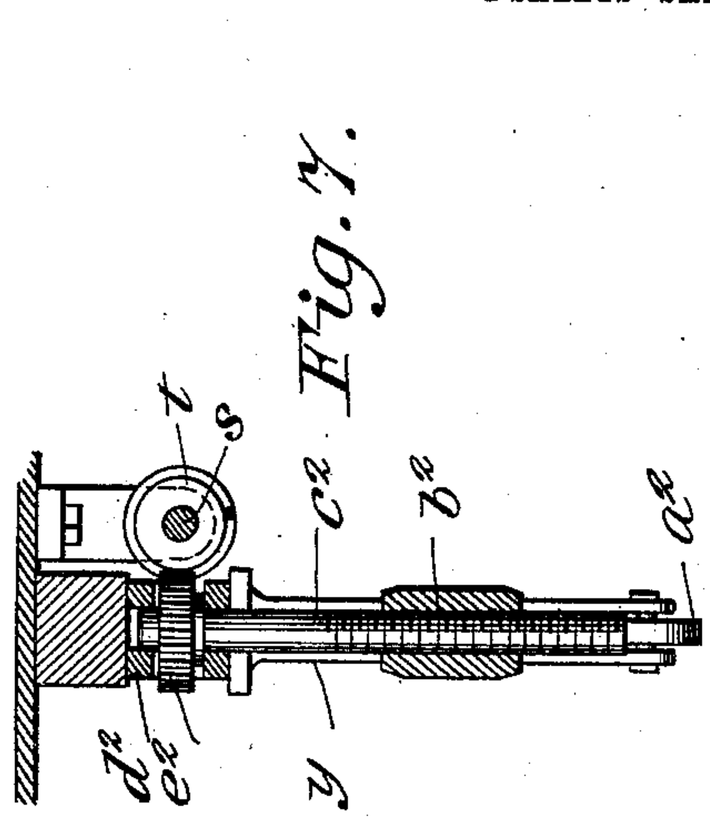

Fig. 7.

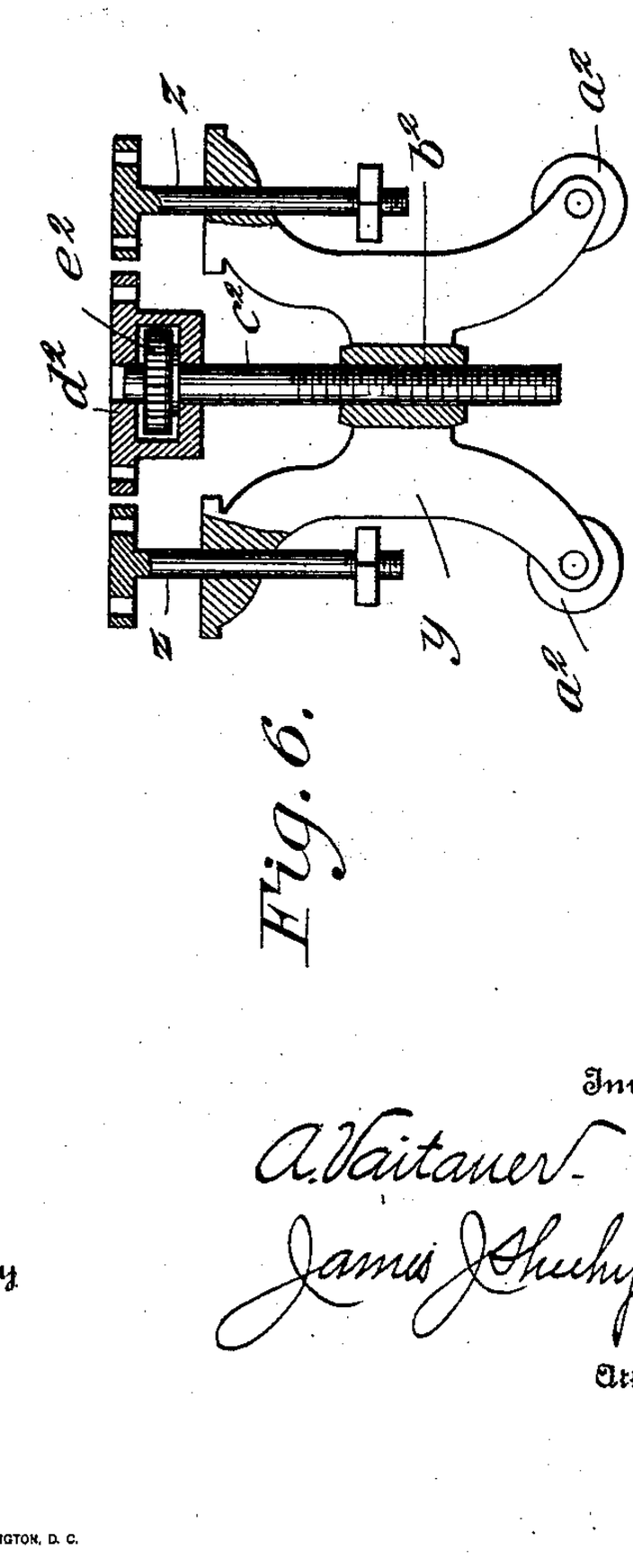

Fig. 6.

Witnesses

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UNITED STATES PATENT OFFICE.

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SWITCH-OPERATING APPARATUS.

No. 929,522. Specification of Letters Patent. Patented July 27, 1909.

Application filed May 24, 1909. Serial No. 498,013.

To all whom it may concern:

Be it known that I, ADOLPH VAITAUER, a subject of the Emperor of Austria-Hungary, residing at New Orleans, in the parish of Orleans and State of Louisiana, have invented new and useful Improvements in Switch-Operating Apparatus, of which the following is a specification.

My invention pertains to apparatus for enabling a motorman on a moving car to throw the movable member of a switch; and it consists in the peculiar and advantageous construction hereinafter described and particularly pointed out in the claims appended.

In the drawings, accompanying and forming part of this specification: Figure 1 is a diagrammatic view illustrative of the track portion and the car portion of the apparatus constituting the best practical embodiment of my invention that I have as yet devised. Fig. 2 is an enlarged detail view showing the track portion of the apparatus. Figs. 3 and 4 are transverse sections of the same. Fig. 5 is a vertical, longitudinal sectional view of the car showing two of the tappets thereon and the means for depressing and raising said tappets. Figs. 6 and 7 are detail sections showing one of the tappets and appurtenances thereof.

Similar letters designate corresponding parts in all of the views of the drawings, referring to which:

A is the casing of the track portion of my novel apparatus, which is designed to be arranged in the pavement between the rails of a street railway, with its upper side flush or approximately flush with the surface of said pavement.

In addition to the said casing A, the track portion of my apparatus comprises a vertically-movable shoe B which normally extends upward through an opening *a* in the top wall of the casing and is provided with a depending rack bar *b* and depending guide rods *c*, a body *d* fixed to the bottom of the casing A and having a socket *e* receiving and adapted to guide the rack bar *b*, bodies *f* similarly fixed to the bottom of the casing A and having sockets *g* receiving and adapted to guide the rods *c*, coiled springs *h* surrounding the rods *c* and interposed between the shoe B and the bodies *f* so as to return the shoe to and normally maintain the same in the raised position shown, a transverse shaft *i* journaled in suitable bearings in the casing A and having a crank *j* at one end, a spur pinion *k* fixed on said shaft *i* and intermeshed with the rack bar *b*, an endwise movable rod *l* connected at one end to the crank *j*, a lever *m* mounted on a suitable support *n* and having one of its arms connected to the opposite end of the rod *l*, and an upwardly extending bar *p* connected to the other arm of the lever *m* and having a fork *r* at its upper end. The said fork *r* is designed to receive the movable element or point C of the switch so as to assure said element or point moving with the bar *p*.

It will be readily understood from the foregoing that when the shoe B is depressed, the spur gear *k* will be turned in one direction, the bar *l* will be moved in the direction of the arrow, Fig. 2, and the switch point C will be moved from its normal position to its other position; also, that when pressure is removed from the shoe B, the springs *h* will operate to return the shoe and the other working parts to their normal positions.

In some cases it will be found expedient to arrange the shoes B of track apparatus adjacent the left-hand side of the track, and in other cases to arrange said shoes adjacent the right-hand side of the track, and I therefore prefer to equip each car D with two sets of apparatus, one set for coöperation with those shoes B adjacent the right-hand side of the track, and the other set for coöperation with the shoes B adjacent the left-hand side of the track. The said sets of car apparatus are identical in construction, and therefore a detailed description of the set shown in Fig. 5 will suffice to impart a definite understanding of both. The said set, Fig. 5, comprises a longitudinal shaft *s* journaled in suitable bearings on the underside of the car body and having worm screws *t*, at intermediate points of its length, and a miter gear *u* at its forward end, and upright shaft *v* journaled in suitable bearings at the forward end of the car body and having a crank *w* and also having a miter gear *x* intermeshed with the gear *u*, vertically-movable tappets *y* guided on rods *z* fixed to the car body and each having two longitudinally-disposed anti-friction wheels a^2 and also having a vertically-disposed threaded bore b^2, and vertical threaded shafts c^2 journaled in suitable bearings d^2 on the car body and disposed in the threaded bores b^2 of the tappets *y*, and having worm-

wheels e^2, at their upper ends, intermeshed with the worm-gears t on shaft s.

In the practical operation of my improvements, when a car approaches a switch the motorman rotates the shaft v on the side of the car adjacent the switch shoe B, and then at the proper times the shoe B is depressed, first by the anti-friction wheels a^2 of the forward tappet y, and then by the anti-friction wheels a^2 of the rear tappet y. The forward and rear tappets are obviously so arranged relative to the forward and rear wheels on the same side of the car, that the forward tappet will hold the shoe B depressed for the forward wheel to pass through the switch, and the rear tappet will hold said shoe B depressed for the rear wheel to pass through the switch. After the car has passed the switch the shaft v is rotated in the direction opposite to that of the first rotation thereof, whereupon the tappets y will be raised.

The construction herein illustrated and described constitutes the best practical embodiment of my invention of which I am cognizant, but it is obvious that in the future practice of the invention such changes or modifications may be made as do not involve departure from the scope of my invention as defined in the claims appended.

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

1. In an apparatus for the purpose described, the combination of a casing adapted to be embedded in a pavement and having an opening in its upper wall, a shoe protruding upwardly through said opening and having a depending rack bar and depending guide rods, bodies fixed in the casing and having sockets receiving the rack bar and guide rods, coiled springs surrounding the guide rods and interposed between the bodies in which the same are socketed and the shoe, a shaft journaled in the casing and having a spur pinion intermeshed with the rack bar and also having a crank, a lever mounted in the casing, a rod connecting the crank and one arm of said lever, and means for connecting the other arm of the lever and the movable element of a switch.

2. In an apparatus for the purpose described, the combination of a casing adapted to be embedded in a pavement and having an opening in its upper wall, a shoe protruding upwardly through said opening and having a depending rack bar and depending guide rods, bodies fixed in the casing and having sockets receiving the rack bar and guide rods, coiled springs surrounding the guide rods and interposed between the bodies in which the same are socketed and the shoe, a shaft journaled in the casing and having a spur pinion intermeshed with the rack bar and also having a crank, a lever mounted in the casing, a rod connecting the crank and one arm of said lever, means for connecting the other arm of the lever and the movable element of a switch, a car track, one of the rails of which is arranged adjacent the shoe, a car movable on said track, vertically movable tappets carried by the car and having vertically-disposed threaded bores, threaded shafts carried by the car and disposed in said bores of the tappets and having worm wheels, a longitudinal shaft carried by the car and having worm gears intermeshed with said worm wheels and also having a miter gear, and an upright shaft carried by the car and having a miter gear intermeshed with that of the longitudinal shaft and also having a crank.

3. The combination in an apparatus for the purpose stated, of a car, a vertically-movable tappet carried by the car and having a vertically-disposed threaded bore, an upright threaded shaft carried by the car and disposed in the bore of the tappet and having a worm wheel, a longitudinal shaft carried by the car and having a worm gear intermeshed with said worm wheel and also having a miter gear, and an upright shaft carried by the car and having a handle and also having a miter gear intermeshed with that of the longitudinal shaft.

4. The combination in an apparatus for the purpose stated, of a tappet guided and movable on a car, a threaded shaft for moving said tappet, a second shaft gearing interposed between the shafts, and means for rotating the second shaft.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ADOLPH VAITAUER.

Witnesses:
PHIL. H. MAY,
W. G. REBENTISCH.