(No Model.)

2 Sheets—Sheet 1.

W. F. & W. C. STEDMAN.

SWITCH ACTUATOR.

No. 503,334.

Patented Aug. 15, 1893.

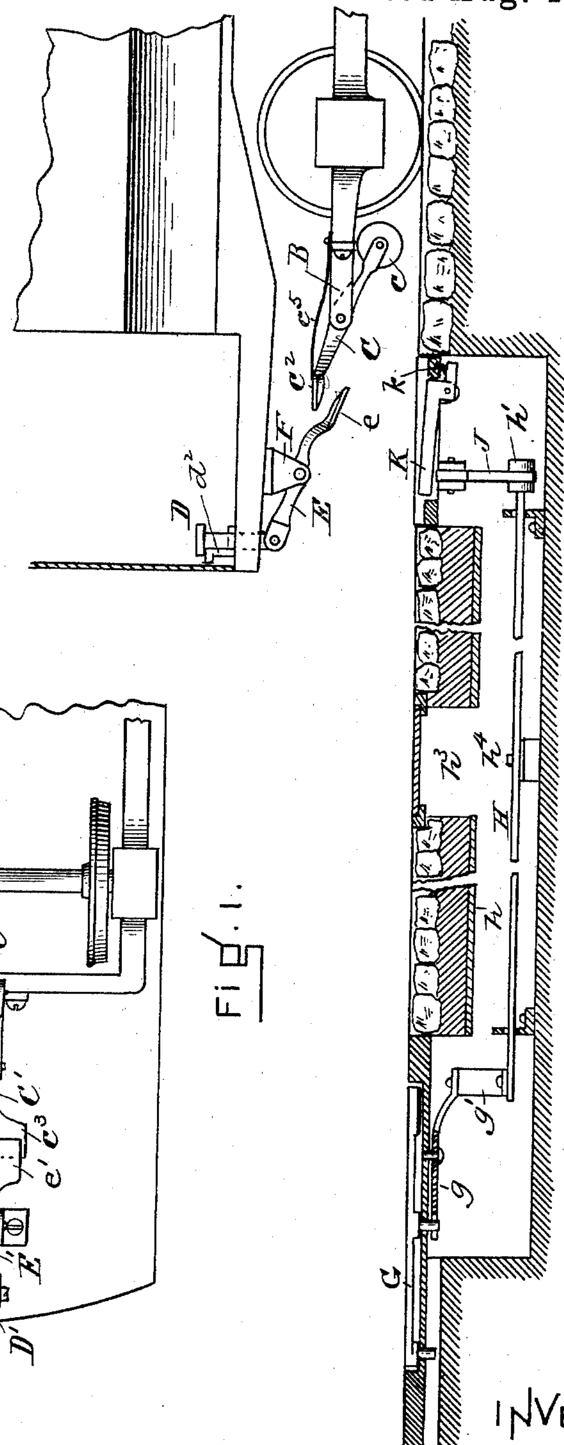

Fig. 2.

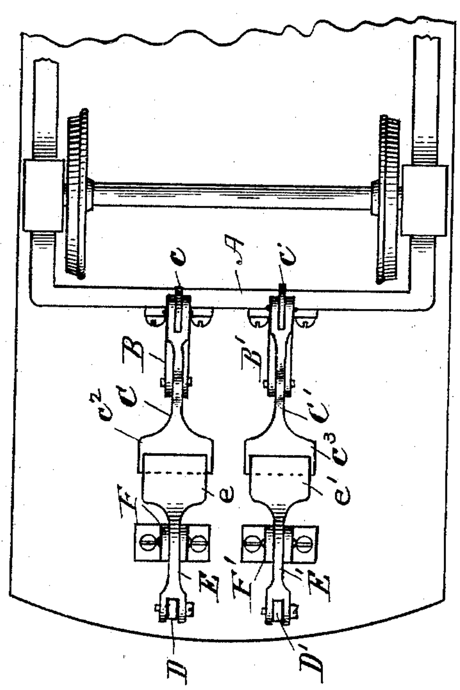

Fig. 1.

WITNESSES.

Frank G. Parker

Frank Lund.

INVENTORS.

Wm F. Stedman

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by Horace O. G. [illegible] attorney

(No Model.) 2 Sheets—Sheet 2.

W. F. & W. C. STEDMAN.

SWITCH ACTUATOR.

No. 503,334. Patented Aug. 15, 1893.

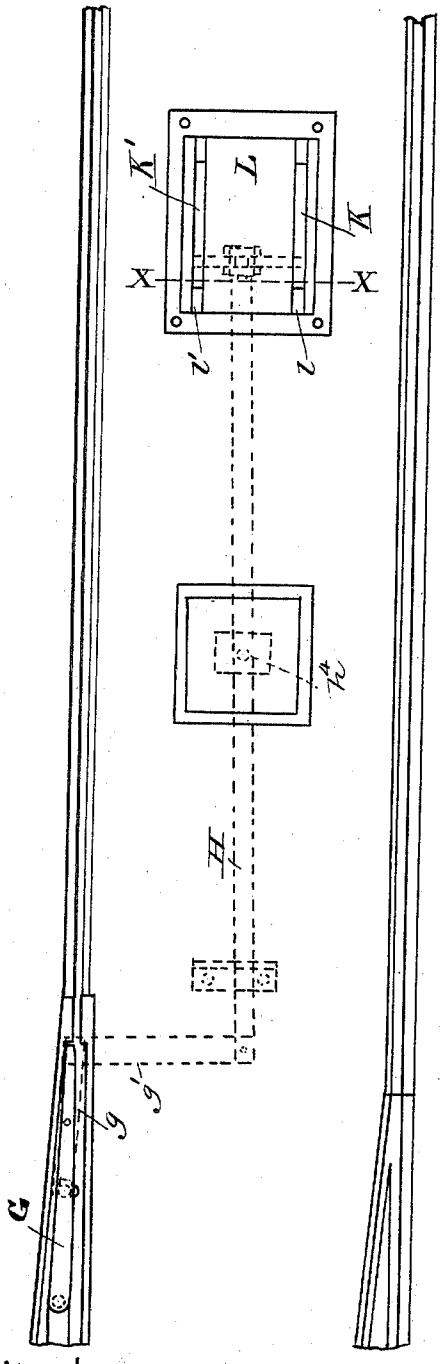

Fig. 2.

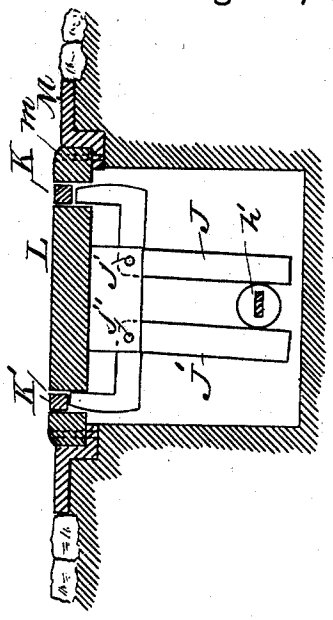

Fig. 5.

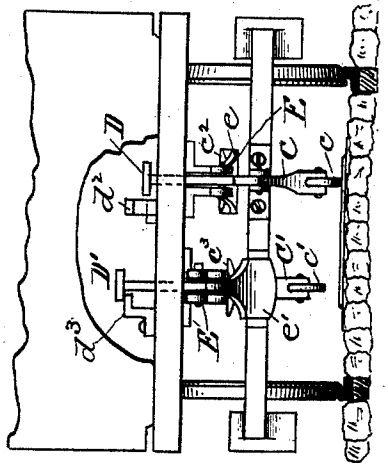

Fig. 4.

WITNESSES

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Frank L. Ames.

INVENTORS

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UNITED STATES PATENT OFFICE.

WILLIAM F. STEDMAN AND WILLIAM C. STEDMAN, OF BOSTON, MASSACHUSETTS; SAID WILLIAM C. STEDMAN ASSIGNOR TO SAID WILLIAM F. STEDMAN.

SWITCH-ACTUATOR.

SPECIFICATION forming part of Letters Patent No. 503,334, dated August 15, 1893.

Application filed June 4, 1892. Serial No. 435,505. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM F. STEDMAN and WILLIAM C. STEDMAN, both of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Railway-Switches and Means for Throwing Them, of which the following is a specification.

Our invention relates to mechanism for throwing that class of switches which are especially adapted for use in street railways, and is intended to be used more especially upon electric cars and in combination with that class of automatic switches which have heretofore been thrown by the weight of the horses.

Our invention consists in an attachment to the cars by means of which the motor man or driver of a street car can throw the switch in time to direct the action of the car.

In the drawings Figure 1 is a plan of the under side of a portion of a car truck to which a device embodying our invention, is attached. Fig. 2 is a plan of a switch system especially adapted to be used in the mechanism shown in Fig. 1. This system is the especial invention of said William F. Stedman and forms the subject of another application, filed January 31, 1893, Serial No. 460,626. Fig. 3 is a side elevation of the car truck shown in Fig. 1 and a section of the switch system shown in Fig. 2. Fig. 4 is a front elevation of a portion of a car showing the device hereinafter described in operation, and Fig. 5 is a cross section taken on line $x\ x$ of Fig. 2, showing the switch throwing mechanism.

A is the forward cross beam of the car truck to which is attached two brackets B, B′, each carrying a lever C, C′ at the lower end of which is a friction wheel c, c'. The upper end of each lever is provided with a broad shovel shaped part c^2, c^3 to be shaped substantially as shown, for the purposes to be described below.

Upon the car platform we provide two push rods D, D′, each of which is connected on its lower end to a lever E, E′. Each of these levers is hung in a hanger F, F′ suspended from the bottom of the car. The lower end of each lever E, E′ is also provided with a broad shovel shaped part e, e', each lever being of such length that the parts e, e' lie normally just below the corresponding part c^2, c^3 of the levers C, C′. The upper end of each push rod D, D′ may be shaped as shown in order to afford a suitable bearing for the driver's foot. It is necessary that these levers be so balanced or controlled by springs (see c^5) that they lie in the position shown in Fig. 1 at all times except when under control of the driver's foot. Right angled buttons d^2, d^3 are provided for use as stops to prevent the accidental depression of the push rods.

It is obvious that by depressing either of the push rods D, D′, a corresponding depression is given to one of the friction rolls c, c' and consequently if the friction roll is so located as to come in contact with any movable object in the street, such for example as a switch tilting table, it will cause one side of the tilting table to be depressed. In case of a self-acting switch, only one set of levers will be necessary.

We are aware that a system of levers has been used underneath a car to depress a tilting table, but so far as we know, in such cases the levers or other parts have been generally connected together and consequently have not been suitable for use where the car truck has been pivoted to the car, as is necessary on the long electric cars now in use.

In our construction above described, the truck is free to turn in either direction without interfering with the action of the levers, the ends of the levers being sufficiently broad to remain within reach of each other so that under all ordinary conditions, the proper friction roll can be depressed.

The device above described may be used with a modification of the well known tilting table switch, but instead, we prefer to use the device also shown in the drawings for throwing the switch.

G is an ordinary switch point. It is connected by means of a suitable connecting rod g, g' with a lever H running preferably midway between and parallel with the rails, but say one foot or more below the surface of the road, in a suitable box like structure h. The

end of this lever H farthest away from the switch is provided with a friction roll h' which lies between the lower ends of two bell crank levers J, J', pivoted to a vertical frame at j, j'. Each bell crank is adapted to be thrown by the depression of a lever K, K' which normally is raised and kept elevated by a spring k. These levers K, K' are each pivoted in a depression l, l' in the slotted plate L, these parts being so combined together that by depressing the movable end of one of the levers K, K', a corresponding motion is given to one of the bell cranks J, J', and consequently to the long lever H so that the switch G will be pulled or pushed in either direction according to circumstances. The plate L is surrounded by a frame M with a curved edge m so that the plate will not materially interfere with travel.

h^3 is a well by which to reach the pivot h^4 of the lever H.

It is obvious that the throwing of the switch may be managed in other ways, but by means of the device above described we believe that it can be done simply and that the device above described will not be liable to get out of order and not prove an obstruction to the street.

The operation of our device is very simple. On depressing say the push rod D, the end e of its lever E is raised, and this lifts the adjacent end c^3 of the lever C, which depresses the friction roll c so that it bears upon the ground. As the car travels, in due time the roll c reaches the depression l in the plate L and depresses the lever K, which acting on the bell crank J, throws the lever H which pulls the switch G in the desired direction. When the roll c has left the lever K, its spring k causes it to resume its former position. It is best to provide the wheels c, c' with a hard, rubber tire to prevent the edge of the wheel from so spreading with use as not to run freely in the slot or depression l.

What we claim as our invention is—

In combination with a tilting table of the kind above described, one or more switch throwers each consisting of two disconnected levers, one attached to the car truck and the other to the car platform, the lower end of each upper lever and the upper end of each lower lever being broadened out, said ends lying within reach of each other during all the usual positions of the truck with relation to the car, all as set forth.

In testimony whereof we have hereunto subscribed our names this 31st day of May, 1892.

WILLIAM F. STEDMAN.
WILLIAM C. STEDMAN.

Witnesses:
GEORGE O. G. COALE,
EVA A. GUILD.