

No. 692,271.

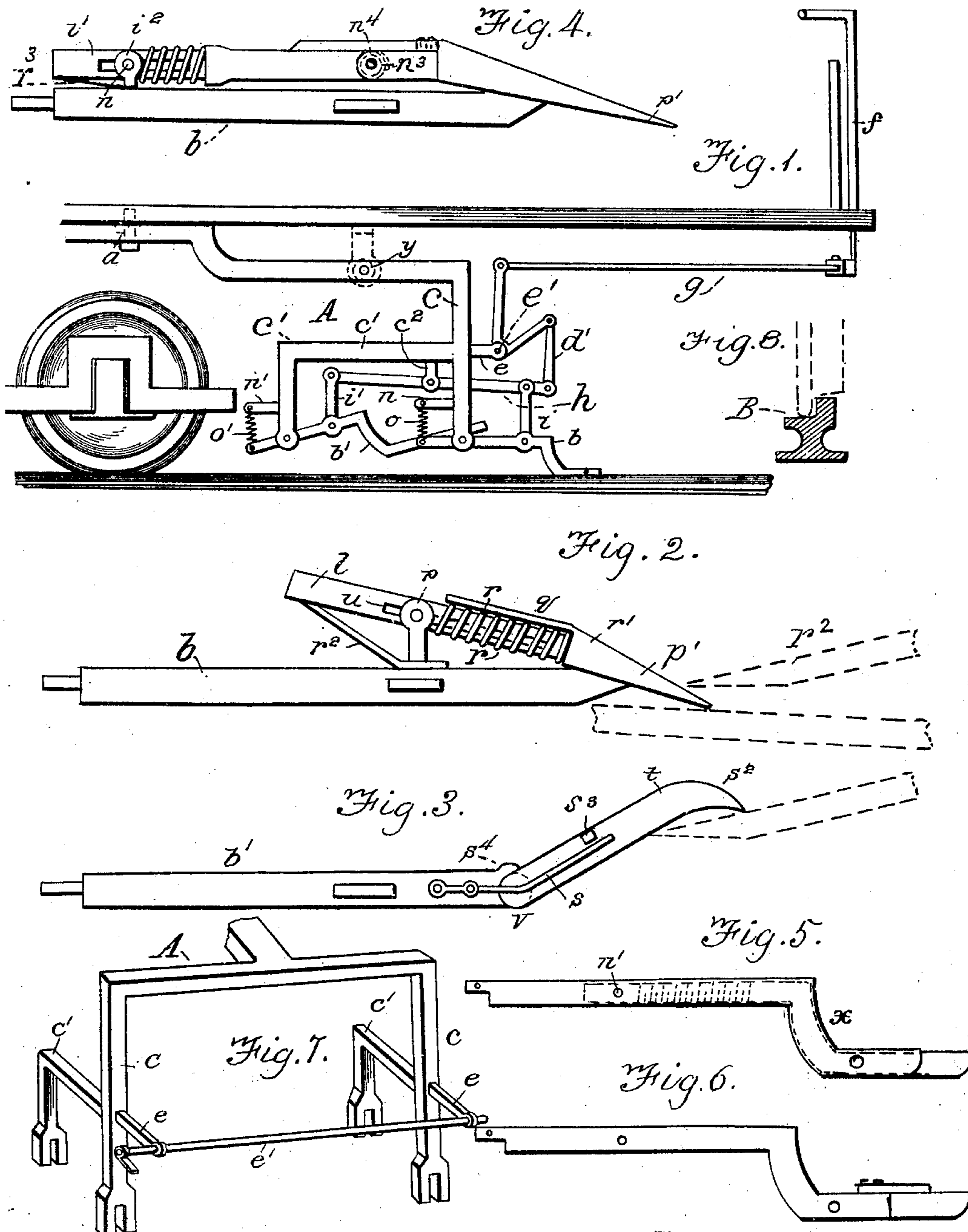
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D. T. GRANBERY.

RAILWAY SWITCH AND MECHANISM FOR OPERATING IT.

(Application filed Apr. 30, 1901.)

(No Model.)



Witnesses:
Florence Kaiser
S. Q. Villard

Inventor:
D. T. Granbery
By A. H. Willard
Attorneys

UNITED STATES PATENT OFFICE.

DEE TIE GRANBERY, OF MEMPHIS, TENNESSEE.

RAILWAY-SWITCH AND MECHANISM FOR OPERATING IT.

SPECIFICATION forming part of Letters Patent No. 692,271, dated February 4, 1902.

Application filed April 30, 1901. Serial No. 58,168. (No model.)

To all whom it may concern:

Be it known that I, DEE TIE GRANBERY, a citizen of the United States, residing at Memphis, in the county of Shelby and State of Tennessee, have invented new and useful Improvements in Railway-Switches and Mechanism for Operating Them, of which the following is a specification.

This invention relates to railway-switches and mechanism for operating them; and it consists in certain improvements in such mechanism, as herein described and claimed, the devices described being more especially adapted for street-cars.

In the accompanying drawings, Figure 1 represents a side view of my improved switch-operating devices in connection with a car. Fig. 2 illustrates the switch-opening device in plan view. Fig. 3 illustrates the switch-closing device in plan view. Fig. 4 shows in plan view a modification in the construction of the switch-opener. Fig. 5 shows in side view a further modification of the switch-opener. Fig. 6 illustrates in side view the switch-closing device. Fig. 7 is a partial view in perspective of the frame carried by the car. Fig. 8 illustrates in section the railway-rail.

A designates a frame, which is connected by a bolt or coupling-pin a with the bottom of a car, one of such frames being located at each end of the car. Each frame A has two vertical arms c , extending downward, one being over each track-rail, and from said arms c extend two L-shaped arms c' , which are turned downward, as shown. The arms c and c' are pivotally connected at their lower ends with the switch-opening and switch-closing devices, (indicated by b and b' , respectively.) Extending from the arms c are two short arms e , in the ends of which is mounted a horizontal cross rod or shaft e' , to the right-hand end of which is secured a handle and a bell-crank connection d , one of the two arms of which is loosely connected by a rod g with a staff f , mounted in the platform of the car. The other arm of the bell-crank is connected loosely by a rod d' with one end of a pivoted lever h , which is supported by a short arm c^2 of the frame. The said lever h is loosely connected near one end with a

switch-opening device b by a short connecting-rod i , and at its opposite end said lever is connected with the switch-closing device b' by a rod i' . Two short arms n and n' extend rearward from vertical arms of the frame A, the former being connected by a spiral spring o with the rear end of the switch-opener b , and the latter being connected by a spiral spring o' with the closer b' . These springs serve to hold the parts b and b' down to the inner bearing parts of the rails, said parts b and b' being operated by means of the staff f , rods g , and other connections.

The switch-opener b has a slotted rod l , connected laterally with it by a forked screw-bolt p and a bolt passed through the slot u in the rod l . Secured to the forward end of the rod l is a sharp point of steel p' , from which a cover or guard q extends along the rod to form a shield for a spiral spring r , which is placed on the rod between the bolt p and a shoulder r' of the steel point p' . A spring r^2 serves to keep the rod l in position, and said rod is allowed a movement endwise by the spiral spring r . The opener b is beveled at its forward end, against which the steel point p' bears, the latter being in an inclined position, so as to enter the switch. In Fig. 2 is seen the switch-opener b , with the spring-rod l , with the steel point entering the switch, the said steel point moving under the switch-rail r^2 .

The switch-closer b' (shown in Fig. 3) is made in two parts, which are connected by a socket-joint v and a bent spring s , which is fastened to the main part b' . The operating part t of the closer is curved at its free end s^2 , and it forms an angle with the main part b' at the joint v and is retained in its position by the bent spring s and lug a^3 in case it strikes an obstacle and is closed by it. As it advances on the switch-rail when the latter is left open it will close it till it reaches the joint v . The part t has a lug s^3 , so that when the part t strikes an obstacle it will yield and will then be returned to position by the spring s acting against the lug. A guard s^4 at the joint v limits the outward movement of the part t of the closer.

The form of rail used in connection with the apparatus is shown in section in Fig. 8,

the said rail having an inner tread B, on which the switch opening and closing devices move, the former being followed by the latter. By turning the staff *f*, drawing the rod 5 *g*, the switch-opener *b* and *p'* is brought down to the inner tread of the rail in position to enter the switch. To close the switch, the staff is turned backward, which raises *b* and *p'*, and the part *b'* goes down. In case there 10 is a long distance between switches the opening and the closing devices may both be raised by a movement of the staff *f* in order that there may be no wear on them when not in use. If the steel point *p'* should strike an 15 uneven joint, it will be allowed to yield by the spring *r*, which works between the bolt *p* and a shoulder *r'* of the steel point. When the coiled spring is packed by the point *p'* striking an obstruction, it will give back as 20 far as the forward beveled end of the part *b* (see Fig. 2) without interfering with the movement of the car, while at the same instant the part *b*, moving with its beveled surface under it, will cause it to surmount the 25 obstacle, the spring *r* at the same time throwing the point *p'* to the rail.

A modification of the switch-opening device is shown in Fig. 4, in which the slotted spring-rod *l'* is shown connected with the part 30 *b* at a point *i'*, being farther rearward on the part *b* than is shown in Fig. 2, so that the rod is held a good distance from the rail. The steel point *p'* has a pivotal connection with the spring-rod at *n'* and a spring *n'*, 35 which covers the joint.

Other modifications in construction are shown in Figs. 5 and 6. In Fig. 5 the switch-opener is shown with a downward bend *x*, and the spring-rod is shown connected with 40 the main part of the opener at *n'*, said rod with a sharp point *p'*, corresponding with the form of the main part. In Fig. 6 the closing device is shown with a bend corresponding

with that shown in Fig. 5 to bring the operative part of the device down to the rail. 45

Springs are usually provided for the frame A to retain it in position, as indicated at *y*.

I claim—

1. The combination with a frame, adapted for connection with a car, of a switch-open- 50 ing and a switch-closing device, both being pivotally connected with said frame, pivoted levers carried by said frame and connected at their ends with said opening and closing devices, springs *o*, *o'* which connect said open- 55 ing and closing devices with said frame, a draw-rod *g*, a bell-crank lever and a connecting-rod through which said pivoted levers are operated, substantially as set forth and de- 60 scribed.

2. The combination with a frame of switch-opening devices and switch-closing devices connected with said arms, pivoted levers car- 65 ried by said frame, each of said levers being connected by rods at or near its ends with said opening and closing devices, and mechanism for actuating said levers, substantially as set forth and described.

3. The combination with a frame of a switch-closing device made in two parts which are 70 connected endwise by a pivotal joint, a bent spring secured to one of said parts and adapted to hold the other at an angle therewith and to close a switch-rail, substantially as set forth and described. 75

4. In a switch-opening device, the combination with the main part which is beveled at its forward end, of a slotted spring-rod provided with an inclined point, substantially 80 as set forth and described.

In testimony whereof I affix my signature in presence of two witnesses.

DEE TIE GRANBERY.

Witnesses:

G. W. MOORE,

S. L. MOORE.