

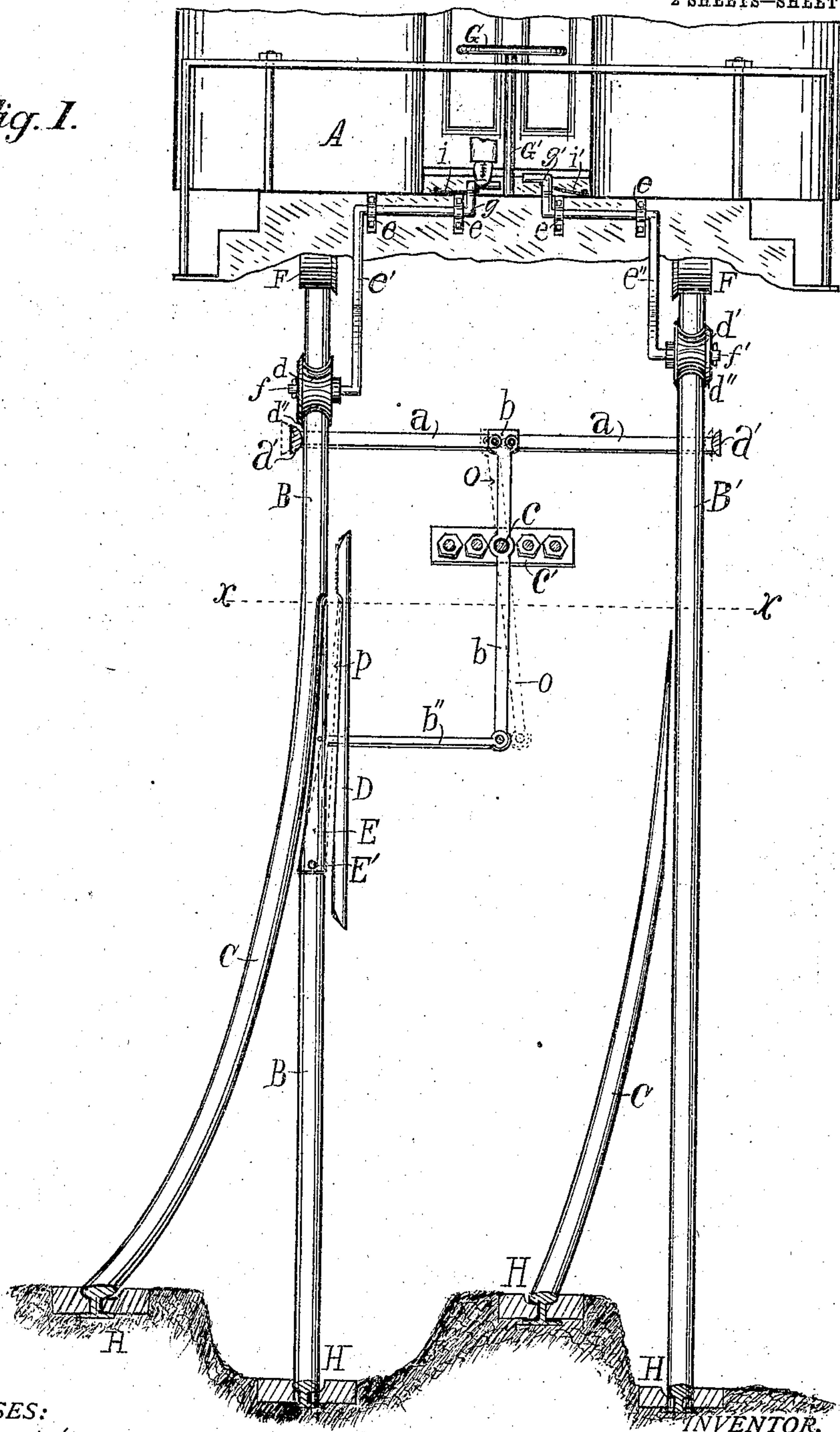
No. 814,827.

PATENTED MAR. 13, 1906.

E. BROWNFIELD.
STREET RAILWAY SWITCH.
APPLICATION FILED MAY 29, 1905.

2 SHEETS—SHEET 1.

Fig. 1.



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2 SHEETS—SHEET 2.

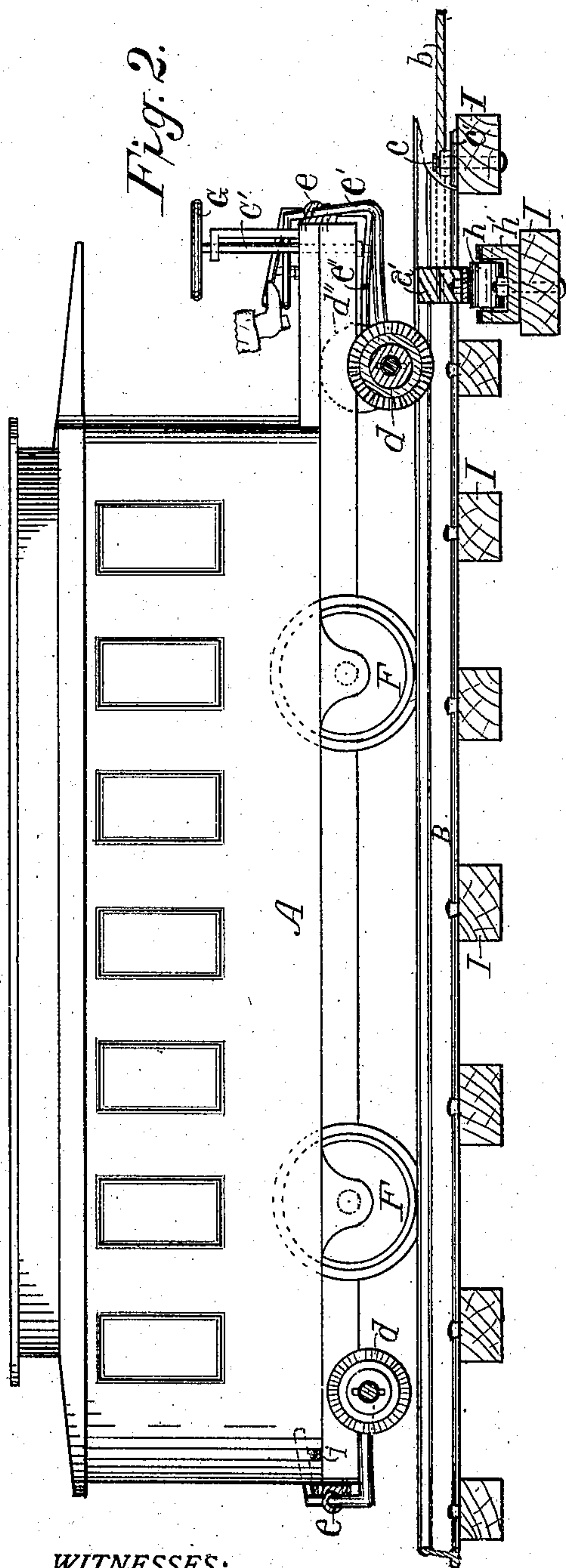


Fig. 2.

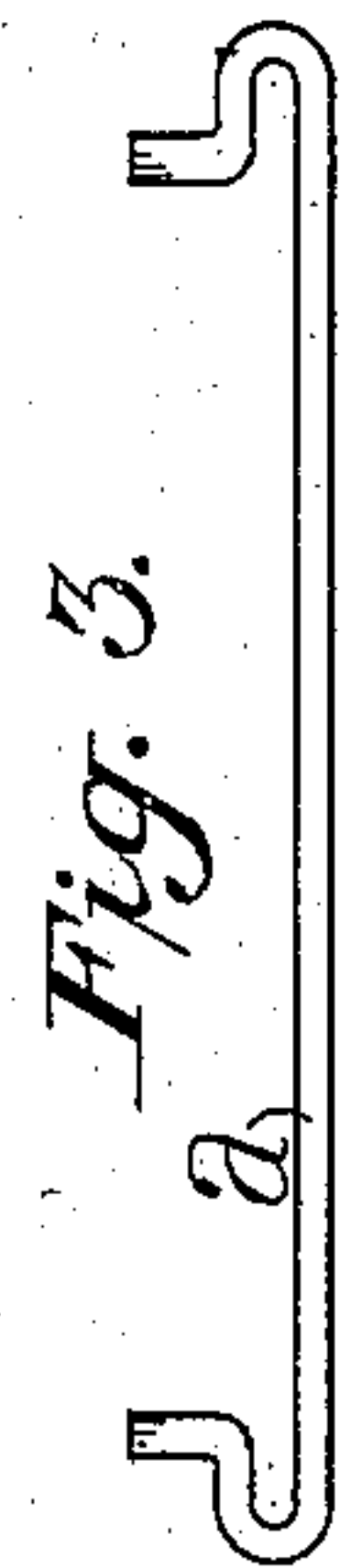


Fig. 3.



Fig. 6.

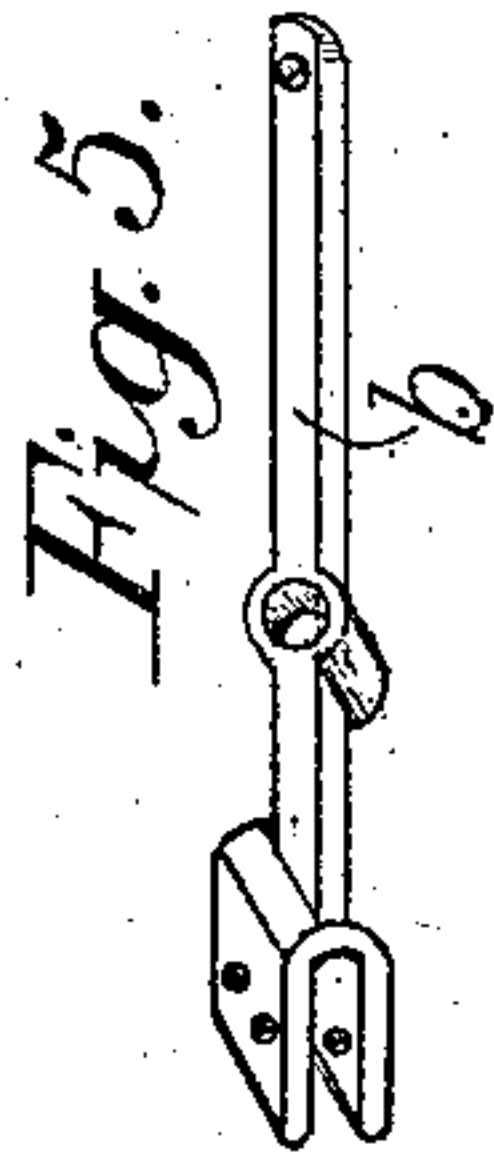


Fig. 5.



Fig. 7.



Fig. 8.

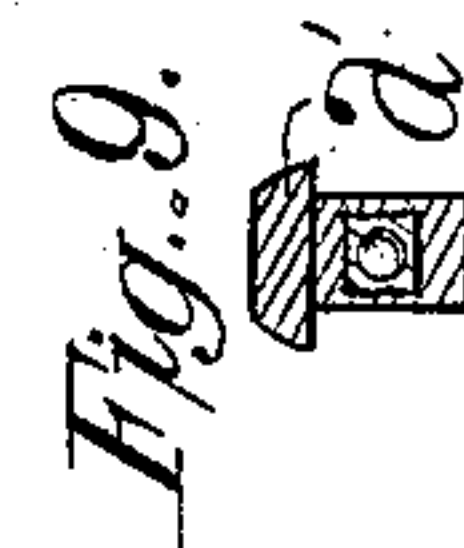


Fig. 9.

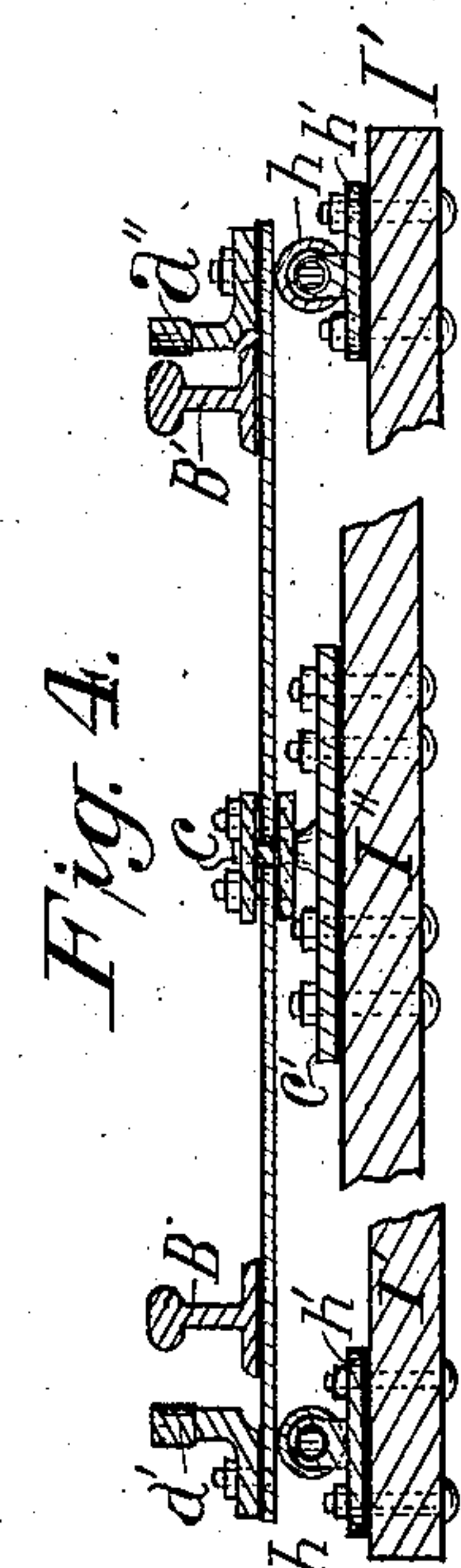


Fig. 4.

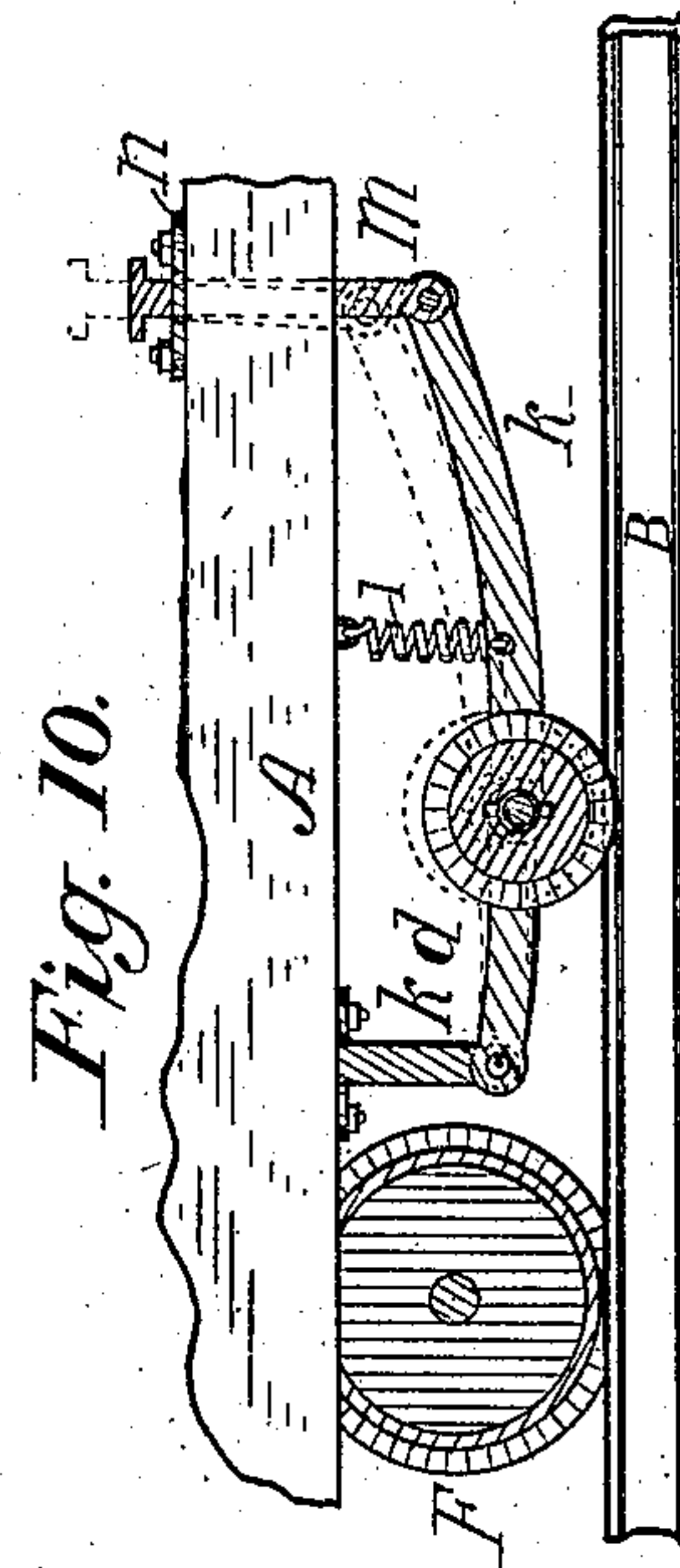


Fig. 10.

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UNITED STATES PATENT OFFICE.

EWING BROWNFIELD, OF OKLAHOMA, OKLAHOMA TERRITORY, ASSIGNOR
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STREET-RAILWAY SWITCH.

No. 814,827.

Specification of Letters Patent.

Patented March 13, 1906.

Application filed May 29, 1905. Serial No. 262,799.

To all whom it may concern:

Be it known that I, EWING BROWNFIELD, a citizen of the United States, residing at Oklahoma, in the county of Oklahoma and Territory of Oklahoma, have invented new and useful Improvements in Street-Railway Switches, of which the following is a specification.

My invention relates to street-railway switches and car attachment adapted to operate the switch, in which an operating cross-bar (in one or two sections) extends across the railway-track beneath or through the rails and has vertical extensions or lugs upon the outer ends thereof and each alternately resting against the outer surface of the rails, being of equal elevation therewith and adapted to be moved outwardly from the rail by the flange of wheels carried by the street-car and adapted to be operated by the motorman. Centrally located between and parallel with the rails is located and pivoted a lever attached to the said operating cross-bar (being in two sections) by one end, the opposite end being attached to a lateral bar loosely attached to the switch-point and adapted to move the loose end of the switch-point in and out of line, thus causing the car to keep the main line or take the curve track, as desired, the said lever being somewhat centrally pivoted, all of which will be more fully explained hereinafter.

The objects of my invention are, first, to provide means whereby the switch of street-railways can be thrown or operated without stopping the car; second, to enable the motorman to operate the device in the dark; third, to save time and avoid annoyance. I attain these objects by the mechanism illustrated in the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a modified perspective view of the street-car, the track, the two-sectioned operating cross-bar and its lever connections with the switch-point and the switching-wheels attached to the car. Fig. 2 is a side elevation of the track and the car thereon with the switch-wheels attached, also showing one end of the operating cross-bar; its supporting-roller and its upright deflecting-lug, and a portion of the operating-lever. Fig. 3 is an elevation of the operating cross-bar as composed of a single piece of iron. Fig. 4 is a view in elevation of the operating cross-bar

as in two sections, showing its attachments and connecting with the operating-lever, also the roller-rests supporting the ends of the operating cross-bar, also the lever-pivot. Fig. 5 is a perspective view of the operating-lever pivot. Fig. 6 is a perspective view of the pivot-stud and plate. Fig. 7 is a view in elevation of the deflecting-bar with its vertical stud as in its seat in the switch-point, showing a cross-section of said switch-point at the stud-seat. Fig. 8 is a cross-sectional elevation of one of the switch-throwing wheels. Fig. 9 is a plan view of one of the operating-cross-bar lugs. Fig. 10 is a side elevation of a section of the car and one of the switch-throwing wheels, showing one method of its attachment.

Referring to the drawings, A is the street-car as approaching the switch and prepared to throw the switch and take the curved track.

B and B' are the rails of the main line.

C and C' are the rails of the curve.

D is the guard-rail.

E is the switch-point, and E' is the pivot of the switch-point.

F and F' are the truck-wheels of the street-car.

G is the speed-regulator wheel, and G' is its vertical shaft.

H refers to the grooves in the pavement provided for the flanges of the truck or car wheels.

The operating cross-bar *a*, being in two sections in the present case, (but may be in one solid bar, as shown in Fig. 3,) is located in advance of the switch-point, as indicated by line *x x*. The duplicate vertical lugs *a'* and *a''* are secured to the outer ends of the operating cross-bar *a*, one of which is normally in contact with the outer surface of the track portion of the rail B or B', the contact portion being rounded away from the rail and adapted to permit the sharp portion of the beveled flange *d'* of the switch-throwing wheel *d* to enter between the rail and the said lug, pressing it away from the rail, thus producing a longitudinal movement of the operating cross-bar *a*, to which is attached one end of the operating-lever *b*, causing a reciprocal movement of its opposite end, and to the deflector-bar *b''*, which being attached to the operating-lever *b* and to the switch-point E between its pivot E' and its needle end

causes the car to continue on the main line or to turn upon the curve, depending upon which one of the switch-throwing wheels—*d*, the right, or *d'*, the left one—is pressed down upon the rail. The operating-lever *b* is pivoted on the upwardly-projecting stud *c* of the pivot-plate *c'*, which is secured to the cross-tie *I''*. (See Figs. 2, 4, and 6.) To secure free movement of the operating cross-bar *a*, its outer ends, which pass under or through the track-rails *B* and *B'*, rest upon rollers *h h*, supported by journal-plates *h' h'*, secured to the cross-tie *I'*.

To each end of the car are secured journal-plates *e e e e*, which hold in position the continuous angled and curved rods *e'* and *e''*, which form the foot-levers *g* and *g'*, also the axles *f* and *f'*, upon which the switch-throwing wheels *d* and *d'* rotate, the said wheels being secured in place by cotter-pins or threaded nuts or in any suitable manner. The flat longitudinal springs *i* and *i* hold the switch-throwing wheels up and clear from the track-rails *B* and *B'* when in their normal position, as indicated by the dotted lines *d'* and the rear switch-wheel in Fig. 2.

Where snow and ice are likely to obstruct the free operation of this switching device, the car portion may be constructed in accordance with the plan illustrated in Fig. 10, in which a vertical bar *k*, having its upper end secured to the under portion of the car and having hinged to its lower end a flat longitudinal bar *k'*, having secured thereto the axle of the switch-throwing wheel and the spiral spring *l* to maintain the said wheel above and free from the track, as indicated by the dotted lines, and for the purpose of operating the said wheel the loose vertical standard *m* is loosely attached to the forward end of the wheel-supporting bar *k'* and extending upward through the guide *n*, its end terminating in any convenient form to afford a foot-rest for operating the same.

In operation as the car approaches the switch the motorman, in case he desires to take the siding or curve, places his foot upon the lever *g*, and thereby presses the switch-throwing wheel *d* down upon the track-rail. The wheel coming in contact with the lug *a'*, the beveled flange *d''* passes between the rail and the said lug *a'*, crowding it to the right and away from the rail *B*, moving with it the operating cross-bar *a*, changing the position of the lever *b* to that of the dotted lines *o* and changing the position of the switch-point to that indicated by the dotted lines *p*, which opens the switch for the curve. On account of the grooved face of the wheels *d* and *d'* but little pressure is required to maintain

them firmly upon the track-rail. When the motorman desires to continue upon the main line, he may do so by pressing the switch-throwing wheel *d'* down upon the track-rail *B'*, and in case the switch is set for the curve the said wheel will reverse it, and in case the switch is set as desired no damage can result by operating the device, which can be operated without stopping the car, darkness making no change in the mechanical operation of the device.

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

1. The combination in a street-railway, of a switching device consisting of an operating cross-bar *a* extending across the track beneath the track-rails and having upon each of its ends upwardly-extending lugs, *a'* and *a''*, one of which normally rests against the outer side of the track portion of the rail, while the opposite similar lug is a little space distant from the same relative position of the other track-rail, the said operating cross-bar being adapted to a longitudinal movement and having its ends resting on the antifric-tion-rollers *h h*, provided with the journal rests or supports *h' h'*, secured to the cross-tie *I'*; the operating-lever *b*, pivoted upon the stud *c*, of the pivot-plate *c'*, secured to the cross-tie *I''*; the said operating-lever, *b*, having one of its ends attached to the said operating cross-bar *a*, and having its opposite end attached to the inner end of the deflecting-bar *b''*, having its outer end provided with an upwardly-extending stud or pin adapted to its seat in the switch-point *E*, substantially as described.

2. In the combination of a street-railway having a switching device and a street-car adapted to operate in conjunction therewith, the switch-throwing device consisting of the switch-throwing wheels *d* and *d'*, having grooved double-flanged faces adapted to engage the track-rail, and having their outer flanges beveled to nearly sharp edges; and rotating upon axles attached to the street-car, and being provided with means for maintaining the said wheels normally above and free from the track-rails; also means being provided whereby the motorman operates the said switch-throwing wheels, as described and for the purposes set forth.

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

EWING BROWNFIELD.

Witnesses:

L. H. JONES,
S. J. HANSON.