

No. 663,707.

Patented Dec. 11, 1900.

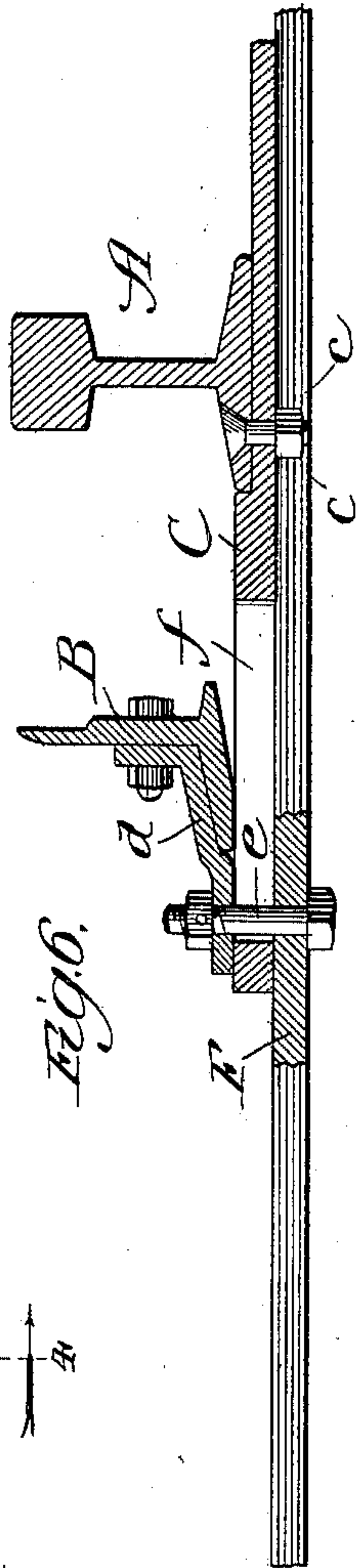
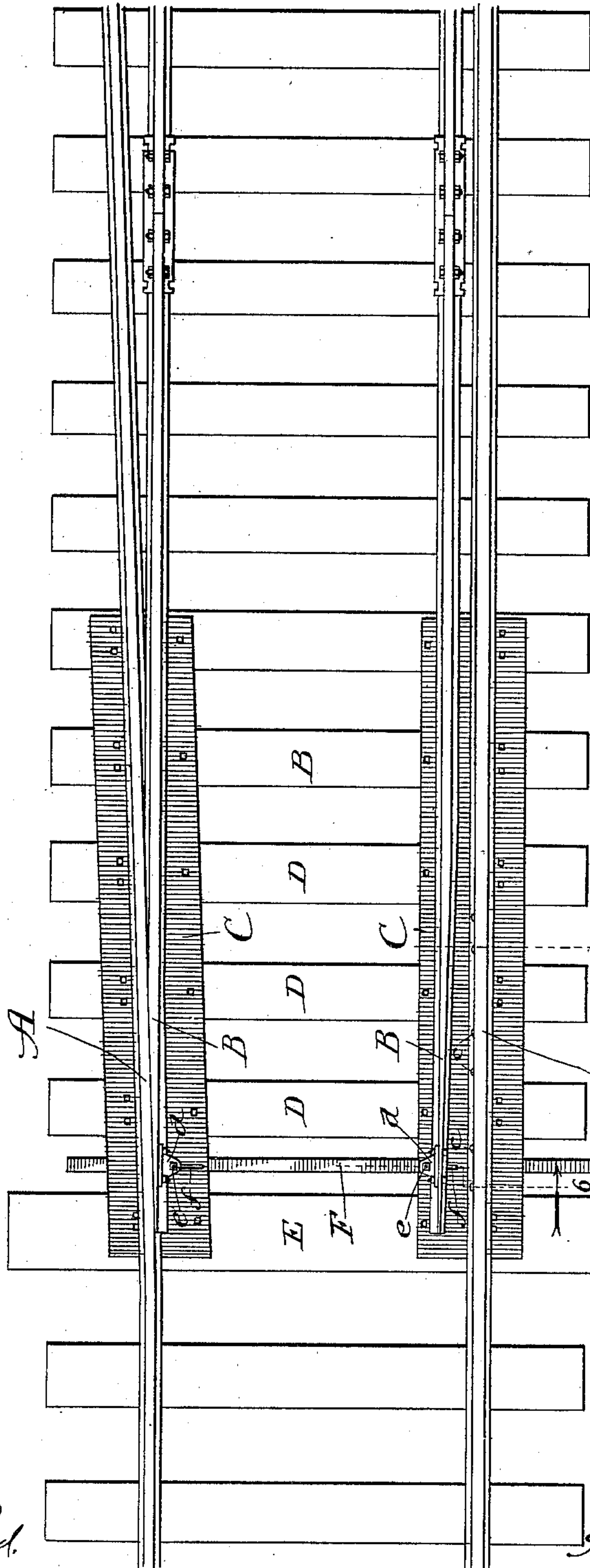
A. A. STROM.  
RAILWAY SWITCH.

(Application filed Aug. 1, 1900.)

(No Model.)

2 Sheets—Sheet 1.

*Fig. 1.*



*Fig. 6.*

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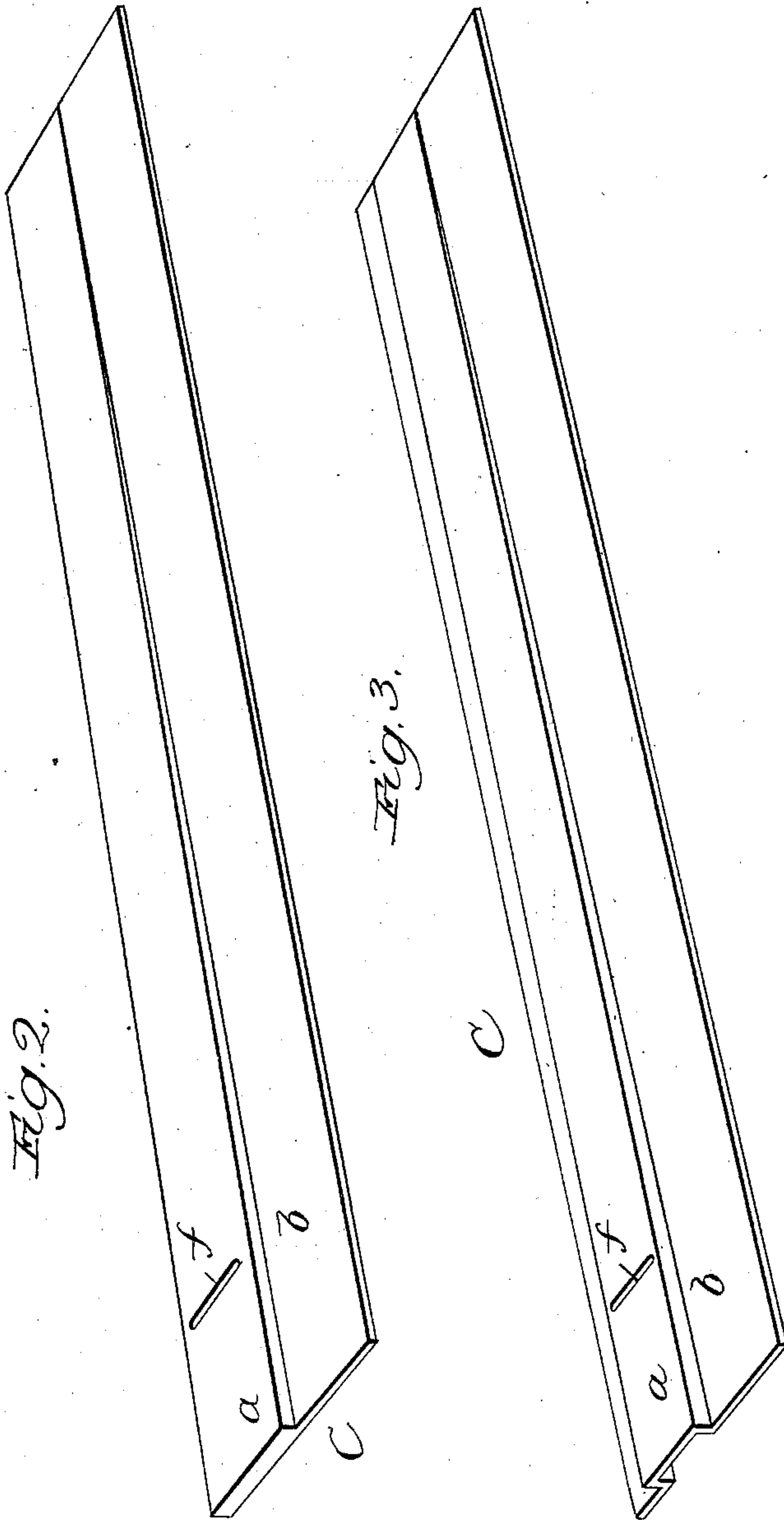


Fig. 5.

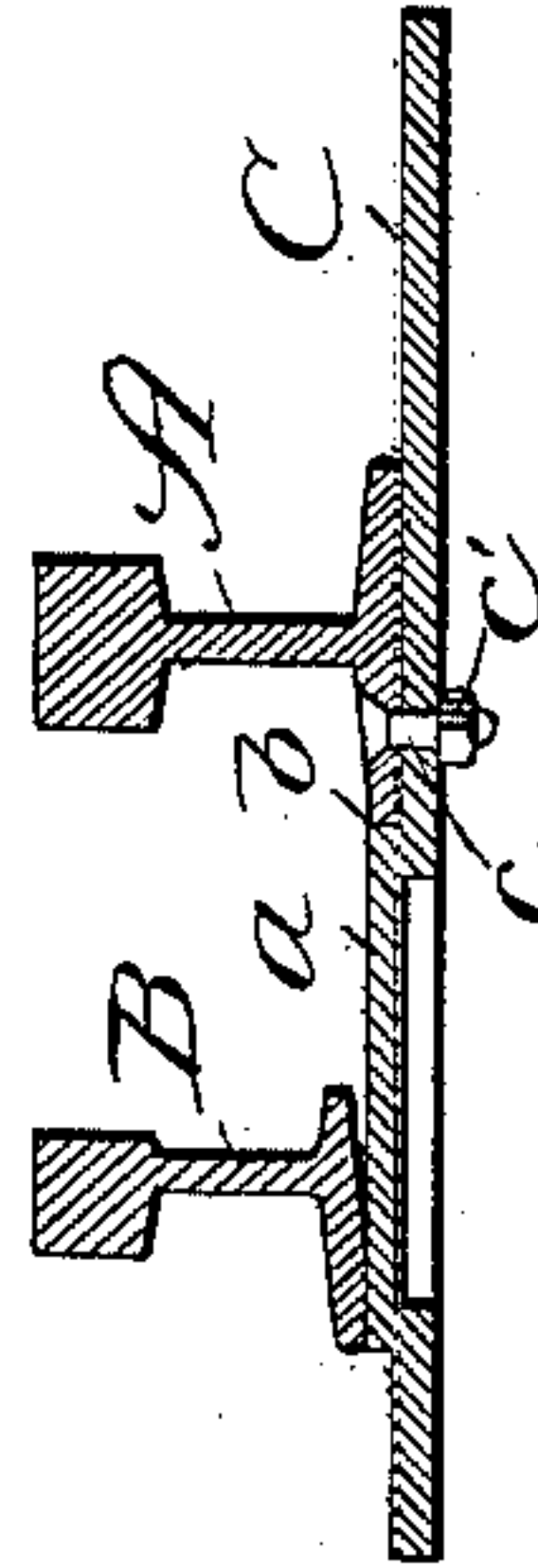
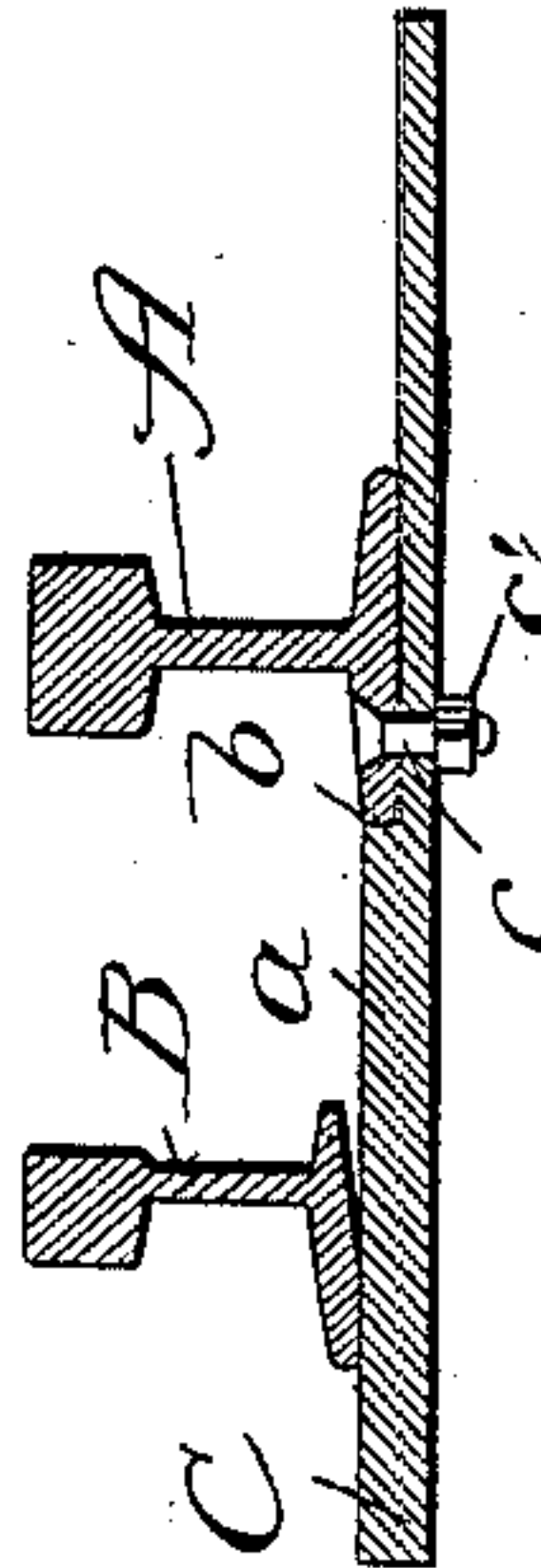


Fig. 4.



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# UNITED STATES PATENT OFFICE.

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## RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 663,707, dated December 11, 1900.

Application filed August 1, 1900. Serial No. 25,551. (No model.)

*To all whom it may concern.*

Be it known that I, AXEL A. STROM, a citizen of the United States, residing at Austin, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Railway-Switches, of which the following is a specification.

My invention relates, primarily, to an improvement in the slide-plates for the point-rails of split switches.

It is common to provide for each pivotal point-rail in a switch a series of metal slide-plates to extend for some distance back from the pointed end of the rail, the slide-plates of the series being fastened down independently of each other upon the successive ties to extend transversely under the base of the adjacent main rail and afford at the inner side of the latter bearings on which the point-rail slides in being thrown. By reason of the usual bevel along the top of the point-rail in order that its upper surface shall extend to or approximately to and parallel with the plane of the top of the adjacent main rail, as required, the slide-plates in the series have to vary successively in height to afford a support for the point-rail, inclining regularly downward in the backward direction from the point inversely of the forward downward inclination of the top of the point-rail produced by beveling it.

In constructing the track the matter of adjusting the members of the series of slide-plates involves the requirement of selection to insure placing the members of each series of the proper relative heights in the proper positions under the point-rails, so that they shall afford a regularly-inclined support for the point-rail on which it will find firm bearing at each tie equipped with a slide-plate. The care necessarily exercised in the adjustment of the slide-plates into and their maintenance in their respective proper positions and the time required for effecting it are material items in the cost of erection of the switch.

My primary object is greatly to simplify railway-switch construction by providing, to support the point-rail, a continuous slide-plate adapted to extend lengthwise over a plurality of ties and having the same or ap-

proximately the same inclination along its upper side that is provided along the top of the point-rail, whereby when the slide-plate is adjusted into position, with its upper surface inclining downward and backward from the forward end of the point-rail, the forwardly-inclined top of the point-rail shall be parallel or as nearly parallel as required with the top of the adjacent main rail.

Further objects are to afford additional firmness to the main rails at their inner sides along the sections thereof at which the switch-rails are provided and to provide peculiarly-effective means for holding the point-rails against tipping laterally under the strains to which they are subjected in use, the accomplishment of each of which objects is rendered possible by the use of my improved continuous slide-plate.

Referring to the accompanying drawings, Figure 1 is a plan view of a railway-switch equipped with my improvement; Fig. 2, a perspective view of one form of my improved slide-plate; Fig. 3, a similar view of another form of the same; Fig. 4, an enlarged section taken at the line 4 on Fig. 1 and viewed in the direction of the arrow, showing the form of slide-plate illustrated in Fig. 2; Fig. 5, an enlarged section taken at the line 4 on Fig. 1 and viewed in the direction of the arrow, showing the form of slide-plate presented in Fig. 3; and Fig. 6, an enlarged section taken at the line 6 on Fig. 1 and viewed in the direction of the arrow, showing the form of continuous slide-plate presented in Fig. 2.

A A are the main rails, and B B are the movable point-rails, of a switch.

C is my improved metal slide-plate, which may be of the form shown in Fig. 2, wherein the raised section *a* is solid and forms an abutment *b* along the longitudinal center of the plate and inclines regularly from one end to the other at the same or approximately the same angle of inclination as the top of a point-rail B, or the continuous slide-plate may have the form shown in Fig. 3, wherein the raised portion *a* is formed on the required incline by striking it up, thereby producing also the longitudinal shoulder or abutment *b*.

The plates C, one for each point-rail, are placed in position and fastened down upon



the ties D and head-block E to cause the inclined surfaces of the bearings *a* to extend backward and downward from the points of the switch-rail. As shown, the slide-plate  
 5 extends from the head-block across five ties. The main rails extend along the lower or depressed sections of the slide-plates and abut against the adjacent shoulders *b*, whereby they are securely held against "creeping in"  
 10 or narrowing the gage, and the point-rails rest on the raised sections *a*, along which they extend and on which they find throughout their length uniform bearing at their bases, the inverse inclination of the top of each  
 15 raised section to the top of each point-rail supporting the latter with its top parallel or approximately parallel with and as nearly as need be in the horizontal plane of the top of the adjacent main rail.

20 As will be seen, by providing the continuous slide-plate with the raised section properly inclined the equipment of the switch with bearings for the point-rails is greatly facilitated, the number of slide-plates for a  
 25 switch is reduced to the minimum, and slide-bearings are provided for the point-rails throughout the extent of their length that requires slide-plate supports.

A further advantage afforded by my improved slide-plate is that owing to its continuous form it cannot under the weight to which it is subjected by trains passing over the switch become embedded in the soft wood of the ties, as do the ordinary narrow slide-plates, with the effect of causing the point-rails to contact frictionally with the wood, thereby increasing the friction in their movement and impairing the function of the slide-plates, besides lowering the levels of the point-rails, with the tendency, where the extent of  
 40 embedment of successive slide-plates is unequal, of causing the point-rails to break under the strains to which they are subjected.

Where the single narrow slide-plates are  
 45 used, as heretofore, one on each tie, leaving the spaces between the successive ties uncovered, it is impossible or at least impracticable to fasten the main rails at the flanges on their inner sides along the sections where the point-rails extend—that is to say, the main rails  
 50 may not there be spiked to the ties, because the heads of the spikes would protrude above the planes of the main-rail flanges, when they would obstruct the throw of the switch-rails—  
 55 and it is impracticable to bolt them there to the ties and overcome the protrusion of the bolt-heads by countersinking in the rail-flanges, as the under sides of the ties are not accessible for fastening the bolts by nuts.  
 60 Hence it has hitherto been the practice to leave the sections referred to of the main rails unfastened along their inner sides, with the consequent lack of security. The use of my improved continuous slide-plate enables me  
 65 to overcome this defect in switch construction, for since the slide-plate bridges the

spaces between the ties across which it extends it affords readily-accessible bearings between the ties for bolts. Accordingly I  
 70 utilize the continuous slide-plate as a medium for additionally fastening down the main rails A by means of bolts *c*, inserted at intervals through the sections of their inner flanges, along which the point-rails extend, and through the continuous slide-plates C,  
 75 where they bridge the spaces between the ties, and countersink the heads of the bolts in the rail-flanges, as shown, so as to prevent them from presenting obstructions to the switch-rails, and the bolts are fastened by  
 80 nuts *c'* at the under sides of the slide-plates. If desired, rivets may be used instead of the bolts *c*. Moreover, as split switches have hitherto been constructed the tie-bar F, which  
 85 passes transversely across the bases of the main rails A and the point-rails B, (with which latter it is commonly connected by means of clips *d*, pivotally fastened through their tail portions to the tie-bar,) finds upward  
 90 bearing only against the bottoms of the rails to prevent the points from rising by the weight of cars passing over them. This bearing and the connection with the tie-bar of the point-rails are not adequate to prevent the  
 95 latter from being tilted laterally under the thrusts of the wheel-flanges against them, and these thrusts therefore subject them to severe strain, which disorganizes them and their connections. With the use of my improved continuous slide-plates not only are  
 100 wider upward bearing-surfaces afforded by their under sides to the tie-bar, which passes underneath them, as shown, and thus transversely across the bases of the point and main rails, but their width enables me to provide  
 105 in each a transverse slot *f*, through which to pass the bolt *e*, which connects the respective point-rail at its clip *d* with the tie-bar F. This slot, which is wide enough to prevent binding the bolt in the throw of the switch,  
 110 affords a guide for the bolt, and the wide bearing-surface of the slide-plate, across which the tie-bar bears, prevents the point-rail from tilting laterally, while the bolt *e* prevents the point from rising.

115 The leading feature of the invention on which my improved construction is founded is that of a slide-plate provided with relatively higher and lower longitudinal sections, one of which sections is inclined lengthwise of the  
 120 rail to produce the result of supporting the base of the point-rail above the bottom of the base of the adjacent main rail, and I desire to have my invention understood thus broadly, however the slide-plate may be formed and  
 125 applied to produce the desired relation of the base of the point-rail to that of the main rail.

What I claim as new, and desire to secure by Letters Patent, is—

1. As a new article of manufacture, a slide-plate for the point-rail of a railway-switch  
 130 having longitudinally thereof an elevated sec-



tion continuously inclined lengthwise of the rail.

2. As a new article of manufacture, a continuous slide-plate for the point-rail of a railway-switch, adapted to extend lengthwise across a plurality of ties and provided on its upper side with a continuous raised section inclining along its top in accordance with the inclination of the point-rail supported by it, substantially as and for the purpose set forth.

3. As a new article of manufacture, a continuous slide-plate for the point-rail of a railway-switch, adapted to extend lengthwise across a plurality of ties and provided on its upper side with a longitudinal depressed section affording a seat for the main rail and with a continuous raised section affording an abutment for the main rail and inclining along its top in accordance with the inclination of the point-rail supported by it, substantially as and for the purpose set forth.

4. As a new article of manufacture, a continuous slide-plate for the point-rail of a railway-switch, adapted to extend lengthwise across a plurality of ties and comprising a metal plate having a struck-up section inclining along its top in accordance with the inclination of the point-rail supported by it, and affording a depressed seat-section and a lateral abutment for the main rail, substantially as and for the purpose set forth.

5. In a railway-switch, the combination with the main and switch rails, of a continuous slide-plate for each switch-rail extending lengthwise across a plurality of ties and bridging the spaces between them, the main rails being fastened at their inner flanges to said slide-plates between said ties and within the

length of the adjacent switch-rail, substantially as and for the purpose set forth.

6. In a railway-switch, the combination with the main and switch rails, of a continuous slide-plate for each switch-rail extending lengthwise across a plurality of ties and bridging the spaces between them, and bolts fastening the main rails through their inner flanges to said slide-plates between said ties and having their heads countersunk in said flanges, substantially as and for the purpose set forth.

7. In a railway-switch, the combination with the main and switch rails, of a continuous slide-plate for each switch-rail extending lengthwise underneath it and the adjacent main rail across a plurality of ties and having a transverse slot, and a tie-bar extending transversely across the bases of said slide-plates and connected with a switch-rail through each of said slots, substantially as and for the purpose set forth.

8. In a railway-switch, the combination with the main and switch rails, of a continuous slide-plate for each switch-rail extending lengthwise underneath it and the adjacent main rail across a plurality of ties and having a transverse slot, a tie-bar extending transversely across the bases of said slide-plates, clips fastened to the switch-rails, and bolts connecting said clips with the tie-bar through said slots, substantially as and for the purpose set forth.

AXEL A. STROM.

In presence of—

M. J. FROST,  
A. D. BACCI.