

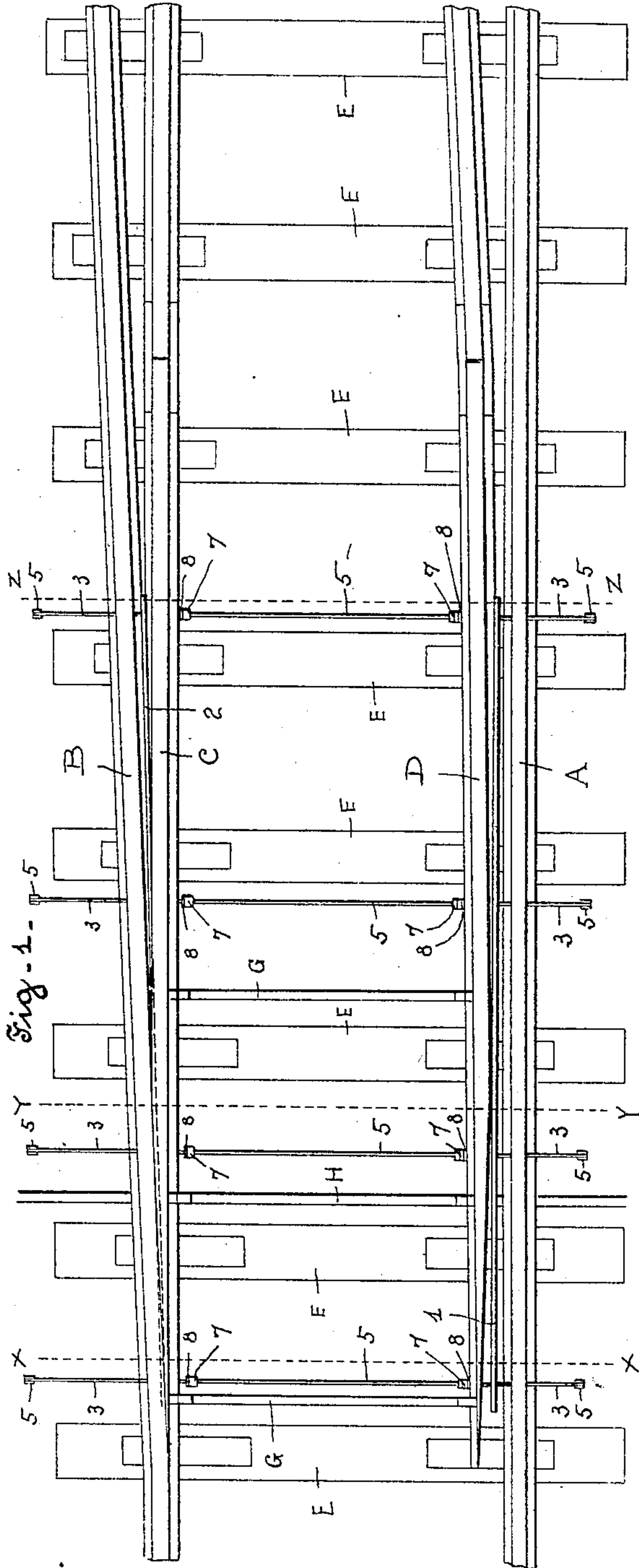
No. 773,600.

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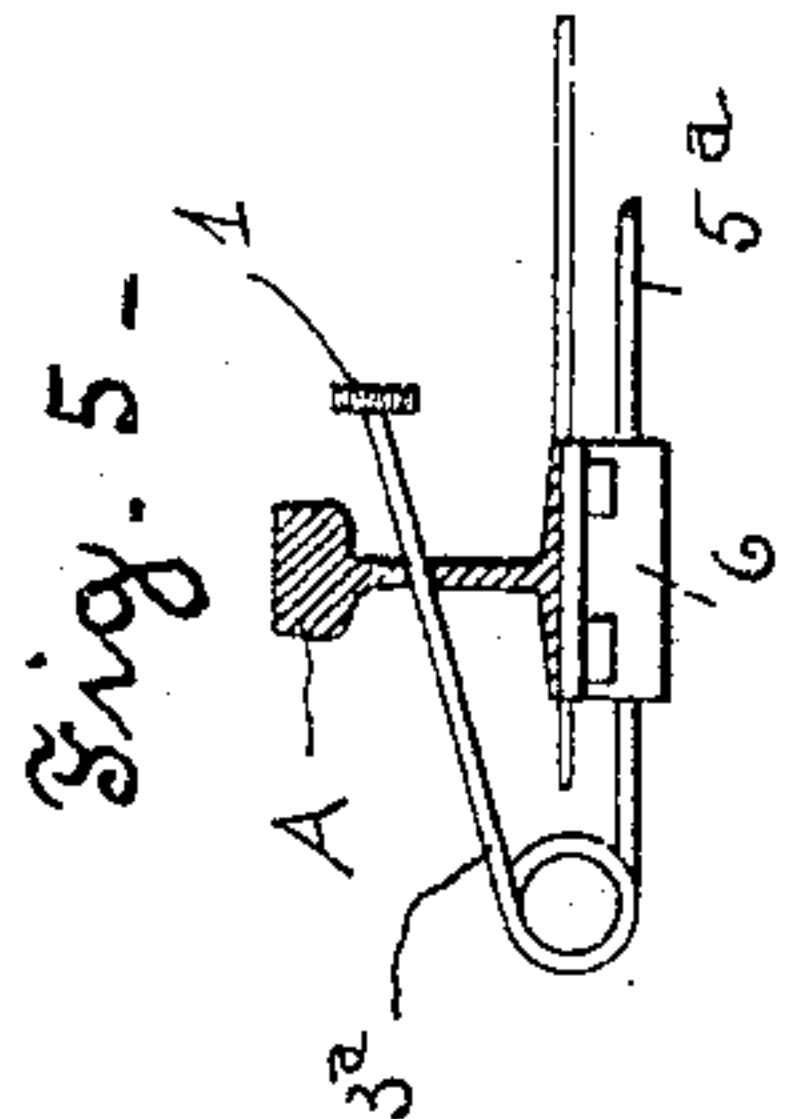
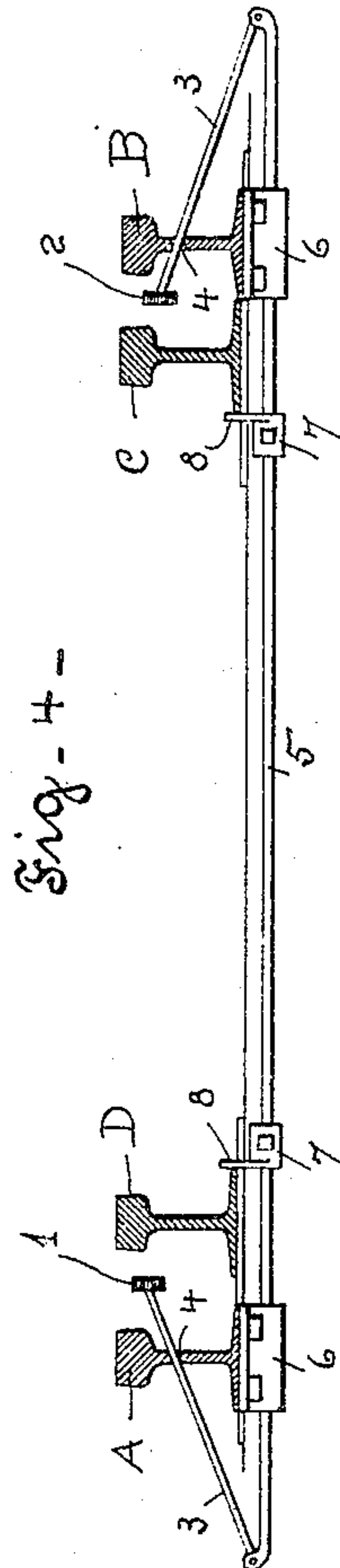
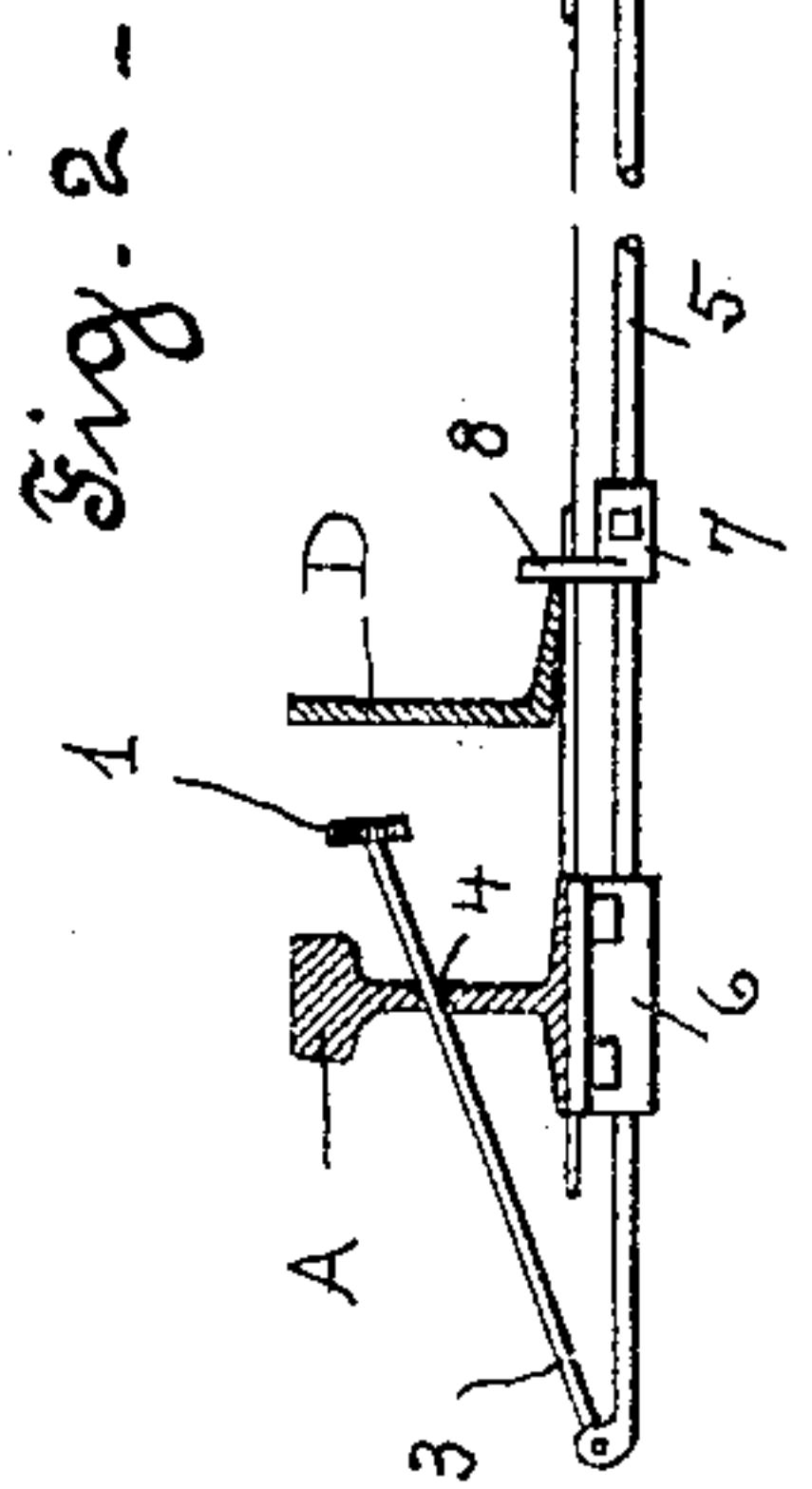
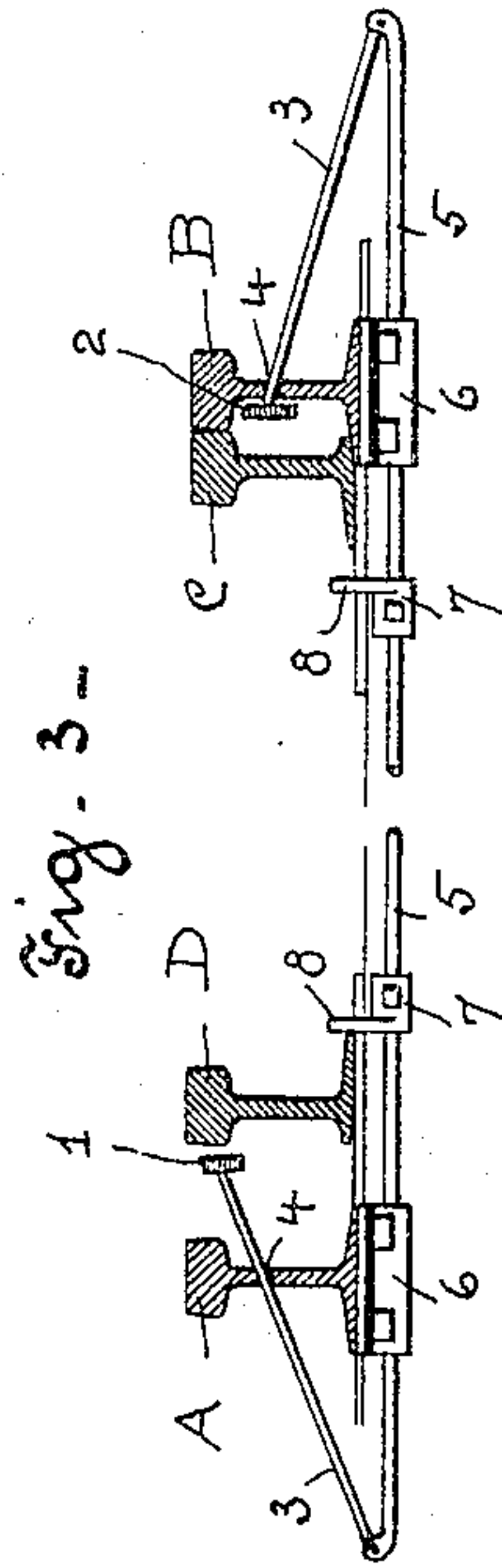
W. SHERIDON.  
FOOT GUARD FOR RAILWAY SWITCHES.

APPLICATION FILED OCT. 8, 1903.

NO MODEL.



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# UNITED STATES PATENT OFFICE.

WILLIAM SHERIDON, OF TOLEDO, OHIO.

## FOOT-GUARD FOR RAILWAY-SWITCHES.

SPECIFICATION forming part of Letters Patent No. 773,600, dated November 1, 1904.

Application filed October 8, 1903. Serial No. 176,227. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM SHERIDON, a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have  
5 invented a new and useful Improvement in Foot-Guards for Railway-Switches, of which the following is a specification.

My invention relates to a foot-guard for railway split switches, and has for its object  
10 to provide a simple, inexpensive, and efficient device of the kind which will prevent a foot from being accidentally wedged between a stock and a switch rail, an accident that is of frequent occurrence and that often results in  
15 loss of life or limb from inability to extricate the foot in time to escape an oncoming train.

A further object is to provide a guard of the kind that will not in any manner interfere with the operation of the switch or render it  
20 less safe for trains and that will not prevent the removal of ice or snow from between the rails.

I accomplish these objects by providing a switch of the kind with a guard constructed  
25 as hereinafter described, and illustrated in the drawings, in which—

Figure 1 is a plan view of a switch equipped with my guard. Fig. 2 is a cross-section of Fig. 1 on line X X. Fig. 3 is a cross-section  
30 of Fig. 1 on line Y Y. Fig. 4 is a cross-section of Fig. 1 on line Z Z. Fig. 5 shows an integral flexible connection between the supporting and connecting rods.

In the drawings, A represents a stock-rail of  
35 a main track; B, a stock-rail common to the main and a branch track; C, a switch-rail of the main track, completing the main track opposite rail A, and D a switch-rail of the branch track, completing the branch track op-  
40 posite rail B. The rails A and B are spiked to the ties E, and the switch-rails C and D are movably mounted on chairs secured to the ties and adapted to allow the limited move-  
45 ment of the switch-rails required to connect the branch line with the main line and disconnect the main line, or, vice versa, to disconnect the branch line from the main line and connect the main line, as shown in Fig. 1.

The switch-rails C and D are rigidly con-  
50 nected at intervals by the cross-bars G, where-

by the two rails form a track-section adapted to be moved through an arc to make either of the connections described by a lever (not shown) adapted to operate the throw-bar H, which is suitably connected to the section for  
55 the purpose.

The heads of rails C and D are each tapered to an edge at their free ends and flattened for a distance on the sides, the rail C on lines  
60 adapting it on one side to coincide with the inner line of rail B and on the other side to parallel rail A and the rail D on lines adapting it on one side to coincide with the rail A and on the other side to parallel the rail B,  
65 and their outer base-flanges are also cut away for a distance from their points to permit the tapered portions of the rails to ride up on the flanges of the permanent rails as they are re-  
70 spectively moved into abutting contact therewith, as shown in Figs. 2 and 3.

Each of the switch-rails when closed en-  
gages the abutting stock-rail at a very acute angle, and the long narrow wedge-shaped gap  
75 between the slightly-diverging rails forms a dangerous place within which a foot may be accidentally wedged, and when either of the switch-rails is in an open position there is  
80 formed a long narrow gap between the switch-rail and the permanent rail, which, as shown in Fig. 1, first narrows toward a point of the switch-rail (indicated on Fig. 1 by the point  
85 of crossing of the line Y Y) and then slightly widens again to the point of the rail, which gap also constitutes a place wherein a foot may be readily wedged.

My guard mechanism as applied to a switch  
thus constructed comprises the guard-bars 1  
and 2, which are located the bar 1 between  
the rails A and D and the bar 2 between the  
90 rails B and C and are of a length to extend from near the points of the switch-rails C and D a distance along the rails to points where  
the distance between the diverging rails has  
so increased that a foot cannot become wedged between. The guard-bars are movably sup-  
95 ported at intervals of their length by the rods 3, which are secured thereto and extend diagonally downward and outward through ori-  
fices 4 in the webs of the rails A and B, each  
rod 3 through rail B being opposite a rod 3  
100



through rail A, and each pair of opposite rods 3 are hinged or flexibly connected at their outer ends to a connecting-rod 5, extending transverse and underneath the rails A and B and movable lengthwise through guides 6, secured to the under sides of the base-flanges of the rails, as shown in Figs. 2, 3, and 4. Thus connected when the rods 5 are moved in either direction the rods 3 at the forward ends of the rods 5 pull the guard-bar to which they are attached downward and outward and the rods 3 at the opposite ends of rods 5 push the guard-bar to which they are attached inward and upward.

On each connecting-rod 5 are mounted a pair of collars 7, each provided with a set-screw or other means of adjustably securing it to the rod. The collars are also each provided with a pin 8 or other suitable projection adapted to be engaged by the inner flange of a switch-rail, and the collars are so located and adjusted on each rod 5 that the pin of one collar is in engagement with the flange of the switch-rail that is open, and the pin of the other collar is located a distance from the inner flange of the closed switch-rail equal to one-half the distance of the movement of that portion of the rail opposite the pin, the distance of movement of the switch-rail opposite any rod 5 varying with the distance of the rod from the points of the switch-rails, the movement at line X X being equal to the distance between the rails A and D or B and C when fully open and the movement at Z Z being substantially negligible. The collars being so adjusted, when the branch track is disconnected, as shown in Fig. 1, the guard-bar 1 is in an elevated horizontal position parallel with the head of the stock-rail and at its ends central between the stock-rail A and the switch-rail D, while the guard-bar 2 is slightly inclined from a horizontal at an acute angle to the stock-rail B, with the portion of the bar that is along the point portion of the switch-rail C dipped underneath the head of the stock-rail B and with the opposite end central of the wedge-shaped gap between the heads of the said rails. If the switch be thrown from this position to connect the branch track, it is manifest that when the switch-section has been moved one-half the distance to close rail D on rail A the rail C will engage the pins of the adjacent collars, and during the last half of the movement of the switch-section rail C will push the rods 5 in the direction of rail A, and thereby draw the rods 3, attached to the guard-bar 1, downward and outward through the orifices 4 of rail A, each rod 5 drawing the bar according to the movement of that portion of the rail that engages it, thereby causing the bar 1 to assume the same relative position to rails A and D that bar 2 is shown in Fig. 1 of the drawings to have with reference to the rails B and C, and while bar 1 is being drawn into such position the bar 2 will

be pushed by its rods 3 inward and upward into a central elevated position between the rails B and C corresponding to the position of bar 1. (Shown in Fig. 1.) It is evident that this movement will leave the pins of the collars on the rods 5 adjacent to rail C in engagement with that rail and the pins of the collars adjacent to rail D separated therefrom one-half the distance of the movement of the rail opposite each pin and that a reversal of the switch will reverse the position of the collars relative to the switch-rails, and, further, that by the arrangement and adjustment of the collars, as shown and described, the portion of each guard-bar along the point portion of its companion switch-rail will be moved downward and outward beneath the head of the abutting stock-rail as the switch-rail is closed thereon and inward and upward into position central between the stock-rail and the switch-rail when the switch-rail is opened and that the remaining portion of the guard-bar will always be substantially central of the open wedge-shape space between the switch and stock rail when closed, thereby guarding the gap whether the switch-rail be open or closed. It is manifest also that the guard-bars will not interfere with the operation of the switch, the running of trains, or with the removal of ice and snow from between the switch and stock rails, while they are at all times in position to effectively guard the dangerous portions of the gaps between the switch and stock rails.

Instead of hinging the rods 3 to the ends of the connecting-rods 5 they may be combined in a spring-rod 5<sup>a</sup>, having end portions 3<sup>a</sup>, extending from spring bends through the orifices 4 and connected to the guard-bars, as shown in Fig. 5.

The orifices 4 in the webs of the stock-rails are made large enough to give free movement to the rods 3 and are preferably countersunk from each side of the web to allow free movement of the rods without binding during the changing of the angle of the rods to the connecting-rod 5 in their outward and inward movements.

My invention is particularly useful in switch-yards where switches are operated from a distant tower by pneumatic or electric power, by which switches are suddenly and unexpectedly closed, as if a foot happens at the time to be caught in a switch when so operated it will be crushed.

What I claim to be new is—

1. In a railway-switch guard, the combination with a railway split switch, of a movable guard-bar between each rail, each guard-bar being of a length and located to extend along the contacting point portion of its companion switch-rail and for a distance into and dividing the gap between the switch-rail and its companion stock-rail beyond the point portion, movable supports for the guard-bars,



means to engage and move the movable supports in the direction of and as the switch-rails are moved, said supports being adapted when moved to dip the point portion of the guard-bar of the closing switch-rail downward and outward beneath the head of the adjacent stock-rail, and to simultaneously raise the point portion of the opposite guard-bar from beneath the head of its adjacent stock-rail inward and upward therefrom, into the gap formed by the opening switch-rail.

2. In a railway-switch guard, the combination with a railway split switch, of a movable guard-bar between each switch-rail and its companion stock-rail, each guard-bar being of a length and located to extend along the contacting point portion of its companion switch-rail and for a distance into and dividing the gap between the switch-rail and its companion stock-rail beyond the point portion, movable supports for the guard-bars, adapted to be engaged and moved by the switch-rails, said supports being adapted when moved by the switch-rails to dip the point portion of the guard-bar of the closing switch-rail downward and outward beneath the head of the adjacent stock-rail and to simultaneously raise the point portion of the opposite guard-bar from beneath the head of its adjacent stock-rail inward and upward therefrom into the gap formed by the opening switch-rail.

3. In a railway-switch guard the combination with a railway split switch, of a guard-bar dividing the gap between each switch-rail and the adjacent stock-rail, orifices through the webs of the stock-rails at intervals, each orifice in one stock-rail being opposite an ori-

fice in the other stock-rail, a plurality of rods secured to the guard-bars one opposite each orifice in each stock-rail, and extending diagonally downward and outward through the orifices and adapted to movably support the bars, a connecting-rod for each opposite pair of supporting-rods pivotally connected at its outer ends with the outer ends of the supporting-rods, guides for the connecting-rods, means secured to the connecting-rods adapted to be engaged by the switch-rails and move the rods substantially as set forth.

4. In a railway-switch guard the combination with a railway split switch, of a guard-bar dividing the gap between each switch-rail and the adjacent stock-rail, orifices through the webs of the stock-rails at intervals, each orifice in one stock-rail being opposite an orifice in the other stock-rail a plurality of guides transverse the bases of the stock-rails, one below each orifice, spring-rods in the guides transverse the stock-rails, each rod movable in opposite directions in opposite guides and having their outer end portions flexed inward and upward at an acute angle from the body of the rod and extending through the orifices with the ends connected to and adapted to support the guard-bars in the gap between the stock-rail and the switch-rail, means secured to the spring-rods adapted to be engaged by the switch-rails and move the rods, substantially as set forth.

In witness whereof I hereunto set my hand this 3d day of October, 1903.

WILLIAM SHERIDON.

Witnesses:

C. C. RAKESTRAW,  
F. S. MACOMBER.