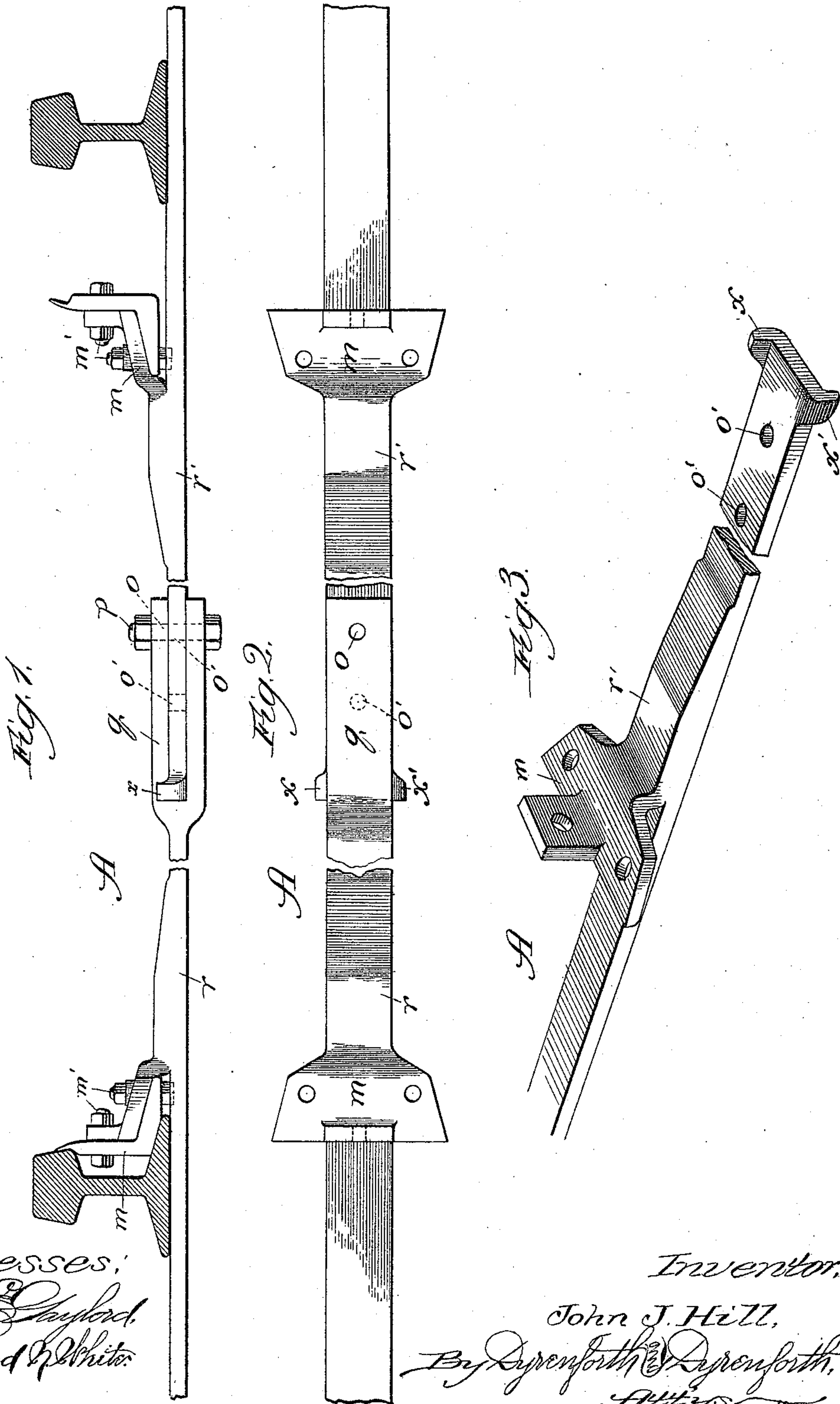


(No Model.)

J. J. HILL.  
RAILROAD SWITCH.

No. 442,753.

Patented Dec. 16. 1890.



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# UNITED STATES PATENT OFFICE.

JOHN J. HILL, OF CHICAGO, ILLINOIS.

## RAILROAD-SWITCH.

SPECIFICATION forming part of Letters Patent No. 442,753, dated December 16, 1890.

Application filed July 12, 1890. Serial No. 358,507. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN J. HILL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have  
5 invented a new and useful Improvement in Railroad-Switches, of which the following is a specification.

My invention relates, more definitely stated, to an improvement in the tie-bar portion of a  
10 railroad-switch, being the bar employed with so-called "split switches," for tying together the two movable rails forming a switch and causing them to be moved together by strain exerted against one.

15 As the tie-rod has hitherto been secured to switch-rails it or its fastening is liable to be and frequently is torn or broken from a rail (as the flange) to which it is secured, thereby destroying the usefulness of the entire switch-  
20 rail, the fracture being produced by the strain of the wheel-flanges on the cars in "running through" the switch, or, in other words, in passing from the switch to the main line, when it is set for the main line, which tends to  
25 spread the switch-rail and to break the tie-bar at its weakest point—namely, that at which it is secured to the rail. Sometimes the strain also injures the switch-stand.

The object of my improvement is not to  
30 overcome this tendency to breakage, but to cause the exertion of the strain to tend to break the tie-bar rather than the rail or injure the switch-stand, thereby reducing the extent of the damage incurred by the frac-  
35 ture, since it is less expensive to destroy and much more easy to replace or repair a tie-rod than a switch-rail or a switch-stand.

To this end my invention consists in the general construction of my improvement; and  
40 it also consists in details of construction and combinations of parts.

In the accompanying drawings, Figure 1 is a view in broken elevation illustrative of a tie-rod of my improved construction opera-  
45 tively applied; Fig. 2, a broken plan view of the sectional tie-rod, and Fig. 3 a broken perspective view of one section of my improved tie-rod.

A is a tie-rod, formed in two longitudinal  
50 sections  $r$  and  $r'$ , the former having a socket  $q$  at one end, (which may be formed by ex-

panding and bifurcating it toward its end, as shown,) and through which socket extends transversely the bolt-opening  $o$ . The end of the section  $r'$  to be secured to the section  $r$  is  
55 provided with an opening  $o'$ , and the connection of the two sections is made (pivotally by preference, but not necessarily) by inserting the perforated end of the section  $r'$  into the socket of the other section and securing them  
60 together by a bolt  $p$  through the openings  $o$  and  $o'$ .

To prevent lateral play of the sections on their pivotal connections, I provide stops  $x$  and  $x'$  at opposite sides of the section  $r'$  near  
65 its end to flank the opposite upper and lower edges of the socket  $q$ . This construction saves the use of an extra bolt  $p$  for securing the sections together, and which would impair the utility of my invention by too greatly strength-  
70 ening the connections between the tie-bar sections.

To adjust the sectional tie-rod into operative position it is secured at its outer ends to the switch-rails, but by means making a  
75 stronger connection at the ends than of the sections at their intermediate connection, whereby it will break there by cutting the bolt  $p$  under the strain rather than at the stronger connections with the switch-rails.  
80

As a means for securing the ends of the sectional tie-rod to the switch-rails, I provide each end with a head  $m$  in the form of a cross and adapt it to fit against the web and flange of the rail, as shown, and I secure it by bolts  
85  $m'$ , of which there are preferably three in number as compared to the one bolt  $p$ . It will therefore be readily apparent that the strain referred to exerted against the switch-rail, even if sufficiently great to break the connec-  
90 tion between it and the tie-bar, will, since it must also be exerted against the bolt  $p$ , connecting the two tie-bar sections, break the latter connection instead, owing to its being much weaker than that of the tie-bar to the  
95 rail or of the switch-stand connection. Of course the bolt  $p$  is strong enough to resist all ordinary strain in the use of the tie-rod.

The section  $r'$  should be provided with at least two bolt-holes  $o'$  to enable the sectional  
100 tie-bar to be lengthened or shortened for switches having shorter or larger throws.

If desired, the sections  $r$  and  $r'$  may be extended, as shown, and as is common, to pass under the rails.

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

1. In a railroad-switch, the combination, with the switch-rails, of a tie-bar A, formed in longitudinal sections  $r$  and  $r'$ , fastened together between the said rails by a comparatively weak joint, and fastening means, substantially as described, stronger than the said intermediate joint, securing the outer ends of the sections to the opposite switch-rails, substantially as and for the purpose set forth.

2. In a railroad-switch, the combination,

with the switch-rails, of a tie-bar A, formed in sections  $r$  and  $r'$ , each having a head  $m$  rigid upon one end, fitting and secured to the flange and web of a switch-rail, the section  $r$  having a perforated socket at its opposite end containing and there bolted to the perforated end of the section  $r'$ , the joint between the two said sections being materially weaker than that connecting the end of each section with a switch-rail, substantially as and for the purpose set forth.

JOHN J. HILL.

In presence of—

J. W. DYRENFORTH,

M. J. FROST.