

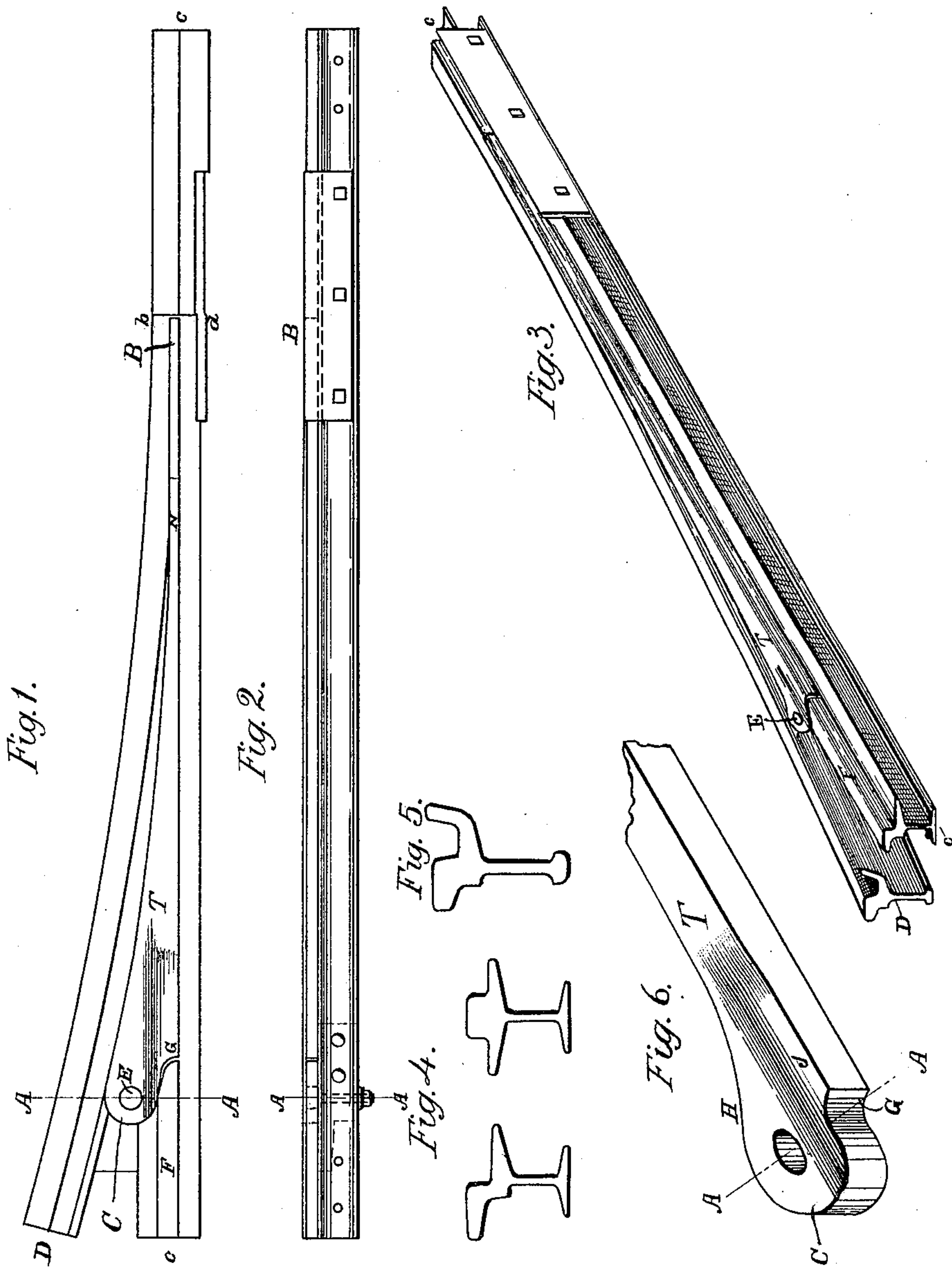
(No Model.)

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# MOVABLE TONGUE SWITCH FOR STREET RAILWAYS.

No. 366,598.

Patented July 12, 1887.



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# UNITED STATES PATENT OFFICE.

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## MOVABLE-TONGUE SWITCH FOR STREET-RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 366,598, dated July 12, 1887.

Application filed November 19, 1886. Serial No. 219,411. (No model.)

*To all whom it may concern:*

Be it known that I, ARTHUR J. MOXHAM, of Johnstown, in the county of Cambria and State of Pennsylvania, have invented a new and useful Improvement in Movable-Tongue Switches for Street-Railways, which invention is fully set forth and illustrated in the following specification and accompanying drawings.

The object of this invention is to prevent the wheels of passing cars from elevating the ends of movable tongues used in switches and throwing over said tongues to the wrong side of the tracks, as frequently happens with movable tongues of ordinary construction, particularly when worn a little loose in their joints or pivots.

The invention will first be particularly described, and then set forth in the claim.

In the accompanying drawings, Figure 1 shows in plan a movable tongue forming the subject of this invention placed between a straight and curve rail forming one side of a switch. Fig. 2 shows the parts of Fig. 1 in side elevation. Fig. 3 is a perspective view of a tongue similar to that shown in the preceding figures, but placed between a side-bearing (instead of center-bearing rail) and a curve rail similar to the guard curve-rail shown in Fig. 1. Fig. 4 shows end views of the side and center bearing rails shown, respectively, in Figs. 1 and 3. Fig. 5 shows in end view the guard curve-rail used with each of the other said rails. Fig. 6 shows in perspective the rear or base portion of the movable tongue shown in the preceding figures.

In said figures the several parts are indicated by letters, as described in detail, as follows:

In all street-railroad switches the change of direction of the cars is effected by either stationary or movable tongues. If stationary tongues are used, they permit of but one positive change of direction of the motion of the car. If more than one such change be required, a movable tongue must be used. These tongues are made of comparatively light weight, and obviously the turning of such tongues upon their pivoted points near their bases involves a greater movement or sweep at their points B than at their said pivoted portions E. The dirt and other accumulations from the streets naturally collect in the bed of

the switch, on which the tongue rests, and when the tongue has become worn loose in service such collections work mostly under the part or base portion of the tongue, which has the least extent of motion in operating it from side to side, thus elevating the base of the tongue somewhat above its other end or point. Such being the case, a passing car, when running over the ordinary tongue, is apt to vibrate or throw over the point of the tongue in the following manner: The car-wheels running from B toward the line A A, Fig. 1, the tendency of the weight of the car is to keep the point B of the tongue down; but on the wheels passing the line A A and over the heel C of the tongue the tendency of the weight of the car is to make the point of the tongue B "kick up," the dirt accumulated about the pivot A serving as a fulcrum in such tipping of the tongue, any play or looseness at the pivot or pin of the tongue that may exist conducing to exaggerate such effect. Such play of parts, due to wear, is quickly developed in all street-railroad tongue-switches. When such movement of tongue is effected, the motion is sudden and violent. The tongue is often so thrown or "kicked up" that it is simultaneously jerked sidewise, so that the point is thrown completely over to one side, as from *b* to *d*. If the tongue be shorter than the wheel-base of the car, the front wheels, which have passed, are then on one track and the oncoming hind wheels are thrown to the other track. If the tongue be longer than the wheel-base, the weight of the rear wheels holds the tongue down while the front wheels pass the pivot, but the rear truck or wheels are apt to throw the tongue over to one side, in which event the following car, if intended to continue on in its same direction, must be stopped and the tongue turned back again before the car can continue its travel. This "kicking up" of the tongue when once commenced is frequently repeated and rapidly aggravates the wear and strain upon the pin or tongue-bolt E, as well as the tongue itself.

The invention herein described obviates all these troubles by virtue of the construction of the tongue T, which may be applied to a switch formed of any shaped rails desired, though girder shapes are shown in the drawings, one center-bearing, the other side-bearing, each



having a guard-rail of the same shape. The heel C of said tongue is made wide, the bolt or pin E being put in said heel over to one side. The opposite side of the heel is offset, 5 as at G, so as to let the uncut end of the head F of the rail abut said offset. This part of the head of the rail is prolonged toward the point B, past the line A A, running transversely through the pivot at E, so that the wheels of 10 all cars running over the tongue are lifted by said portion of the head of the rail off the short lever or heel C of the tongue.

The tongue T, on its side H, Figs. 1 and 6, is higher than on its side at J, the side H forming a prolongation of the guard of the curve-rail D. This higher level at H of the tongue 15 T continues on to about the point N, Fig. 1, whence the tongue tapers down to its end B to the same level as at J. The throw of said 20 extreme point or end B is limited on the side of the main rail c by the plate or bar d, which is offset at d to receive the end B of the tongue. The object and utility of giving to the tongue T the depression J and downwardly-tapered 25 point from N to B are as follows: When a car-wheel passes through the groove of the guard-rail D, Fig. 1, on the backward passage, the side H of the tongue T must act as though it were a continuation of the guard of rail D, and 30 consequently must be of the same height as said guard, which height is greater than that of the heads of the rails, as clearly shown in the figures; but the tongue must taper down from about the points J and N in order to 35 reach the level of the head of the rail c, as between said two points, as already said, it has

preserved the level of the guard of rail D. In other words, the tongue T acts both as a guard and a rail-head, which it does by having part 40 of its body at guard-level and part at rail-head level, the latter level at its end point B and at portion J, at each of which parts the car-wheel is let down on the head of the rail c, or rail proper. Of course between the points N 45 and J the tread of the wheel runs on the tongue for a short distance at the level of the guard of the rail D.

Further description in detail of the construction of the switches shown is deemed unnecessary, as the tongue forming the subject of 50 this invention may be applied to any practical device known as a "railroad-switch," whether made of girder-rails, girder-guard rails, or other rails, as hereinbefore mentioned. 55

Having thus fully described my said improvement in movable tongues for switches as of my invention, I claim—

A movable-tongue switch for street-railroads, consisting of two rails having their 60 heads cut away so as to form a floor, on which is pivoted a tongue offset near its pivotal point and having said point eccentric to its longitudinal center line, whereby said point is thrown out of the line of travel of the car- 65 wheels and said wheels prevented from displacing said tongue, substantially as and for the purposes set forth.

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