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E. FRÖLICH

RAILWAY SWITCHING SYSTEM

Filed Sept. 24, 1926

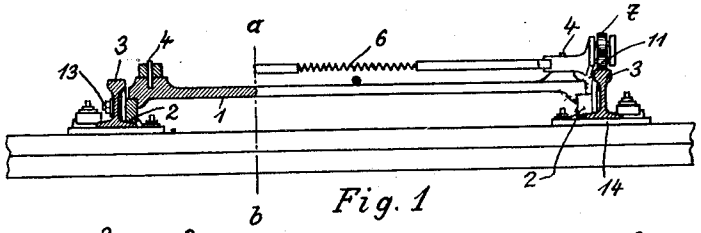


Fig. 1

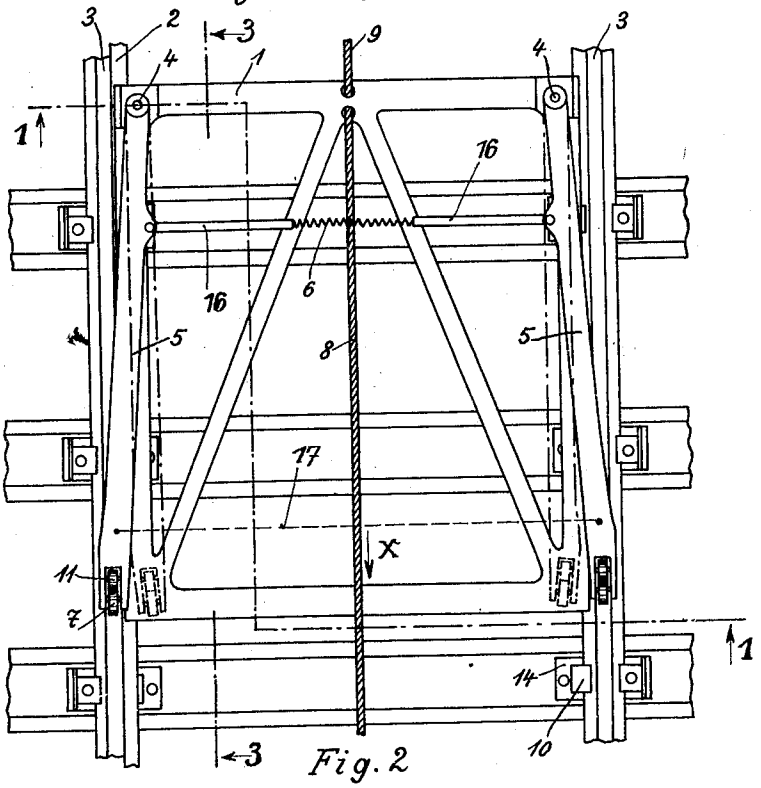


Fig. 2

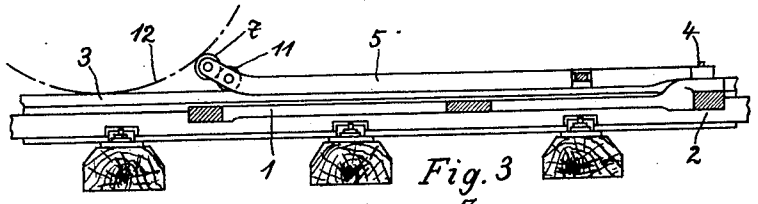


Fig. 3

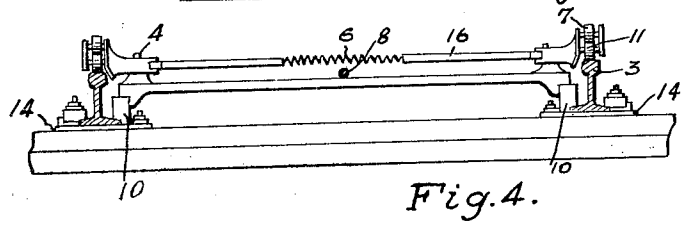


Fig. 4.

INVENTOR.

Ernst Frölich

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ERNST FRÖLICH, OF ESSEN, GERMANY.

RAILWAY-SWITCHING SYSTEM.

Application filed September 24, 1926, Serial No. 137,586, and in Germany September 19, 1925.

My invention relates to improvements in railway switching systems, and more particularly in systems comprising a slide located between the rails and movable longitudinally thereof for moving the cars, the said slide being provided with rollers adapted to engage the wheels of the cars. In systems of this type such as are now in use the said rollers are mounted for being moved upwardly and downwardly and into and out of position for engagement with the flanges of the wheels. Thus, for setting the apparatus into inoperative position in which the wheels are free to move over the same the rollers are moved downwardly a suitable distance below the bottom part of the flanges of the wheels. This construction is objectionable for the reason that the slide and the vertically movable parts thereof are comparatively high, and it is necessary to place the rails on high stringers disposed on crossties. Thus the cost of the track is high, the increase of the cost amounting to a high item in large switch systems. Further, the safety of the track is interfered with by the high position of the rails, because the strength thereof as against lateral strength is reduced. Further, the system is objectionable for the reason that the base of the rails must be reduced in breadth at the inner side because the rollers, which are designed to engage the flanges of the wheels, are located close to the inner side of the top of the rail and are moved downwardly when being brought into inoperative positions. The cutting away of the inner part of the base of the rail is expensive, and further, the stability of the rail is reduced.

The object of the improvements is to provide a system in which the track has the normal construction, and in which the guides for the slide can be readily mounted at any part of the track. With this object in view my invention consists in mounting the said pressure rollers engaging the car wheels so that they are moved sidewise and within a horizontal plane for being brought into and out of operative positions. In the preferred construction the pressure rollers are mounted on bars which are rockable in lateral direction, and which are provided with means such as springs tending to rock the same outwardly and into operative positions and yielding to the wheels when the slide is moved in a direction in which it is inoperative. By thus mounting the rollers on laterally rockable bars the height of the construction can be made so low that it can be disposed in a track of normal construction within the free space below the cars. Thus the cost of the system is materially reduced and the safety of the track is increased.

For the purpose of explaining the invention two examples embodying the same have been shown in the accompanying drawing, in which the same letters of reference have been used in all the views to indicate corresponding parts. In said drawing,

Fig. 1, is a sectional elevation taken on the line 1—1 of Fig. 2,

Fig. 2, is a top plan view of a part of the track and the traction apparatus or slide, and,

Fig. 3, is a sectional elevation taken on the line 3—3 of Fig. 1.

Fig. 4, is a view similar to Fig. 1 showing a modified form of the invention.

As shown in Figs. 1, 2 and 3, between the rails 3, 3 a slide 1 is mounted for being moved lengthwise of the rails, said slide being mounted on rails 2 fixed to the rails 3. Suitable means are provided for moving the slide 1 longitudinally of the rails. As shown in the figures a rope 8, 9 is secured to the slide, which rope is connected to a windlass. But I wish it to be understood that my invention is not limited to this construction, and that in some cases I provide the slide with a motor. On vertical pivot bolts 4 fixed to the slide 1 bars 5 are rockingly mounted, which bars are adapted to be rocked in lateral direction. Preferably means are provided for normally forcing the said bars outwardly and into operative positions. To show what may be done a compression spring 6 is provided which is connected with the bars by links 16. Thus, when the bars are in operative positions, they are disposed angularly of the rails 3 and with their ends above the said rails. At the said ends the bars carry rollers 7 and 11, the rollers 11 being in positions for rolling on the top faces of the rails, and the rollers 7 being in positions for engaging the steel tires of the wheels. Any suitable means may be employed for anchoring the rails 2, the illustrated embodiment

having threaded fastening means 13 which secure said rails 2 to the web portions of the main rails 3.

The operation of the apparatus is as follows:

For moving a car on the track the slide 1 is moved by means of the rope 8, 9 in the direction of the arrow x, the rollers 7 being held in operative positions and above the rails by the spring 6. Suitable means are provided for limiting the outward stroke of the bars 5, 5. To show what may be done, the bars 5, 5 are connected by a flexible member 17 such as a steel rope. When moving the slide in the direction of the arrow x the rollers 7 engage the tire of the car wheel 12 indicated in Fig. 3 in broken lines, so that the car is moved forwardly. In the meantime the rollers 11 bear on the top faces of the rails thus providing a support for the free ends of the bars 5. When moving the slide 1 rearwardly and in a direction opposite to the arrow x the outer faces of the bars 5 are engaged by the flanges of the wheels, and they are rocked thereby inwardly and into the positions shown in Fig. 2 in broken lines. After having passed the car the arms 5 are automatically rocked outwardly by the spring 6. Thus by moving the slide forwardly and backwardly the cars located on the particular portion of the track can be moved in one direction. For moving cars in the opposite direction the slide is reversed.

In Fig. 4 a modification of the invention is illustrated, this form being characterized by a plurality of spaced shoes 10 to support the frame 1, in place of the rails 2 of the first embodiment. Said shoes 10 are mounted at desired intervals and are preferably associated with the tie plates as clearly shown. The remainder of the structure is like that already described.

While in describing the invention reference has been made to particular examples embodying the same I wish it to be understood that I do not limit myself to the constructions shown in the drawing, and that various changes may be made in the general arrangement of the system and the construction of its parts without departing from the invention.

I claim:

1. In a system of the class described, the combination, with the rails of the track, of a frame located between said rails and movable longitudinally thereof, a member mounted on said frame for being movable transversely of the rails into and out of position for engagement with the wheels of cars placed on the rails, and driving means for said frame.

2. In a system of the class described, the combination, with the rails of the track, of a frame located between said rails and movable longitudinally thereof, a member mounted on said frame for being movable into and out of position for engagement with one of the wheels of a car placed on the track, and yielding means tending to move said member into operative position, said member being constructed for being moved by the car into inoperative position.

3. In a system of the class described, the combination, with the rails of the track, of a frame located between said rails and movable longitudinally thereof, a pair of bars mounted on said frame at the sides thereof for being rocked with their free ends laterally and into position for engagement with the wheels of a car placed on said track, means to move said bars into and out of operative positions relatively to said wheels, and driving means for said frame.

4. In a system of the class described, the combination, with the rails of the track, of a frame located between said rails and movable longitudinally thereof, a pair of bars mounted on said frame at the sides thereof for being rocked with their free ends laterally and into position for engagement with the wheels of a car placed on said track, a spring connected with said bars and tending to move the same outwardly and into position for engagement with the wheels of a car placed on the track, and driving means for said frame.

5. In a system of the class described, the combination, with the rails of the track, of a frame located between said rails and movable longitudinally thereof, bars mounted on said frame for being rockable in lateral direction into and out of position for engagement with the wheels of a car located on said rails, said bars carrying pressure rollers at their outer ends, means to move said bars outwardly and into position for engagement with the wheels, and means to move said frame.

6. In a system of the class described, the combination, with the rails of the track, of a frame located between said rails and movable longitudinally thereof, a member mounted on said frame for being movable transversely of the rails into and out of position above one of the rails and for engagement with the wheels of cars placed on the rails, said member carrying a roller adapted for engagement with the top face of said rail, and driving means for said frame.

7. In a system of the class described, the combination, with the rails of the track, of a frame located between said rails and movable longitudinally thereof, a member mounted on said frame for being movable transversely of the rails into and out of position on the top face of one of the rails and for engagement with the wheels of cars placed on the rails, and driving means for said frame.

8. In a system of the class described, the combination, with the rails of the track, of a frame located between said rails and movable longitudinally thereof, a pair of guide rails disposed lengthwise of the track rails and in position for supporting said frame, a member mounted on said frame for being movable transversely of the rails into and out of position for engagement with the wheels of cars placed on the rails, and driving means for said frame.

9. In a system of the class described, the combination, with the rails of the track, of a frame located between said rails and movable longitudinally thereof, shoes located at the side of said rails and in position for supporting said frame, a member mounted on said frame for being movable transversely of the rails into and out of position for engagement with the wheels of cars placed on the rails, and driving means for said frame.

In testimony whereof I hereunto affix my signature.

ERNST FRÖLICH.