Nov. 13, 1928. 1,691,296

I. I. LITVINCHEV

AUTOMATIC TRAIN SWITCHING DEVICE

Filed Dec. 5, 1927

Fig. 1

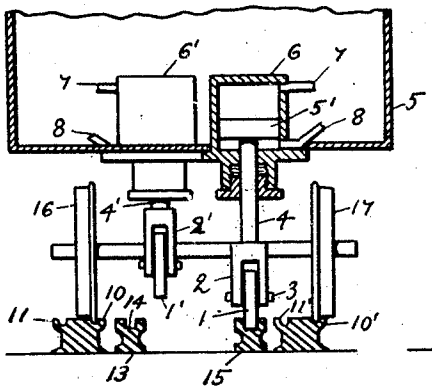


Fig. 2

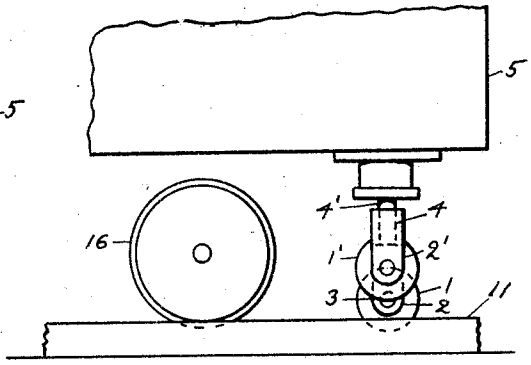


Fig. 3

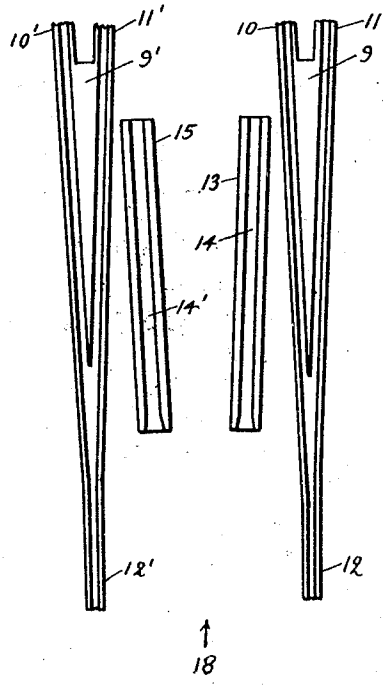
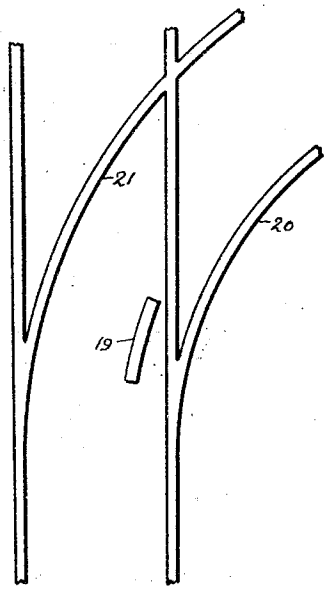


Fig. 4



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UNITED STATES PATENT OFFICE.

IVAN I. LITVINCHEV, OF MOSCOW, RUSSIA.

AUTOMATIC TRAIN-SWITCHING DEVICE.

Application filed December 5, 1927. Serial No. 237,870.

My invention relates to automatic train switching devices and has a particular reference to devices adapted to switch the train from one track to the other by means of a mechanism controlled from the engineer's cab.

In ordinary railroad practice, in order to switch the train from one track to the other, it is necessary to employ a movable switch on the ground adapted to establish connection from one track to one of the two others. This switch must be controlled from a stationary control post.

In many cases, however, it is desirable to leave to the engineer the selection of the track on which to direct his train. With this object in view I employ a stationary frog instead of a movable switch at the point of a fork or where two tracks merge into one. In a coordination with each of the two diverging tracks I use stationary guides in the form of channeled rails.

Under the frame of the locomotive I place members adapted to selectively engage one or the other of the guiding rails, thereby forcing the engine to follow one or the other track. With this arrangement the engineer can direct his train at will on any of the tracks at the switching points, so that it is not necessary to employ switchmen for this purpose and to maintain an elaborate system of mechanically or electrically operated track switches.

My invention is more fully described in the accompanying specifications and drawing in which—

Fig. 1 is a front view of a railroad car or locomotive partly in section showing my device, Fig. 2 is an elevation of same, Fig. 3 is a plan view of a frog with my guiding rails, and Fig. 4 is a plan view showing modified switch arrangement.

My device comprises guiding wheels 1 in clevices 2 on shafts 3 at the end of plunger rods 4. One of the wheels is placed at the right side of the vehicle 5 (such as a locomotive or a railroad car), and the other at the left side. The plunger 4 has a piston 5′ on the end in an air cylinder 6. The air may be admitted under the upper or lower surface of the piston by means of pipes 7 and 8 from an air compressor (not shown), using any suitable controlling valve, conveniently located in the engineer's cab or near the controller of a street car, as the case might be.

The left wheel 1 (Fig. 1) is shown in a lowered position, and the right wheel 1′—in a raised or inoperative position.

Instead of an air cylinder any ordinary suitable mechanism may be employed for moving the rod 4 with the wheel 1 down, for instance, a steam cylinder or an electromagnet or electric solenoid.

At the point where two tracks converge into one, as shown in Fig. 3, I employ stationary frogs 9 and 9′ with channeled rails 10, 11, 10′ and 11′, converging into rails 12 and 12′.

Guiding rails 13 and 15 are placed between the tracks and are securely fastened to the roadbead or ties. The guiding rails have grooves 14 and 14′ adapted to be engaged by corresponding wheels 1 or 1′.

The guiding rail 13 is parallel to the rail 11 and follows its direction and curvature, and the guiding rail 15 is parallel to the rail 10′ and follows its curvature. The entering ends of the guiding rails are placed beyond the point where the rails begin to divide, as shown in Fig. 3.

The guiding wheels 1 and 1′ are placed in front of the locomotive or car wheels 16 and 17.

The operation of my device is as follows.

When the train approaches the fork or switching point from one track to the other, the engineer or motorman operates his switching controller so as to lower the corresponding guiding wheel. If, for instance, he is going in a direction of an arrow 18 (Fig. 3) and wants to turn on the left track, he lowers the left guiding wheel 1, as shown in Fig. 1, so that this wheel enters the groove 14′ in the guiding rail 15 while the locomotive wheels are still on the single track (rails 12 and 12′). With the further movement of the train the wheel 1 will roll in the groove 14′ causing the wheels 16 and 17 to follow rails 10 and 10′.

For sharp curves the guiding rails 13 and 15 may be made higher than the main rails of the tracks in order to avoid any possibility for the wheels 1 and 1′ to strike the rails 10 or 11′, if the guiding wheel is kept in an operating position longer than it is necessary.

In cases when one track is straight and the other curves away from it, as shown in Fig. 4, only one guiding rail 19 is necessary, being arranged to follow the curvature of the side rails 20 and 21.

Important advantages of my device are that it enables the man in charge of the train

to select the proper track and to switch his train on this track without any assistance from switchmen or other operators, also that movable switches on the tracks become unnecessary with my arrangement.

I claim as my invention:

1. In an automatic train switching device, the combination with guiding rails attached to the roadbed at points of switching between track rails, each of said guiding rails being parallel to its respective track rail, of guiding wheels supported underneath the body of a railroad vehicle, said guiding wheels being adapted to slide in a vertical direction, and an elastic fluid operated means to move said guiding wheels so as to selectively bring them in an operating engagement with said guiding rails.

2. In an automatic train switching device, the combination with guiding rails attached to the roadbed at points of switching between track rails, each of said guiding rails being parallel to its respective track rail, of guiding wheels supported underneath the body of a railroad vehicle, said guiding wheels being adapted to move in a vertical direction, pistons operatively connected with said wheels, cylinders for said pistons, and means to selectively admit elastic fluid in said pistons so as to bring said wheels in an operating engagement with said guiding rails.

Signed at Berlin in the county of Brandenburg and State of Prussia, this 21st day of October, A. D. 1927.

IVAN I. LITVINCHEV.