Sept. 13, 1932. H. B. TAYLOR 1,877,742

ADJUSTABLE TRAILING SWITCH CONNECTION FOR RAILROADS

Filed Jan. 14, 1931 2 Sheets-Sheet 1

FIG. 1.

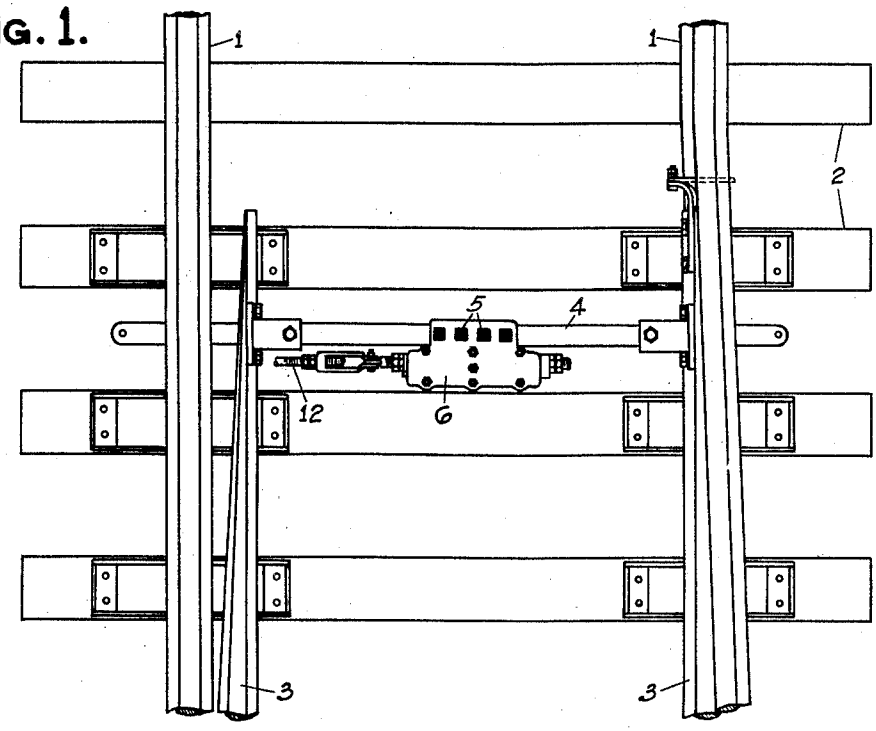
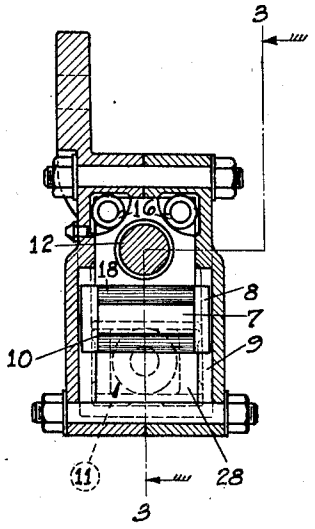


FIG. 2.



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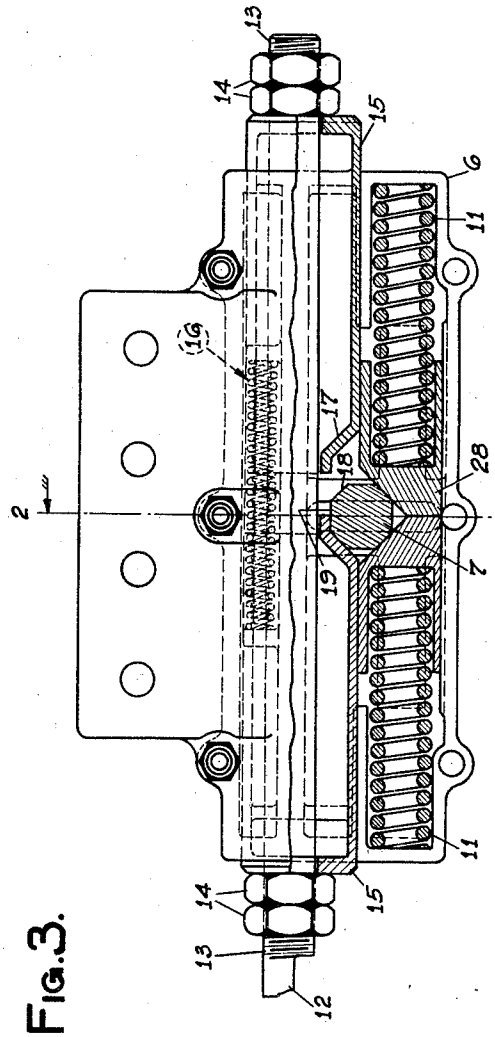


FIG. 3.

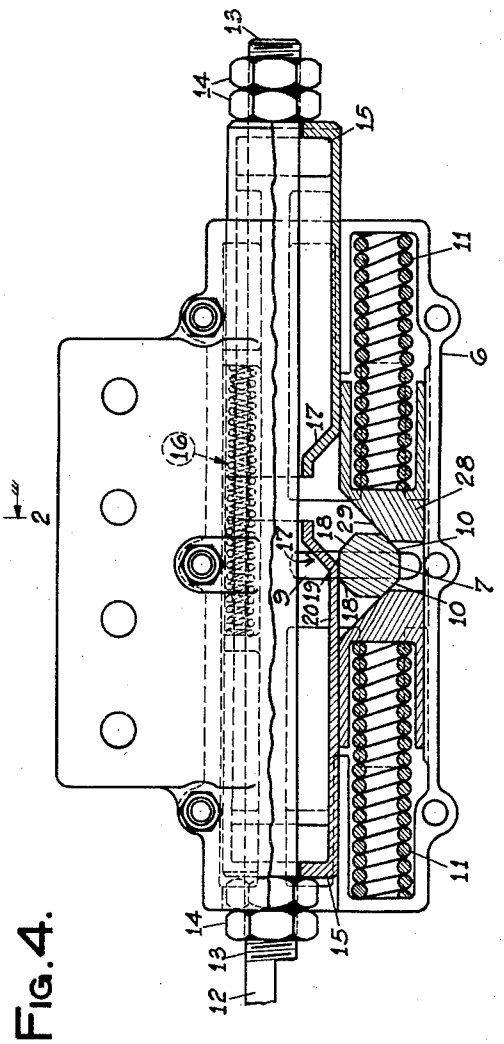


FIG. 4.

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UNITED STATES PATENT OFFICE

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ADJUSTABLE TRAILING SWITCH CONNECTION FOR RAILROADS

Application filed January 14, 1931. Serial No. 508,619.

This invention relates in general to connections for the operation of track switches on railways, and has more particular reference to an adjustable track switch connection arranged to permit trailing of the switch points without damage to any parts, and so arranged that the trailed switch points shall be firmly held in trailed position.

This invention is an improvement over the invention shown and described in the Preston Patent 1,678,618, granted July 24, 1928.

When a track switch is to be operated by power means, as by a usual power operated switch machine, it is desirable to have means for adjustably connecting the power operating means to the track switch so as to adjust the constant length of throw of the power operated means to the variable length of throw which occurs in different track switches, and from time to time in the same track switch.

In satisfying the above and other considerations, it is most desirable that parts of uniform dimensions be useable, so as to standardize the connections and thus reduce the cost of manufacture.

With the above and other considerations in mind, it is proposed, in accordance with the present invention, to provide connecting means which satisfy the above requirements.

Further objects, purposes and characteristic features of the present invention will appear as the description progresses, reference being made to the accompanying drawings showing, solely by way of example, and in no manner in a limiting sense, one form which the invention can assume. In the drawings:—

Fig. 1 is a plan view of one form of the invention.

Fig. 2 is a sectional view on line 2—2 of Fig. 3.

Fig. 3 is a sectional view on line 3—3 of Fig. 2.

Fig. 4 is a sectional view, similar to Fig. 3, but showing the parts in a different operative position.

Referring now to the drawings, there are shown in Fig. 1, track rails 1, carried on usual ties 2, and a track switch 3, having its free ends interconnected by a bracing member 4 to which is connected, by bolts or the like 5, housing 6.

Carried in the housing 6, is a detent 7, having rectangular ends 8, slidable in vertical grooves 9, in the sides of the housing, and formed hexagonal in cross section, for purposes to be later described.

Also carried in the housing 6, are two spring pressed plungers 28 having angular cam faces 29, for cooperating with faces 10 on detent 7, the plungers being urged toward each other by compression springs 11, to thereby strongly bias the detent 7 upwardly in its retaining grooves 9.

An operating rod 12 is employed for operating the track switch 3, and can be operated by hand, or preferably by power operated means such as a switch machine or the like. The operating rod 12 is slidably received in housing 6 and has two threaded portions 13 thereon for receiving two sets of nuts 14. Carried on the rod 12, between the sets of nuts 14, are two operating plungers 15, biased apart from each other by compression springs 16, to thereby press them, respectively, against their retaining nuts 14.

The plungers 15 have angularly inturned end portions 17, for cooperating with the hexagonal faces 18 on detent 7.

The above described connecting means operates in the following manner. The track switch 3 is shown in Fig. 1 in its main line position. Assume now that track switch 3 is to be thrown to its turn-out position by moving rod 12 to the left as viewed in Fig. 1. Movement of rod 12 carries with it movement of the operating plungers 15, and as seen in Fig. 3, these plungers, together with rod 12, can freely slide within the housing 6, until the right hand plunger 15 has its face 17 brought against the face 18 of detent 7, whereafter further movement of rod 12 moves the entire housing 6, and with it the switch points, so as to throw the switch.

The first part of the movement of rod 12, is lost motion, and the extent of this lost motion can be varied at will by adjusting the distance between the sets of nuts 14, whereby a constant throw of a switch machine can

properly operate various track switches having different length throws, by introducing more or less lost motion into the stroke, as the case may be. The operation of the track switch from turn-out to main line position, is effected in a manner very similar to that just described, the lost motion being introduced into the stroke at the beginning of the stroke in each case.

Should the track switch 3 be trailed through by a car so as to move the switch points, the switch points, together with the housing, will be moved to the left, as viewed in Fig. 1. Since the rod 12, and its connected parts, is held in fixed position, this movement of the housing 6 causes the left hand operating plunger 15 to cam the detent 7 downwardly against the bias of the springs 11, so as to separate the plungers 15 and bring the horizontal face 19 of detent 7 beneath the horizontal face 20 of the left hand plunger 15, thereby locking detent 7 in its lower position, as shown in Fig. 4, and effectively holding the switch points in thrown trailed position.

If the switch points have been trailed, it is only necessary to operate the rod 12 to a position to allow the detent 7 to be received between the inner ends of the plungers 15, to restore control of the switch points to the rod 12.

From the view point of economy in space and cost of manufacture, the arrangement of the plungers 15 at right angles to the movement of the detent 7 which they bias and operate, is very advantageous. Furthermore, by having the springs act on the detent at right angles to the direction of movement of the detent, added friction is introduced between the moving parts to thereby more effectively hold the detent in its normal upper position as shown in Fig. 3. By means of the structure described above it is possible to build a compact connecting member which extends parallel to the operating rod 12 and does not necessitate housings or elements projecting to any distance laterally of the operating rod 12. Furthermore the detent and operating members used in connection therewith, constitute a very rugged and simple mechanism, with very little liability of breakage of parts or jamming or sticking of parts in an improper manner.

The above rather specific description of one form of the present invention is given solely by way of illustration, and is not intended, in any manner whatsoever, in a limiting sense. Obviously, the invention can assume many different physical forms, and is susceptible of numerous modifications, and all such forms and modifications are intended to be included in this application as fall within the scope of the appended claims.

Having described my invention, I now claim:—

1. In a connecting means, in combination, an operating member, an operated member, a movable detent, and elastic means biasing and moving the detent to operatively interconnect said members, said elastic means acting in a line at an angle to the direction of the movement of the detent.

2. In a connecting means, in combination, an operating member, an operated member, a movable detent, and elastic means biasing the detent in a direction at substantially right angles to that of the elastic means to operatively interconnect said members.

3. In a connector, an operating member, an operated member, a detent movable at substantially right angles to the operating member, an elastically biased means, acting in a direction substantially parallel to the operating member, for biasing and moving the detent at substantially right angles to the operating member to operatively interconnect said members.

4. In a connector, an operating member, an operated member, a detent, and elastically biased slidable plungers, acting in a direction substantially parallel to the operating member, for biasing and moving the detent in a direction at substantially right angles to the operating member to operatively interconnect said members.

5. In combination, a casing, an elongated operating member slidable in the casing, a movable connecting detent positionable to connect the operating member and the casing, a biased slidable plunger in the casing, and cam faces on the detent and plunger for causing the plunger to urge the detent to connecting position.

6. In combination, an elongated operated casing, an elongated operating member slidable lengthwise in the casing, a movable connecting detent positionable to move at right angles to the operating member to connect the operating member and the casing, a biased slidable plunger in the casing and slidable substantially parallel to the operating member, and cam faces on the detent and plunger for causing the plunger to urge the detent to connecting position.

7. In combination, a casing, an elongated operating member slidable in the casing, a movable connecting detent positionable to connect the operating member and the casing, a biased slidable plunger in the casing, cam means on the detent and plunger for causing the plunger to urge the detent to connecting position, and means for introducing variable amounts of lost motion between the operating member and the detent.

8. In combination, an elongated operated casing, an elongated operating member slidable in the casing, a movable connecting detent positionable to move at right angles to the operating member to connect the operating member and the casing, a biased plunger

in the casing and slidable substantially parallel to the operating member, cam faces on the detent and plunger for causing the plunger to urge the detent to connecting position, and means for introducing variable amounts of lost motion between the operating member and the detent.

9. In combination, a casing, an elongated operating member slidable in the casing, a movable connecting detent positionable to connect the operating member and the casing, a biased slidable plunger in the casing, cam faces on the detent and plunger for causing the plunger to urge the detent to connecting position, and means for moving the detent to disconnecting position and holding it in such position.

In testimony whereof I affix my signature.

HERBERT B. TAYLOR.