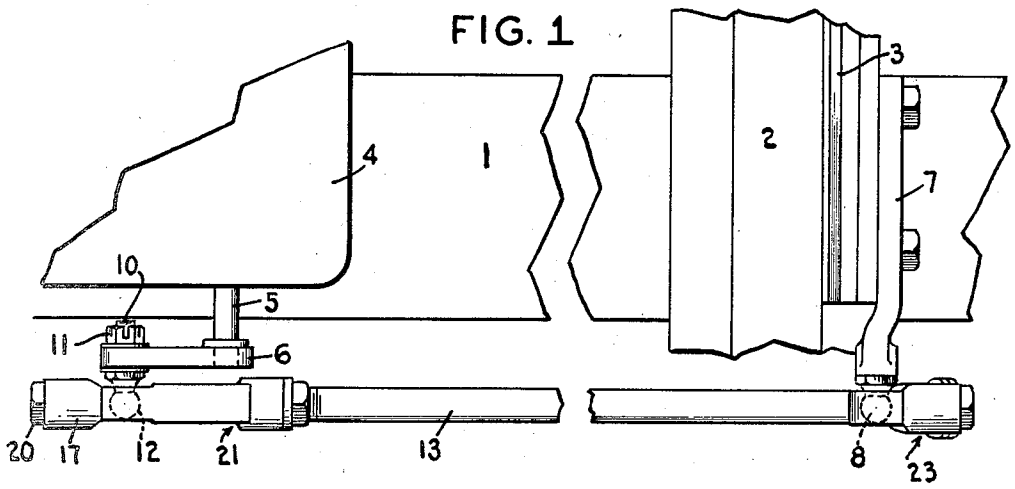
July 23, 1935. B. A. LUNDY 2,009,269

RAILWAY SWITCH CIRCUIT CONTROLLER CONNECTION

Filed July 20, 1933

FIG. 1



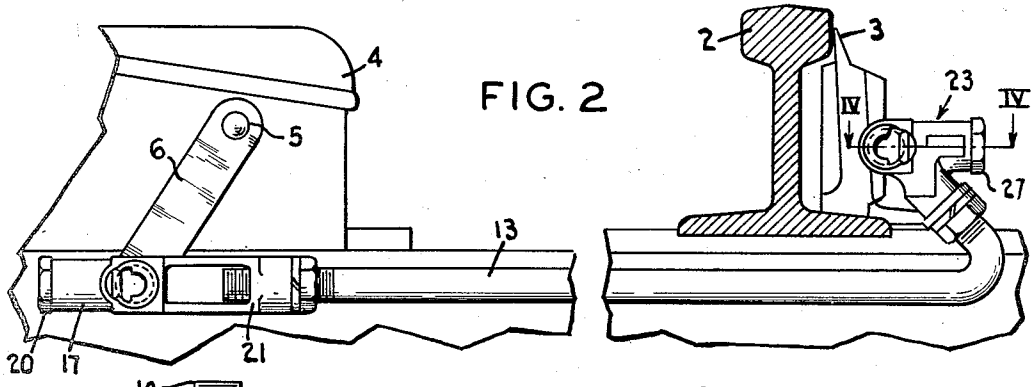


FIG. 2

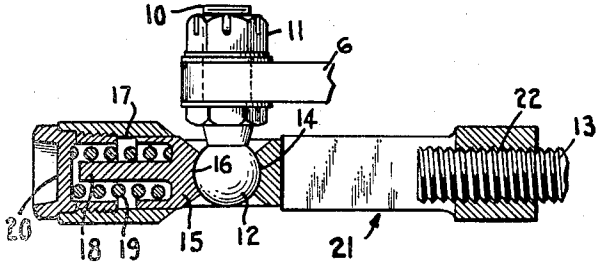
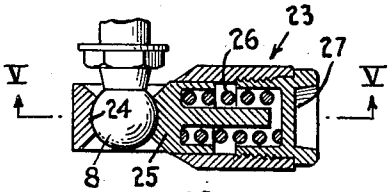


FIG 3

FIG. 4



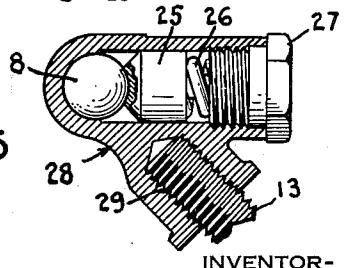


FIG. 5

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RAILWAY SWITCH CIRCUIT CONTROLLER CONNECTION

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Application July 20, 1933, Serial No. 681,263

1 Claim. (Cl. 287—90)

This invention relates to signalling, especially railway signalling, and more particularly to railway electric signalling.

Those familiar with the art of railway signalling know that there has always been a considerable difficulty in properly connecting a circuit controller, positioned at a track switch, with that track switch. This difficulty arises from the fact that the circuit controller, which is usually positioned upon a track tie adjacent the point of the switch, does not remain in the same alignment with the switch as when originally installed. This is due to the fact, as is well known, that not only do the rails move longitudinally, as a whole, but each rail does not have the same amount of forward or backward movement. Furthermore, the angular relation between the tie upon which the circuit controller is secured and the rails does not remain as originally set. The switch point, furthermore, also has substantially a longitudinal movement which may be independent of that of the adjacent track rails. The switch point also sometimes has a tendency to roll about its axis. Added to all of the above mentioned likely changes, there is also the change which is occasioned by the normal wear of the gauge side of the tread of the rail and both sides of the switch point. The effect of all these changes is to not only bring undue strains upon the connections between the switch point and the circuit controller, but also prevent that close adjustment which is necessary to insure the proper and desired control of the signal circuits by the circuit controller. That this difficulty is a serious one, may be readily realized when it is known that the modern circuit controller attached to a switch point is relied upon to open the signalling circuits governing traffic over that switch when the normally closed switch point is opened by an amount not exceeding one eighth of an inch. To secure such a close adjustment in structures so large and so rough and subjected to so many conditions causing them to shift is easily realized to be a difficult task.

A principal object of applicant's invention is to provide a means for interconnecting a railway switch point with a railway switch circuit controller, sometimes known as a track switch box in such a way that the ordinary shifting of the various structures effective upon the connection, will not cause an undue strain thereon.

A further object of applicant's invention is to provide a connection of the type described which will be so constructed that practically a universal joint will exist at two places between a track switch and a switch circuit controller.

Other objects and advantages will appear as the description of the particular physical embodiment selected to illustrate the invention progresses and the novel features of the invention will be particularly pointed out in the appended claim.

In describing the invention in detail and the particular physical embodiments selected to illustrate the invention, reference will be had to the accompanying drawing and the several views therein in which like characters of reference designate like parts throughout the several views, and in which:

Figure 1 is a top plan fragmentary view of a railway switch, its supporting ties, a switch circuit controller, and connecting means between the circuit controller and track switch constructed in accordance with applicant's invention; Fig. 2 is a fragmentary side elevational view of the arrangements as shown by Fig. 1; Fig. 3 is a top plan view of the circuit controller end of the connection of applicant's invention, with some of the parts shown in section to more clearly illustrate the construction; Fig. 4 is a cross-sectional view of a socket device shown by Fig. 2, on the plane indicated by the line IV—IV of Fig. 2, viewed in the direction of the arrows at the ends of the line; Fig. 5 is a vertical cross-sectional view, of the device shown by Fig. 4, on the plane indicated by the line V—V of Fig. 4, viewed in the direction of the arrows at the ends of the line.

In Fig. 1, numeral 1 designates an ordinary railway track tie. This track tie supports the rail 2 which has a switch point 3 operating in conjunction therewith.

The tie 1 also supports an ordinary and well known switch circuit controller 4 sometimes known as a track switch box. This circuit controller is illustrated as of the usual type and has a protruding operating shaft 5 bearing an operating crank arm 6.

The problem confronting applicant was to connect the operating crank arm 6 with the switch point 3 in such a manner that the ordinary shifting and movement of the various parts would not cause an undue strain upon the connection between operating crank arm 6 and switch point 3 and would at the same time allow an adjustment of the electrical contacts within the switch box 4 such that a departure of the switch point 3 from the rail 2 of more than one eighth of an inch would cause the signalling circuits controlling traffic over the switch to be opened or put

in other condition necessary to properly control traffic.

By applicant's method of connection a switch point lug 7 is fastened by any suitable and appropriate means with the switch point 3. This lug has substantially a spherical head 8 on its outer end. This head may be formed in any suitable and appropriate manner as a separable attachable part or integral.

At the operating crank arm 6 applicant provides a bolt 10 fastened in a suitable manner such as by a nut 11. The bolt 10 on its outer end is also formed with a spherical head 12.

In order to connect the spherical head 8 with the spherical head 12, applicant makes use of a connecting rod or pipe 13 having on each end thereof a socket of applicant's construction.

The socket connecting with head 12 is best shown in Fig. 3. This socket is formed with a concave spherical surface 14 against which the head 12 bears on one portion. Opposite the concave surface 14 and bearing against the outside surface of the spherical head 12 is the plunger 15, formed with a concave spherical surface 16. The plunger 15 fits nicely into the cylinder 17 and has a tail member 18 encircled by a spring 19, one end of which bears against the plunger 15 and the other end of which bears against a suitable abutment. In the present case the abutment against which the spring 19 bears is a cap 20 screw threaded into the cylinder 17. The socket member designated as a whole by 21 has a screw threaded orifice 22 into which may be threaded the pipe or rod 13 for connection to the socket 21.

At the switch point end of the connection the spherical head 8 is within the socket designated as a whole by 23. Within the socket the spherical head 8 has one portion bearing against the spherical concave surface 24. Directly opposite the concave surface 24 a plunger 25 just like the plunger 15 bears against the spherical head 8. In the same way that spring 19 bears against plunger 15, a spring 26 bears against plunger 25 and abuts against a screw threaded cap 27. The socket 23 is also provided with a portion at an angle to the axis of the plunger 25. This portion is designated 28, and is best shown in Figs. 2 and 5. The portion 28 is formed with a screw threaded orifice 29 into which an opened end of the pipe or rod 13 may be screw threaded. By this angle portion applicant provides a socket which greatly facilitates the proper placing of the pipe or rod 13 so that it will nicely clear the bottom of the rail 2.

The construction hereinbefore described is obviously one such that practically a universal joint is provided at both the switch point and the switch box operating crank arm so that movements back and forth and shiftings of the various parts will bring practically no strain upon the connections.

Applicant's connection is also such that very close adjustment of the switch box or switch circuit controller 4 may be made, because if wear takes place between the spherical heads 8 or 12 and the surrounding surface, the parts are still tightly held together by reason of the resilient members 19 and 26, so that even if the connections have worn, the adjustment of the switch may be made just as though they had never worn.

Although applicant has illustrated and described one particular physical embodiment of his invention, and explained the construction, principle and mode of operation thereof, nevertheless he desires to have it understood that the form selected is merely illustrative but does not exhaust the possible physical embodiments of the idea of means underlying the invention.

What I claim as new and desire to secure by Letters Patent of the United States, is:

A socket for connection of a switch point lug to a connecting rod running at a lower level to a track switch box and characterized by a threaded end acutely bent toward the rail, said socket comprising a V-shaped casing having a recess in each arm, each of said recesses having a threaded mouth and one of said recesses being provided with means adapted to form a yielding universal joint connection with said switch point lug and including a threaded abutment plug screwed into the threaded mouth of said arm and the threaded mouth of the other arm recess opening at a suitable angle for receiving and securing said acutely bent threaded end of the connecting rod, whereby the socket may be assembled adjustively with the connecting rod independently of adjustments in said universal joint, and so as to leave said abutment plug readily accessible for inspection, adjustment and replacement, without disturbing the connecting members otherwise.

BEVERLY A. LUNDY.