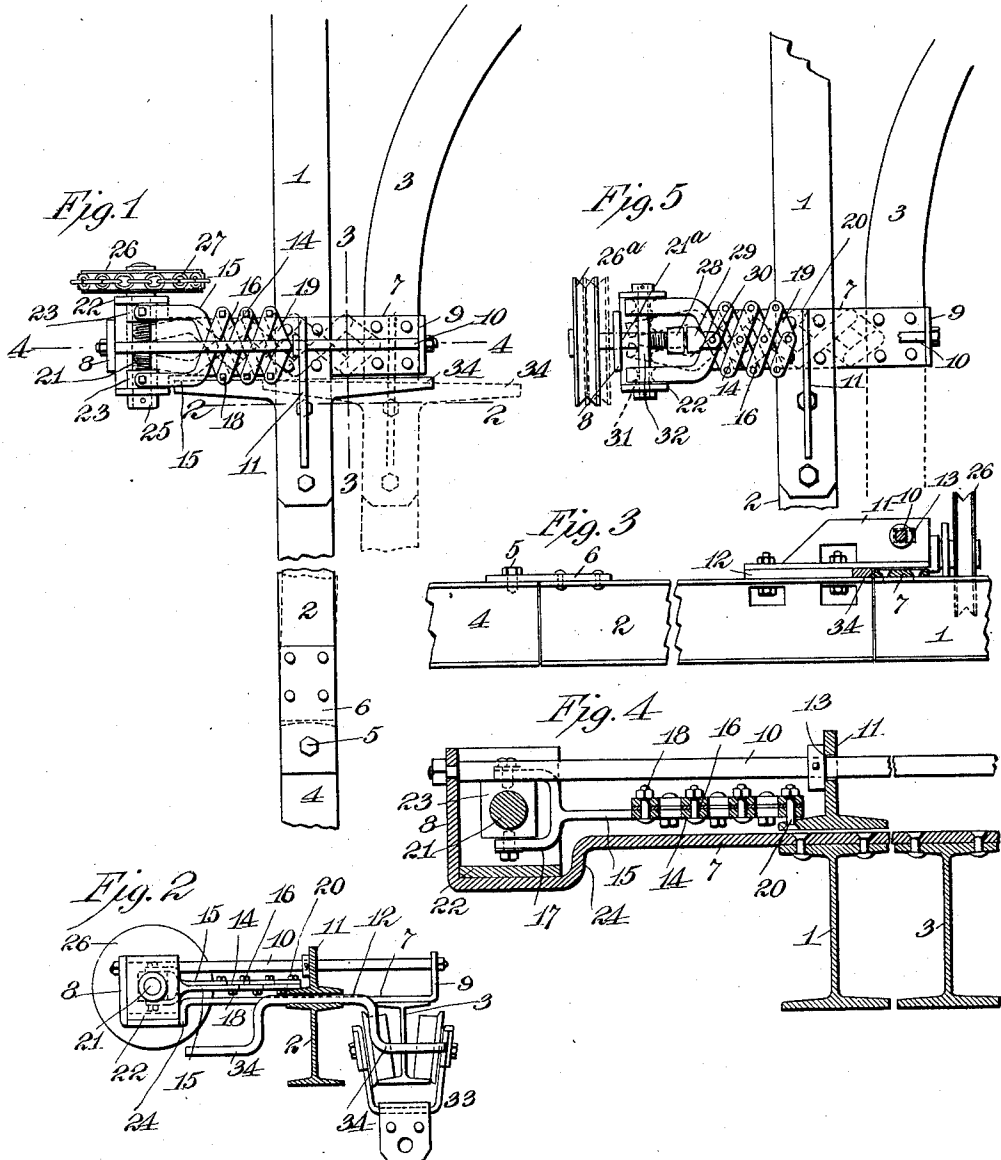


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 SWITCH FOR OVERHEAD TROLLEYS.
 APPLICATION FILED MAR. 3, 1910.

1,043,801.

Patented Nov. 12, 1912.



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SWITCH FOR OVERHEAD TROLLEYS.

1,043,801.

Specification of Letters Patent.

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Application filed March 3, 1910. Serial No. 546,987.

To all whom it may concern:

Be it known that I, EWAN CAMERON, a citizen of the United States of America, and a resident of the borough of Brooklyn, county of Kings, city and State of New York, have invented a certain new and useful Switch for Overhead Trolleys, of which the following is a specification.

This invention relates to switches for overhead trolleys, such switches usually being operated from a point below the track, and has for its objects: (1) the production of a very compact form of switch which may be used in warehouses and other situations in which there is a minimum amount of room; (2) the production of a switch in which the main line and spur may be adjusted at different distances apart by simple changes in the switch; (3) the production of a switch for use with different sizes of track and different throws of switch without the use of more than one standard size of switch mechanism; (4) to produce a switch in which there will be very little movement of the operating chain; (5) to produce a switch which will be automatically locked in position; and (6) to provide an improved form of keeper or guard to prevent the trolley from running off the open end of the track. These and further objects will appear from the following specification and accompanying drawings, considered together or separately.

In the drawings: Figure 1 is a plan view of a switch, showing a portion of the main line and a spur; Fig. 2 is a section on the line 2—2 of Fig. 1, looking in the upward direction on the page; Fig. 3 is a section on the line 3—3 of Fig. 1, looking to the left; Fig. 4 is an enlarged section, taken on the line 4—4 of Fig. 1; and Fig. 5 is a view similar to Fig. 1 of a modification.

In all of the views like parts are designated by the same reference characters.

In the drawings, 1 represents the main line track, 2 the switch section and 3 the spur. As illustrated, the spur is to the right of the main line 1, and but one spur is illustrated; however, it is apparent that the function of the parts 1 and 3 may be that of spurs, or both may be main lines, or there may be more than two tracks,—the number of tracks being immaterial. 4 is the other portion of the track. The tracks, as shown

in Figs. 2 and 4, are I-beams, the trolley being adapted to travel on the upper face of the lower flange (as shown in Fig. 2), but the shape of the track is immaterial and forms no portion of the present invention. The switch section or movable track portion 2 is of the same size and shape as the rest of the track, and is secured to the portion 4 by a bolt or other form of pivot 5, which is connected to a plate 6, secured to the switch section 2. In the drawings, the plate is shown as secured to the switch section by means of rivets, but the manner of this attachment is immaterial. The switch section 2 is adapted to be swung in line with the main line 1 or the spur section 3, or in line with whatever open ended sections of track are arranged to be connected to the track 4. These sections of track 1 and 3 are tied together by a device which also supports the operating elements of the switch and supports the free extremity of the switch section 2. The device, as illustrated, is in the form of a platform secured to the upper faces of the upper flanges of the tracks 1 and 3. This platform is formed of a base 7, having one end turned up at 8, and the opposite end turned up at 9. These two turned up ends are connected by a rod or bolt 10, which strengthens the platform, and also serves as a support for the swinging end of the switch section 2. The connections with the switch section are through the agency of a projection 11 on the latter. This projection, shown in section in Fig. 4, is a piece of reversed T-iron, having the flange secured to the upper flange of the switch section 2 (see Fig. 3). A plate 12 is interposed between the base of the projection 11 and the top of the switch section so as to raise the lower surface of the former up to such a height that it will clear the base 7 of the platform (see Fig. 4). The web of the projection 11 is provided with an opening 13, through which the rod 10 passes. The engagement of the rod 10 with this opening supports the free or turning end of the switch section. The opening 13 is elongated (as shown in Fig. 3) so as to permit the free end of the switch section to swing through an arc to permit alinement with the tracks 1 and 3 without binding the sides of the opening on the rod 10.

The device for throwing the switch is

supported upon the base 7, and comprises a device working on the principle of the lazy-tongs. The details of construction of the embodiment chosen for illustration are as follows: The lazy-tongs 14 is made up of the base sections or arms, 15, 15 (see Figs. 1 and 4) and a plurality of end sections or links 16, 16. The base sections are in the form of two rods each bent intermediate the ends and each provided with forked extremities indicated at 17. The end sections are in the form of a large number of similar short rods with perforated extremities suitably connected together and to the base sections by bolts or rivets 18 (see Fig. 4). All of the end sections are of the same length, except the extreme end sections 19, which are only about one-half the length of the others. These end sections are also connected to the switch sections 2 by means of a single pivot in the form of a bolt 20, which pivot passes through the base flange of the projection 11, and thereby forms a connection with the switch section. The lazy-tongs is supported within the platform above the bottom 7, and the base sections 15 are adapted to move toward or away from one another, so as to expand or contract the lazy-tongs on the well understood principle of the lazy-tongs. In Fig. 1 one device for accomplishing this movement is illustrated. This device is in the form of a double threaded shaft 21, which is supported in bearings in a U-shaped fitting 22, such fitting resting upon and being attached to the base 7, adjacent to the turned up end 8. This forms a sort of small box-like extension on the base 7 of the platform. The shaft 21 is provided with threads, as shown in Fig. 1, the threads on one half being right hand threads and the threads on the other half being left hand threads, as shown. On each half is a nut 23, which is secured by pins, bolts or other form of pivot, to the forked extremity 17 (see Fig. 4) of each base section. For the purpose of giving greater space for the nuts, the base 7 is bent down at 24. On one end of the shaft 21 is a collar 25 and on the other end is a sprocket wheel 26, which is surrounded by a chain 27. This chain extends downward to within convenient reach of the operator. By pulling down on the chain 27, the sprocket wheel 26 can be rotated in either direction thereby turning the shaft 21, which will have the effect of drawing together or separating the two nuts 23. When the nuts are separated, the lazy-tongs will be in the position shown in Fig. 1 in full lines; if they are drawn together the lazy-tongs will be in the position shown in dotted lines in Fig. 1. If, due to looseness of the joints at the sections, the lazy-tongs have a tendency to sag, they will be supported by the base of the platform 7; so

also if they have a tendency to buckle upward, they will be held down by engagement with the rod 10.

According to a well understood principle, the movement of the free extremities of the lazy-tongs will be much greater than the movement of the forked extremities 17 of the base sections. This leverage can be increased by adding sections to the lazy-tongs. As the lazy-tongs is extended or contracted, the switch section will be turned from one side to the other. The lazy-tongs should be so proportioned and arranged that, when moved to one extreme position or the other, the switch section will be exactly in alignment with the main line 1 or spur 3. The distance of throw of the switch section can be regulated by the position of the upturned ends 8 and 9, or by the end 9 and a collar on the rod 10, as shown in Figs. 2 and 4, or by the length of the threaded portion of the shaft 21, the distance through which the nuts travel definitely determining the throw of the switch.

According to my invention, the leverage being increased or diminished by the number of end sections of the lazy-tongs that are used, it is necessary for the manufacturer to keep in stock but one size of sprocket shaft, nut and lazy-tongs section, and simply make the lazy-tongs longer or shorter by adding or subtracting a larger or smaller number of sections, in accordance with the necessity of making a large or small switch. In connection with heavy tracks, the leverage can be increased, *i. e.* the throw decreased, by decreasing the number of sections of the lazy-tongs. In lighter tracks, the leverage can be decreased, *i. e.* the throw increased, by increasing the number of sections, as will be evident. It is also apparent that, by extending the length of the base 7, the switch can be used in connection with three or more lines and spurs, and as long a lazy-tongs as is necessary or desirable can be used with it.

By the use of my invention, a very small movement of chain is necessary to throw the switch, owing to the use of the screw and lazy-tongs; also owing to such use of the screw it is apparent that the switch will remain in the position it is left, without the need of an additional lock. It is also apparent that the device is very compact as the movement of the nuts on the shaft 21 is very little. According to my invention, instead of moving the lazy-tongs by bringing together or separating the forked extremities of the base sections, the same effect can be secured by moving the point of pivot of the two base sections in the direction of the throw of the switch. An embodiment for utilizing this feature of the invention is illustrated in Fig. 5. In this figure the shaft 21^a is at right angles to the shaft 21

(see Fig. 1), and has but a single threaded portion. This threaded portion engages with a nut 28, secured to the base 7 and this nut is immovable. One end of the shaft carries a sprocket wheel 26^a and the other end is connected through a swivel 29 to a pivot 30,—this pivot 30 being the pivot which connects the two base sections of the lazy-tongs together. The other ends of the lazy-tongs, instead of being forked, are provided with openings 31, which are threaded upon a rod 32, connecting the upturned extremities of the U-shaped fitting 22, such rod lying in the same position as does the shaft 21 in Fig. 1. In this construction, as the sprocket 26^a is rotated, the shaft 21^a will be longitudinally moved with the threads thereon engaging with the fixed nut 28, which will have the effect of longitudinally moving the pivot of the base sections of the tongs, causing the latter to open or close, sliding upon the rod 32. It will be noted in the drawings that the edges of the openings 31 are beveled or chamfered to prevent binding of the base sections on the rod 32.

Another feature of my invention lies in the improvement in the guard or stop for preventing the trolley from accidentally coming off the open end of the track. This guard is best shown in Fig. 2, in which 33 is the trolley, such form of trolley being chosen simply for purposes of illustration. The guard 34 is carried by the switch section 2 adjacent to the free end thereof and extends in front of the open ends of the tracks 1 or 3.

I prefer to make the guard integral with the plate 12, making it in the form of a plate with depressed or bent extremities, as shown, so that the extremities come down to about the level of the middle of the web of the tracks, which is about coincident with the centers of the trolley wheels.

In accordance with the provisions of the patent statutes, I have described the principle of my invention, together with the apparatus which I now consider to represent the best embodiment thereof; but I desire to have it understood that the apparatus shown is merely illustrative and that the invention can be carried out in other ways.

Having now described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. A switch having a movable track portion and a lazy-tongs operatively connected thereto.

2. A switch having a movable track portion, a lazy-tongs operatively connected thereto and a screw connected to and operating the lazy-tongs.

3. A switch having in combination, a plurality of track ends, a platform connecting the same, a movable track portion traversing the platform, and a lazy-tongs operatively connected to the track portion and supported by the platform.

4. A switch having in combination a plurality of fixed track ends, a platform connecting the same, a rod above the platform, a movable track section supported by and sliding on the rod, and a lazy-tongs connected with the track section and supported by the platform.

5. A switch having in combination a plurality of fixed track ends, a platform connecting the same, a threaded shaft mounted in bearings on the platform, a lazy-tongs operatively connected with the shaft, and a movable track section, said track section being operatively connected with the lazy-tongs.

6. A switch having a plurality of fixed track ends and a movable track section, with a platform connecting the fixed ends, said platform carrying a rod, a plate on the movable section having an opening through which the rod passes, and a guard interposed between the movable track section and the plate, said guard having bent extremities.

7. In an overhead-track system, a plurality of track ends, a movable track section arranged for alinement with any one of said track ends, and a lazy-tongs supported on said track ends and arranged to operate said movable track section.

8. In an overhead-track system, a plurality of track ends, a movable track section arranged for alinement with any one of said track ends, a platform connecting said track ends, a projection extending from said movable track section over said platform, and a lazy-tongs mounted on said platform and arranged to cooperate with said projection to effect the operation of said movable track section.

This specification signed and witnessed this 28th day of February, 1910.

EWAN CAMERON.

Witnesses:

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