

E. CARRAU.
 SWITCH OPERATING MECHANISM.
 APPLICATION FILED FEB. 8, 1912.

1,057,410.

Patented Apr. 1, 1913.

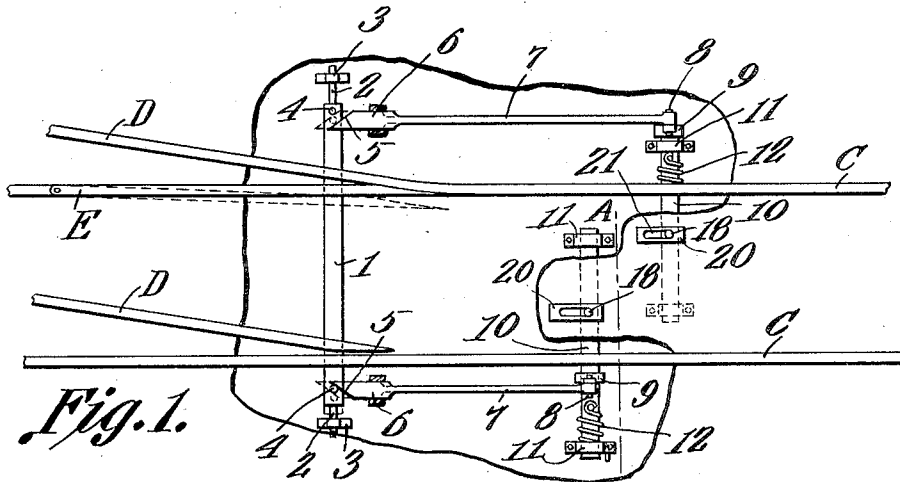


Fig. 1.

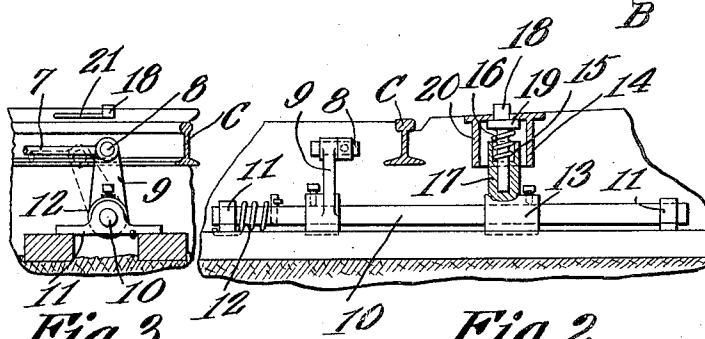


Fig. 2.

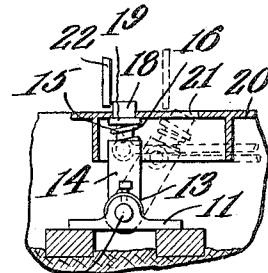


Fig. 3.



Fig. 4.

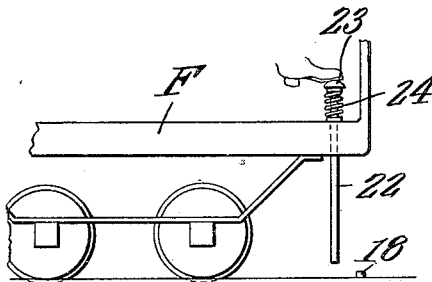


Fig. 5.

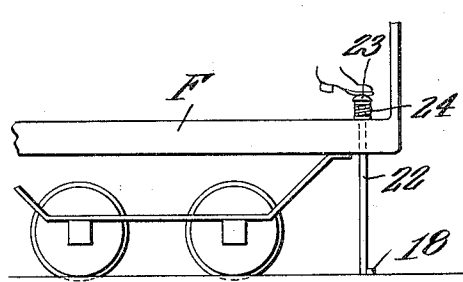


Fig. 6.

Witnesses

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UNITED STATES PATENT OFFICE.

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SWITCH-OPERATING MECHANISM.

1,057,410.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, EDWARD CARRAU, a citizen of the United States, residing at Cathlamet, in the county of Wahkiakum and State of Washington, have invented a new and useful Switch-Operating Mechanism, of which the following is a specification.

This invention relates to switch operating mechanism of that type adapted to be actuated by mechanism carried by a car approaching the switch, the improvements being especially designed for use in connection with street railways.

One of the objects of the invention is to provide tongue shifting mechanism which is normally disengaged from the tongue so as to permit said tongue to be shifted freely by a car entering the switch from a siding.

A further object is to provide switch operating mechanism in which the means utilized for shifting the tongue in one direction are operable independently of the means employed for shifting the tongue in the opposite direction.

A further object is to provide means for receiving motion from the car supported mechanism, said means being so mounted as to yield readily when subjected to a downward pressure such as produced by wheels traveling thereover.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed can be made within the scope of what is claimed, without departing from the spirit of the invention.

In the accompanying drawings the preferred form of the invention has been shown.

In said drawings:—Figure 1 is a plan view of the switch operating mechanism the cover extending thereover being broken away. Fig. 2 is a section on line A—B Fig. 1, the depressible actuating member and its guide casing being shown in section. Fig. 3 is a side elevation of the parts shown in Fig. 2. Fig. 4 is an elevation of the parts shown in Fig. 2 viewed from that side

opposite to that shown in Fig. 3, the guide casing being shown in section and one of the positions of the depressible actuating member being indicated by dotted lines. Fig. 5 is a view showing the car supported mechanism prior to being depressed into position to engage the switch mechanism. Fig. 6 is a view similar to Fig. 5 and showing the car supported mechanism in engagement with the depressible member of the switch mechanism.

Referring to the figures by characters of reference C designates the main line rails and D designates the siding rails, one of said siding rails merging into one of the main line rails and the switch tongue E being pivotally connected to one of the main line rails so as to move into or out of closed position.

A bar 1 extends under the rails at the switch and is connected to the tongue E close to the point thereof, said bar extending beyond both sides of the track and being provided, at its ends, with stems 2 slidably mounted within guides 3. Rollers 4 are arranged on the end portions of the bar 1 and extend upwardly therefrom. One of these rollers is adapted to be engaged by the beveled end 5 of a head 6 formed at one end of a shifting rod 7. Said rod is pivotally connected, as at 8, to a crank arm 9 fastened to a rock shaft 10, said shaft being journaled in brackets 11 and arranged transversely under one of the rails C, there being a coiled spring 12 mounted on the shaft 10 and secured at one end to said shaft and at its other end to one of the brackets 11. This spring serves to hold the arm 9 yieldingly in a predetermined position and with the beveled end 5 of the head 6 normally removed from the roller 4 in the path thereof.

A sleeve 13 is secured to the shaft 10 and has an upstanding tubular arm 14 counter bored, as at 15 to receive a coiled spring 16. A stem 17 is slidably mounted in arm 14 and extends through the spring, this stem being provided, at its upper end, with a head 18 and, at a point below said head, with a collar 19, said collar bearing downwardly on the spring 16. A casing 20 is mounted above the arm 14 and has a longitudinal slot 21 through which the head 18 extends, said head being normally positioned.

against one end wall of the slot, as clearly shown in Fig. 4.

Each of the rollers 4 is provided with shifting mechanism such as has been described, the shafts 10 of the two mechanisms being arranged under the respective main line rails C and the beveled ends 5 of the heads 6 being projected between the two rollers 4, as shown in Fig. 1.

Any suitable mechanism may be carried by the car for actuating the switch. In Figs. 5 and 6 a car structure shown generally at F is provided with a spring supported rod 22 having a foot plate 23 against which the supporting spring 24 bears. The lower end of the rod is normally supported above the plane occupied by the upper end of the head 18. When, however, it is desired to shift the switch tongue E without stopping the car approaching the switch, the rod 22 is depressed so that its lower end will move against the head 18, as illustrated in Fig. 6. Thus it will be seen that the head will be pushed forwardly and downwardly within the slot 21 to the position indicated by dotted lines in Fig. 4. Shafts 10 will therefore be rotated and will cause arm 9 to push against the rod 7. The beveled end 5 of the head 6 will thus be brought against the roller 4 in the path thereof and said roller will be shifted laterally, thus moving the bar 1 longitudinally and causing the tongue E to move to its new position. Spring 12 is placed under stress during this movement and, as soon as the rod 22 has passed over the head 18 and said head becomes released, spring 12 will return all of the parts to their initial positions.

It is to be understood that the rod 22 may be so constructed as to be shiftable to engage either one of the heads 18 or, if desired, two rods 22 can be arranged on the car, one rod being provided for each head 18.

By having the heads 18 spring supported it will be seen that when a vehicle passes over the switch mechanism the tire thereof will not be injured by the upwardly projecting heads 18 but, instead, said heads will be pushed downwardly against the stress of the springs 16 thereunder.

It is designed to conceal all of the switch operating mechanism excepting the heads 18 and slotted casings 20, by arranging the same below the surface of the street. Thus

all of the mechanism will be protected and cannot easily get out of order.

What is claimed is:—

1. The combination with a pivoted switch tongue, of a slide bar movable therewith, upstanding elements on the bar, a shaft, yielding means for holding the shaft normally in a predetermined position, means operated by the shaft and slidable against one of said elements for shifting the bar and tongue in one direction, a second shaft, yielding means for holding said shaft normally in a predetermined position, and means operated by said shaft and movable against the other element for shifting the tongue and bar in the opposite direction.

2. The combination with a switch tongue, and a projecting element movable therewith, of a shaft, a crank carried thereby, a rod extending from the crank, a head on the rod and having a beveled end, and means for rotating the shaft to shift said end against the projecting element and to move the tongue.

3. The combination with a switch tongue, a bar movable therewith and upstanding projections upon the bar, of heads having oppositely beveled ends projecting between said projections, separately revoluble shafts, connections between each shaft and one of the heads, elastic means connected to the shaft for holding the heads normally in inactive positions, and means for rotating either shaft independently of the other shaft to shift its head into engagement with the projection adjacent thereto to move the tongue, said heads operating to shift the tongues in opposite directions respectively.

4. In switch operating mechanism, the combination with a shaft, and means operated thereby for shifting a switch tongue, of a slotted casing, a tubular arm upstanding from the shaft, and a spring supported head movable with the arm and extending through the slotted casing, said head being shiftable downwardly when subjected to pressure.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

EDWARD CARRAU.

Witnesses:

JOHN C. HUGHES,
JOHN G. BAILEY.