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SWITCH

Filed Dec. 10, 1927

Fig. 1.

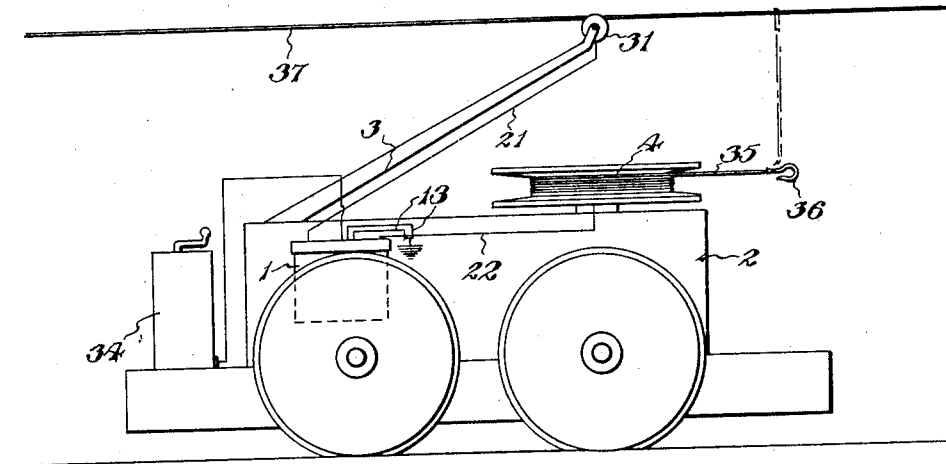
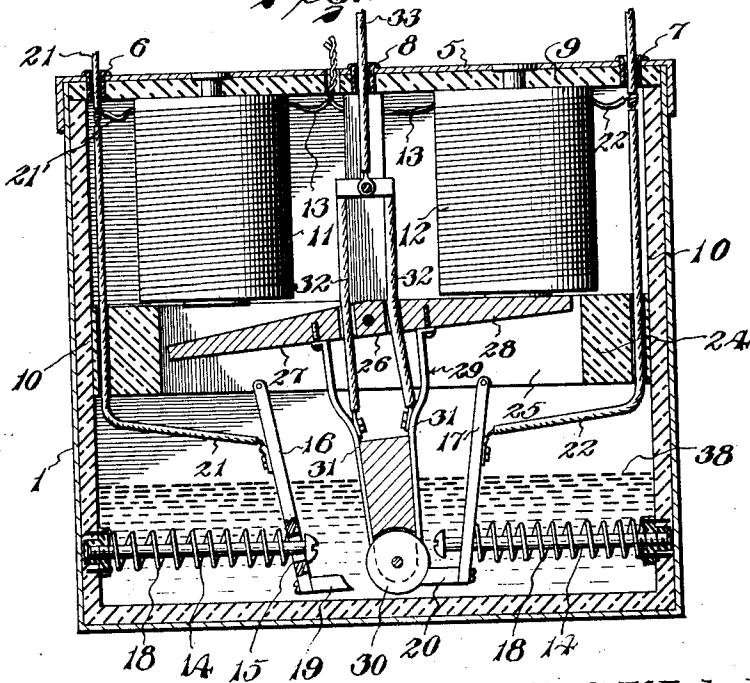


Fig. 2.



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SWITCH

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The present invention is directed to improvements in switches.

The primary object of the invention is to provide a switch for use in connection with mine locomotives wherein electrical energy for operating the locomotive is furnished from a trolley wire.

Another object of the invention is to provide a device of this character so constructed that the switch will operate in a positive manner whether the current is collected from its trolley wheel or reeled cable.

Another object of the invention is to provide a switch for this purpose which has its working parts effectively encased to prevent persons from coming in contact therewith and to also protect the working parts against injury.

With these and other objects in view, this invention resides in the novel features of construction, formation, combination and arrangement of parts to be hereinafter more fully described, claimed and illustrated in the accompanying drawing, in which,—

Figure 1 is a side view of a mine locomotive showing the switch in place thereon.

Figure 2 is a view partly in section and partly in elevation of the device.

The switch parts are confined in a casing 1 adapted to be secured to the locomotive 2, the latter having, as customary, in devices of this character, a trolley pole 3, wheels 3' and cable reel 4.

The top closure 5 of the casing carries outer insulating sleeves 6 and 7 and an intermediate insulating sleeve 8. The top of the casing has engaged therewith a sheet of insulating material 9 and the sides thereof have engaged therewith linings 10—10 of similar material, the respective insulating sleeves extending through the sheet 9, as clearly shown in Figure 2 of the drawing.

Extended in the casing 1 are magnets 11 and 12 which are grounded through the wires 13 leading from the magnets.

Supported by the linings 10—10 are horizontally disposed bolts 14—14 which engage the slots 15—15 of the hangers 16 and 17, there being coil springs 18 encircling the bolts to urge the hangers toward each other, said

hangers having contact heads 19 and 20 upon their lower ends. The hangers 16 and 17 are in circuit with the magnets 11 and 12 through wires 21 and 22, and 21' and 22', the wire 21 leading to the trolley wheel 3'.

The horizontally disposed partition 24 of suitable material is supported within the casing 1 and has an opening 25 formed therein and in which is pivotally mounted the head 26, said head having the oppositely extending armature arms 27 and 28 carried thereby which are alternately attracted by the magnets when the latter are energized. Supported by the arms 27 and 28 is a bracket 29 which has a roller contact 30 upon its lower end for alternate engagement with the contact heads 19 and 20, said brackets having leading from the arms 31 thereof circuit wires 32 which are connected to the conductor 33 which passes through the sleeve 8 to the controller box 34 of the locomotive.

Windable upon the reel 4 as customary is a conducting cable 35, having a hook 36 carried by its terminal for engagement with the trolley wire 37, said cable being in circuit with the wire 22.

The cable, as usual, is for the purpose of collecting current from the trolley wire 37 when the locomotive has moved to a position wherein the trolley wheel 3' leaves the trolley wire.

The casing 1 has a quantity of oil 38 therein which prevents sparking and fusing when the contact roller 30 disengages the heads 19 and 20.

As shown in the drawing, the trolley wheel 3' is engaged with the wire 37 and at which time the armature arm 27 would be attracted by the magnet 11. However, when the locomotive reaches a point wherein the trolley wheel will not reach the wire 37 the pole 3 is lowered and hooked in such position, thus deenergizing the magnet 11. The hook 36 is then engaged with the trolley wire 37 as indicated in dotted lines in Figure 1 to energize the magnet 12 which will attract the arm 28, thus throwing the bracket 29 in a direction to cause the roller 30 to engage the head 20. Of course when the cable 35 is disengaged from the trolley wire and the wheel 31 again

engaged therewith, the magnet 12 will be de-energized and the magnet 11 energized, thereby attracting the arm 27 and moving the roller 30 to engage the contact head 19, thus completing the circuit for normal operation.

Owing to the presence of the springs 18 the shock incident to the contacts 30 striking the head 19 or 20 will be absorbed and injury thereto thus prevented.

Since the switch mechanism is enclosed in a metallic casing 1 injury thereto is prevented.

Having thus described the invention, I claim:

1. A switch for the purpose specified comprising a casing, a horizontal partition in the casing, a head pivotally connected with the partition, oppositely extending armature arms carried by the head, a bracket depending from the head and having a roller contact carried thereby, magnets mounted in the casing, bolts carried by the casing, hangers pivotally connected in the casing and slidably and yieldably engaged with the bolts, contact heads carried by the hangers for alternate engagement with the roller contact, and springs engaged on the bolts for urging the hangers toward each other, as and for the purpose set forth.

2. A switch for the purpose specified comprising a casing, a horizontal partition in the casing, a head pivotally connected with the partition, oppositely extending armature arms carried by the head, a bracket depending from the head and having a roller contact carried thereby, magnets mounted in the casing, hangers pivotally supported by the partition, contact heads carried by the hangers and disposed upon opposite sides of the bracket for alternate contact with the roller contact when the magnets are alternately energized and deenergized, and springs connected with the casing and engaging the hangers to urge the same toward each other.

In testimony whereof I affix my signature.
CLAUDE S. WAKELAND. [L. s.]

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