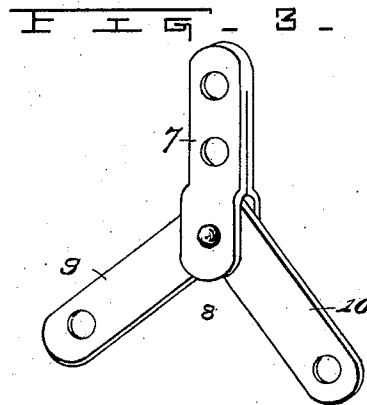
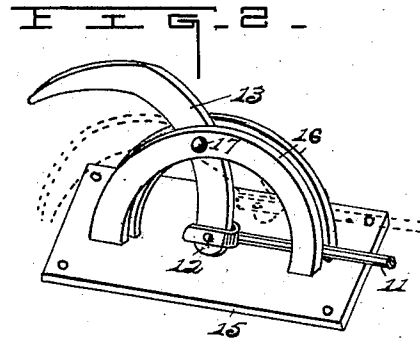
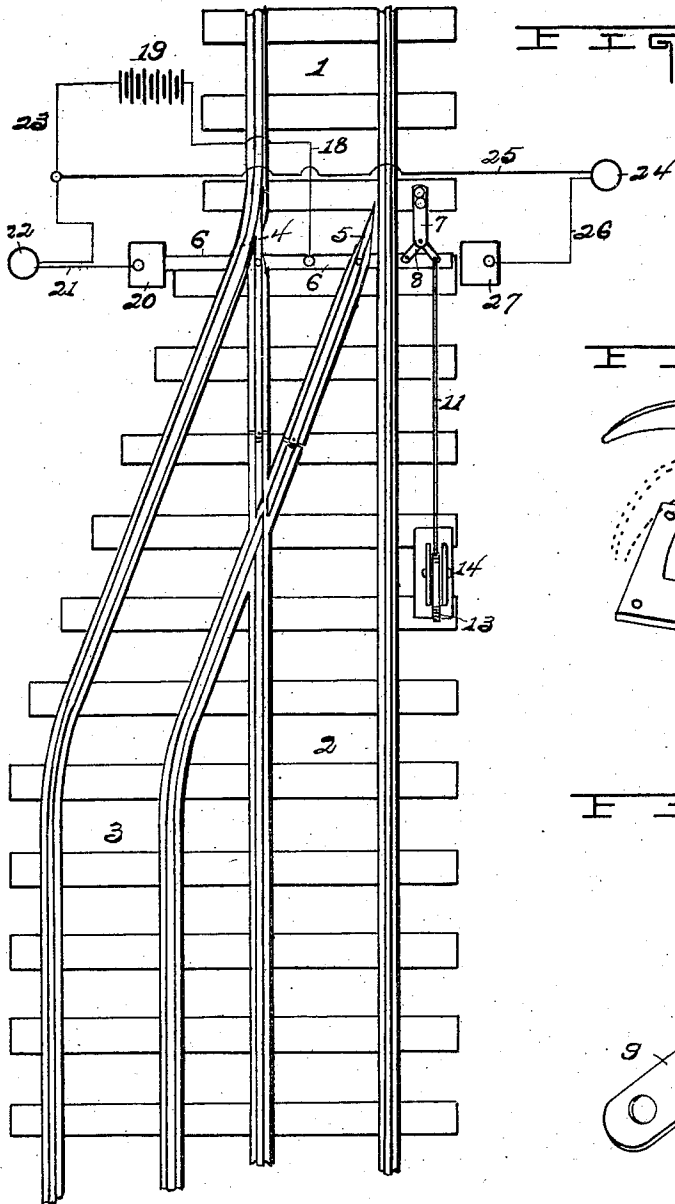


No. 852,886.

PATENTED MAY 7, 1907.

J. LONG & B. F. BOYD.
SWITCH OPERATING MECHANISM.

APPLICATION FILED JULY 12, 1906.



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UNITED STATES PATENT OFFICE.

JACOB LONG AND BENJAMIN F. BOYD, OF BELLAIRE, OHIO.

SWITCH-OPERATING MECHANISM.

No. 852,886.

Specification of Letters Patent.

Patented May 7, 1907.

Application filed July 12, 1906. Serial No. 325,915.

To all whom it may concern:

Be it known that we, JACOB LONG and BENJAMIN F. BOYD, citizens of the United States of America, and residents of Bellaire, county of Belmont, and State of Ohio, have invented certain new and useful Improvements in Switch-Operating Mechanism, of which the following is a specification.

Our invention relates to new and useful improvements in switch operating mechanism, and more particularly to a novel switch opening device and still more particularly to a combined switch operating mechanism and signal system, and it consists in a particular construction, combination, and arrangement of parts to be fully hereinafter described and then pointed out in the claims.

At the mouth of mines, as is well known, a switch is provided upon which the loaded cars from the mines are side tracked, and where motors are employed for hauling the mine cars, it is desirable that a flying switch be made.

The chief object of our invention is to provide a simple device or mechanism operated by a mine motor after passing the switch point whereby the switch is automatically opened to allow the cars which have been cut loose from said motor to pass upon said switch or side track.

A further object of the invention is to provide a combined switch operating mechanism and signal system, the latter being adapted for indicating the condition of the switch, that is whether open or closed.

In describing the invention in detail, reference is had to the accompanying drawings wherein like characters of reference denote similar parts throughout the several views:

Figure 1, is a plan view, of a section of track at the entrance to a switch, illustrating our invention, Fig. 2, is a perspective view of the stand and switch operating lever, and Fig. 3, is a similar view of a bell-crank and clevis.

In said drawings, 1, indicates the main track leading from the mine, 2 the main track beyond the switch, and 3, the side track or switch. At the entrance to the side track 3, movable switch points 4, and 5, are provided the front ends of said points being suitably mounted upon a bar or bridle 6, which extends transversely across and is longitudinally movable underneath the rails of the track.

Secured to a cross tie at the side of the

track 1, in front of the switch point, is a clevis 7, in which is pivoted a bell-crank 8, the arm 9, of which is pivotally attached to said bridle 6. Pivotally secured to the opposite arm 10, of said bell-crank 8, is the end of a rod 11, which extends forward parallel to the track 2, and is pivoted at its opposite end to the point 12, of a forwardly curved lever 13, which is pivotally supported by a stand 14. Said stand 14, consists of a base plate 15, fixed upon the cross ties at the side of the track 2, and two parallel substantially semi-circular supports 16, mounted upon said base plate, a pivot 17, passes from one support to the other and has the lever 13, mounted or fulcrumed thereon. The said stand is set at a point where the front edge of the motor body will strike the lever 13, when in a raised position and depress the same to the level of the supports 16, and said supports are made of a height which will just permit the motor body to clear them. As is obvious when the motor strikes the lever 13, the latter will be thrown forward or depressed to the position indicated in dotted lines in Fig. 2. This action forces the rod 11, in a rearward direction and through the bell-crank 8, causes the bridle 6, to be shifted so as to bring the switch points 4 and 5, into a position which opens said switch and permits the cars previously detached from the motor to pass in upon the side track 3. After the switch has been opened by the motor as hereinbefore described, it is again closed by the wheels of the motor shifting the switch points back as it passes back into the mine.

When the switch points lie in a position closing the side track 3, the bridle 6, which is connected by a wire 18, with a source of electrical energy 19, lies in contact with a contact plate 20, which is connected by a wire 21, with a signal lamp 22, located at a suitable point. The circuit of said signal lamp 22, is completed through a wire 23, which connects it with said source of energy. As is obvious when the bridle 6, lies in contact with the contact plate 20, as shown in Fig. 1, the circuit to the signal lamp 22, is complete causing it to burn and indicating that the main track is open, and vice versa. We employ a second signal lamp 24, preferably displaying a red light or danger signal when the switch is open. Said lamp 24, is connected by wire 25, with the source of electrical energy 19, and by a wire 26, with a contact plate 27, located at a suitable point.

The bridle 6, connected with the source of energy by a wire 18, as hereinbefore mentioned is adapted to engage said contact plate 27, when the switch points are shifted to
5 open the switch, thus completing the circuit through lamp 24, causing it to burn and therefore to indicate that said switch is open, and that a flying switch cannot be made.

As is obvious both signal lamps 22 and 24,
10 are not necessary since either one suffices to indicate the condition of the track at the switch; however, to guard against accidents, by reason of one lamp being defective, we prefer to employ the two lamps as above described.
15

Having thus fully described our invention, what we claim as new and desire to secure by Letters Patent is:—

20 In a switch operating mechanism and signal system combined, the combination with a main track and a side track, of a movable bridle transversely mounted under the rails of the track, switch points having their pointed ends pivotally mounted on said bridle,
25 a stand mounted beyond the side-track, said stand consisting of a base-plate, two

parallel arcuate supports carried by said base-plate, a lever pivotally mounted intermediate its ends in said supports, operative means intermediate the point of said lever 30 and the movable bridle whereby the depression of the former shifts the latter, opening the side-track, said lever being curved to substantially correspond with the curvature of the arcuate supports and being adapted to be 35 engaged and depressed to the level of said supports by a motor passing along the track in either direction, and an electric circuit, normally incomplete, having a lamp therein, said bridle constituting a portion of the circuit, and a contact-plate adapted to be con- 40 tacted by said bridle, completing the electric circuit to the lamp, when the bridle is shifted to a position, opening the side track.

Signed by us in the presence of two subscribing witnesses. 45

JACOB LONG.
BENJAMIN F. BOYD.

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