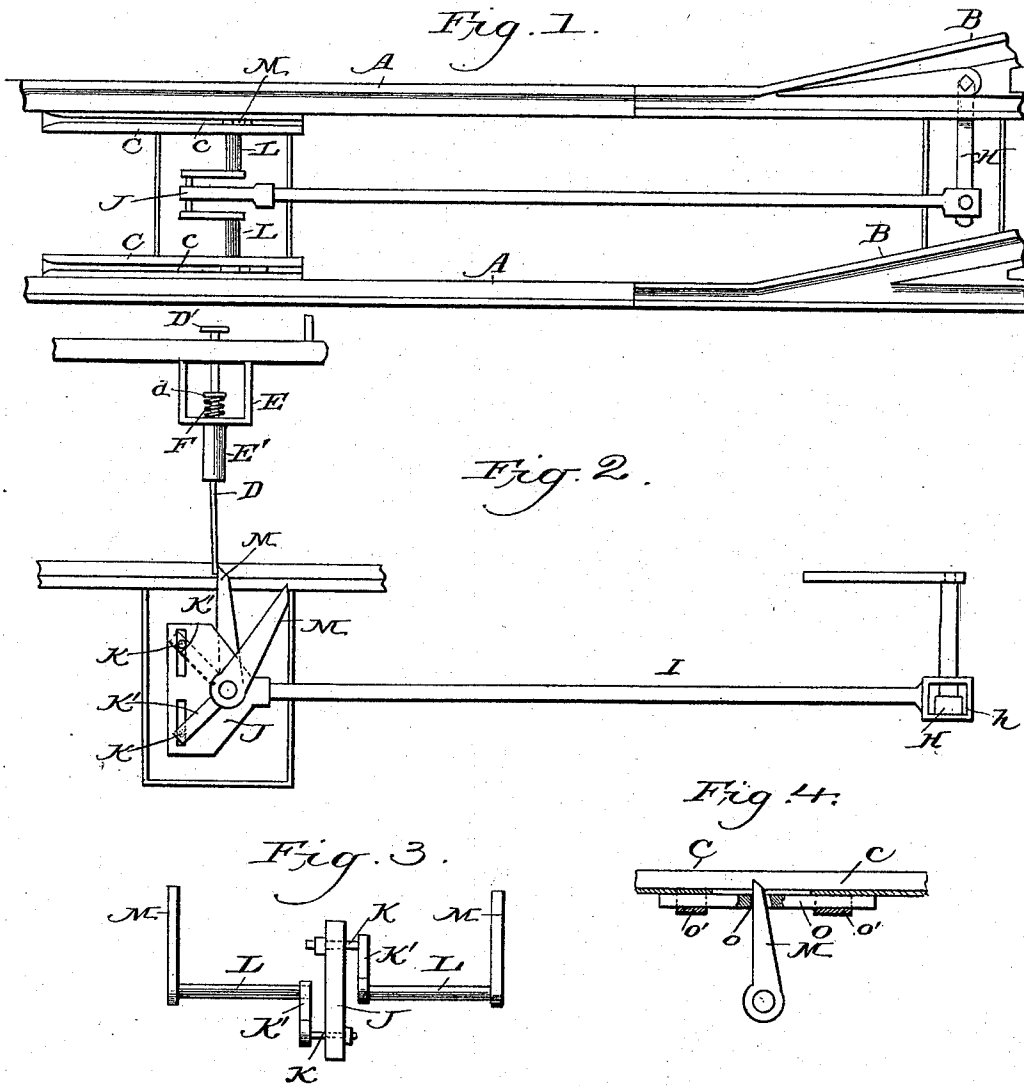


(No Model.)

J. MOELLER.
AUTOMATIC SWITCH.

No. 535,626.

Patented Mar. 12, 1895.



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JACOB MOELLER, OF PHILADELPHIA, PENNSYLVANIA.

AUTOMATIC SWITCH.

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To all whom it may concern:

Be it known that I, JACOB MOELLER, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Automatic Switches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to automatic switches for automatically operating the switch-rail of a railway track, and while it is designed primarily for electric and horse-cars it is applicable to any and all cars whether operated by cable, electricity or other motive power.

The invention has for its object among others to provide a simple and cheap switch-mechanism which is located underground, in a box or conduit, and actuated to move the switch by means on the car and under the control of the driver or motorman.

A further object is to so arrange the parts as to occupy but little space and be capable of operation from any required distance.

Still a further object is to provide for the exclusion of water and dirt from the box in which the parts are located without interfering in the least with the operation of the levers. I aim also at improvements in the details of construction in general.

Other objects and advantages of the invention will hereinafter appear and the novel features thereof will be specifically defined by the appended claims, the invention in this instance residing in the peculiar combinations, and the construction, arrangement and adaptation of parts, all as more fully hereinafter described, shown in the drawings and then particularly pointed out in the claims.

The invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification, and in which—

Figure 1 is a top plan of my improvements, with parts broken away to show those arranged underground. Fig. 2 is a side elevation. Fig. 3 is an end view of the crank-shaft and switch levers and connections. Fig. 4 is a detail in side elevation showing the guard

for closing the slot through which works the switch-lever.

Like letters of reference are employed to indicate corresponding parts throughout the several views.

Referring to the details of the drawings by letter, A designates the main track rails and B the switch rails, the latter being mounted for pivotal movement in any suitable manner. The means for moving the switch rail on its pivot constitutes the gist of this invention. This mechanism comprises the guide blocks or plates C which are secured one near each of the main rails at the required distance from the switch rail, which distance may be greater or less as may be desired. These blocks or plates are provided with the longitudinal grooves *c* parallel with the rails as seen best in Fig. 1, the entrance to which at the end is enlarged so as to better guide the bar depending from the car into the groove and against the end of the lever projecting into the groove. These blocks or plates are suitably supported within a box or conduit at the proper distance below the rails on which the car travels, and in case of a cable line the grooved guide plate may be arranged in such manner as to be out of the way of the grip shank but nearer the center of the track. When there are two of these guide blocks or plates, as shown, there will be upon the car two of the devices for operating the switch-mechanism. There will be one on each side of the car. As both of these will be of substantially the same construction a description of one will suffice for both. It comprises a vertically-movable rod D which extends upward through the platform of the car as seen in Fig. 1 and terminates in a head or foot-piece D' which is adapted to be pressed upon by the foot of the operator, and this rod is guided in its movements by the bracket E secured to the under side of the car platform in any suitable manner and the rod also passes through a tubular part E' depending from the bracket, the lower end of the rod being thin and adapted to travel in the groove of the guide plate or block when depressed into its lowermost position, in which position it is seen in Fig. 1.

The rod is normally held in its uppermost position by means of a spring F which is ar-

ranged between the bottom of the bracket and a collar or shoulder *d* on the rod all as shown in Fig. 2.

H is a rod or arm connected with the switch rail and having connected therewith the horizontal arm the inner end of which is loosely engaged in a socket *h* on the end of the longitudinal rod I the other end of which is secured to the block J, the rod being mounted for reciprocation in suitable supports or bearings and the block or plate J having projecting from its opposite portions the pins or rods K see Fig. 3 to each of which is connected a crank-arm K' and each crank-arm in turn is carried by a short cross shaft L which is supported in a suitable bearing and carries the switch lever M, the upper end of which is preferably beveled or tapered as seen in Fig. 2 and which is of such a thickness as to project upward through a slot in the block C and into the groove thereof. One of these levers projects into the groove of each of the guide blocks or plates C as will be understood from Fig. 1.

With the parts constructed and arranged substantially as above specified the operation is as follows: The switch levers are so arranged that one or the other of them will always project into the groove of one of the guide blocks. As the car approaches the point where these guide blocks are situated the operator presses his foot upon the foot piece of the rod D and forces the lower end of the said rod down into the groove of the block or into such a position that it will enter the groove as the car reaches the same. As the car advances the lower end of this rod coming in contact with the upper end of the switch-lever moves it in the direction of the arrow in Fig. 2 and this movement moves the rod I in the direction of its length and shifts the switch-rail. This movement also moves the other switch-lever into position to be struck to open the switch the other way.

I may sometimes employ means for keeping the water and dirt out of the slot. In Fig. 4, O is the guard piece which has an opening or slot *o* through which the upper end of the switch-lever projects and works, moving it

backward and forward as the lever is moved. This guard piece is guided in its movements and held against displacement by the guides *o'* as shown in said Fig. 4. This guard may sometimes be dispensed with.

The block J with its attached parts and all the parts between the rails at this point are designed to be incased within a suitable box for protection, and the longitudinal rod I may also be incased within a tube for the same purpose. So also may be the parts connecting the longitudinal rod with the switch-rail.

Modifications in detail may be resorted to without departing from the spirit of the invention or sacrificing any of its advantages.

Having thus described the invention, what is claimed as new is—

1. The combination with the main track and the movable switch-rail, of a longitudinal reciprocatory rod connected with the switch, a plate connected with the other end of said rod, guide blocks with grooves, switch-levers adapted to project into said grooves, crank-arms and operative connections between said switch-levers and plate, substantially as specified.

2. The combination with the main track and the movable switch-rail, of the longitudinal rod mounted for reciprocation and connected with the switch, the plate on the other end of said rod, the guide blocks with grooves, the transverse shafts carrying said levers, the crank-arms connected with the short shafts and the arms connecting the crank-arms with the plate, substantially as specified.

3. The combination with the guide block with longitudinal groove, of a switch-lever projecting through an opening into said groove, and a movable guard piece having an opening into which the end of said lever projects, substantially as specified.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

JACOB MOELLER.

Witnesses:

JOHN G. SCHEETZ.

WM. MOELLER.