(No Model.)

J. H. FRISCHEN.

SWITCH AND SIGNAL OPERATING DEVICE.

No. 513,497. Patented Jan. 30, 1894.

Fig. 1.

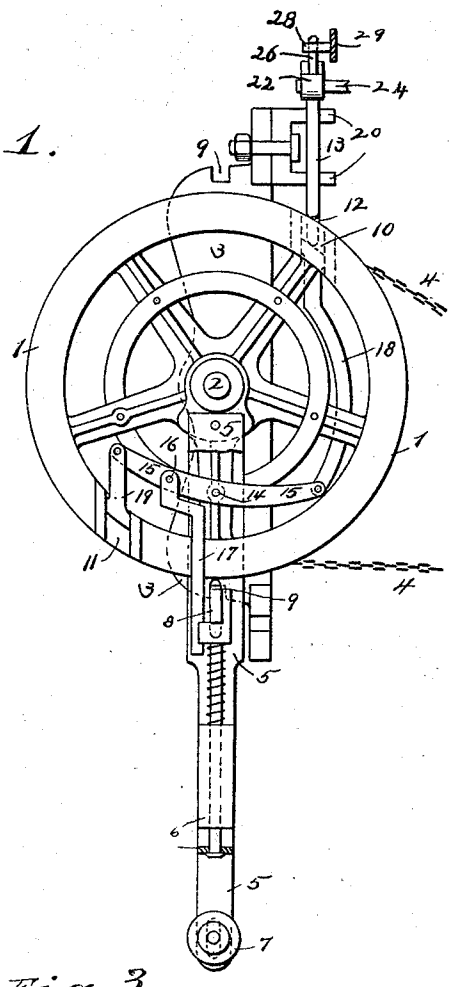


Fig. 2.

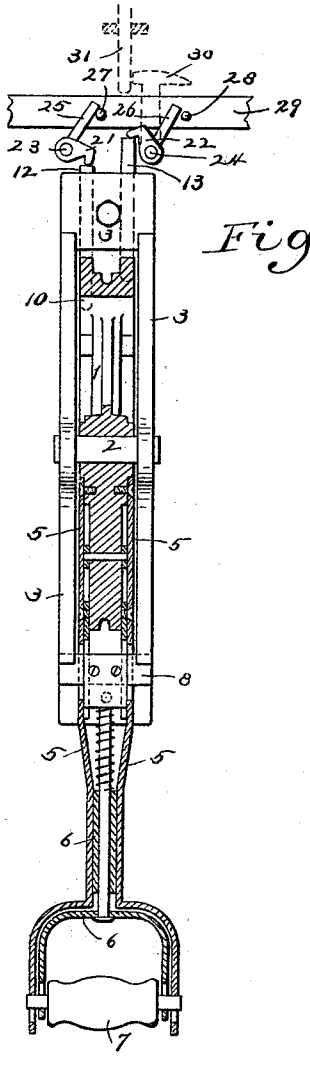
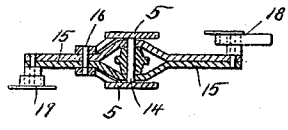


Fig. 3.



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SWITCH AND SIGNAL OPERATING DEVICE.

SPECIFICATION forming part of Letters Patent No. 513,497, dated January 30, 1894.

Application filed May 13, 1893. Serial No. 474,095. (No model.) Patented in Germany April 4, 1882, No. 19,478.

To all whom it may concern:

Be it known that I, JOHANN HEINRICH FRISCHEN, a subject of the Emperor of Germany, residing at the city of Berlin, in the Empire of Germany, have invented new and useful Improvements in Railway Switch and Signal Operating Devices, (for which I have obtained the following Letters Patent in Germany, No. 19,478, dated April 4, 1882,) of which the following is a specification.

This invention is auxiliary to that shown in my Patent No. 497,716, granted May 16, 1893, and has for its object to provide an improved lever device which is adapted to operate a distant railway switch or signal by means of chain or wire connections and which will automatically free itself from adjacent locking mechanism, which latter may be adjusted to prevent operation of the levers.

The invention consists in the interposition between the ordinary latch of a switch or signal operating lever and the lever recesses which receive stop or locking rods, of plunger devices which automatically push the locking rods from the recesses as the lever is unlatched from its supporting frame.

The invention also comprises a special mutually dependent arrangement of the levers and stop-rods and controlling devices, whereby operation of the levers is prevented, even should they be unlatched in the ordinary manner.

The invention will first be described and then will be particularly defined in claims hereinafter set forth.

Reference is to be had to the accompanying drawings, forming a part of this specification, and in which like numerals indicate similar parts in all the views.

Figure 1, is a side elevation partly in section of a switch or signal lever embodying my invention, and portions of the adjacent locking mechanism. Fig. 2, is a vertical longitudinal section thereof, and Fig. 3, is a sectional view of the plunger devices and supports therefor, removed from the lever. The lever is made with the ordinary round head portion 1, journaled by a pin or axle 2 to a relatively stationary supporting frame 3, and has a peripheral groove receiving the switch or signal operating chain 4. The handle portion of the lever is made in two parts 5, 6, the latter being movable endwise by means of the hand grip 7, to withdraw the ordinary spring-pressed latch 8 from one of two notches 9 in the frame 3, prior to swinging the lever handle upward or downward to operate the switch or signal. As thus far described, the lever has the ordinary construction.

In the periphery of the lever there are two oppositely located slots or recesses 10, 11, respectively adapted to receive stop-rods 12, 13 of locking and controlling mechanism hereinafter particularly described.

To the lever head 1, or to the opposite side plates of its fixed handle portion 5, is fulcrumed at 14 a rocking arm or lever 15, which is also pivotally connected at 16 with a forked rod or pitman 17, which at its outer end is suitably attached to the lever latch 8. The opposite extremities of the rocking arm 15 are pivotally connected to plungers 18, 19, the outer ends of which enter the recesses 10, 11 of the lever head periphery. The stop rods 12, 13, slide vertically in a bearing 20, to which the lever frame 3 may also be attached. The rods have mutually dependent operative relation to tappets 21, 22 fixed to transverse shafts 23, 24, which respectively have radial fingers 25, 26 bearing against pins 27, 28, fixed to an endwise movable bar 29. This bar is provided with a retractile or retruding spring, which tends to normally draw or push said bar to the left.

Dotted lines in Fig. 2 of the drawings indicate how an arm 30 fixed to one of the shafts, say the one 24, may act relatively to a vertically movable blocking-rod 31, to prevent or permit operation of the lever devices.

The operation is as follows: With the parts in positions shown in the drawings, the stop-rod 12 of the controlling mechanism is in the recess 10 of the lever head 1, and the lever latch 8 is in the lower notch 9 of the fixed frame 3. Should it be necessary to operate the lever, the hand grip 7 will be grasped and will first be moved or drawn outward to withdraw the ordinary latch 8 from the frame notch 9, to free the lever and allow it to be turned half way around to change the connected switch or signal. The withdrawal of the latch 8 to free the lever will simultaneously

pull the rod 17 outward, and thereby rock the auxiliary arm or lever 15 and carry the plungers 18, 19 outward to push from either recess 10 or 11 of the lever head 1, the stop-rod 12 or 13, which may at the time be engaged or locked with the lever; in this case it will push the rod 12 from the lever recess 10. As the lever is turned to set the switch or signal, both stop-rods 12, 13 will ride on the peripheral faces of the lever head until the recess 11 presents itself to the rod 13, which will enter said recess as the ordinary lever latch 8 enters the upper frame notch 9. The operation is substantially the same on the reverse movement of the lever; in this case the stop-rod 13 will be pushed from the lever recess 11 by endwise movement of the lever latch and the plunger 19, prior to the turning of the lever to change the switch or signal. It will be noticed that as the stop-rods 12, 13 move upward or downward alternately, the shafts 23, 24 will be partially rotated by the tappets 21, 22, and that the shaft fingers 25, 26, by action on the pins 27, 28, will move the bar 29 endwise. Obviously, anything preventing endwise movement of the bar 29, or rotative movement of either one of the shafts 23, 24, will necessarily prevent movement of the stop-rods, and also will prevent operation of the lever, and change or readjustment of the switch or signal. Hence if an arm or stud 30, shown in dotted lines in Fig. 2 of the drawings, be fixed to one of the shafts, say the one 24, and if an electric block signal blocking-rod 31, also dotted, be set in front of the arm 30, the operation of the switch or signal lever will be prevented until after said blocking-rod 31 is raised or withdrawn from in front of the arm by operation of the electric block system apparatus when the block of railway track ahead is cleared of all preceding trains. It is quite unnecessary to here give further details of the mutual operation of the parts 30, 31 relatively to a rotative shaft and endwise movable latch bar and the stop-rods acting relatively to the switch or signal lever, as I have described and claimed the arm and blocking-rod in my prior patent aforesaid.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A switch or signal operating lever having a stop-rod receiving recess, and a plunger ejecting the rod therefrom, substantially as described.

2. A switch or signal operating lever having a stop-rod receiving recess, and a plunger operative from the lever handle and ejecting the stop-rod from the lever recess, substantially as described.

3. A switch or signal operating lever having a stop-rod receiving recess, and a plunger operative by or from the ordinary latch of the lever, substantially as described, whereby the said latch is disengaged, the plunger will eject the stop-rod from the lever recess, as herein set forth.

4. The combination with a switch or signal lever having recesses, of an endwise movable bar, adjacent rocking shafts, and stop-rods mutually operative, substantially as specified, and plungers on the lever adapted to eject the stop-rods from the lever recesses, substantially as described.

5. The combination with a switch or signal lever having recesses, of an endwise movable bar, adjacent rocking shafts, and stop-rods mutually operative substantially as specified, and plungers on the lever actuated from the lever handle and adapted to eject the stop-rods from the lever recesses, substantially as described.

6. The combination with a switch or signal lever having recesses, of an endwise movable bar, adjacent rocking shafts, and stop-rods mutually operative substantially as specified, and plungers on the lever actuated from the ordinary latch of the lever and adapted to eject the stop rods from the lever recesses, substantially as described.

7. The combination with a switch or signal lever having recesses 10, 11 and a latch 8, operative from the lever handle, of a rocking bar 15, connected plungers 18, 19, operative at said recesses, and a connection 17 between the parts 8, 15, substantially as described.

8. The combination with a switch or signal lever having recesses 10, 11 and a latch 8, operative from the lever handle, a rocking bar 15, connected plungers 18, 19, operative at said recesses, a connection 17 between the parts 8, 15, stop-rods 12, 13, adapted to the lever recesses 10, 11, shafts 23, 24, having tappets 21, 22 and fingers 25, 26, and a bar 29 having pins 27, 28, substantially as described, for the purposes set forth.

In testimony whereof I affix my signature in the presence of two witnesses.

JOHANN HEINRICH FRISCHEN.

Witnesses:
GUSTAV STENZEL,
MAX WAGNER.