

C. W. REINOEHL & C. W. LONG.

SWITCH STAND.

APPLICATION FILED JULY 16, 1909.

945,344.

Patented Jan. 4, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

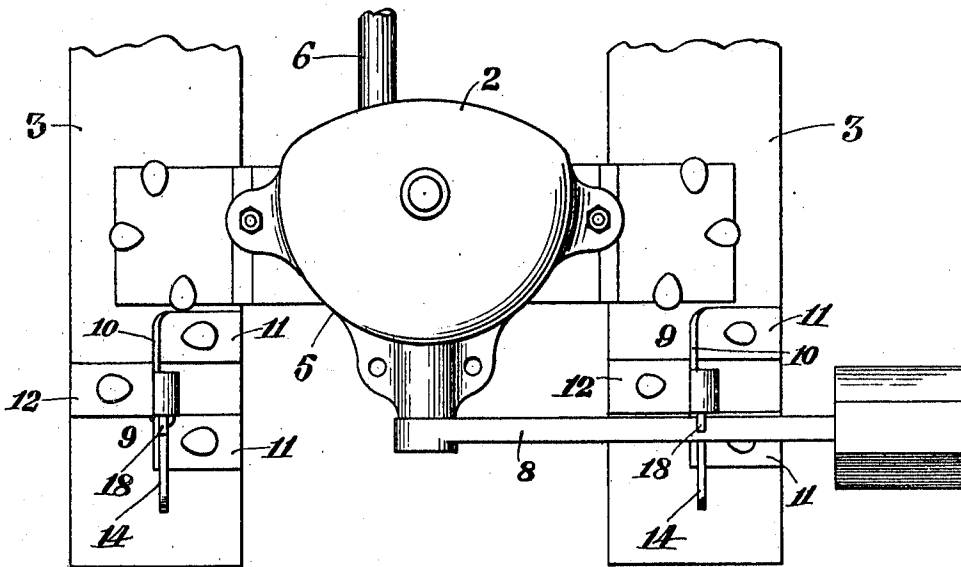
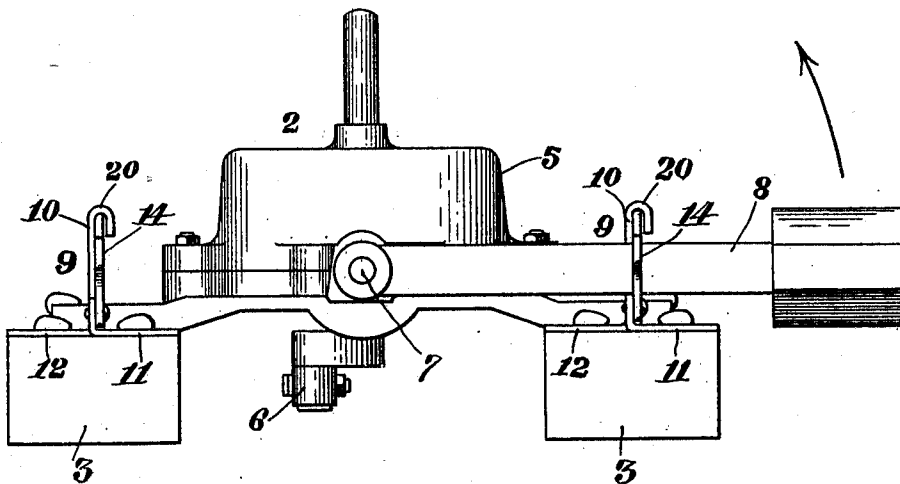


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

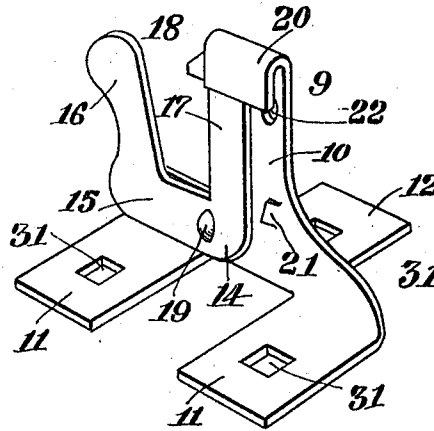


Fig. 4.

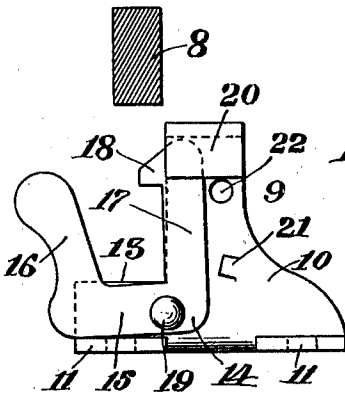


Fig. 5.

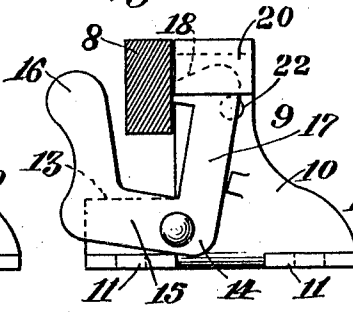


Fig. 6.

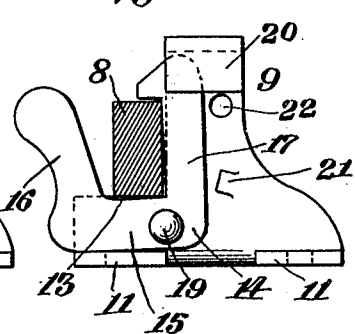
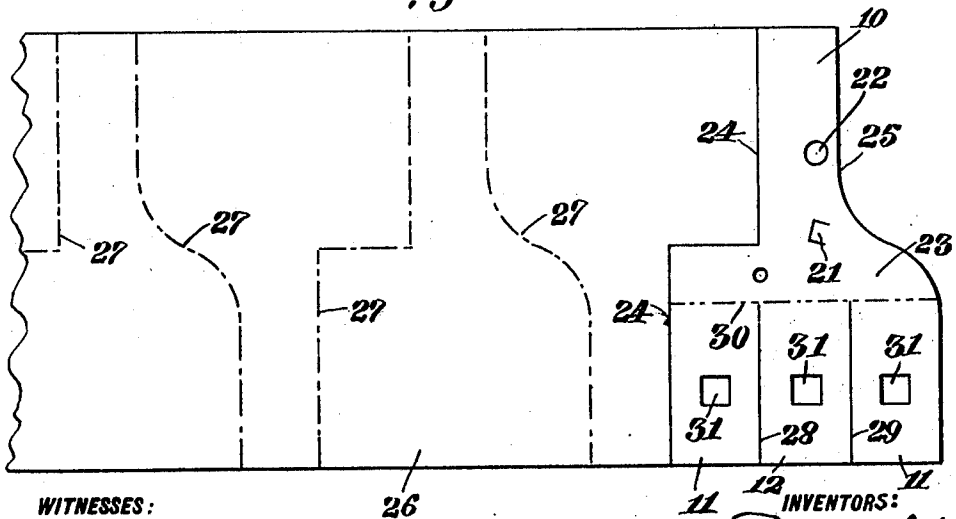


Fig. 7.



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UNITED STATES PATENT OFFICE.

CHARLES W. REINOEHL, OF STEELTON, AND CHARLES W. LONG, OF FORT HUNTER,
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SWITCH-STAND.

945,344.

Specification of Letters Patent.

Patented Jan. 4, 1910.

Application filed July 16, 1909. Serial No. 507,888.

To all whom it may concern:

Be it known that we, CHARLES W. REINOEHL and CHARLES W. LONG, citizens of the United States, the said REINOEHL residing at Steelton, Dauphin county, State of Pennsylvania, and the said LONG residing at Fort Hunter, Dauphin county, State of Pennsylvania, have invented certain new and useful Improvements in Switch-Stands, of which the following is a full, clear, and exact description.

This invention relates to switch stand latches, the object of the invention being to provide a simple and efficient latch device for railroad switch stands, whereby the operating arm of the switch stand may be retained in the positions to which it is moved when it is adjusted to move the switch to either the open or the closed position, as will be hereinafter fully described and particularly claimed.

Figure 1 is a plan view of a railroad switch stand provided with our improved latch device. Fig. 2 is a side elevation thereof. Fig. 3 is a perspective view of our improved latch device removed from the parts shown in Figs. 1 and 2. Figs. 4, 5, and 6 are elevations of the latch device showing various positions thereof with respect to the movable operating arm of the switch stand, said arm being shown in section. Fig. 7 is a view of a strip of sheet metal showing the manner of cutting therefrom the blanks from which the support or body portion of our improved latch device is constructed.

2 designates a well known form of switch stand which extends between and is supported by the cross ties 3, 3 of a railroad. The switch stand 2 includes the casing 5 containing the operating mechanism, the switch rod 6 connected to said mechanism, the operating shaft 7 for said mechanism, and the operating arm 8 extending fixedly from the shaft 7. The rod 6 is adapted to be connected to the railroad switch in the usual well known manner, and to be operated by the switch stand to move the switch to either the open or the closed position when the switch-operating arm 8 is moved about the axis of the shaft 7 in the direction of the arrow from the side of the switch stand shown in the drawing to the opposite side thereof, or from said opposite side back to the position shown.

The construction and operation of the

switch stand are common and well known, and no detailed description or illustration thereof is deemed necessary herein.

The arm 8 is moved vertically to give the shaft 7 a half turn, and the arm 8 comes to rest in a horizontal position on one side or the other of the shaft 7; and when the arm 8 is at rest on one side of the shaft, the switch is in one of its two positions, and when the arm 8 is at rest on the other side of the shaft 7 the switch is in the other of its two positions.

It is desirable to lock the operating arm 8 and perforce the operating mechanism of the switch stand in either of the two horizontal positions to which the arm 8 is moved in setting the switch; we therefore place our improved latch device 9 to receive and retain the operating arm 8 in each of the two horizontal positions to which it is moved. One latch device 9 is placed upon the cross tie 3 on one side of the switch stand 2, and the other latch device is placed upon the cross tie 3 on the other side of the switch stand 2, and each latch device 9, in its preferred form is of the following construction:—The main body or support of the latch device comprises a vertically extending body portion 10 and horizontally extending base portions 11, 11, and 12. The base portions 11, 11, extend from one side of the body portion in spaced relation to each other, and the base portion 12 extends from the other side of the body portion between the base portions 11, 11. The upper portion of the body portion 10 is made narrower than the lower portion thereof, for a purpose hereinafter explained, thus providing a shoulder or supporting part 13 to receive and support the operating arm 8 when it is moved into engagement with the latch device.

The latch devices 9, 9, are placed upon the cross ties 3, 3, so that the body portion 10 of each latch device will extend at right angles to the operating arm 9, and so that one vertical edge of each body portion 10 will be adjacent the path of movement of the arm 8 when it is moved from side to side of the switch stand, thus bringing the part 13 of each body portion 10 into position to receive and support the operating arm 8 in either of its two positions.

Arranged upon the body portion 10 of each device is a latch member 14, which is

pivoted thereto as at 19, and comprises a horizontal arm 15, an arm 16 extending upwardly from one end of the arm 14 on one side of the path of movement of the operating arm 8, and another arm 17 extending upwardly from the arm 14 on the other side of the path of movement of the operating arm 8, and adjacent the body portion 10; the upper end of the arm 17 being provided with a hook 8 adapted to engage and retain the operating arm 8 as will be hereinafter explained.

When the latch member 14 is in normal position, the horizontal arm 15 thereof rests by gravity upon one of the base portions 11, due to its weight and the weight of the arm 16. In this normal position of the latch member 14, the top of the arm 15 is in the same plane or below the top of the supporting part 13, of the body portion 10, and the hook 18 extends into the path of movement of the operating arm 8, whereby, when the hook 18 is moved out of the path of movement of the operating arm 8, as shown in Fig. 5, the top of the arm 15 will be raised into the path of movement of the operating arm 8, and when the arm 15 is lowered out of the path of movement of the operating arm 8, the hook 18 will be moved back into said path as shown in Figs. 4 and 6.

The distance between the top of the support 13 and the bottom of the hook 18 is substantially equal to or greater than the vertical dimensions of the arm 8 when in the horizontal position; and the top of the hook 18 is beveled, as shown, whereby, when the operating arm 8 is lowered into engagement with the latch device 9 as shown in Figs. 4, 5, and 6, the arm 8 will first engage the beveled top of the hook 18 and move the hook back out of the path of movement of the arm 8, as shown in Fig. 5, and at the same time raise the arm 15 above the support 13 and into the path of movement of the arm 8. As the arm 8 completes its downward movement to its position upon the support 13, it engages the top of the arm 15 and moves it downwardly, thereby moving the hook 18 back into the path of movement of the operating arm 8, and into a position extending over said arm, whereby it will engage the operating arm 8 and prevent its vertical movement to change the position of the switch. When, however, it is desired to change the position of the switch, the arm 18 may be engaged by hand to move the hook 18 back from its position above the arm 8, whereupon the arm 8 may be raised to change the position of the switch.

The upper end of the body portion 10 is bent laterally and downwardly as at 20 in a manner to inclose the upper end of the arm 17, thus increasing the strength and durability of the device by retaining the upper end of the arm 17 of the latch member 14 in

proper working relation with the body portion 10.

The body portion 10 is provided with a suitable stop projection 21 which is adapted to engage and limit the movement of the latch member 14 when the hook 18 is acted upon by the operating arm 8 to move the hook out of the path of movement of the operating arm.

The body portion 10 is provided with a hole 22 located adjacent the arm 17 for the reception of a lock which may be applied to the device to prevent the movement of the latch member 14 to release the operating arm 8 when it is engaged by the hook 18.

The main support or body portion of the latch device is preferably made from a single piece of sheet metal, and in Fig. 7 we have shown a strip of sheet metal 26 and indicated thereon the manner of cutting blanks therefrom without waste of material, which blanks are used in constructing the main supports or body portions of the latch device. The right hand end of Fig. 7 shows a blank 23 cut from the strip of metal on the line 24 following the cutting of a similar blank from the strip on the line 25. Blanks similar to the blank 23 are cut from the strip 26 in reverse order, as indicated by the dot-and-dash lines 27. Thus it will be seen that no metal is wasted in the operation of cutting the blanks.

The blank 23 is cut on the lines 28 and 29 to form the base portions 11, 11, and 12, and the base portions 11, 11 are bent on the two-dot-and-dash line 30 to extend horizontally on one side of the remainder of the blank which forms the body portion 10, while the other base portion 12 is bent on the two-dot-and-dash line 30 to extend horizontally on the other side of the body portion 10. The top of the body portion 10 is bent laterally and downwardly to inclose the latch member 14 as indicated at 20 in Fig. 3.

The base portions 11, 11, and 12 have suitable holes 31 stamped therein for the reception of spikes as a means for securing the latch device to a railroad cross tie. The projection 21 is preferably formed by stamping it up from the body of the blank.

By making the upper part of the body portion 10 of the support narrower than the lower portion thereof we are enabled to produce blanks from a strip of sheet metal in reverse order as previously explained, without any waste of material, and at the same time properly distribute the metal throughout the device for the required strength thereof.

We claim:—

1. The combination with the movable operating arm of a railroad switch stand, of a latch device for said arm comprising a support having a supporting surface located to receive said arm, a latch member

pivoted to said support and having an arm-retaining hook extending into the path of movement of said arm, said member having also a part arranged below said surface and movable to a position above said surface when said projection is moved out of said path.

2. The combination with the movable operating arm of a railroad switch stand, of a latch device for said arm comprising a support, a latch member pivoted to said support and having an arm-retaining hook provided with a cam face and extending normally into the path of movement of said arm, the pivot of said member and said cam face being so arranged with respect to said arm that said arm in its downward movement will act upon said cam face and move said hook out of the path of the arm, and said member having also a part arranged to move into the path of movement of said arm when said hook is moved out of said path.

3. The combination with the movable operating arm of a railroad switch stand, of a latch device for said arm comprising a support, a latch member pivoted to said support and having a horizontal portion below the path of movement of said arm and a vertical portion on one side of said path and provided with an arm-retaining hook extending normally into said path, and an upwardly extending portion on the other side of said path, said horizontal portion and said hook being so disposed with relation to each other that the movement of one from the path of movement of said arm will move the other into said path.

4. The combination with the movable operating arm of a railroad switch stand, of a latch device for said arm comprising a support and an arm-engaging latch member pivoted thereto, said support being formed of a single piece of sheet metal shaped and bent to form a vertically extending body portion and a supporting base therefor, said body portion having a bent portion inclosing a part of said member.

5. The combination with the movable operating arm of a railroad switch stand, of a latch device for said arm comprising a support and an arm-engaging latch member pivoted thereto, said support being formed of a single piece of sheet metal shaped and bent to form a vertically extending body

portion and horizontally-extending base portions extending from the body portion on each side thereof.

6. The combination with the movable operating arm of a railroad switch stand, of a latch device for said arm comprising a support and an arm-engaging latch member pivoted thereto, said support being formed of a single piece of sheet metal shaped and bent to form a vertically-extending body portion, a pair of base portions extending horizontally from one side of the body portion and a base portion extending horizontally from the other side of the body portion between said pair of base portions.

7. The combination with the movable operating arm of a railroad switch stand, of a latch device for said arm comprising a support and an arm-engaging latch member pivoted thereto, said support being formed of a single piece of sheet metal shaped and bent to form a vertically-extending body portion, a pair of base portions extending horizontally from one side of the body portion and a base portion extending horizontally from the other side of the body portion between said pair of base portions, the upper portion of said body portion being narrower than the lower portion thereof.

8. The combination with the movable operating arm of a railroad switch stand, of a latch device for said arm comprising a support and an arm-engaging latch member pivoted thereto, said support being formed of a single piece of sheet metal shaped and bent to form a vertically-extending body portion, a pair of base portions extending horizontally from one side of the body portion and a base portion extending horizontally from the other side of the body portion between said pair of base portions, the upper portion of said body portion being narrower than the lower portion thereof, and the upper end of said body portion having a bent portion inclosing a part of said member.

In testimony whereof, we have hereunto affixed our signatures.

CHARLES W. REINOEHL.
CHARLES W. LONG.

Witnesses:

B. S. WEAVER,
WM. R. MILLER.