

R. K. REX.
SAFETY SIGNAL SWITCH STAND.
APPLICATION FILED MAR. 22, 1912.

1,042,969.

Patented Oct. 29, 1912.

Fig. 3.

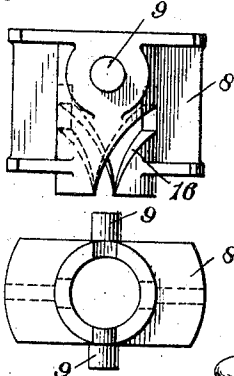


Fig. 1.

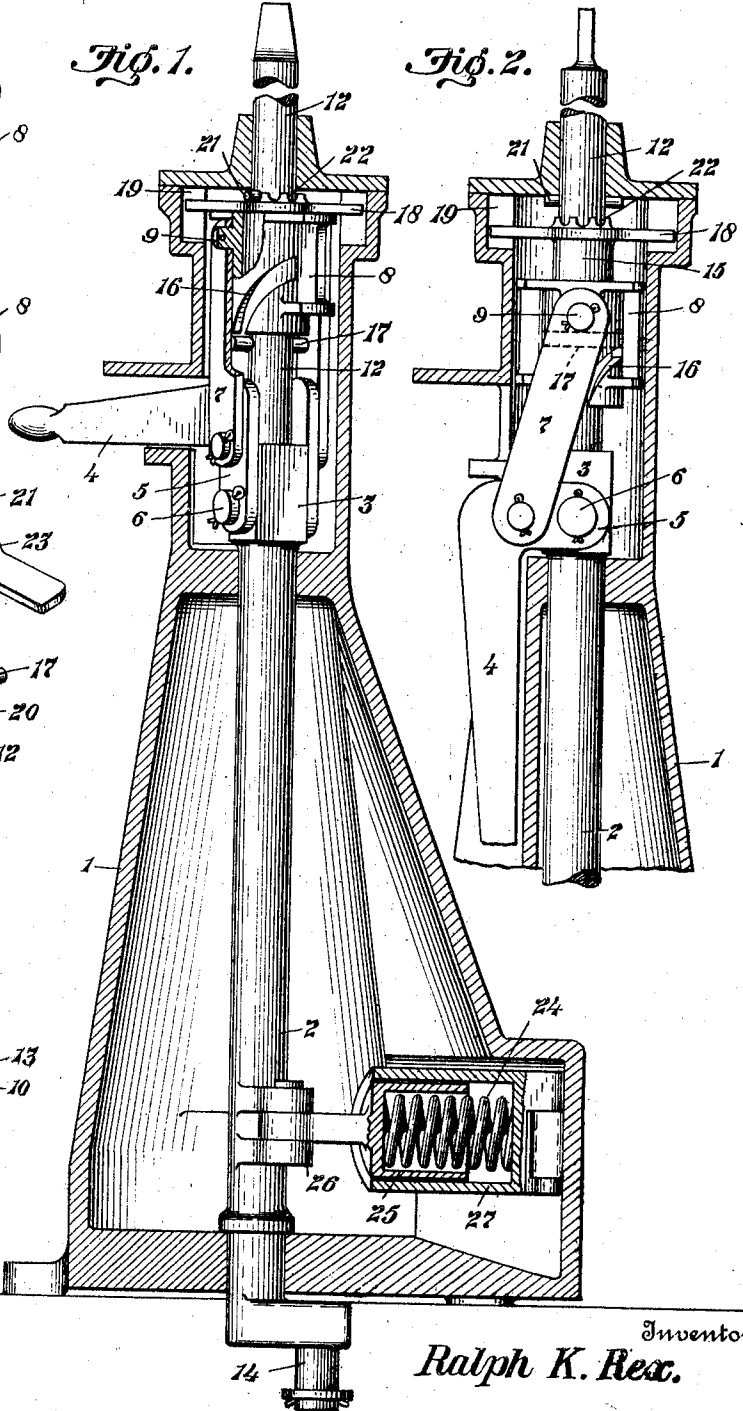


Fig. 2.

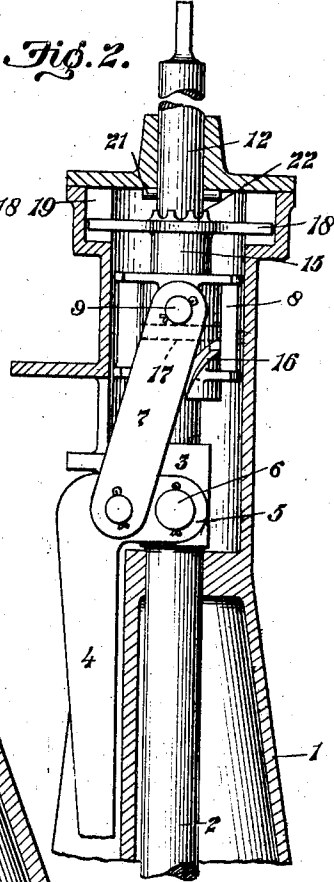


Fig. 4.

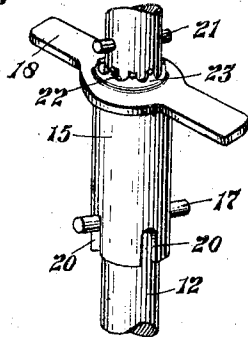


Fig. 5.

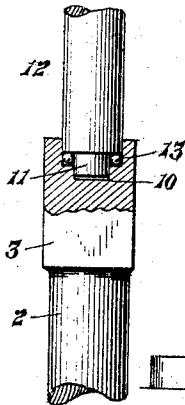


Fig. 6.

Witnesses

J. H. Bishop.
Sylvia Boron.

Inventor
Ralph K. Rex.

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Bond & Miller

Attorneys

UNITED STATES PATENT OFFICE.

RALPH K. REX, OF CLEVELAND, OHIO.

SAFETY SIGNAL-SWITCH STAND.

1,042,969.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, RALPH K. REX, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Safety Signal-Switch Stands, of which the following is a specification.

My invention relates to improvements in safety signal switch stands in which the switch proper is actuated and the signals brought into proper position with reference to the position of the switch.

The objects of the present invention are first, to provide means whereby the switch is operated by the horizontal movement of the switch actuating lever and the signals actuated by the vertical movement of the switch lever, and second, to actuate the signals after the switch has been properly opened or closed. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section showing the different parts properly arranged with reference to each other and the switch actuating lever in position to actuate the switch point. Fig. 2 is a view showing a portion of the switch stand and illustrating the switch lever in its lowered position. Fig. 3 is a side elevation of the signal actuating head. Fig. 4 is a bottom plan view of the signal actuating head. Fig. 5 is a view showing a portion of the signal actuating shaft and the sliding sleeve or head and lock disk. Fig. 6 is a view showing the top or lower end of the signal actuating shaft, and the top or upper end of the switch point actuating shaft, its head and illustrating the two shafts pivotally connected together.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

In the accompanying drawing, 1 represents the switch stand which may be of the ordinary construction reference being had to the proper arrangement of the various parts designed to be carried and used in connection with the switch stand. The switch stand is supported at one side of the railway track and is held in fixed position in any well known manner. Within the stand 1 is located the vertical switch-bar actuating shaft 2, which shaft is provided at its top or upper end with the head 3 to which

head is pivotally attached the switch point and signal actuating lever 4 by means of the plates 5, which plates are located at substantially right angles to the switch actuating lever 4, said plates being pivotally connected to the head 3 by means of the cross pin 6. To the plates 5 are pivotally connected the links 7, which links extend upward and their tops or upper ends pivotally connected to the signal actuating head 8 by means of the cross pin or bolt 9. The head 3 located upon the top or upper end of the switch actuating shaft 2 is provided with a socket 10, which socket is for the purpose of receiving the journal bearing 11 formed upon the bottom or lower end of the signal actuating shaft 12.

For the purpose of reducing the friction as between the head 3 and the signal actuating shaft 12, ball bearings 13 may be provided. When it is desired to actuate the switch point the lever 4 is moved in a horizontal plane, which movement rocks the switch point actuating shaft 2 and by means of the crank 14 located at the bottom or lower end of the switch actuating shaft 2, to which crank is pivotally connected a switch actuating bar of the ordinary construction. The bar designed to actuate the switch point is not illustrated as it forms no specific part of the present invention. After the lever 4 has been moved in a horizontal plane a sufficient distance to properly set the switch point, said lever is moved downward in a vertical plane, which downward movement carries with it the head 8, said head being slidably mounted upon the sleeve 15. As the head 8 is moved down it imparts a rocking movement to the signal actuating shaft 12 by means of the cam-slots 16, and the cross pin 17, which cross pin is secured to the signal actuating shaft 12. The location of the cams 16 and the pins 17 being in such relationship with reference to each other that the cross pin 17 will enter the cam slots 16 when the head 8 is brought into position to be drawn downward to actuate the signal shaft 12 but the signal shaft 12 is not rotated until the switch point has been properly set so that in use the wrong signal cannot be given, owing to the fact that the two movements of the switch lever 4 are for this purpose, one to actuate the switch point and the other to actuate the signal and the movements of the switch lever being in different direc-

tions; that is to say one movement being in a horizontal plane and the other in a vertical plane.

To the top or upper end of the sleeve 15 is connected in any convenient and well known manner the bar or head 18, the ends of which are located in the guides or ways 19 formed in the top or upper end of the switch stand proper and when the switch lever 4 is lowered together with the head 8 the sleeve 15 and the cross bar or head 18 are free to fall by gravity sliding downward upon the signal shaft 12 and for the purpose of locking the signal shaft 12 against rotation after it has been properly actuated to set the signal the bottom or lower end of the sleeve 16 is provided with the slots 20 into which slots the cross pin 17 enters, thereby locking the signal shaft 12 against rocking movement by reason of the sleeve being locked against rotation by means of the head or cross bar 18 being seated in the guide ways 19. When the switch actuating lever 4 is moved upward it carries with it the head 8 which in turn carries the sliding sleeve 15 by reason of the head 8 coming in contact with the underside of the cross head or bar 8 and for the purpose of locking the signal shaft 12 against rotation after the head 8 is moved upward the signal shaft 12 is provided with the cross pin 21, which cross pin is seated in the proper notches 22 formed in the annular flange 23, which annular flange is preferably formed integral with the head or cross arm 18.

It will be understood that by my peculiar arrangement the signal shaft 12 is locked against rotation except at such times as it is desired to actuate the signal shaft to give the proper signal. When the lever 4 is moved in a horizontal direction the first half of this movement compresses the spring 24 by means of the plunger 25 being actuated or moved toward the spring by means of the arms 26 which are extended from the switch shaft 2, said spring being compressed by the movement of the switch bar 2 but after the switch bar 4 has been thrown over its center the spring 24 will be released and the tension stored in the spring be exerted to force the plunger toward the switch shaft 2, thereby insuring the full horizontal movement of the lever 4 and at the same time assisting in removing said lever. The plunger 25 is guided in the housing 27, one end of said housing constituting an abutment from one end of the spring 24.

Having fully described my invention what I claim as new and desire to secure by Letters Patent, is—

1. In a switch stand, the combination of a switch stand, a switch point actuating shaft journaled in the switch stand, an actuating lever pivotally connected to the up-

per portion of the switch point actuating shaft, links pivoted to the actuating lever at points above the pivotal points of said lever, a sliding head located above the switch shaft and the tops or upper ends of the links pivotally connected to said head, a signal shaft adapted to support a signal, said signal shaft journaled in the switch actuating shaft and means for rotating the signal shaft by the downward movement of the head, substantially as and for the purpose specified.

2. In a switch stand, the combination of a switch stand, a switch point actuating shaft journaled in the switch stand, an actuating lever pivotally connected to the upper portion of the switch point actuating shaft, links pivoted to the actuating lever at points above the pivotal points of said lever, a sliding head located above the switch shaft and the tops or upper ends of the links pivotally connected to said head, a signal shaft adapted to support a signal, said signal shaft journaled in the switch actuating shaft, means for rotating the signal shaft by the downward movement of the head, and means for locking the signal shaft against rotation, substantially as and for the purpose specified.

3. In a switch stand, the combination of a switch stand, a switch point actuating shaft journaled in the switch stand, an actuating lever pivotally connected to the upper portion of the switch actuating shaft, links pivoted to the actuating lever, a sliding head, said links pivoted to said sliding head, a signal shaft journaled in the top or upper end of the switch actuating shaft, a sleeve slidably mounted upon the signal shaft, said sleeve provided at its top or upper end with a cross head and recessed flange, and at its bottom or lower end with slots, pins fixed to the signal shaft, one of said pins adapted for engagement with the slots at the lower end of the sliding sleeve and the other pin adapted for engagement with the recesses located at the top or upper end of the sleeve, substantially as and for the purpose specified.

4. In a switch stand, the combination of a switch stand, a switch point actuating shaft journaled in the switch stand, an actuating lever pivotally connected to the upper portion of the switch actuating shaft, links pivoted to the actuating lever, a sliding head, said links pivoted to said sliding head, a signal shaft journaled in the top or upper end of the switch actuating shaft, a sleeve slidably mounted upon the signal shaft, said sleeve provided at its top or upper end with a cross head and recessed flange, and at its bottom or lower end with slots, pins fixed to the signal shaft, one of said pins adapted for engagement with the slots at the lower end of the sliding sleeve and the other pin adapted for engagement with the recesses

located at the top or upper end of the sleeve, and cam-slots located in the head adapted to rock the target shaft, substantially as and for the purpose specified.

5 5. In a switch stand, the combination of a switch stand, a switch point actuating shaft journaled in the switch stand, an actuating lever pivotally connected to the upper end of the switch lever actuating shaft, a signal
10 shaft journaled at its bottom or lower end in the top or upper end of the switch point actuating shaft, a sliding head and a sliding sleeve located upon the signal shaft, links pivotally connected to the actuating
15 lever and the sliding head respectively, pins connected to the signal shaft, slots and re-

cesses located at the top and bottom ends of the sliding sleeve, said pins adapted for engagement with the slots and recesses, cam-slots located in the sliding head adapted to
20 rock the signal head, a spring adapted to be compressed by the rocking movement of the switch point actuating shaft and means for compressing the spring, substantially as and
25 for the purpose specified.

In testimony that I claim the above, I have hereunto subscribed my name in the presence of two witnesses.

RALPH K. REX.

Witnesses:

H. W. CRANKSHAW,
LUCILE PETER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."