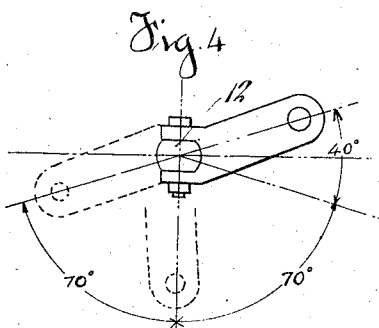
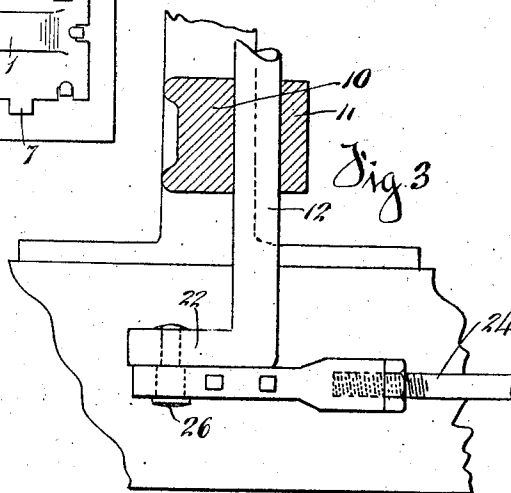
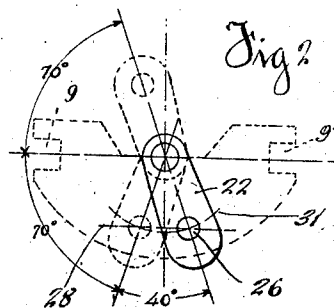
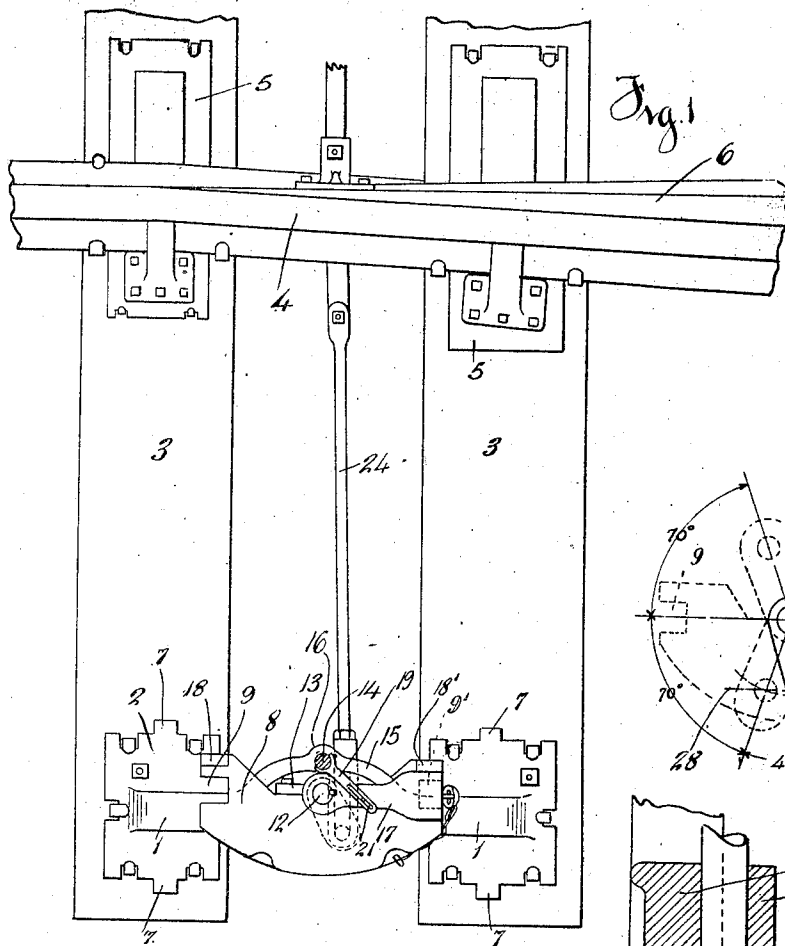


F. C. ANDERSON.
 SWITCH STAND.
 APPLICATION FILED FEB. 23, 1911.

1,008,003.

Patented Nov. 7, 1911.

2 SHEETS—SHEET 1.



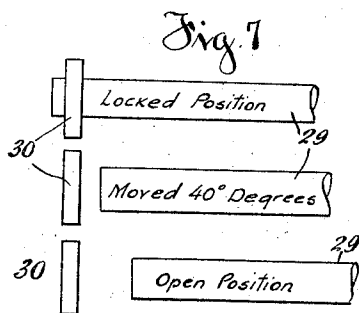
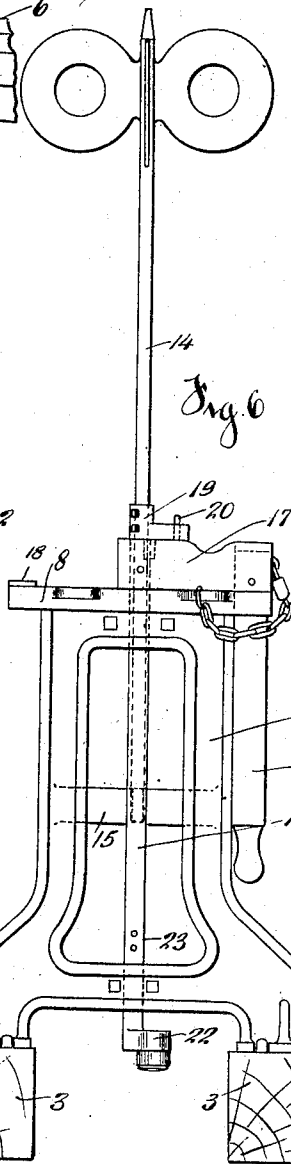
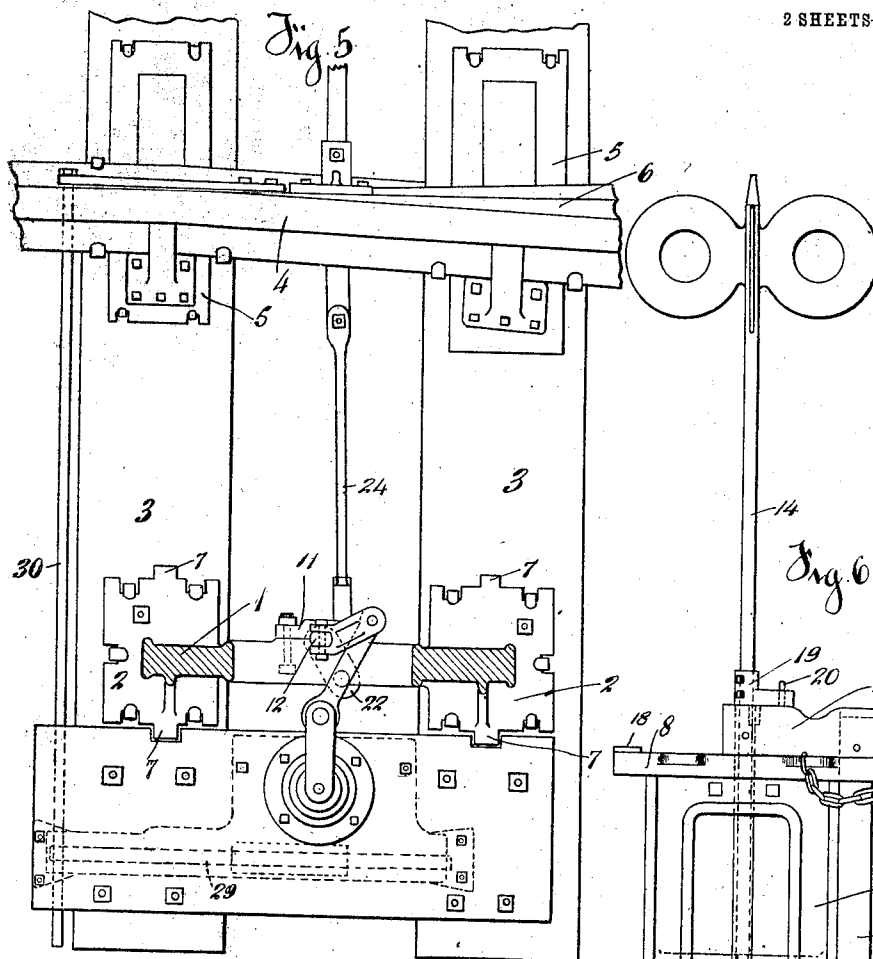
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

FRANK C. ANDERSON, OF CINCINNATI, OHIO, ASSIGNOR TO THE AMERICAN VALVE & METER COMPANY, OF CINCINNATI, OHIO, A CORPORATION OF OHIO.

SWITCH-STAND.

1,008,003.

Specification of Letters Patent.

Patented Nov. 7, 1911.

Application filed February 23, 1911. Serial No. 610,303.

To all whom it may concern:

Be it known that I, FRANK C. ANDERSON, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Switch-Stands, of which the following is a specification.

My invention relates to improvements in switch stands of the 180 degree throw or skeleton type, and more particularly to the position and arrangement of the crank and pin of the operating shaft relatively to the track, to the fulcrum head of the operating shaft and to the movement of the crank pin relatively to the track as shown in my co-pending application, Serial No. 594,465.

The object of my invention is to construct and arrange a switch stand of the ordinary 180 degree throw type in such a manner that the switch stand can be installed and operated independently of switch interlocking mechanism and operate to throw the switch points and target in the usual manner, and which is adapted to engage and operate switch interlocking mechanism which may be installed either simultaneously with or subsequently to the installation of said switch stand, and connected to said switch stand and operated thereby in such a manner as to operate the switch interlocking mechanism, switch points and target at a single operation of the operating lever.

Another object of my invention is to so construct and arrange the crank and crank pin of the operating shaft of the switch stand of the ordinary 180 degree throw skeleton type that the switch interlocking mechanism, switch points and target will all be operated when the switch is being thrown to open or closed position, by a single throw of the operating lever.

Heretofore switch stands of the usual 180 degree throw type have been constructed and arranged with the crank set at right angles to the track when the switch is in either open or closed position, and when so arranged, it has been impossible to operate interlocking mechanism in connection with the switch stand by a single operation of the operating lever without an entirely different type of switch stand, consisting of one or more levers and various combinations of mechanism. It has also been impossible to operate interlocking mechanism in connection with a switch stand constructed in the

usual manner, except by separate means, such as a foot treadle or lever for operating the interlocking mechanism independently of the operation of the switch stand, thus requiring two operations by the operator in opening the switch. Thus when switch stands of the 180 degree throw type were installed, it was impossible to install therewith interlocking mechanism which could be operated in connection with said stand by a single operation of the throwing lever but an additional lever or foot treadle, and an additional operation to operate the interlocking mechanism would be required. It will, therefore, be seen that I provide means whereby the ordinary switch stand of this type may be utilized and installed and operate the switch in the usual manner, either separately or in connection with interlocking mechanism, as desired, thus permitting the installation of the switch stands and interlocking mechanism at different times if desired and still be enabled to operate the interlocking mechanism and switch stand by one operation of the throwing lever.

My invention consists in providing a switch stand of the ordinary 180 degree throw skeleton type, having an operating shaft with a crank thereon, with a crank pin on said crank set in such a manner relative to a line drawn centrally through the operating shaft at right angles to the track that said crank pin will move across said line in an arc of a circle or in a direction substantially parallel with the track sufficiently to operate interlocking mechanism before the movement of said crank pin throws the switch points to open position.

My invention also consists in the peculiar construction, combination and arrangement of parts as herein set forth and claimed.

In the accompanying drawings which serve to illustrate the construction, arrangement, application and use of my invention: Figure 1 is a plan view of a switch stand equipped with my invention and installed separately and independently from switch interlocking mechanism. Fig. 2 is a diagrammatic view illustrating the peculiar positioning or arrangement of the crank and crank pin of the operating shaft with relation to the switch stand. Fig. 3 is a side elevation partly in section showing a preferred means of connecting the crank pin to the

switch points. Fig. 4 is a diagrammatic view showing means for connecting the operating shaft with interlocking mechanism. Fig. 5 is a plan view similar to Fig. 1, but showing interlocking mechanism adapted to be operated by my invention, in connection with the switch stand by one operation of the operating lever. Fig. 6 is a front elevation of the switch stand of the ordinary 180 degree throw skeleton type, the crank pin being shown set off of a line drawn centrally through the operating shaft at right angles to the track. Fig. 7 is a diagrammatic view showing the different positions of the interlocking plunger in relation to the interlocking bar during the operation of the switch with my invention.

The switch stand 1, which is of the high or skeleton type, is provided with feet 2, spiked to ties 3 at one side of the switch. The main or stock rails 4 of the track are mounted in the usual manner upon plates 5, which are fastened upon ties 3, and upon which the point rails 6 are adapted to slide into and out of engagement with the stock rails 4 in opening and closing the switch. The feet 2 of the switch stand are provided with lugs 7, which are adapted to coincide with slots in the attachments which may be used in connection with the switch stand, such for instance, as interlocking mechanism shown in Fig. 5. The switch stand 1 has a top plate 8, provided with slots 9 and 9' and is of the usual construction of switch stands of the 180 degree type. It is provided with a cross brace 10 to which is fastened a strap 11 adapted to form a lower bearing for the operating shaft 12 of the switch stand. Another strap 13 is fastened at the top of the switch stand, and forms an upper bearing for the main operating shaft 12.

To form a suitable lower support for the target shaft 14, I provide a cross supporting arm 15, formed integral with the switch stand, and provided with an enlarged central portion 16 to receive the target shaft 14.

The main operating shaft 12 is provided with the usual fulcrum head 17 on the top of the switch stand top plate 8, to which is pivoted the operating lever 25 in the usual manner. The fulcrum head 17 is adapted to abut against the stops 18 and 18' provided on opposite sides of the top plate 8.

The target shaft 14 is adapted to be thrown 90 degrees when the operating shaft is being thrown 180 degrees. This is accomplished in the usual way, by means of a target shaft operating arm 19, securely fastened to the target shaft, and extending over the fulcrum head 17. The fulcrum head is provided with a stud 20 on the top thereof adapted to engage a slot 21 in the target shaft operating arm 19.

My invention which I add to a switch stand will now be described. The bottom

end of the operating shaft 12 is provided with a crank 22, which may be either formed integral with the operating shaft 12 or otherwise fastened securely thereon. The crank pin 26 on said crank when in its normal position, (that is when the switch is closed) will set five or more degrees off of a line drawn centrally through the operating shaft at right angles to the track, and is adapted to move across said line when the switch is thrown to open position. Suitable holes 23 shown in Fig. 6, are preferably provided in the operating shaft 12 just above the support 10, for the operating shaft of the switch, thus providing suitable means whereby interlocking mechanism or safety mechanism may be connected to the switch stand at any time, to be operated by said operating shaft in connection with the switch stand, by means of my invention. The connecting rod 24 is preferably provided with an adjustment and adapted to engage the crank pin 26 in the usual manner for operating the switch.

Referring now particularly to Fig. 2, the normal position of the crank 22 is shown in solid lines. The distance from its normal position to its first dotted line position shown is equal to 40 degrees, and the distance from its solid line position to its farthest most dotted line position is 180 degrees, thus coinciding with the distance that the fulcrum head 17 is adapted to move, the fulcrum head also being rigidly secured upon the operating shaft 12. In Fig. 2 an arc is shown drawn from the center line of said pin 26 to the same center shown in its first dotted line position, and a straight line, is drawn between the centers forming a chord 28 across the arc. This is done to illustrate the slight distance that the point rail would be sprung while the crank 22 is being moved from the first position shown in solid lines to the first dotted line position, and as a rule, the connections of the operating rod and the connections between the operating rod and the point rails will imperceptibly yield that amount without injuriously affecting or springing the connections. It is evident that when the crank 22 has reached its first dotted line position, that the point rails then begin to move away from the stock rail. As the movement of the crank is continued the point rails continue to move outwardly until the crank has reached its extreme position, shown in dotted lines, amounting to 140 degrees from its first dotted line position, or 180 degrees from its first position which is shown in heavy lines. The fulcrum head 17 during this movement of said crank pin has moved 180 degrees from slot 9 in the top plate 8 to the other slot 9' diametrically opposite.

While I have shown the crank pin disposed at an angle of 20 degrees off of a 134

line drawn centrally through said operating shaft at right angles to the track, I do not wish to be limited to this exact angle, but the same can be varied to suit the convenience of the particular connecting mechanism for the attachments.

The distance of the throw of the switch points is determined by the relative distance of the center of the crank pin with the center of the operating shaft, for with my invention the point rails are operated by a movement of 140 degrees of the crank pin.

In Fig. 6 I have shown the movements of an interlocking plunger 29 with relation to an interlocking bar 30 when operated with my invention, and from which it will be seen that the plunger is withdrawn from engagement with the interlocking bar during the first 40 degree movement of the operating crank pin substantially parallel with the track, and that it remains disengaged from said interlocking bar during the remaining movement of 140 degrees to open the switch, and will not reengage the interlocking bar until the switch has been thrown to closed position.

I claim:

1. In a switch stand, a vertical operating

shaft adapted to move more than 90 degrees, a switch operating crank thereon having a crank pin set at an angle to a line passing through said operating shaft at right angles to the track when the switch is in either open or closed position, said crank pin being adapted to move across said line when the switch is thrown from one position to another, a throwing or operating lever adapted to be thrown more than 90 degrees, and means for operatively connecting said crank to the point rails of a switch, for the purposes set forth.

2. In a switch stand, an operating shaft with a crank thereon, a crank pin on said crank, set off of a line drawn centrally through said operating shaft at right angles to the track, and connected to the point rails of a switch, and means for operating said shaft to throw said crank pin across said line in an arc of a circle or on a line substantially parallel with the track without moving the point rails to open position, substantially as and for the purposes specified.

FRANK C. ANDERSON.

Witnesses:

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WINONA DOAN.