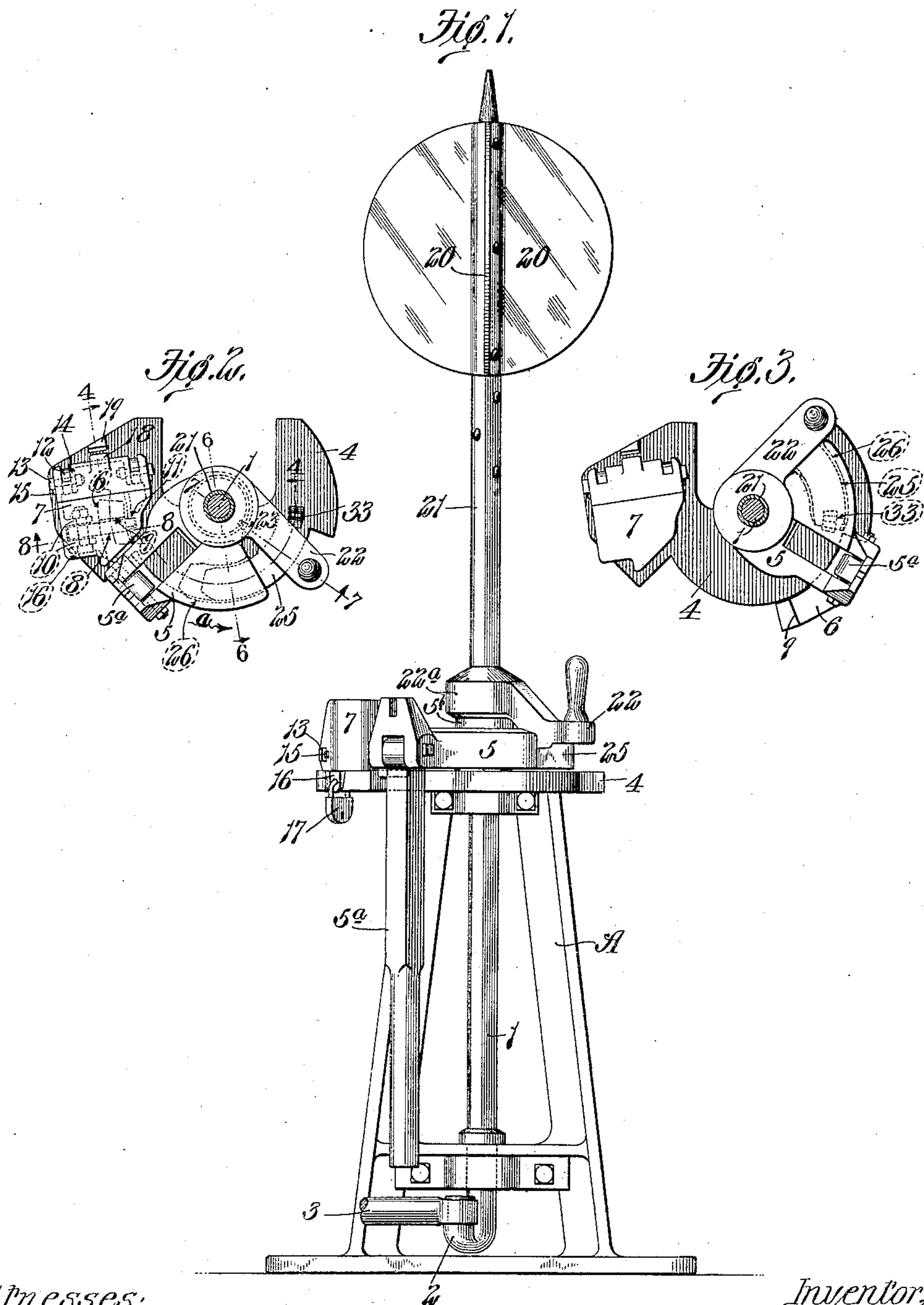


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H. F. ROACH.
SWITCH STAND.
APPLICATION FILED NOV. 2, 1908.

Patented Aug. 3, 1909.
3 SHEETS—SHEET 1.



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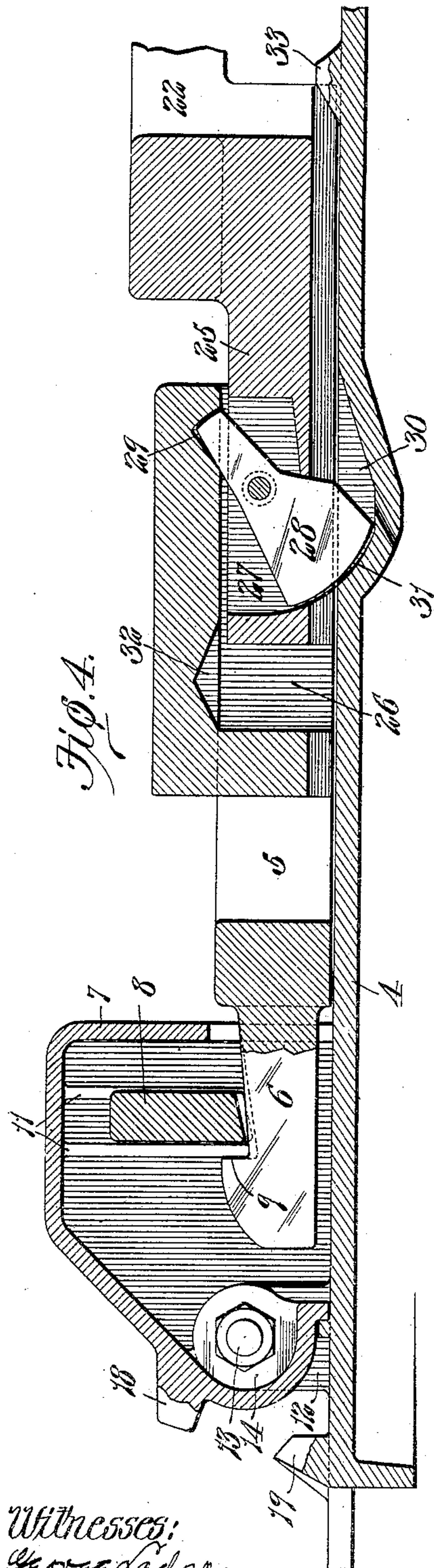


Fig. 4.

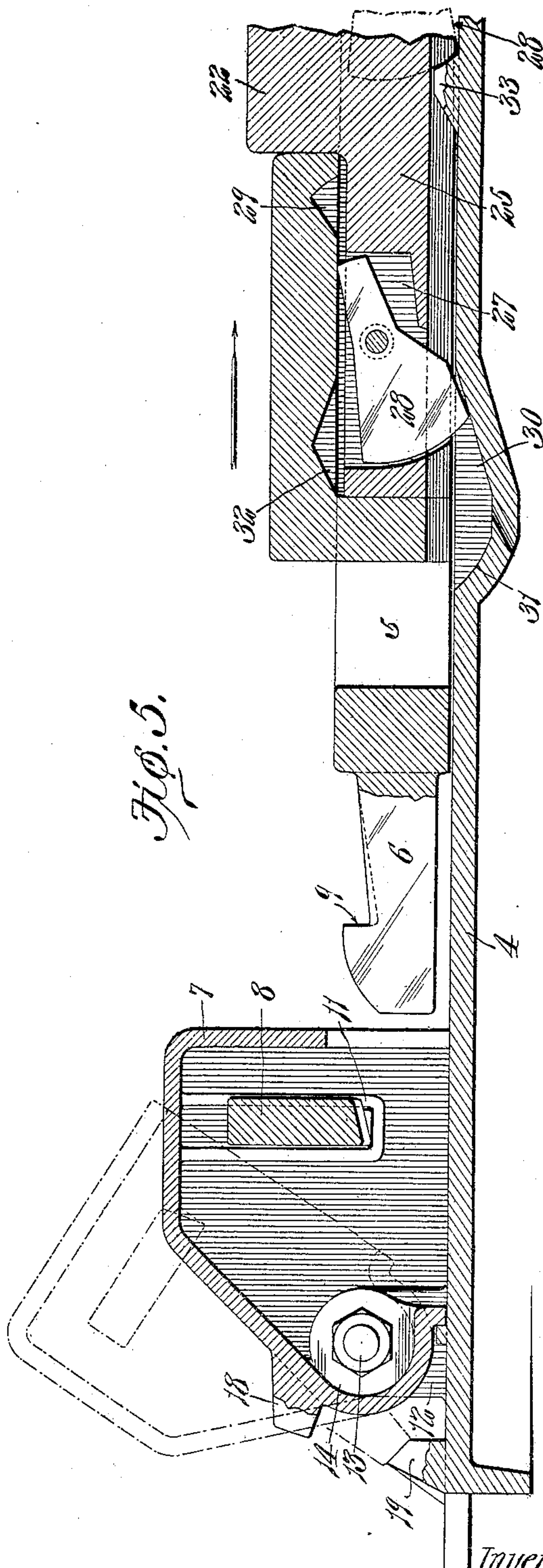


Fig. 5.

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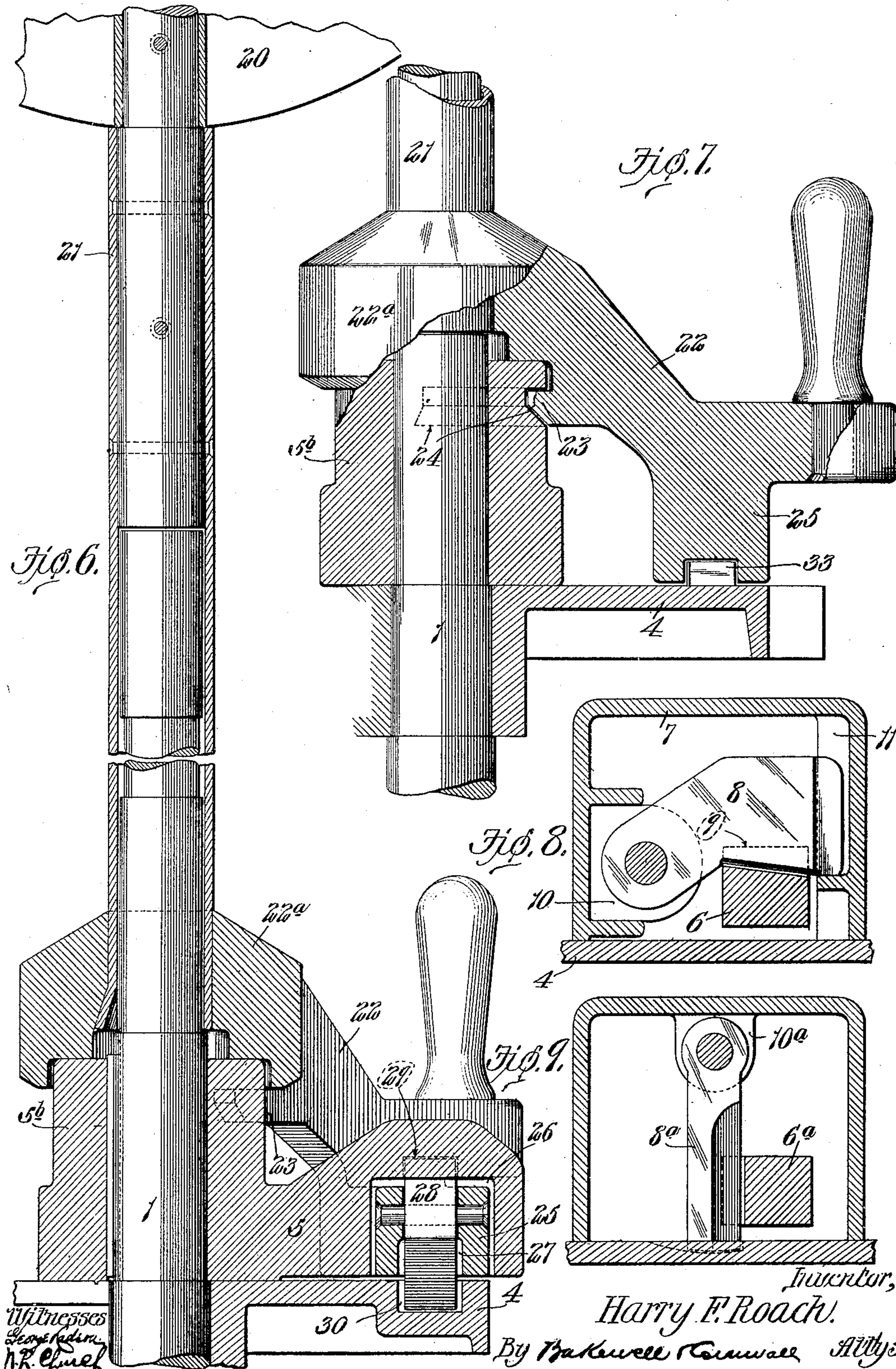
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3 SHEETS—SHEET 3.

929,881.



UNITED STATES PATENT OFFICE.

HARRY F. ROACH, OF ST. LOUIS, MISSOURI, ASSIGNOR TO CONTINUOUS RAIL & SAFETY SWITCH CO., OF ST. LOUIS, MISSOURI, A CORPORATION OF NEW JERSEY.

SWITCH-STAND.

No. 929,881.

Specification of Letters Patent.

Patented Aug. 3, 1909.

Application filed November 2, 1908. Serial No. 460,696.

To all whom it may concern:

Be it known that I, HARRY F. ROACH, a citizen of the United States, residing at St. Louis, Missouri, have invented a certain new and useful Improvement in Switch-Stands, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to switch-stands, and particularly to switch-stands that are used with automatic switches.

One object of my invention is to provide a switch-stand having improved means for automatically locking the switch-point operating member when it arrives in a certain position, and means for preventing an unauthorized person from releasing said member and shifting the switch-points.

Another object is to provide a switch-stand of the character above described which is so constructed that the signal will move into one position when the switch-points are shifted to open the siding and then remain locked in this position when the switch-points return automatically to their normal position to close the siding, thereby requiring some operative of the road to manually restore the signal to its normal position to indicate that the siding is closed after a train has passed through the switch. And still another object of my invention is to provide a switch-stand having a switch-point operating member and a signal operating member, and improved means for automatically locking said members and preventing an unauthorized person from operating either of them.

Other objects and desirable features of my invention will be hereinafter pointed out.

Figure 1 is an elevational view of a switch-stand constructed in accordance with my invention; Fig. 2 is a top plan view of the switch-stand showing the switch-point operating lever and the signal-operating lever in normal position; Fig. 3 is a view similar to Fig. 2 showing the switch-point operating lever and the signal-operating lever in a different position; Fig. 4 is an enlarged vertical sectional view taken on the line 4—4 of Fig. 2; Fig. 5 is a similar view showing the switch-point operating lever and the signal-operating lever moved out of their normal position;

Fig. 6 is an enlarged vertical sectional view taken on the line 6—6 of Fig. 2; Fig. 7 is an enlarged vertical sectional view taken on the line 7—7 of Fig. 2; Fig. 8 is an enlarged vertical sectional view taken on the line 8—8 of Fig. 2; and Fig. 9 is a view similar to Fig. 8 showing a modified form of my invention.

The switch-stand which forms the subject-matter of this present application is shown in connection with an automatic switch in my pending application Serial No. 460,695, filed Nov. 2, 1908.

Referring to the drawings which illustrate the preferred form of my present invention, A designates a stand or support which is adapted to be arranged adjacent a railway track and having bearings in which a vertically disposed shaft 1 is journaled, said shaft being provided at its lower end with a crank arm 2 to which a head rod or operating bar is connected by means of a link 3. A top plate 4 is connected to the upper end of the stand A, and a switch-point operating lever 5 is rigidly connected to the shaft 1 above said top plate to enable said shaft to be turned manually, said lever having a hinged extension or handle 5^a similar to the switch-point operating levers now in general use. The lever 5 is adapted to be operated manually to rotate the shaft 1 and thus shift the switch-points into position to open the siding and said switch-points are moved back to normal position to close the siding by some suitable automatic mechanism not shown. The lever 5 is provided with a rigid arm or extension 6 that projects into a housing 7 on the top plate 4 when the siding is closed, and a pivotally mounted locking device 8 is arranged inside of said housing for engaging a shoulder 9 on the arm 6 so as to lock the lever 5 in this position. The locking device 8 shown in Figs. 2, 4 and 8 is pivotally connected to ears 10 on the inner face of one of the side walls of the housing 7 and engages the shoulder 9 formed in the upper face of the arm 6, the free end of said locking device 8 being arranged between guides 11 on the inner face of the opposite side wall of said housing.

In the modified form of my invention illustrated in Fig. 9, the upper end of the locking device 8^a is pivotally connected to ears 10^a on the top wall of the housing, and said device coöperates with a shoulder or notch formed in one of the side faces of the arm or

extension 6^a on the switch-point operating lever.

In both forms of my invention the locking device is provided with a slightly beveled engaging face, and the rigid arm or extension on the switch-point operating lever has a co-operating beveled face so that the locking device will be swung on its fulcrum when it is engaged by the beveled face on the arm 6, the locking device thereafter dropping down into position to engage the notch or shoulder in said arm and thus prevent it from being withdrawn from the housing. The housing 7 is so constructed that it can be moved to disengage the locking device 8 from the rigid arm 6 on the switch-point operating lever and thus release same, and in the preferred form of my invention, as herein shown, the housing 7 is hinged or pivotally connected to lugs 12 on the top plate 4 by means of bolts 13 that pass through the side walls of the housing and through wings 14 that project inwardly from the rear wall of the housing, as shown in dotted lines in Fig. 2. The nuts which retain the bolts 13 in position, are located inside of the housing so that they cannot be removed when the housing is in its normal closed position and the side walls of the housing are provided on their outer faces with lugs 15, as shown in Figs. 2 and 3, that engage the heads of said bolts so as to prevent them from being turned.

The housing is provided with a perforated lug 16, as shown in Fig. 1, that laps over a depending flange on the top plate 4 when the housing is closed, said flange being provided with an opening that aligns with the opening in the lug 16 so that a padlock 17, or other suitable locking device, can be inserted through said lug and flange to securely lock the housing and thus prevent an unauthorized person from actuating the switch-point operating lever 5.

As shown in Figs. 4 and 5, the rear wall of the housing 7 is provided with a lug 18 that is adapted to engage a lug 19 on the top plate when the housing is raised, as shown in Fig. 5, said lugs being so proportioned that the housing cannot be thrown back far enough to permit it to remain open or in its raised position unless it is held manually. This is a desirable feature of my improved switch-stand for it eliminates the possibility of the switch-man leaving the housing open, and thus prevent the locking device 8 from engaging the arm 6 on the switch-point operating lever when the switch-points move back into position to close the siding.

The switch-stand is provided with a signal or target that consists of two different colored disks 20 arranged at right angles to each other and connected to a long tubular-shaped member 21 that surrounds the upper end of the shaft 1 which projects upwardly through the top plate of the switch-stand, as

shown in Fig. 6. This tubular-shaped member 21 is adapted to be moved relatively to the shaft 1 so that the signal can move independently of the switch-points. The signal operating lever 22 is connected to the lower end of the sleeve 21 in any suitable manner, and said lever has a hub 22^a, as shown in Fig. 6, that surrounds the upper end of the hub 5^b of the switch-point operating lever 5. Said hubs are connected together in such a manner that they can turn or rotate relatively to each other but cannot move vertically relatively to each other unless they are in a certain position. In the construction herein shown, the hub 22^a is provided with a tooth 23 that projects into a slot 24 formed in the hub 5^b, said slot being segmental-shaped so that its end walls will cooperate with the lug 23 to limit the movement of the signal operating lever 22, it being understood, of course, that the top wall of the slot 24 has a notch so as to permit the lug 23 to enter said slot when the apparatus is being assembled. The signal operating lever 22 is provided with a rigid laterally projecting arm 25 that lies approximately parallel to the top plate 4, and the switch-point operating lever is provided on its under side with a guideway 26 for receiving said arm 25 when said arms are in their normal position. The arm 25 is provided with a slot 27 in which a vertically disposed pivotally mounted pawl 28 is arranged, the upper end of said pawl cooperating with a notch 29 in the top wall of the guideway 26 in lever 5 to prevent the signal operating lever from being moved relatively to the lever 5 in one direction. The top plate of the switch-stand is provided with a recess 30 having an inclined bottom, and when the pawl 28 enters said recess its lower end abuts against the inclined end wall 31 of the recess so as to prevent the signal operating lever from being moved relatively to the lever 5 in the opposite direction. The top wall of the guideway 26 in lever 5 is also provided with a notch 32 that forms a clearance for the pawl 28 after said pawl has moved out of the recess 30 in the top plate, and the top plate is provided with a rigid stop or lug 33 behind which the pawl 28 drops when the signal operating lever 22 reaches the end of its stroke in one direction; namely, when the signal is set in position to indicate that the siding is open.

Having described the details of construction of my improved switch-stand, I will now describe the operation of same. The switch-point operating lever 5 and the signal operating lever 22 normally occupy the position shown in Fig. 2, the lever 5 being locked by the device 8 in the housing 7 at such times, and the lever 22 being locked by the pawl 28 which prevents it from being moved in either direction relatively to the lever 5. When it is desired to open the siding the switch-man,

or any other operative of the road who has a key that fits the padlock 17, removes said padlock and then lifts the housing 7 so as to disengage the locking device 8 from the arm 6 on lever 5. He then turns the lever 5 in the direction indicated by the arrow *a* in Fig. 2, to rotate the shaft 1 and thus shift the switch-points into position to open the siding. When the lever 5 comes into contact with the signal operating lever 22 it imparts movement to said lever and thus turns the tubular-shaped member 21 so as to set the signal 20 in position to indicate that the siding is open, the pawl 28 in the arm 25 of lever 22 being gradually withdrawn from the recess 30 in the top plate as the lever 25 moves over said top plate. When the pawl 28 comes into engagement with the rigid stop 33 on the top plate it will swing upwardly on its fulcrum and then drop into position behind said lug 33, as shown in dotted lines in Fig. 5, so as to lock the signal operating lever 22, the notch 32 in the top wall of the guideway in lever 5 permitting the pawl 28 to swing upwardly far enough to clear said stop 33. When the switch-points are moved back to normal position to close the siding by the automatic means, not shown, the lever 5 will be returned to its normal position, and when the arm 6 on said lever projects into the housing 7 on the top plate the locking device 8 will drop into position behind the shoulder 9 on said arm and thus securely lock the lever 5 in position. The siding is now closed but the signal 20 indicates that the siding is open, and, consequently, the switch-man has to restore the signal to its normal position before he leaves the switch. This is accomplished by depressing the pawl 28 so as to disengage it from the rigid stop 33 on the top plate and then manually turning the signal operating lever back to normal position, the pawl 28 dropping into the recess 30 in the top plate and into the notch 29 in lever 5 so as to securely lock said lever and also the signal in this position.

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

1. A switch-stand provided with a top plate, a vertically disposed switch-point operating shaft, a lever connected to said shaft above the top plate and provided with a laterally projecting arm, a movable housing mounted on the top plate, and a locking device arranged inside of said housing and cooperating with the arm on said lever to lock it in a certain position; substantially as described.
2. A switch-stand provided with an approximately horizontally disposed top plate, a switch-point-operating shaft projecting upwardly through said top plate, a lever securely connected to said shaft above said top plate, a hinged extension on said lever, a piv-

otally mounted housing on said top plate, a pivotally mounted locking device arranged inside of said housing, and a member on said lever that is adapted to enter said housing, said member being provided with a shoulder that is adapted to be engaged by said locking device.

3. A switch-stand provided with a top plate, a closed housing hinged to the upper side of said plate, a locking device arranged inside of said housing for engaging a switch-point operating member, and means for preventing an unauthorized person from opening said housing; substantially as described.

4. A switch-stand provided with a top plate, a hinged housing mounted on said top plate and provided with a locking device that is adapted to cooperate with the switch-point operating member, and means for preventing said housing from remaining in a raised position; substantially as described.

5. A switch-stand provided with a top plate, a hinged housing mounted on said top plate, means arranged inside of the housing for connecting it to the top plate, a locking device arranged inside of said housing and cooperating with a switch-point operating member, and means for preventing an unauthorized person from opening said housing; substantially as described.

6. A switch-stand provided with a switch-point operating member, a signal-operating member, means cooperating with the switch-point operating member to lock it in a certain position, and means for preventing the signal-operating member from being moved while the switch-point operating member is locked; substantially as described.

7. A switch-stand provided with a switch-point operating member, an independent signal-operating member, means for transmitting the movement of the switch-point operating member to the signal-operating member in one direction, and means for locking the signal-operating member so as to prevent it from moving when the switch-point operating member is returned to normal position; substantially as described.

8. A switch-stand provided with a switch-point operating member, a signal-operating member having a portion that projects into a guideway in the switch-point operating member, and a locking device on the signal-operating member cooperating with the switch-point operating member and the top plate of the switch-stand to lock the signal-operating member in a certain position; substantially as described.

9. A switch-stand provided with a top plate, a switch-point operating lever and a signal-operating lever arranged above said top plate, an arm on the signal-operating lever that projects into a guideway in the switch-point operating lever, a pivotally mounted pawl on said arm that cooperates

with a recess in said guideway and a recess in the top plate to lock the signal-operating lever in one position, and means on the top plate cooperating with said pawl for locking the signal-operating lever in a different position; substantially as described.

10. A switch-stand provided with a switch-point operating lever, a signal-operating lever, a closed housing provided with an opening that is adapted to receive a projection on the switch-point operating lever, a locking device arranged in said housing and cooperating with said projection to lock the switch-point operating lever, independent means for locking the signal-operating lever when the switch-point operating lever is locked, and independent means for locking the signal-operating lever in a different position; substantially as described.

11. A switch-stand provided with a top plate, a movable housing mounted on said top plate, means for preventing an unauthorized person from opening said housing, a locking device arranged inside of said housing, a switch-point operating lever provided with an arm that projects into said housing so as to be engaged by the locking device therein, a signal-operating lever having an extension that projects into a guideway in the switch-point operating lever, and a pivotally mounted pawl carried by said extension and cooperating with a shoulder on the top plate and a shoulder on the switch-point

operating lever to lock the signal-operating lever; substantially as described.

12. A switch-stand comprising a switch-point operating shaft, a lever connected to said shaft for turning it, a member rotatably mounted on the upper end of said shaft and provided with a signal, a lever for turning said member, mechanism for locking both of said levers so as to prevent the switch-point operating shaft and the signal member from being rotated in either direction, and independent means for locking the lever of the signal-carrying member after said lever has been released and turned into a certain position; substantially as described.

13. A switch-stand provided with a switch-point operating shaft, a lever connected to said shaft for turning it and provided with a hub having a segmental-shaped slot, a signal-carrying member rotatably mounted on the upper side of said shaft, and a lever connected to said member and provided with a tongue that projects into the segmental-shaped slot on the hub of the lever that is connected to the switch-point operating shaft; substantially as described.

In testimony whereof I hereunto affix my signature in the presence of two witnesses, this thirtieth day of October 1908.

HARRY F. ROACH.

Witnesses:

WELLS L. CHURCH,
GEORGE BAKEWELL.