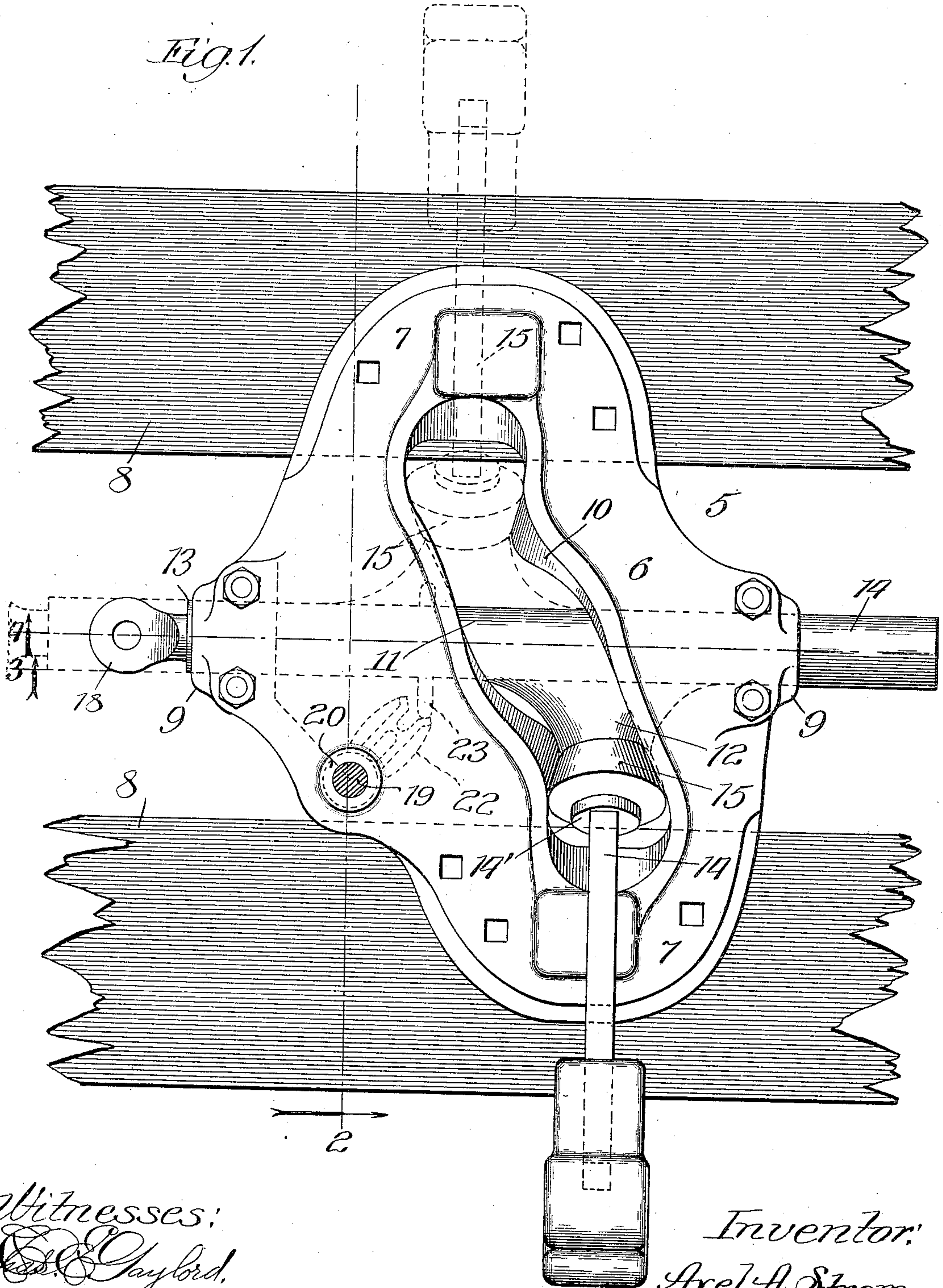


A. A. STROM.  
SWITCH STAND.

APPLICATION FILED JULY 15, 1909.

934,852.

Patented Sept. 21, 1909.  
3 SHEETS—SHEET 1.



Witnesses:  
*E. C. Gaylord,*  
*Clyde C. Palmer.*

Inventor:  
*Axel A. Strom,*  
*By Dyrenforth, Lee, Crittenden & Wiles,*  
*Attys.*

A. A. STROM.  
SWITCH STAND.

APPLICATION FILED JULY 15, 1909.

934,852.

Patented Sept. 21, 1909.

3 SHEETS—SHEET 2.

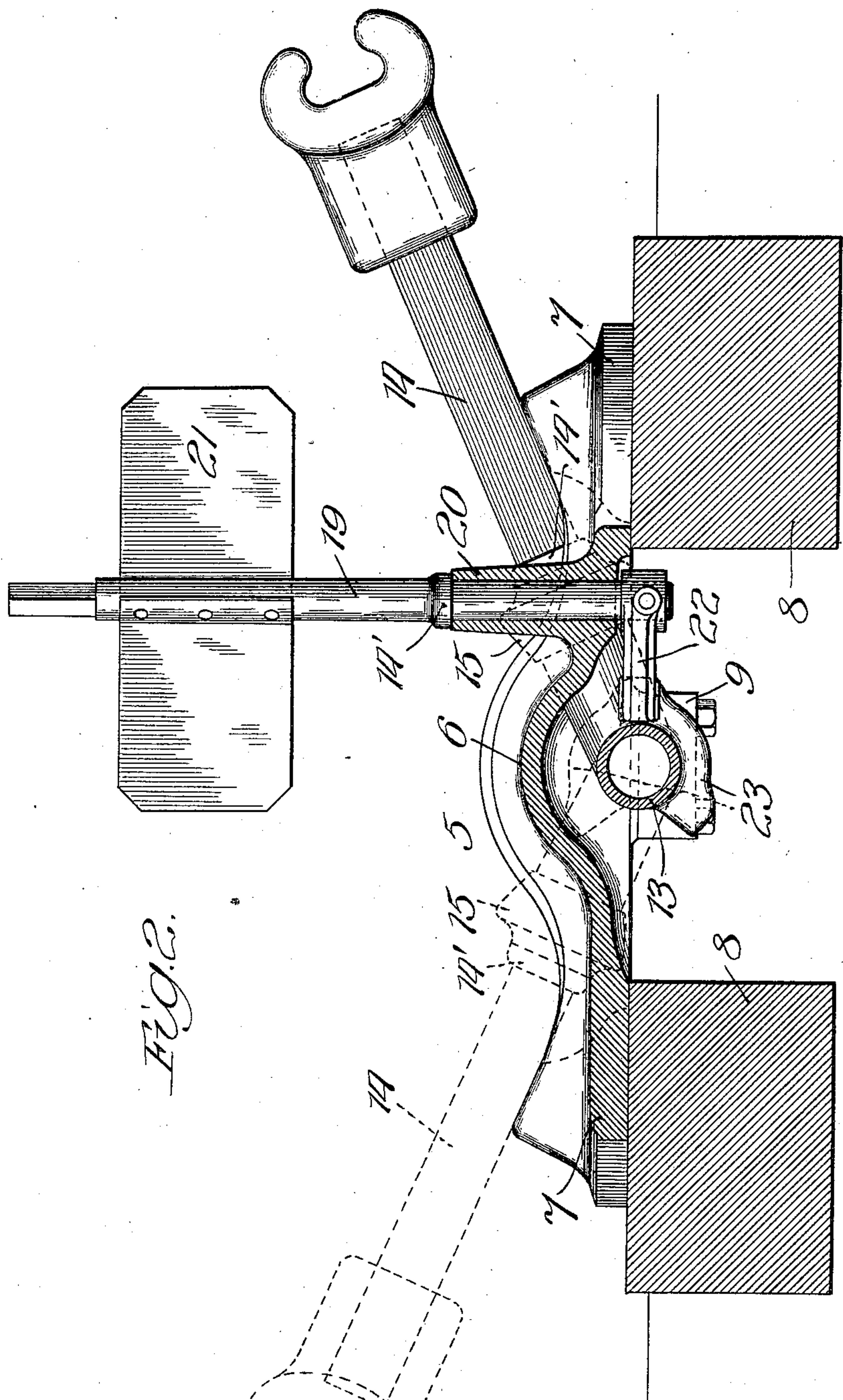


FIG. 2.

Witnesses:  
C. C. Paylor,  
Clyde C. Palmer.

Inventor:  
A. A. Strom,  
By Dyrenforth, Lee, Crittton & Wiles,  
ATTY'S



A. A. STROM  
SWITCH STAND.

APPLICATION FILED JULY 15, 1909.

934,852.

Patented Sept. 21, 1909.

3 SHEETS—SHEET 3.

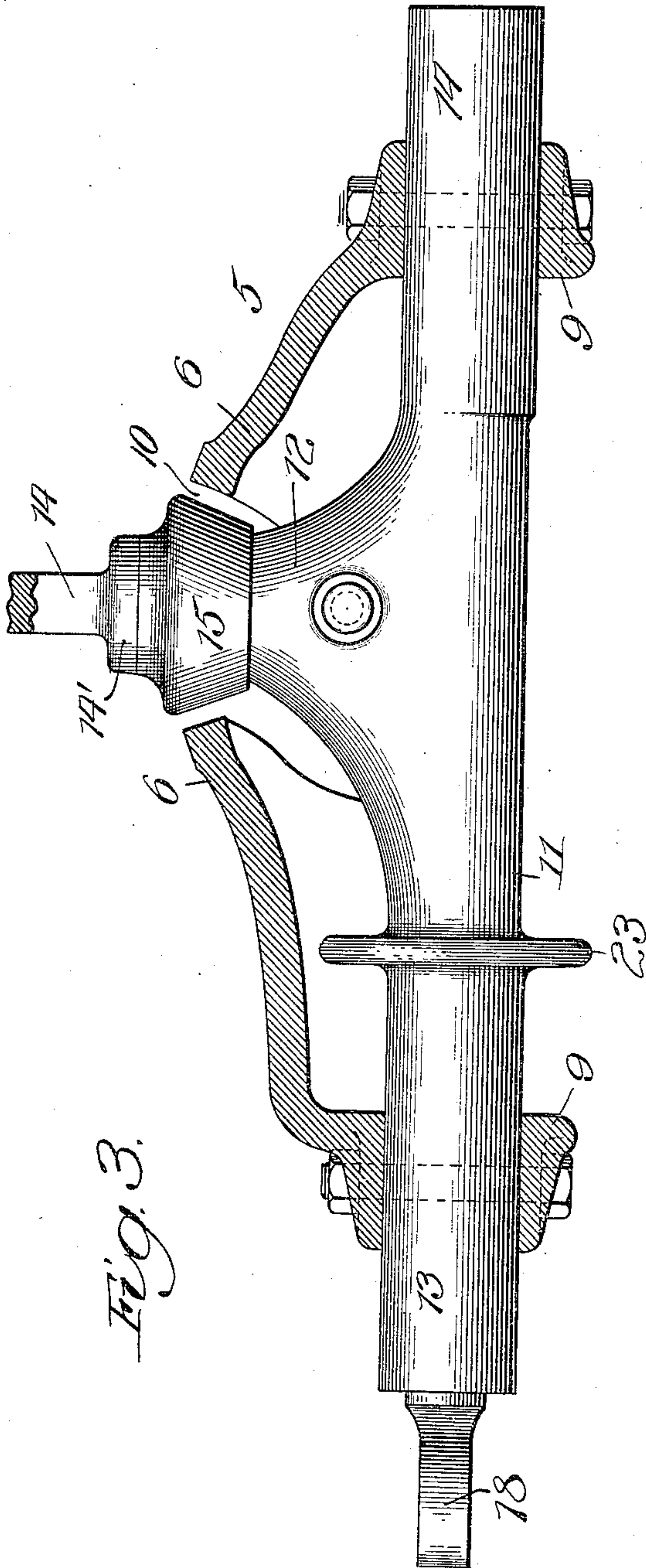


Fig. 3.

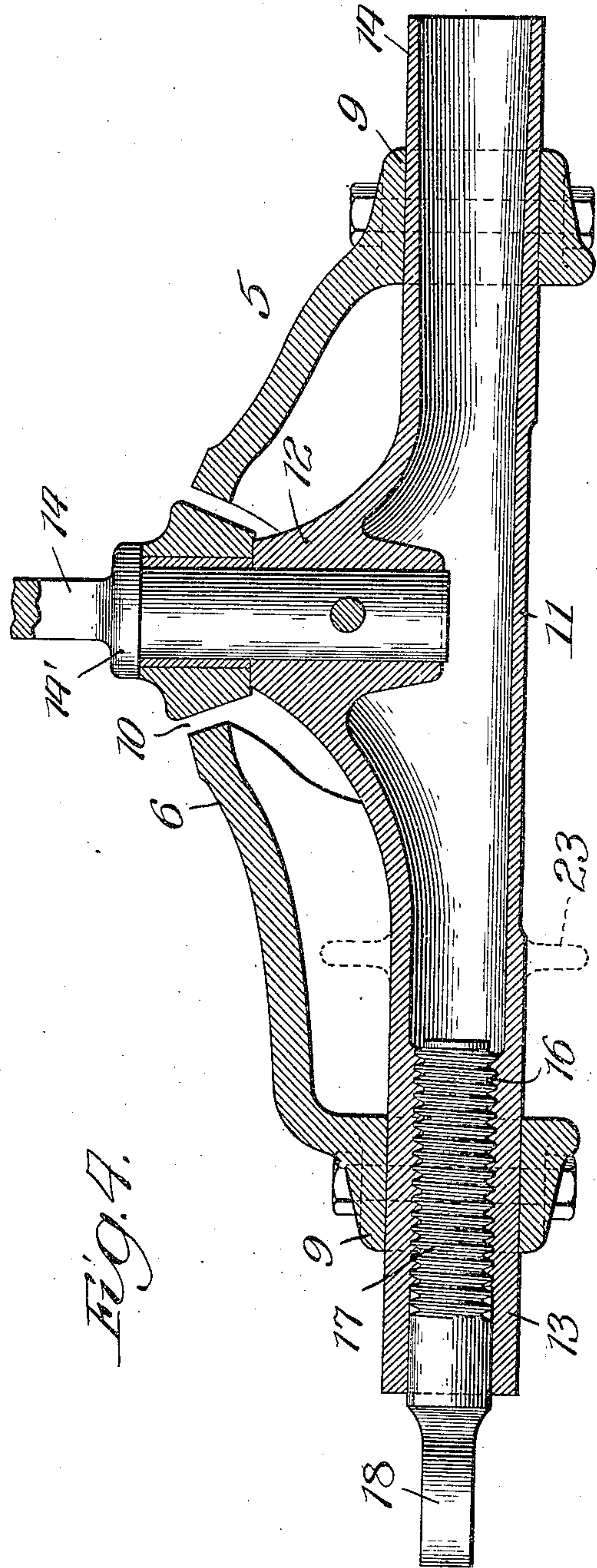


Fig. 4.

Witnesses:  
Edw. C. Gaylord,  
Clyde C. Palmer

Inventor:  
Axel A. Strom,  
By Dyrenforth, Lee, Chittou & Wiles,  
Attys.



# UNITED STATES PATENT OFFICE.

AXEL A. STROM, OF AUSTIN, ILLINOIS, ASSIGNOR TO PETTIBONE, MULLIKEN & COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

## SWITCH-STAND.

934,852.

Specification of Letters Patent. Patented Sept. 21, 1909.

Application filed July 15, 1909. Serial No. 507,855.

*To all whom it may concern:*

Be it known that I, AXEL A. STROM, a citizen of the United States, residing at Austin, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Switch-Stands, of which the following is a specification.

My invention relates to an improvement in switch-stands of the class in which the throwing of the switch is controlled by a lever connected with it through the stand and adapted to be turned through the arc of a circle in a vertical plane to operate the switch.

In the accompanying drawings, Figure 1 is a plan view of a switch-stand embodying my improvement and showing, by dotted representation, the mechanism housed in the casing and the positions of the parts to which they are brought by throwing the operating lever to the position in which it is shown by the full-line representation; Fig. 2 is a section on line 2, Fig. 1, and Figs. 3 and 4 are broken sections taken, respectively, on lines 3 and 4, Fig. 1, but showing the operating lever in a position midway between the ends of its throw with the other parts of the mechanism in their resultant positions, thereby the better to illustrate the construction.

The casing 5 comprises a crown-portion 6 of generally rounded shape, with laterally-extending wings 7, 7 adapted to seat on head-blocks 8, the ends of the casing at right-angles to the wings terminating in depending bearings 9 for the trunnion-ends of a rocking head which forms the mechanism in the casing to be actuated by turning to throw a switch through the medium of a longitudinally-movable switch-rod connecting it with the head. The crown 6 contains a cam-slot 10 extending at a suitable inclination between the wings 7. The head 11 is a generally-cylindrical body preferably hollow for the sake of lightness and formed midway between its ends with a laterally-projecting socket 12. The end-portions of the head form trunnions 13 and 14 at which it is journaled in the bearings 9, the lower parts of which are separate pieces bolted to the upper parts that are formed on the casing; and in the socket is fastened the inner cylindrical end of the operating-lever 14, having rotatably mounted on its cylindrical section a tapering anti-friction roller 15 to

bear against the outer end of the socket under confinement by a collar 14<sup>1</sup> formed about the lever. The lever thus works in the cam-slot by engagement of the roller 15 with either side thereof, depending on the direction of throwing the lever, to rock the head 11 and at the same time move it longitudinally in its bearings. The trunnion 13 is provided with an internal coarse and preferably flat screw-thread 16 extending short of its outer end, to engage the threaded end 17 of a switch-rod 18. The screw-connection between the head and switch-rod permits nice adjustment of the stand in setting it relative to a switch; but the primary purpose of the connection is to provide a loose joint between the parts that will enable the head to be turned in its bearings without binding at the joint, and by its longitudinal movement in turning, due to the cam-action of the slot 10, move the rod 18 correspondingly to throw the switch.

A semaphore-device is shown to be provided to coöperate with the switch-throwing mechanism, and it consists of a spindle 19 journaled in a bearing 20 provided on the casing, the spindle carrying a target 21 and being adapted to carry a signal-lamp, as usual. On the lower end of the spindle, within the casing, is provided a crank-arm 22 having a recessed or bifurcated outer end, by which to produce a ninety-degree turn of the spindle with each throw of the switch. For thus operating the semaphore a rigid lip 23 is provided on the trunnion 13 in position to engage the bifurcated end of the crank-arm at either end of its throw in the longitudinal movement of the head, and thereby turn the spindle with each operation of the switch-stand. As seen in Fig. 2, the lip 23 is of a shape and is so set on the trunnion 13 as to engage its greater diameter with the bifurcated end of the crank-arm when the latter is at either end of its throw, where it presents the greatest angle of inclination to the lip; thereby to insure the required engagement at those points.

I have shown certain features of construction in this application which are not covered by the claims herein, the same being covered by claims in my companion application No. 507,854, filed July 15, 1909.

What I claim as new and desire to secure by Letters Patent is—

1. In a switch-stand, the combination of a



casing provided with a cam-slot and with end-bearings, a head having a relatively enlarged intermediate section terminating at its opposite ends in trunnions, at which it is journaled in said bearings to be housed within the casing, an operating-lever extending from the head through said slot, and a switch-rod having a loose-joint connection with one of said trunnions, for the purpose set forth.

2. In a switch-stand, the combination of a casing provided with a cam-slot and with end-bearings, a head terminating at its opposite ends in trunnions, at which it is journaled in said bearings to be housed within the casing, an operating lever extending from the head through said slot, and a switch-rod having a threaded end engaging one of said trunnions, for the purpose set forth.

3. In a switch-stand, the combination of a casing provided with a cam-slot and with end-bearings, a head terminating at its opposite ends in trunnions, at which it is journaled in said bearings to be housed within the casing, an operating-lever extending from the head through said slot, and a switch-rod having an adjustable loose-joint connection with one of said trunnions, for the purpose set forth.

4. In a switch-stand, the combination of a casing comprising a crown-portion having wings projecting from opposite sides, with a cam-slot in the crown-portion inclining between said wings, bearings on opposite ends of the casing, a head terminating at its op-

posite ends in trunnions, at which it is journaled in said bearings to be housed within the casing, an operating-lever extending from the head through said slot, and a switch-rod having a loose-joint connection with one of said trunnions, for the purpose set forth.

5. In a switch-stand, the combination of a casing comprising a crown-portion having wings projecting from opposite sides, with a cam-slot in the crown-portion inclining between said wings, bearings on opposite ends of the casing, a head terminating at its opposite ends in trunnions, at which it is journaled in said bearings to be housed within the casing, one of said trunnions being internally threaded, an operating-lever extending from the head through said slot, an anti-friction roller on the lever working in the cam-slot, and a switch-rod having a threaded end screwing into said threaded trunnion, for the purpose set forth.

6. In a switch-stand, the combination of a casing provided with a cam-slot, a head terminating at opposite ends in trunnions at which it is journaled in the casing to be housed therein, an operating lever extending from the head through said slot, a lip on the head, and a crank-arm rotatably supported to extend in the casing into the path of said lip.

AXEL A. STROM.

In presence of—

R. A. RAYMOND,

R. A. SCHAEFER.