

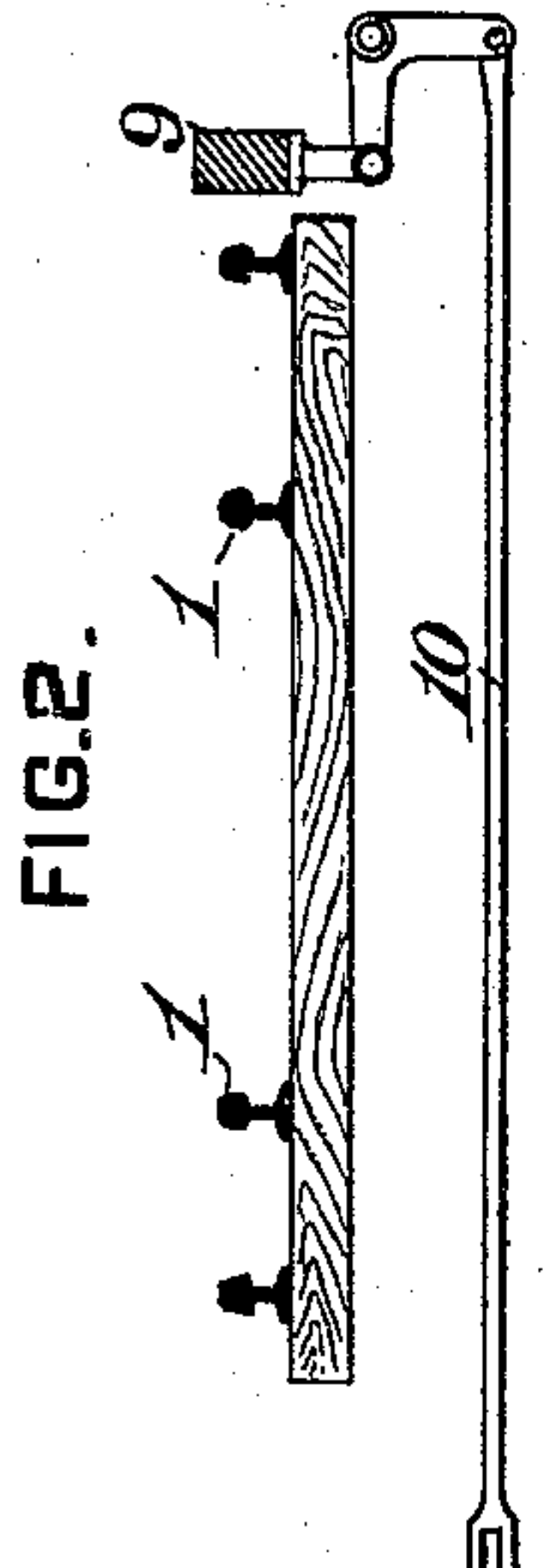
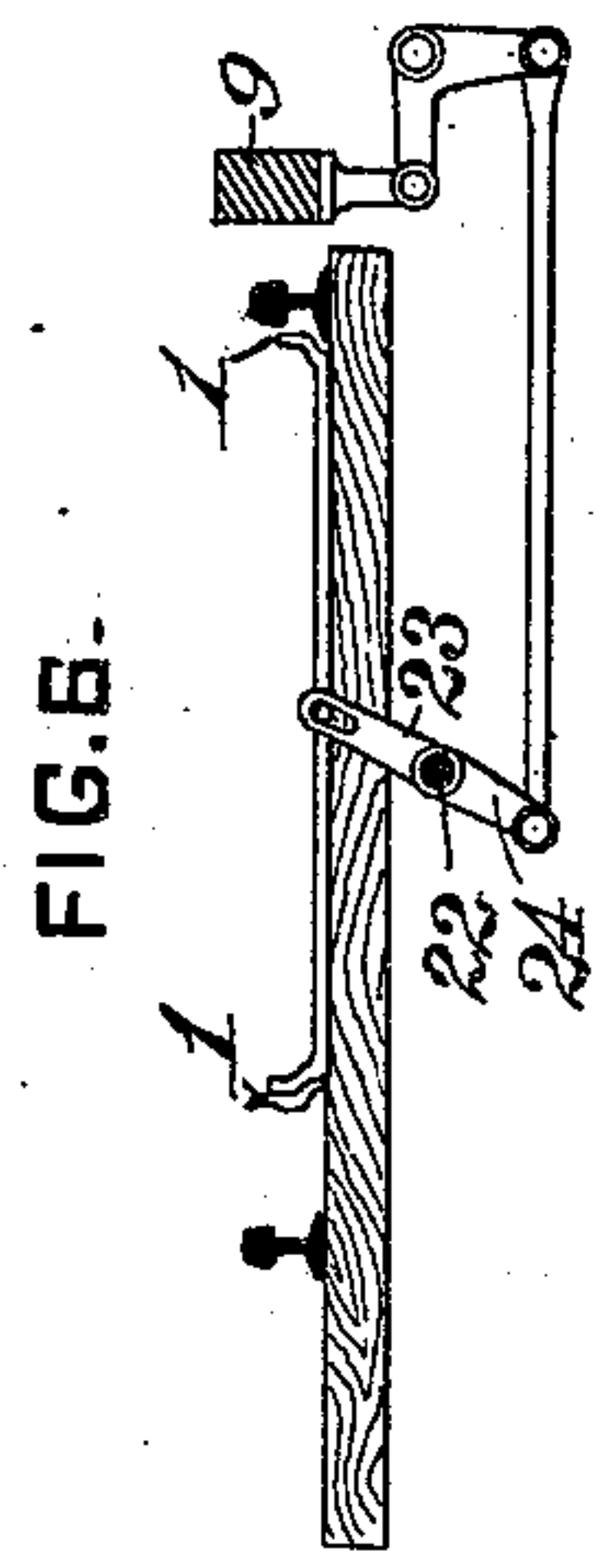
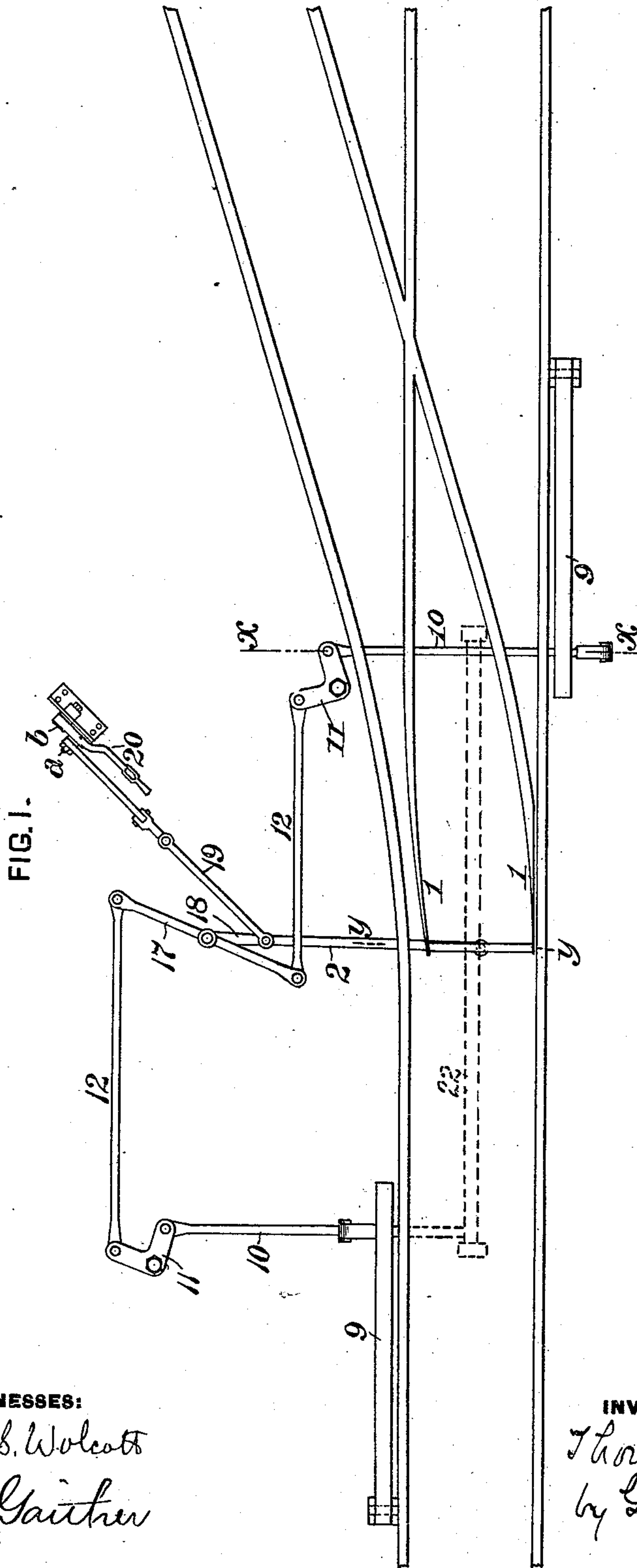
(No Model.)

2 Sheets—Sheet 1.

T. S. MITCHELL.  
SWITCH MECHANISM.

No. 475,087.

Patented May 17, 1892.



WITNESSES:

Danville S. Wolcott  
F. E. Gaither

INVENTOR,

Thomas S. Mitchell  
by George H. Christy  
Att'y.

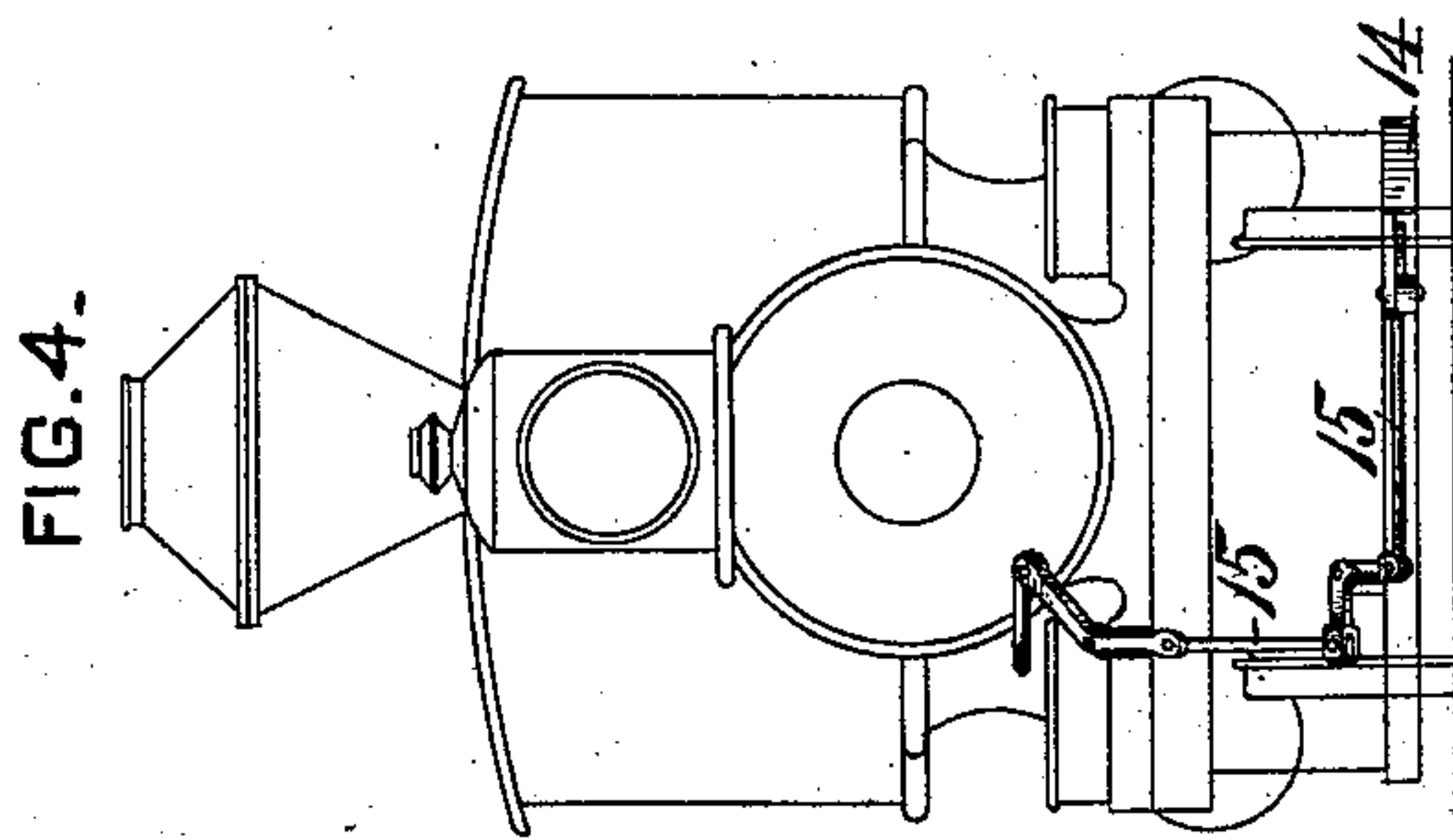
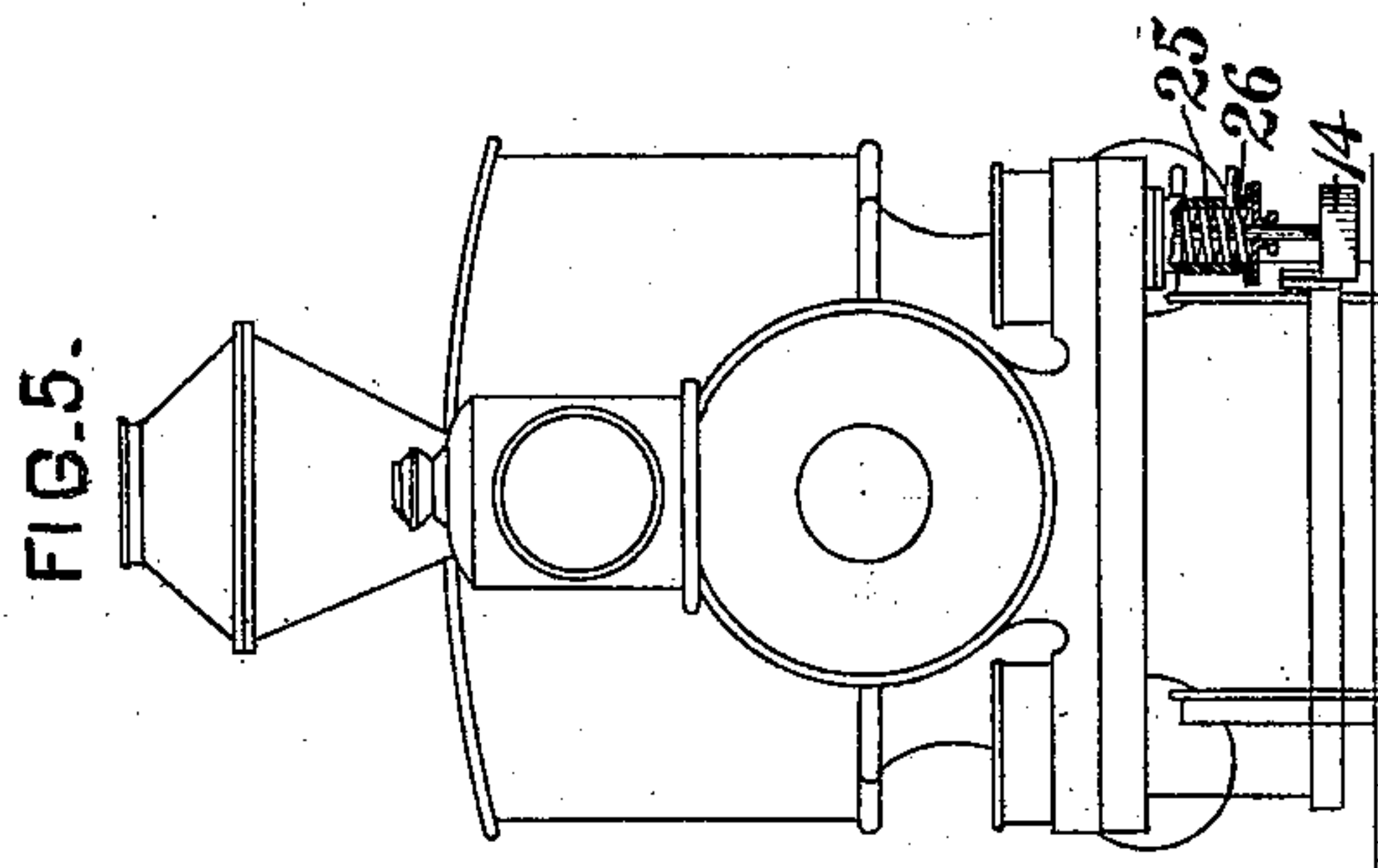
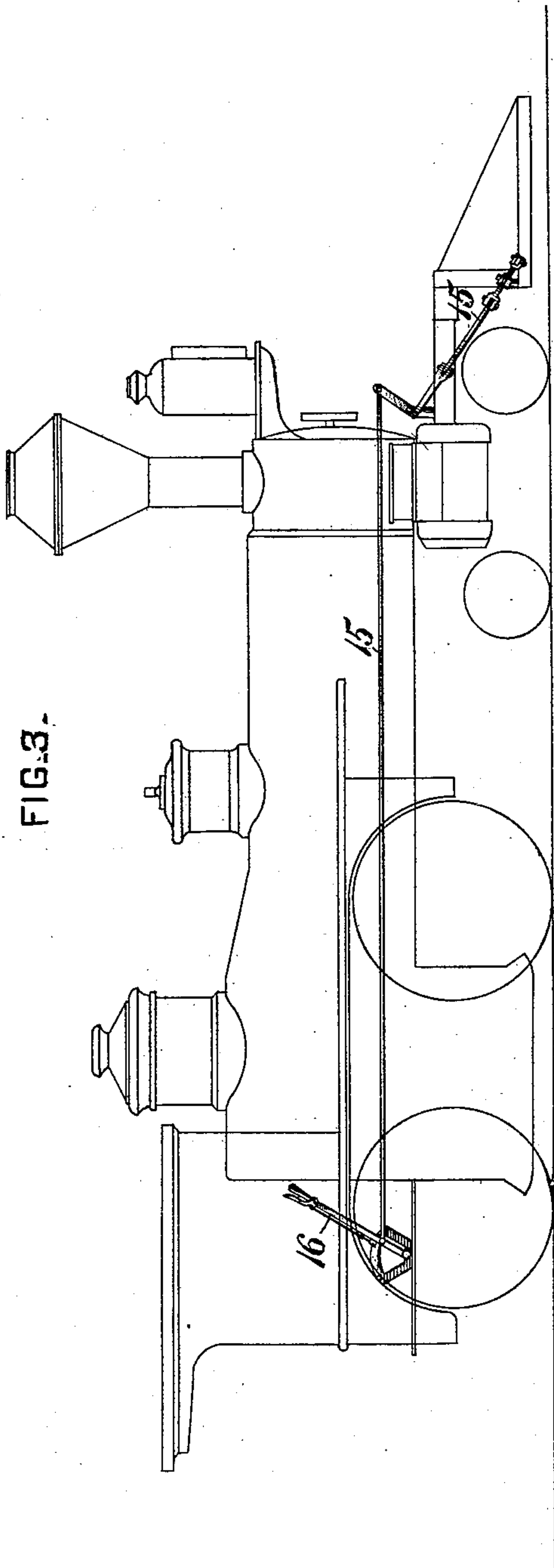
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WITNESSES:

Darius S. Wolcott  
F. E. Gaither.

INVENTOR,

Thomas S. Mitchell  
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# UNITED STATES PATENT OFFICE.

THOMAS S. MITCHELL, OF PITTSBURG, PENNSYLVANIA.

## SWITCH MECHANISM.

SPECIFICATION forming part of Letters Patent No. 475,087, dated May 17, 1892.

Application filed February 25, 1891. Serial No. 382,732. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS S. MITCHELL, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented or discovered certain new and useful Improvements in Switch Mechanism, of which improvements the following is a specification.

The invention described herein relates to certain improvements in mechanism for closing switches by a projection from the engine moving along the main track.

A great number of accidents on railroads arise through neglect to close the switch after a train has passed into or from a siding, the result being that a train not intended to enter the siding will be turned thereinto and collide with another train or else be derailed.

The object of this invention is to provide mechanism located a suitable distance from the switch-rail and connected thereto adapted by engagement with some part of the engine on the main track to shift the switch-rails which have been left open to clear main track.

In general terms the invention consists in the construction and combination, as hereinafter more fully described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a plan view of a portion of the main track and siding, the switch-rails having my improvement connected thereto. Fig. 2 is a sectional elevation on the line  $x x$ , Fig. 1. Figs. 3 and 4 are side and front elevations of an engine having the devices for operating the switch-shifting mechanism attached thereto. Fig. 5 is an end view of the engine, having a modification of the operating device applied thereto; and Fig. 6 is a transverse section on the line  $y y$ , Fig. 1, showing the modification represented in dotted lines.

In the construction shown in Fig. 1 the movable switch-rails 1 are connected by a bar 2 to an arm 18, secured to or formed integral with the lever 17, and to said arm is also connected one end of a rod 19, the opposite end of said rod being attached to the operating-lever 20 at a point outside of its pivotal point. At a suitable distance on each side of the switch-rail are arranged rails 9, which are so pivoted at one end that the opposite end may be swung to permit of a pro-

jection on an engine engaging therewith and shifting it. The free ends of these rails 9 are connected by rods 10 with one of the arms of the bell-crank levers 11, the other arms being connected by rods 12 to the ends of the lever 17. The lever 17 is so arranged and connected that when the switch-rails are shifted to clear main line the free ends of the rails 9 are held so as to be out of line with the projection on the engine; but when the lever is turned to shift the switch-rails for the siding the rails 9 will be so shifted that a projection 14 on the engine passing along the main line will engage and shift the rails 9, thereby turning the lever 17 and shifting the switch-rails to clear main line. As shown in Figs. 4 and 5, this projection 14 may form part of the pilot of the engine and be so hinged or pivoted thereto as to be movable in and out, as required, in order to pass over or engage the shifting rails 9, as described. The projection 14 is connected by rods 15 and suitably-arranged bell-crank levers with an operating-lever 16 in the cab of the engine.

It will be understood that when a train is to move into the siding, the switch-rails having been properly adjusted, it will be necessary to shift the projection 14 in, as otherwise it would engage the rails 9 and close the switch-rails. At all other times the projection 14 may be kept out, so as to close an improperly-set switch.

The arm 18 is so attached to the lever 17 that when the switch-rails 1 have been shifted for the siding the arm and rod 2 will lie in a plane a little one side of the pivotal point of the lever 17, thereby locking the switch-rails against accidental movement, and the operating-lever 20 is so connected to the rod 19 that when the parts are in the position shown in Fig. 1 the point of connection  $a$  of the rod 19 to the lever will be above the pivotal point  $b$  of said lever, but will be below such pivotal point when the lever is thrown over to shift the switch-rails to clear main line. By this construction and arrangement of parts the lever can be thrown over by the movement of the rails 9 when in the position shown in Fig. 1, and will also lock the switch-rails when shifted to clear main line.

In lieu of the rods 12 and their bell-crank connections a bar 22 may be mounted in suit-



able bearings alongside of the track, as indicated by dotted lines in Fig. 1, said bar being provided with slotted arms 23 and 24, which are connected, as shown in Fig. 6, to the rails 9 and the movable switch-rails 1.

In Fig. 5 is shown a modified arrangement of the projection 14 and its operating mechanism, the latter consisting of a cylinder 25, connected at a point above its piston to a suitable source of fluid-pressure. The piston and the projection connected thereto are normally held in such position as not to engage the rails by a spring 26, interposed between the piston and the lower cylinder-head.

It will be observed that my device is not intended to operate as an automatic switch mechanism in the general acceptation of the term, but is designed to be used solely to restore a switch to clear main line when it has been accidentally left open to the siding.

I claim herein as my invention—

1. In a switch mechanism, the combination of movable switch-rails, shifting rails arranged alongside of the main track at a distance from the switch, a main lever 17, having its ends connected by rods and bell-cranks to the shifting rails and provided with an arm pivotally connected with the switch-rod, the arm being arranged at such an angle to the main lever that the switch-rod, arm, and pivotal point of the main lever will form a straight connection with the switch-rails when the latter are set for the siding, substantially as set forth.

2. In a switch mechanism, the combination

of movable switch-rails, shifting rails arranged alongside of the track at a distance from the switch, and a main lever having its ends connected to the shifting rails and provided with an arm pivotally connected to the switch-rods, said arm being arranged at such an angle to the lever as to lock the switch-rails as against accidental movement when open to the siding, and a hand-operated mechanism connected to the arm on the main lever and adapted to shift the switch-rails and lock them at clear main line, substantially as set forth.

3. In a switch mechanism, the combination of movable switch-rails, shifting rails arranged alongside of the track at a distance from the switch, a main lever 17, having its ends connected to the shifting rails and provided with an arm pivotally connected to the switch-rods, said arm being arranged at such an angle to the lever as to lock the switch-rails as against accidental movement when open to the siding, a movable projection on an engine, adapted to engage the shifting rails when the switch-rails are open to siding, and a hand-operated mechanism connected to the arm on the main lever and adapted to shift the switch-rails and lock them to clear main line, substantially as set forth.

In testimony whereof I have hereunto set my hand.

THOS. S. MITCHELL.

Witnesses:

R. H. WHITTLESEY,  
DARWIN S. WOLCOTT.