

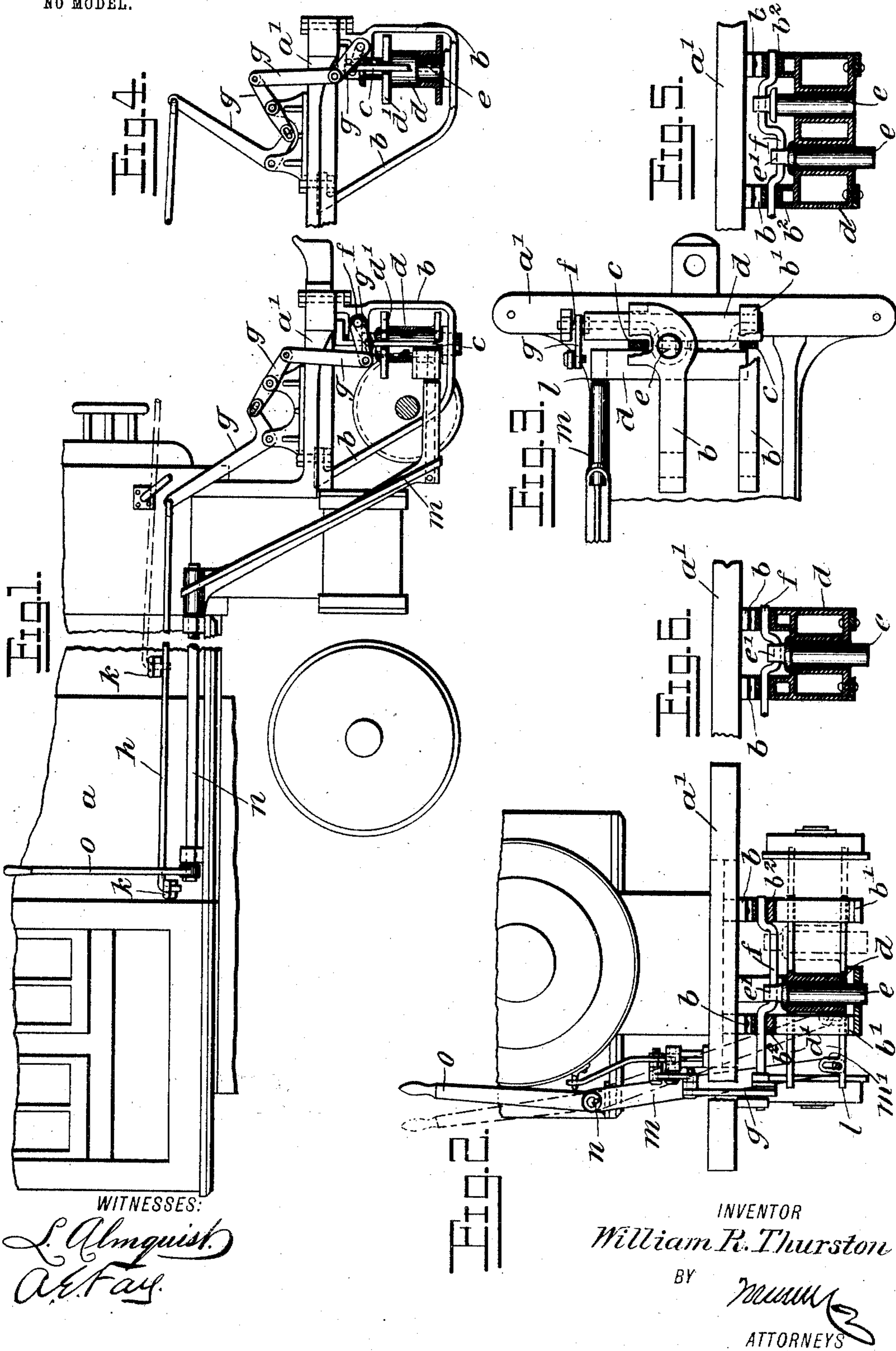
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W. R. THURSTON.  
SWITCH OPERATING DEVICE.

APPLICATION FILED APR. 25, 1904.

NO MODEL.



WITNESSES:  
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# UNITED STATES PATENT OFFICE.

WILLIAM REYNOLDS THURSTON, OF JACKSONVILLE, FLORIDA.

## SWITCH-OPERATING DEVICE.

SPECIFICATION forming part of Letters Patent No. 776,966, dated December 6, 1904.

Application filed April 25, 1904. Serial No. 204,659. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM REYNOLDS THURSTON, a citizen of the United States, and a resident of Jacksonville, in the county of Duval and State of Florida, have invented a new and Improved Switch-Operating Device, of which the following is a full, clear, and exact description.

My invention relates to a device for operating switches which can be attached to an engine or a car of any kind and is intended to be so situated as to come into contact with a switch-operating mechanism located between the tracks and automatically open and close switches.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side view of a locomotive with a preferred form of my invention applied thereto. Fig. 2 is a front view of the same, showing parts in section. Fig. 3 is a bottom view of the front portion of the mechanism shown in Fig. 1. Fig. 4 is a view similar to the front portion of Fig. 1, showing the parts in different position. Fig. 5 is a sectional view of a modification, and Fig. 6 is a sectional view of another modification.

In the drawings, *a* represents an engine; but it is to be observed that as the device can be applied to any part of a train the engine is merely used as a convenient way of illustrating any portion of a train to which the device may be attached.

Upon the lower side of the frame *a'* of the engine or car is located a pair of hangers *b*. These may be of any shape; but I have shown a form which is convenient when the device is applied to the front part of an engine. Two other hangers *c* are also preferably employed. *d* is a movable frame which is mounted upon these hangers in guides, one of which is represented at *b'*, and it has extensions *d'* working in these guides. Within this frame is a reciprocating pin *e*, which is provided with an eye *e'*, through which passes a rod *f*, which has an offset portion and is journaled in bearings *b<sup>2</sup>* in the hangers *b*. This rod or shaft is provided with a series of links and levers *g g*

*g g*, which need not be described in detail, as any convenient combination of mechanical elements may be provided for oscillating or rotating the shaft or rod *f*. This series of mechanical elements is preferably operated by means of a rod *h*, which may be fixed in its two extreme positions by means of eyes *k* on the side of the engine or located in any convenient place. Two positions of these parts are shown in Figs. 1 and 4, the second position of the rod *h* being also indicated by dotted lines in Fig. 1. It will be seen that by the operation of this rod *h* the pin *e* may be raised and lowered, so as to come into contact with a switch-operating device located between the rails. The frame *d* may also be reciprocated transversely of the tracks for the purpose of allowing the pin *e* to be lowered on either side of the center of the tracks, for in the particular form of switch mechanism which I contemplate employing with this invention the switch will be opened or closed, according to whether the pin is located on the right side or the left side.

The means for reciprocating the frame *d* comprises an arm *m*, attached to an oscillating rod *n*, which is operated by a lever *o*, the arm being provided with an elongated slot *m'* for a pin *l*, with which the frame *d* is to be provided. It is to be observed that the offset portion of the shaft *f* must be long enough to permit the pin, which moves with the frame *d*, to pass from the position shown in full lines in Fig. 2 to the position shown in dotted lines. This construction is avoided, however, when two pins are used, as shown in Fig. 5, and in this case the pins should be so arranged that either may be lowered into operative position or both raised out of operative position at the will of the driver. On certain kinds of systems also the construction shown in Fig. 6 can be employed, in which case the frame *d* would not have any reciprocating motion, the pin being located directly in the center of the track and the switch mechanism being so constructed that the switch would remain closed when not operated upon by the pin and would be opened when the pin was in operative position and in contact with the switch, or vice versa. In this construction the switch

should be so arranged as to be operated in the same way when thrown out of center upon either side.

In the use of the construction shown in Figs. 2 and 5 the switch-operating devices would be so arranged as to close the switch or open it, according to whether the operating-pin were upon the right or left side of the track.

It will be obvious that many other modifications may be made in the forms of my invention represented in the drawings without departing from the spirit thereof.

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

1. A switch-operating device comprising a frame, means for reciprocating said frame, a pin mounted on the frame, and means for reciprocating the pin independently of the frame.

2. A switch-operating attachment for railways, comprising a hanger attached to the under side of a car or locomotive, guides on said hanger, a frame mounted in said guides, means for moving said frame transversely of the track, a tubular guide in said frame, a pin in said tubular guide, and means for vertically reciprocating said pin.

3. A switch-operating attachment for locomotives, comprising a frame, and means for reciprocating said frame comprising a pin on said frame, a shaft, an arm attached to said shaft and having a slot for said pin, and means for oscillating said shaft.

4. A switch-operating attachment for locomotives, comprising a frame, a guide on said frame, a pin vertically mounted in said guide, and means for reciprocating said pin, comprising an eye, a shaft having an offset portion passing through said eye, and means for oscillating said shaft.

5. A switch-operating device comprising a frame, a plurality of pins mounted on said frame, and means for reciprocating said pins independently of said frame, comprising a rod or shaft having offset portions attached to said pins, and means for oscillating said rod or shaft.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM REYNOLDS THURSTON.

Witnesses:

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F. S. HODGES.