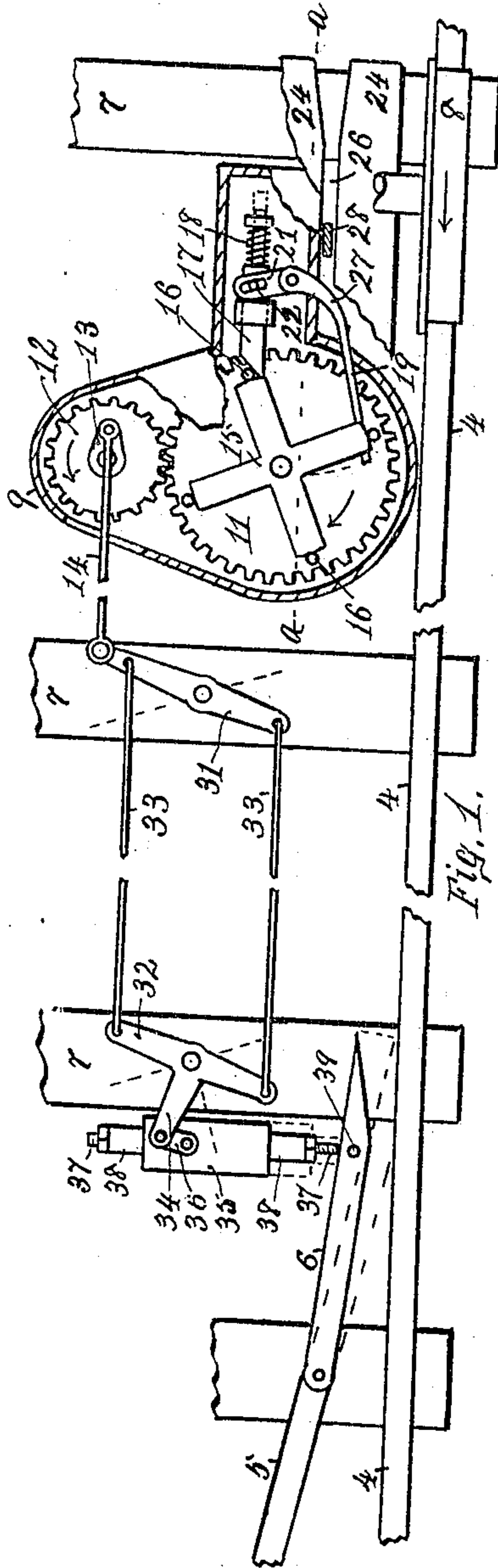
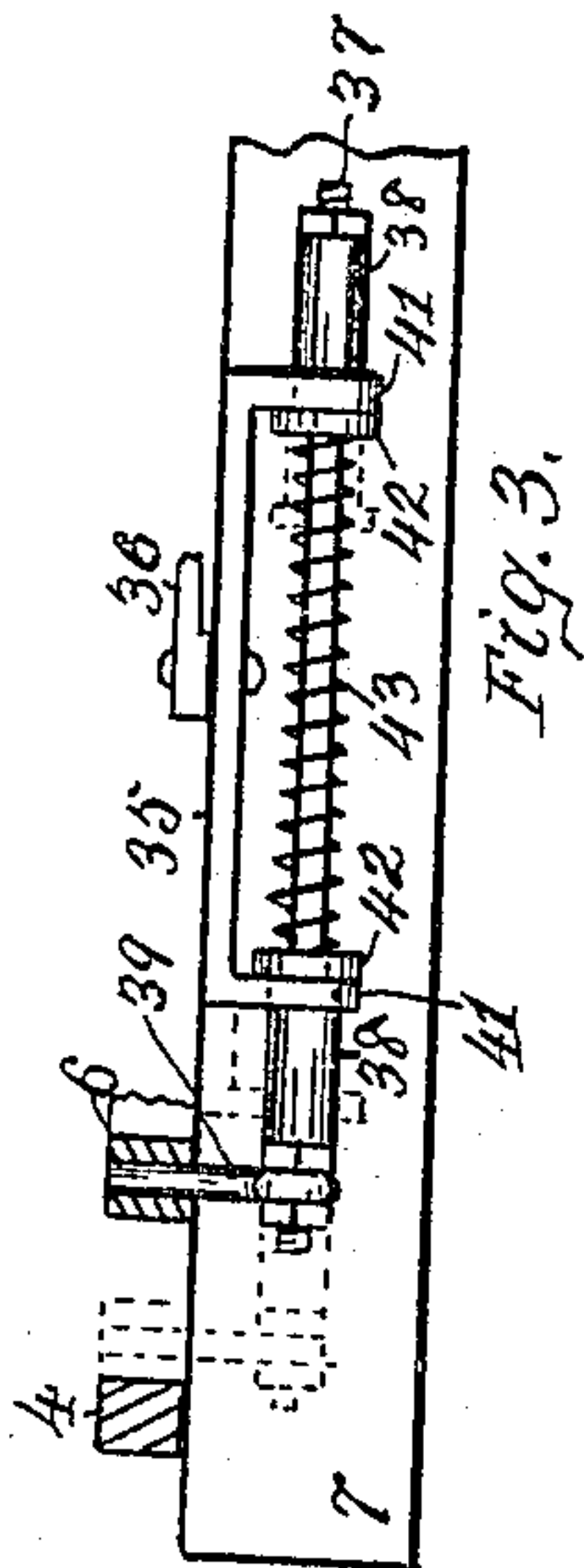
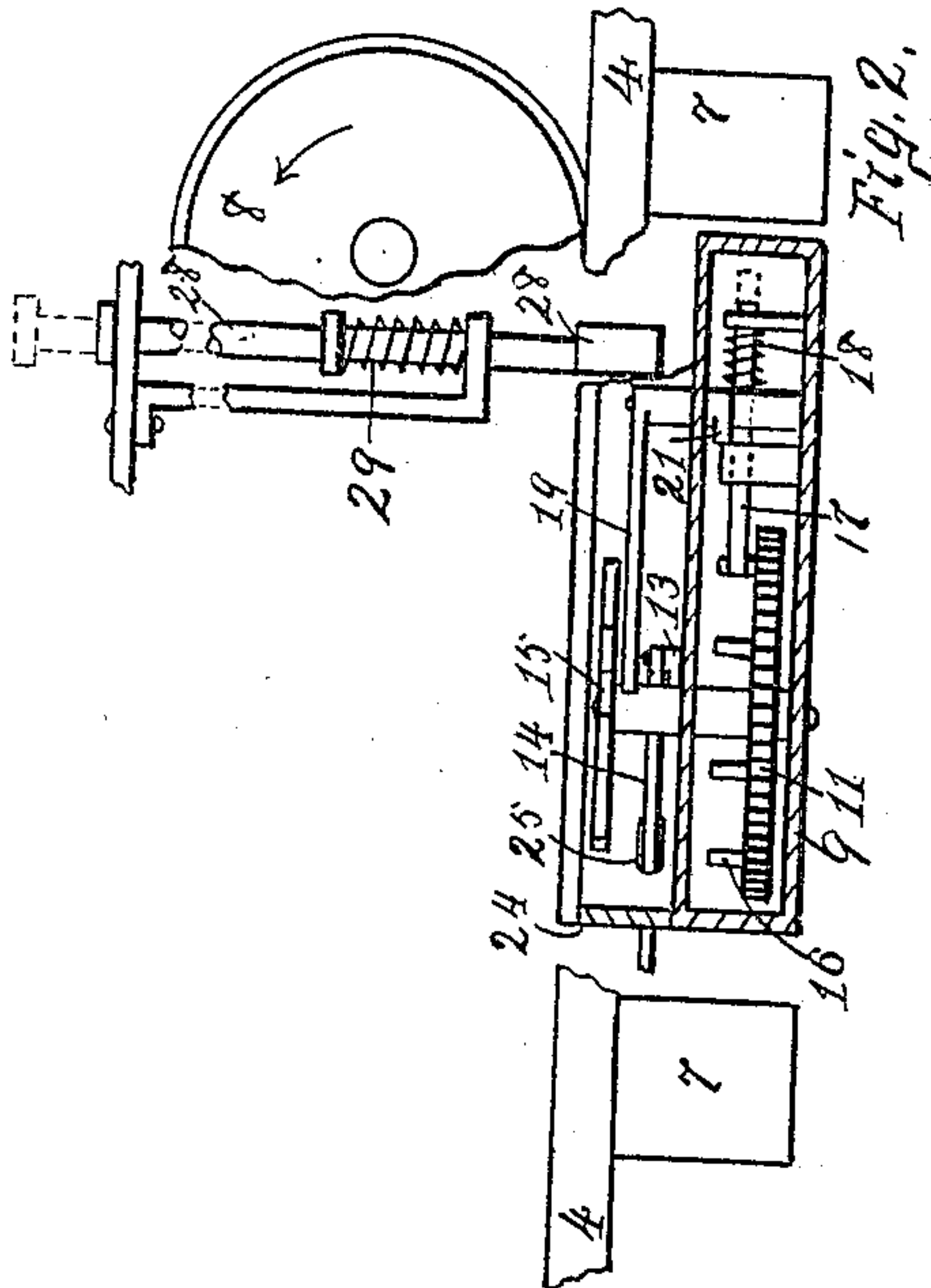


No. 819,835.

PATENTED MAY 8, 1906.

J. B. ALBRIGHT.
SWITCH OPERATING MECHANISM.
APPLICATION FILED DEC. 21, 1905.



Witnesses.

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UNITED STATES PATENT OFFICE.

JOHN B. ALBRIGHT, OF HAMILTON, OHIO.

SWITCH-OPERATING MECHANISM.

No. 819,835.

Specification of Letters Patent.

Patented May 8, 1906.

Application filed December 21, 1905. Serial No. 292,736.

To all whom it may concern:

Be it known that I, JOHN B. ALBRIGHT, a citizen of the United States, residing at Hamilton, Butler county, Ohio, have invented a new and useful Improvement in Switch-Operating Mechanism, of which the following is a specification.

My invention relates to switch-operating mechanisms of the class adapted to the tracks of street-railways or elsewhere; and the objects of my improvement are to provide means whereby the switch may be opened or closed from an approaching car, to provide means to lock the switch in either the open or closed position, and to provide a spring device for the switch-tongue. These objects are attained in the following described manner, as illustrated in the accompanying drawings, in which—

Figure 1 is a plan of my improved mechanism with parts of the casing in section; Fig. 2, a side elevation with the casing in section on the line *a a* of Fig. 1, and Fig. 3 a side elevation of the spring device connecting with the switch-tongue.

In the drawings, 4 represents one of the rails of the main track, 5 the corresponding rail of the switch or side track, 6 the switch-tongue hinged thereon, 7 the cross-ties, and 8 a wheel of the car on the main track, all arranged in the ordinary manner.

Casing 9 is preferably sunken between adjacent ties on the inner side of the track, and gear 11 and pinion 12 in continuous mesh therewith are journaled therein. The speed of the pinion is twice that of the gear, and both are formed with hubs which project through the top of the casing. Crank 13, provided with connecting-rod 14, is secured on the hub of the pinion, and spider 15, formed with four equidistant radial arms, is secured on the hub of the gear. Pins 16 project from the gear adjacent to the spider and in positions relative to the arms thereof. Bolt or dog 17 within the casing is actuated in a forward direction by means of a spring 18 thereon to intercept either of the pins 16 and discontinue the rotation of the gear and pinion in the direction of the arrows thereon, with the crank 13 on a center with the connecting-rod. Tumbler 19, journaled in the casing, is formed with slotted arm 21 in movable engagement with the bolt by means of pin 22 and is extended horizontally at an angle toward the adjacent track-rail and terminates opposite the center of the spider and

directly under the path of the ends of the arms thereon.

Cover 24 is formed with an opening 25 for the connecting-rod and with an open groove 26 parallel with the track. Said cover may be secured on the casing over the spider and crank 13 with said groove over the curved shoulder 27 of the tumbler and over the intermediate portion of an arm of the spider when in a perpendicular position adjacent to the track. Bar 28, carried by the car in registration with the slot, is maintained vertically above operative position by means of spring 29. Said bar may be held in its downward position, as shown in Fig. 2, to cause the moving car to carry its thin lower extremity through the groove, whereby the tumbler is first actuated to disengage the bolt from the pin and then intercepts and moves the arm of the spider to the extent of turning the gear one-fourth of a rotation with the crank on the pinion on the opposite center. Before the bar becomes disengaged from the arm of the spider the tumbler is released therefrom and spring 18 automatically throws the tumbler back to its normal position, with the bolt in position to intercept the succeeding pin on the gear and prevent its further rotation.

Lever 31, fulcrumed at a fixed point, is oscillated by means of the connecting-rod, and bell-crank lever 32 is fulcrumed parallel therewith at a fixed point at a predetermined distance therefrom. Cables 33, connected to said levers equidistant from opposite sides of the fulcrums, span the distance between them and cause lever 32 to oscillate simultaneously and parallel with lever 31. The bell-crank arm 34 on lever 32 engages with housing 35 by means of link 36, whereby said housing is moved longitudinally in opposite directions perpendicular to the track. Rod 37, movable through sleeves 38, is secured at one end to the switch-tongue near its point by means of eyebolt 39. Said sleeves are longitudinally movable through respective ears 41, formed in the ends of the housing, and are formed with annular collars 42 to limit their outward movement therethrough. Coiled spring 43 encircles the rod between the sleeves to force them normally apart.

In operation, while the tongue is maintained by the housing with the switch in a closed position and the main track open, as shown in Figs. 1 and 3, the wheels of a car passing to the main track will throw the tongue against the main track, as shown by

dotted lines. This movement of the tongue is permitted by the yielding of spring 43 and the movement of the farther sleeve through the ear of the housing, as shown by dotted lines in Fig. 3. The spring automatically throws the tongue to its former position when released from the wheels. Should the main track be closed and the switch opened by the movement of the housing, the wheels of a car passing on the main track in the direction from the heel to the point of the tongue will force it and the adjacent sleeve in a direction from the rail against the yielding resistance of spring 43. After the wheels become disengaged from the tongue the expansion of the spring will automatically throw the tongue to its former position. In this manner the tongue may be automatically actuated if necessary from a car leaving the switch or moving in the same direction on the main track, or it may be thrown as desired by means of a bar on a car moving in the opposite direction and locked automatically by means of the dog in addition to the position of the crank on either of its centers.

Having fully described my improvement, what I claim as my invention, and desire to secure by Letters Patent of the United States, is—

1. A switch-operating mechanism, having in combination, a four-armed spider, a gear secured thereto and movable therewith, a pinion one-half the size of and in mesh with the gear, a crank carried thereby and lever mechanism actuated by the crank and arranged to throw a switch-tongue.
2. A switch-operating mechanism, having in combination a gear and a pinion in the ratio of one to two, a four-armed spider on the gear, a crank on the pinion, a lever, a connecting-rod engaging the crank therewith,

cables secured to the lever, and means actuated by the cables to move and yieldingly maintain a switch-tongue in predetermined positions.

3. A switch-operating mechanism having in combination, a spider, a gear-wheel and a pinion in the relation of one to two actuated thereby, a tumbler, and a dog arranged to be disengaged thereby from the gear.

4. A switch-operating mechanism having in combination a four-armed spider, a dog arranged to prevent the rotation thereof and a tumbler arranged to move the dog and release the spider.

5. A switch-operating mechanism having in combination, a gear, stops thereon, a dog movable automatically in engagement therewith, and a tumbler arranged to disengage the dog.

6. A switch-operating mechanism having in combination with a switch-tongue, a housing, sleeves movable therein, a rod engaging with the tongue and movable through the sleeves, a spring arranged to move the sleeves in respective opposite directions, and means to move and maintain the housing in the opposite directions of the rod.

7. A switch-operating mechanism having in combination, a four-armed spider, a gear secured thereto, a pinion one-half the size of the gear meshing therewith, a crank thereon, a connecting-rod carried by the crank, a lever oscillated thereby, a bell-crank lever actuated by and connected thereto with cables, a housing movable thereby, a switch-tongue, and a rod yielding connecting the housing therewith.

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Witnesses:

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