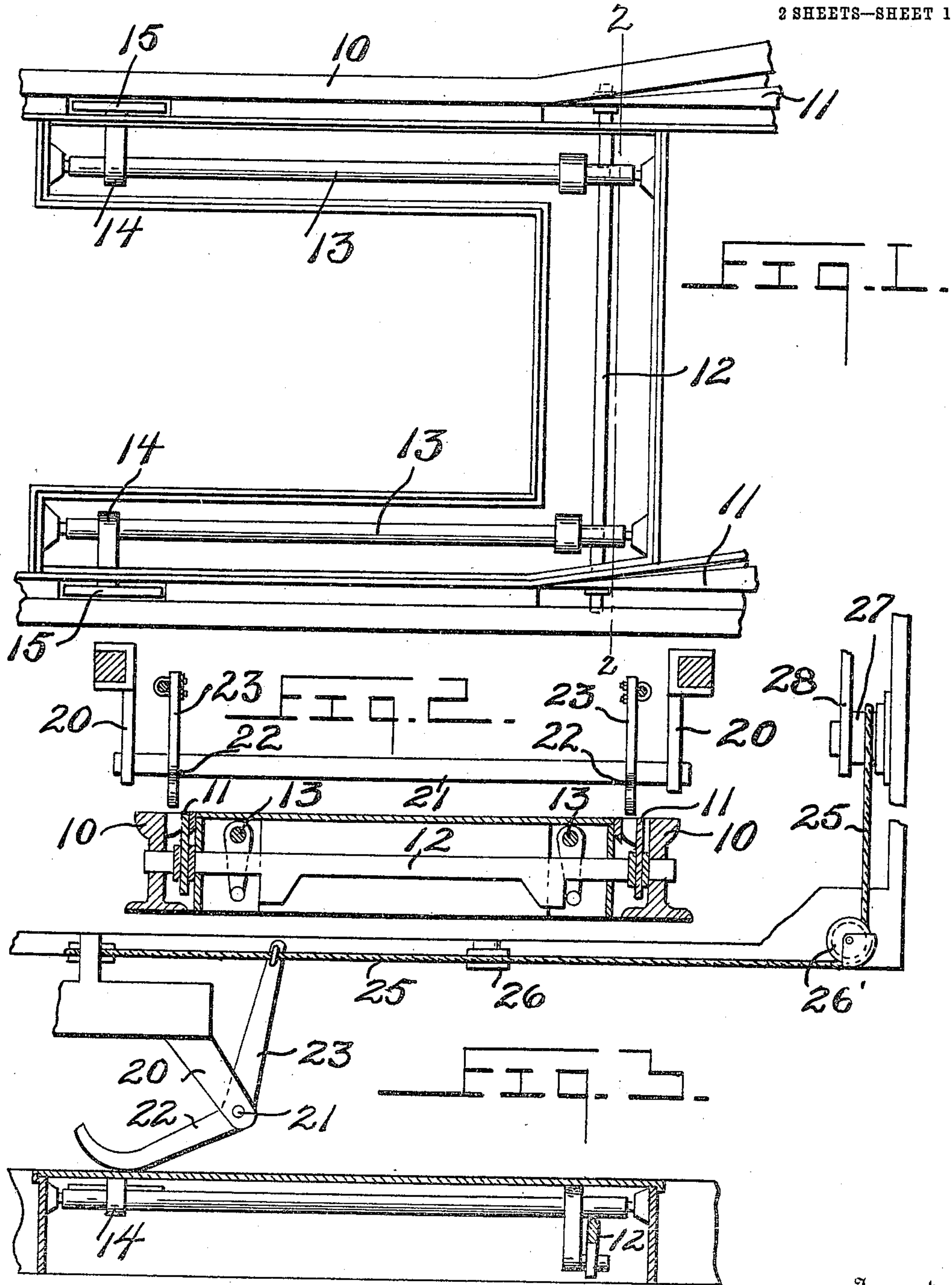


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 SWITCH OPERATING MECHANISM.  
 APPLICATION FILED AUG. 31, 1909.

962,562.

Patented June 28, 1910.

2 SHEETS—SHEET 1.



Witnesses  
 E. E. Johansen.  
 M. L. Lowe.

Inventor  
 George Flessa.

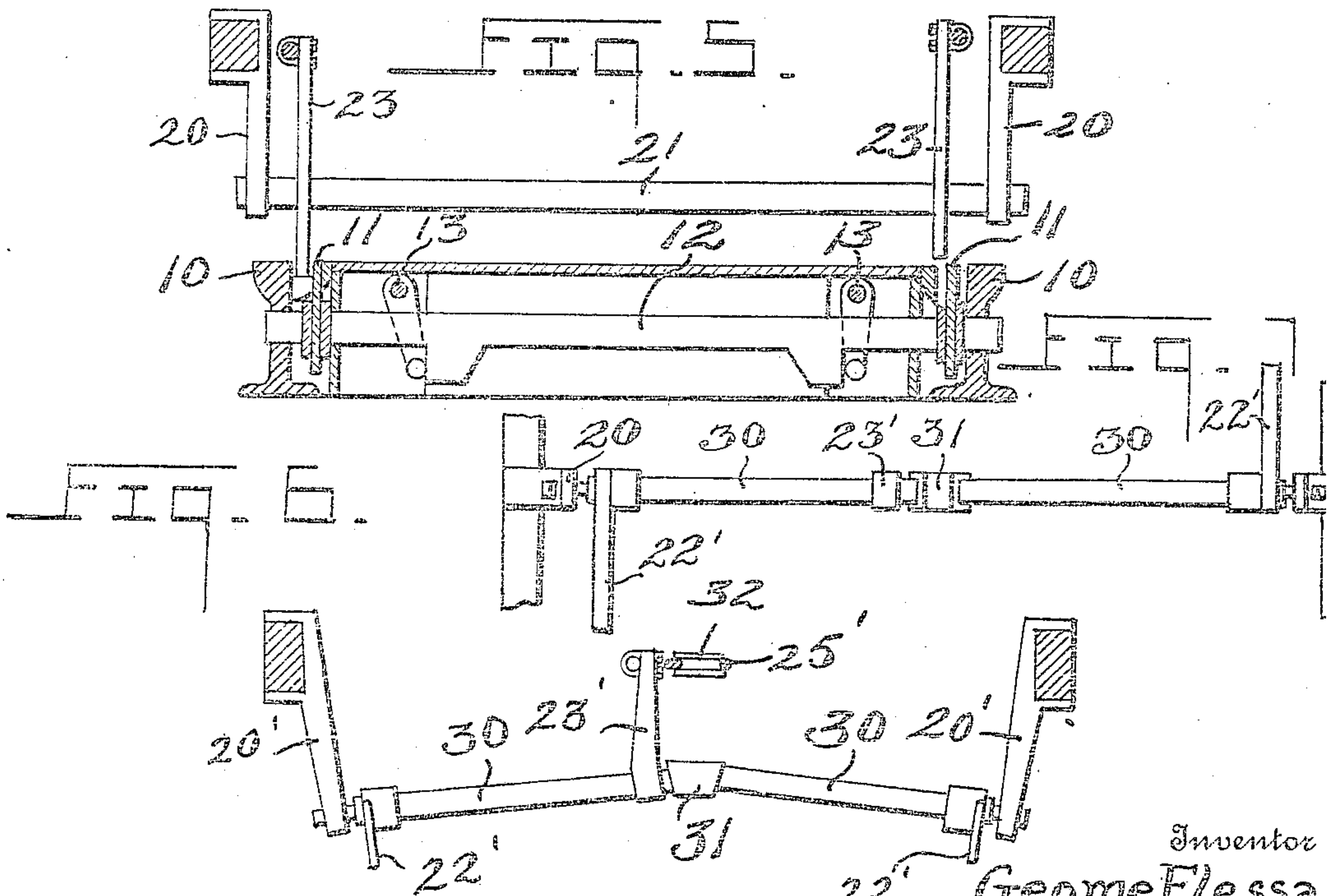
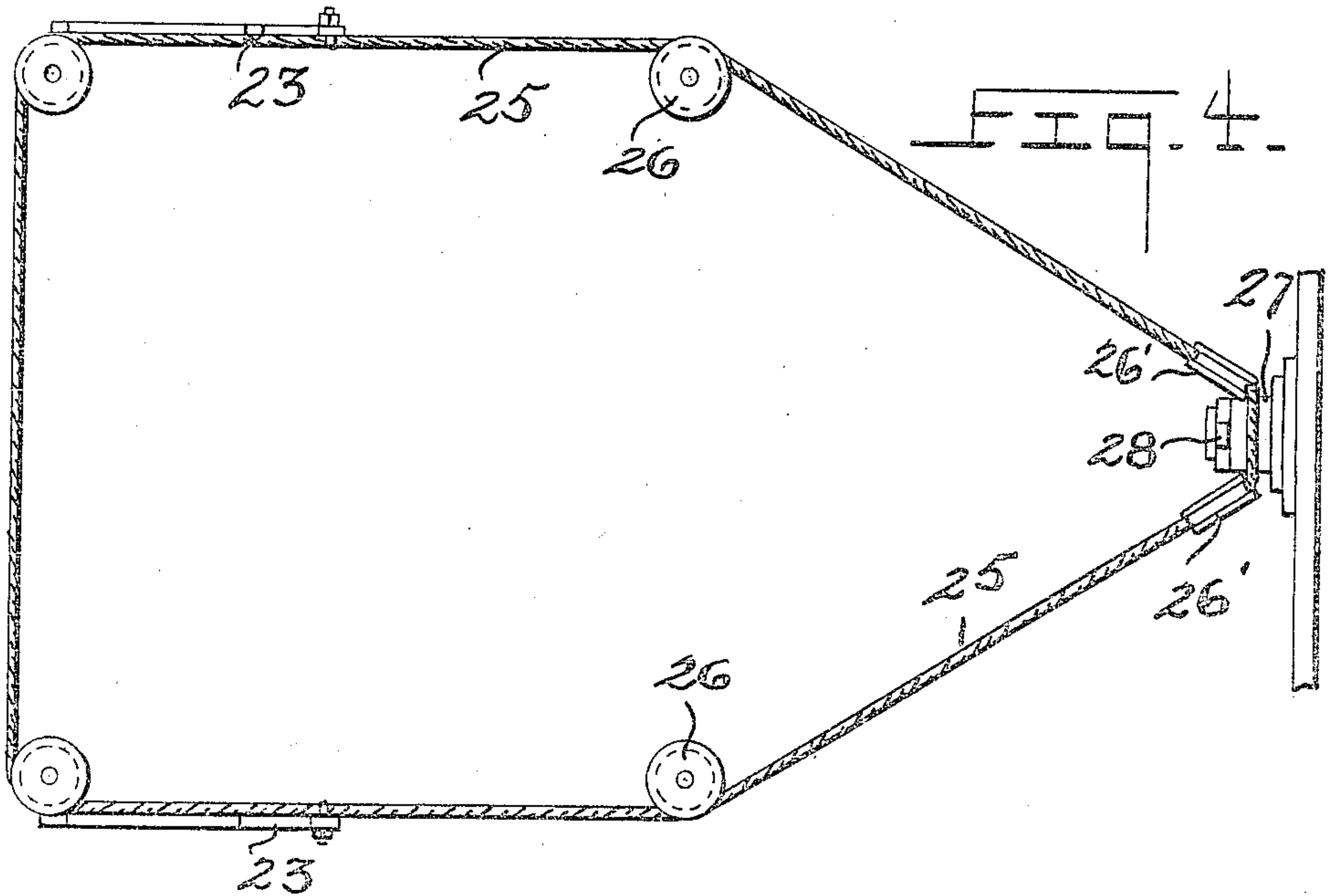
By Howard & Chandler.  
 Attorneys

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Inventor  
 George Flessa  
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 Attorneys



# UNITED STATES PATENT OFFICE.

GEORGE FLESSA, OF RAWHIDE, NEVADA.

SWITCH-OPERATING MECHANISM.

962,562.

Specification of Letters Patent. Patented June 28, 1910.

Application filed August 31, 1909. Serial No. 515,395.

*To all whom it may concern:*

Be it known that I, GEORGE FLESSA, a citizen of the United States, residing at Rawhide, in the county of Esmeralda and State of Nevada, have invented certain new and useful Improvements in Switch-Operating Mechanism, of which the following is a specification.

This invention relates to certain new and useful improvements in switch operating mechanism, and more particularly to new and novel means carried by the car or other rolling stock whereby the switch points may be automatically thrown to open or close the switch on the approach of the car.

The primary object of my invention is to provide mechanism of this character which may be instantaneously operated by the driver of the car to properly set the switch points.

A further object is to provide an operating mechanism for switches which comprises very few parts and may be readily assembled and secured in position on the car.

With these and other objects in view, the present invention consists in the combination and arrangement of parts as will be hereinafter more fully described and particularly pointed out in the appended claims, it being understood that changes in the specific structure shown and described may be made within the scope of the claims without departing from the spirit of the invention.

In the drawings forming a part of this specification, and in which like numerals of reference indicate similar parts in the several views, Figure 1 is a top plan view of the switch. Fig. 2 is a section taken on the line 2—2 of Fig. 1. Fig. 3 is a longitudinal sectional view of the device, one of the operating arms being depressed. Fig. 4 is a plan view of the operating means. Fig. 5 is a transverse section of the switch showing one of the operating arms engaged with the actuating mechanism. Fig. 6 is a detail view of the switch operating mechanism. Fig. 7 is a fragmentary bottom view of the device, showing the actuating arm and shaft.

My present invention is designed to be utilized in connection with automatic railway switches, and has particular reference to a switch of the character illustrated in my previous application for U. S. Letters Patent filed by me January 30, 1909, Serial Number 475,145, allowed June 22, 1909,

wherein there is shown the movable switch points and actuating mechanism connected therewith adapted to simultaneously move the points to open or close the switch. The particular construction of the switch actuating means will not here be set forth in detail as the mechanism about to be described and which comprises the subject matter of the present invention is applicable to various forms of switch actuating mechanisms, wherein a depressible head is arranged in juxtaposition to the track rails, and is adapted to be operated by suitable means carried by a moving car.

In the accompanying drawings, there is shown the rails 10 and the movable switch points 11 which are adapted to be opened and closed by a suitable switch point actuating mechanism. Broadly, this mechanism comprises a transverse switch point connecting bar 12, and the longitudinally disposed rotatable shafts 13 upon which are mounted suitable means engaged with the bar 12 and adapted to move the switch points to and away from the rails. To the opposite ends of the shafts 13 the arms 14 are secured, to the outer ends of which the heads 15 are attached and extend through openings provided in the rails 10. This mechanism is more particularly described in my companion application as above set forth. In the provision of suitable means whereby the heads 15 may be engaged and depressed to rotate the shafts 13 and thus oscillate the bar 12 to move the switch points, I employ the hangers 20 which are secured to the opposite sides of the car and depend therefrom. In the lower ends of these hangers a transverse connecting rod or shaft 21 is secured. Positioned inside of the hangers 20 and in close proximity thereto are the operating arms 22 which consist of the lower inverted arcuate portion and the substantially vertically extending portion 23. These arms are pivoted upon the transverse shaft 21, and the lower horizontal arcuate portions thereof are adapted to engage with the depressible heads 15 arranged adjacent to the tread of the rails.

The arms 23 are adapted to be swung backward or forward to elevate and lower the forward ends thereof. Both of the arms are never in contact with the heads 15 at the same time, as the depression of the heads moves the switch points in opposite directions to open or close the switch, therefore



when it is desired to run the train upon a side track, suitable means must be employed for holding one of the operating arms 22 out of engagement with the head 15 disposed immediately beneath the same. I accomplish this purpose in the following manner: The upper ends of the vertical portions 23 of the operating arms are secured to an endless cable 25, which passes around the pulleys 26 secured to the bottom of the car at opposite sides thereof. At the forward end of the car this cable converges and passes around the pulleys 26' and a cylindrical hub 27 which is secured in any desired manner to the inner surface of the front board of the car. This hub is rotatably mounted upon a suitable spindle and has connected thereto an operating handle 28 which is adapted to be oscillated by the motorman or driver of the car, whereupon the operating arms 22 will be raised or lowered by the movement of the cable 25 as will be readily seen from reference to Fig. 3. As the train approaches a closed switch, which it is desired to open so that the train may be run upon the siding, the motorman turns the operating lever 28 which will rotate the hub 27, and depress one or the other of the operating arms, which will engage the depressible head 15, rotate the longitudinal shaft 13 and thus move the transverse connecting bar 12 to throw the switch points and open the switch. This operation may be instantaneously accomplished, as the pivoted arms 22 are normally positioned very close to the surface of the rails, and it is only necessary to move them a short distance to engage with the heads 15 to operate the switch.

In Fig. 6 I have shown a slight modification of the means for operating the arms 22. In this form the hangers 20' are utilized and support therebetween a divided shaft 30 having a universal joint 31 connecting the inner ends thereof. The operating arms 22' are formed upon the outer ends of the shaft 30 adjacent to the hangers 20', and extend in opposite directions longitudinally of the track. Thus upon oscillation of the lever 23 in either direction one arm will be depressed and the other raised. These arms are of somewhat different form than the arms 22 of the preferred form as the vertically extending portions thereof are eliminated. This member, however, has its equivalent in the vertical arm 23' the upper end of which is secured to the cable 25' as shown. The cable 25' is carried from the forward pulleys 26 around a single pulley 32 located rearwardly of the arm 23'. It will be seen that by this construction when the lever 28 is operated in one direction, the arm 23' rotates the shaft 30 and depresses the operating arm 22' upon one side of the car, and upon oscillation of the lever 28 in

the opposite direction, the opposite arm will be depressed.

From the foregoing it will be seen that I have provided a very simple switch operating mechanism, the various parts of which may be readily assembled when applied to the car.

While the device is more particularly adapted for use in connection with street railway switches as set forth in my previous application, it will be understood that the principles as described above may be advantageously employed in steam railroad systems, with but slight variation in the form and proportion of the elements employed.

It will be obvious that the device may be inexpensively manufactured and as all of the parts are of extremely simple form, the cost of repairs will be slight. Moreover, the device is extremely durable and highly efficient in operation.

What is claimed is:

1. A switch operating mechanism comprising switch point throwing means having depressible heads arranged adjacent to the rails of a track, a car, depending hangers secured to the bottom of the car at either side thereof, arms pivotally supported by the hangers, each of said arms including a horizontal arcuate portion, the arcuate portions of said arms being normally disposed above the level of and in line with the depressible heads, a cable slidably circulated upon the car, connections between said arms and the cable to depress one or the other of the arms respectively into engagement with the adjacent head to open or close the switch upon movement of the cable in opposite directions, and means for moving the cable in either direction.

2. A switch operating mechanism comprising switch point throwing means having depressible heads arranged adjacent to the rails of a track, depending arms pivotally mounted beneath a car, said arms having a horizontally and vertically extending portion, the outer end of the horizontal portions being curved and disposed immediately above the surface of the rails, pulleys arranged in spaced relation upon the bottom of the car, a cable arranged upon said pulleys, said cable converging to the center of the car at its forward end and passing around pulleys arranged thereat, said cable extending over a cylindrical hub rotatably mounted, an operating handle connected to the hub to rotate the same and move the cable, the upper extremities of the pivoted arms being connected to the cable and adapted to be separately moved into engagement with the depressible heads to open or close the switch.

3. A switch operating mechanism comprising switch point throwing means having



depressible heads arranged adjacent to the rails of a track, hangers secured to opposite sides of a car, operating arms pivoted upon a transversely disposed shaft, the ends of  
5 said shaft being positioned in the hangers, said arms extending rearwardly and horizontally from the shaft and vertically above the same, a cable connected to the upper ends of the arms said cable being disposed  
10 upon a plurality of pulleys arranged on the bottom of the car, the forward portion of the cable converging inwardly and extending around vertically positioned pulleys secured to the car, said cable extending over a

cylindrical hub, an operating handle secured to the hub and movable in opposite directions to move the cable, the movement of said cable being adapted to lower one of the operating arms into engagement with the depressible head to operate the switch  
15 points. 20

In testimony whereof I affix my signature, in presence of two witnesses.

GEORGE FLESSA.

Witnesses:

W. F. PUNTILA,  
O. J. VAN PELT.