

C. W. REINOEHL & M. W. LONG.

RAILWAY SWITCH.

APPLICATION FILED JULY 20, 1908.

925,726.

Patented June 22, 1909.

2 SHEETS—SHEET 1.

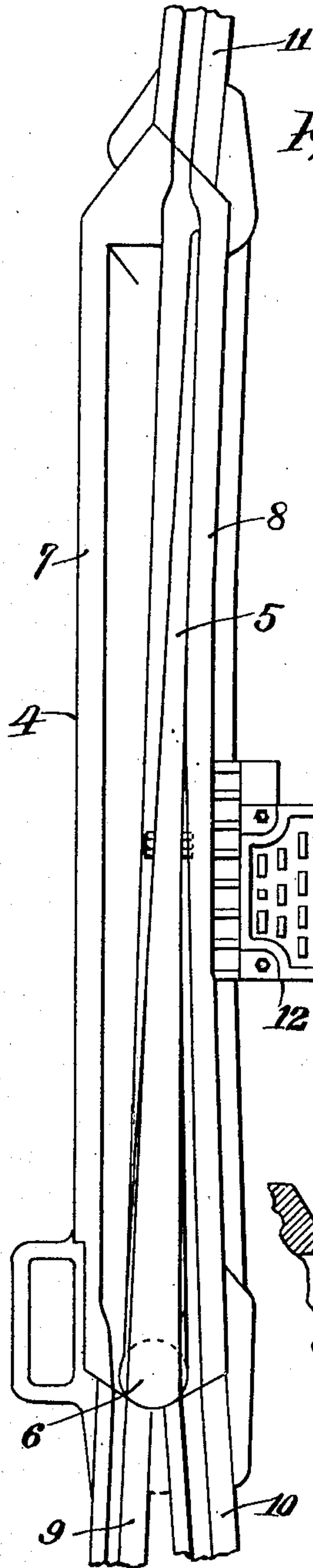


Fig. 1.

Fig. 2.

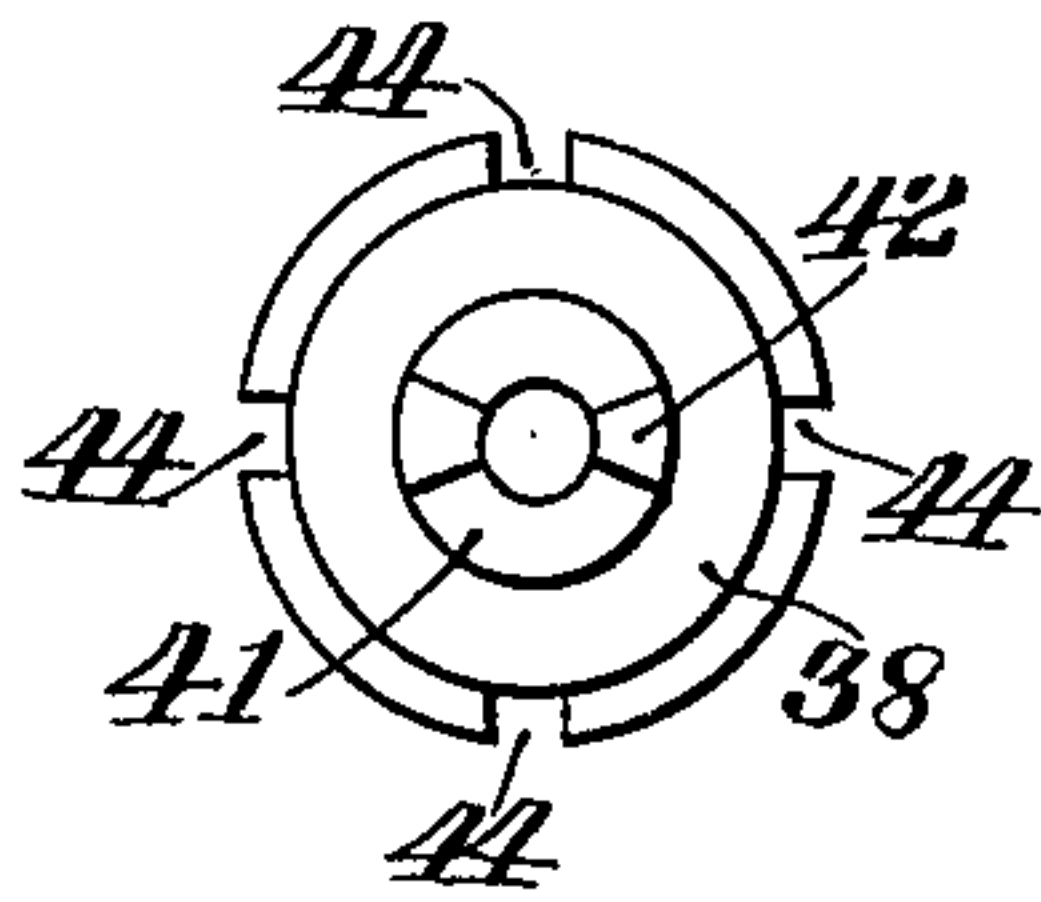
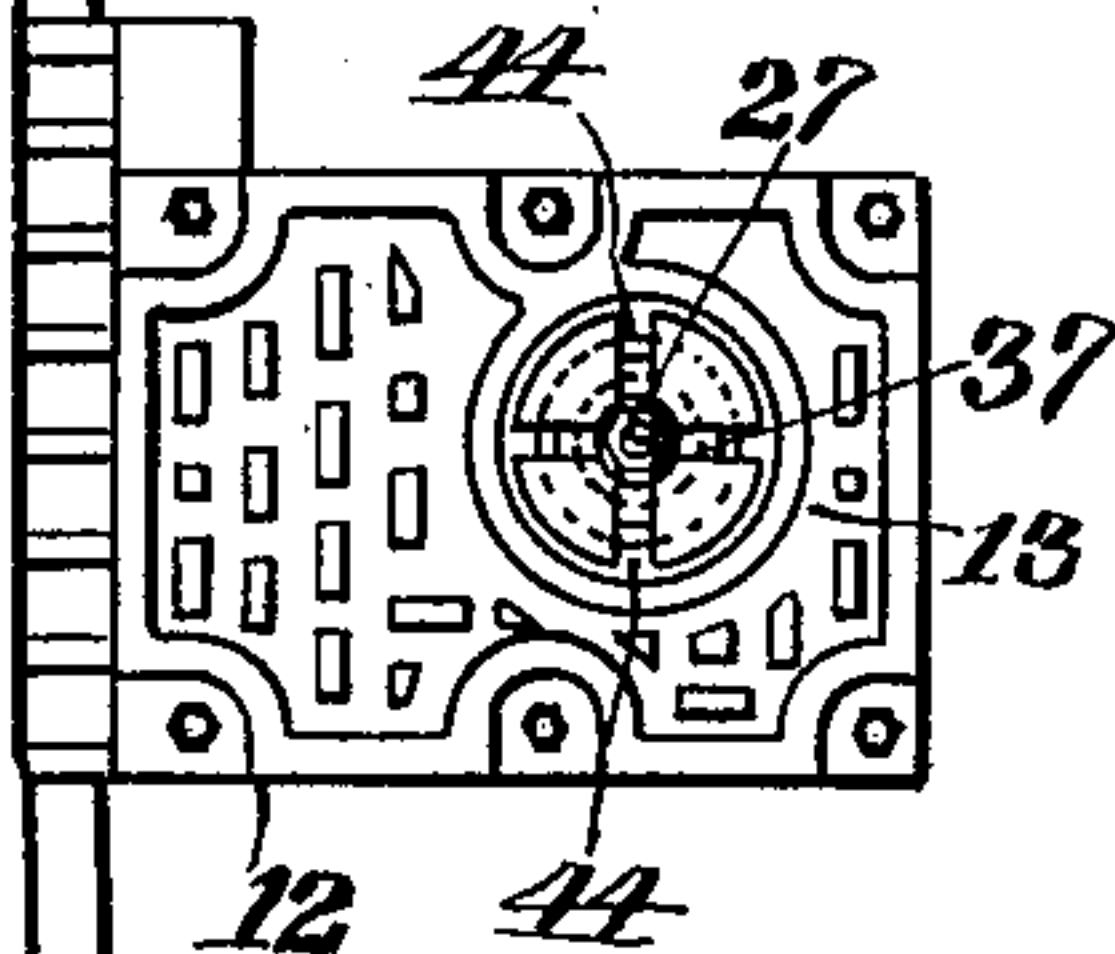
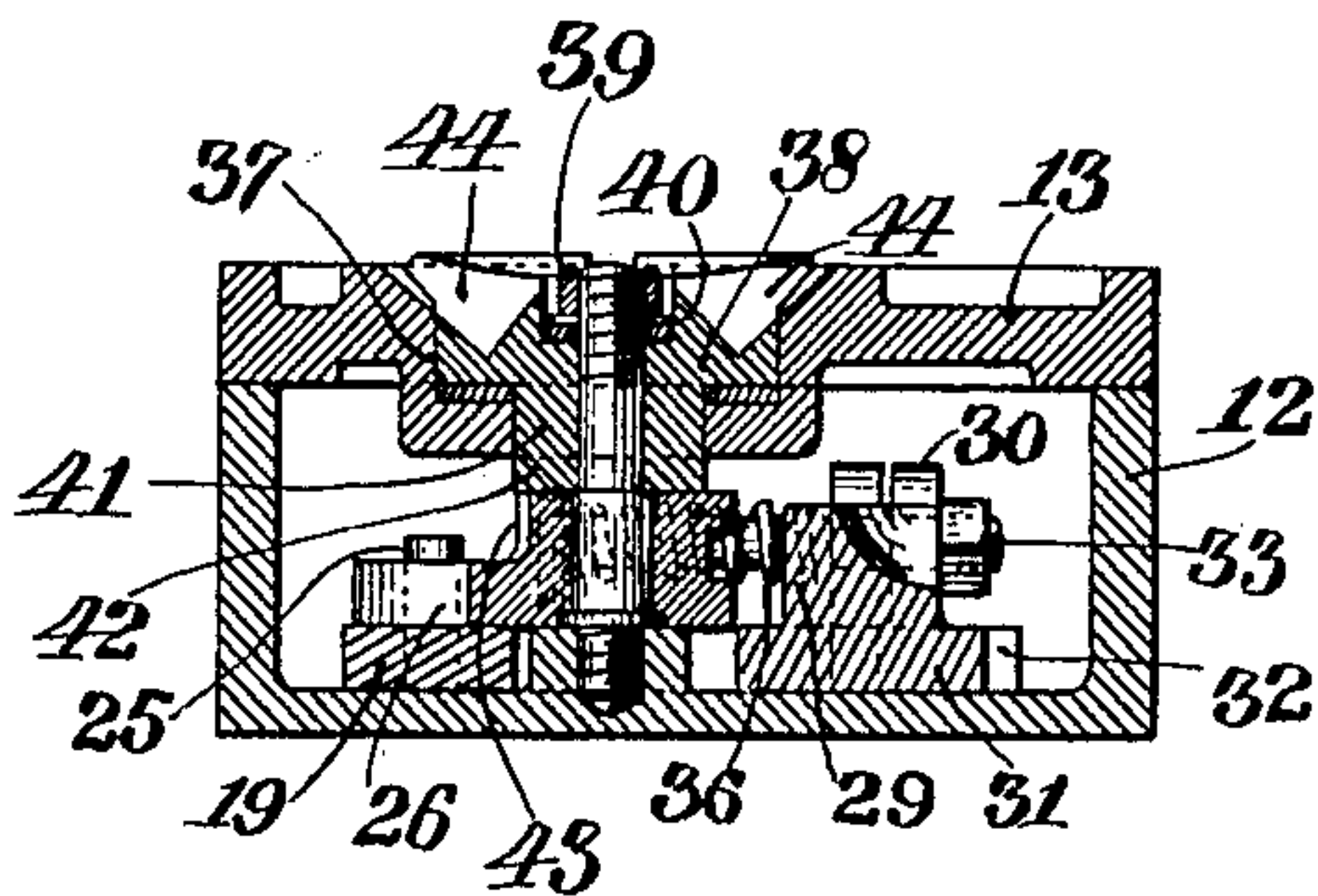
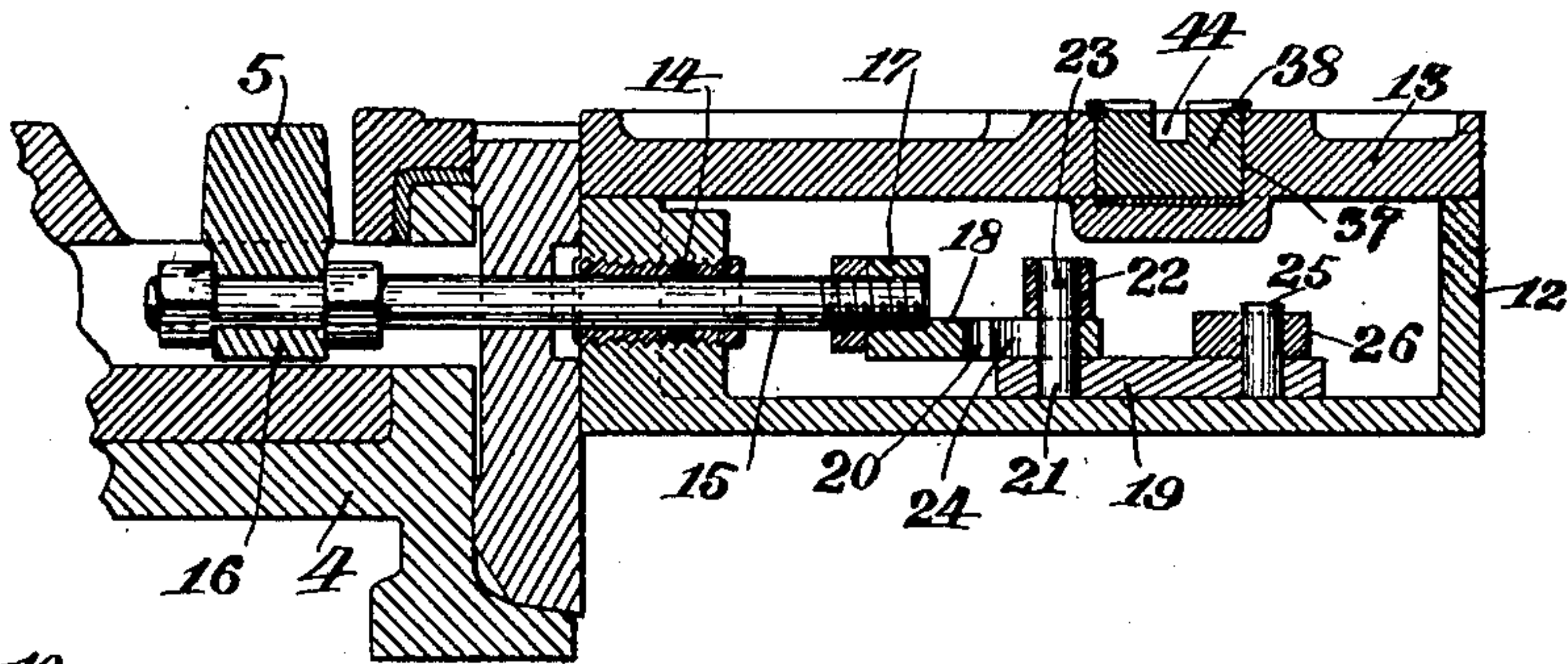


Fig. 4.

Fig. 3.



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2 SHEETS—SHEET 2.

Fig. 5.

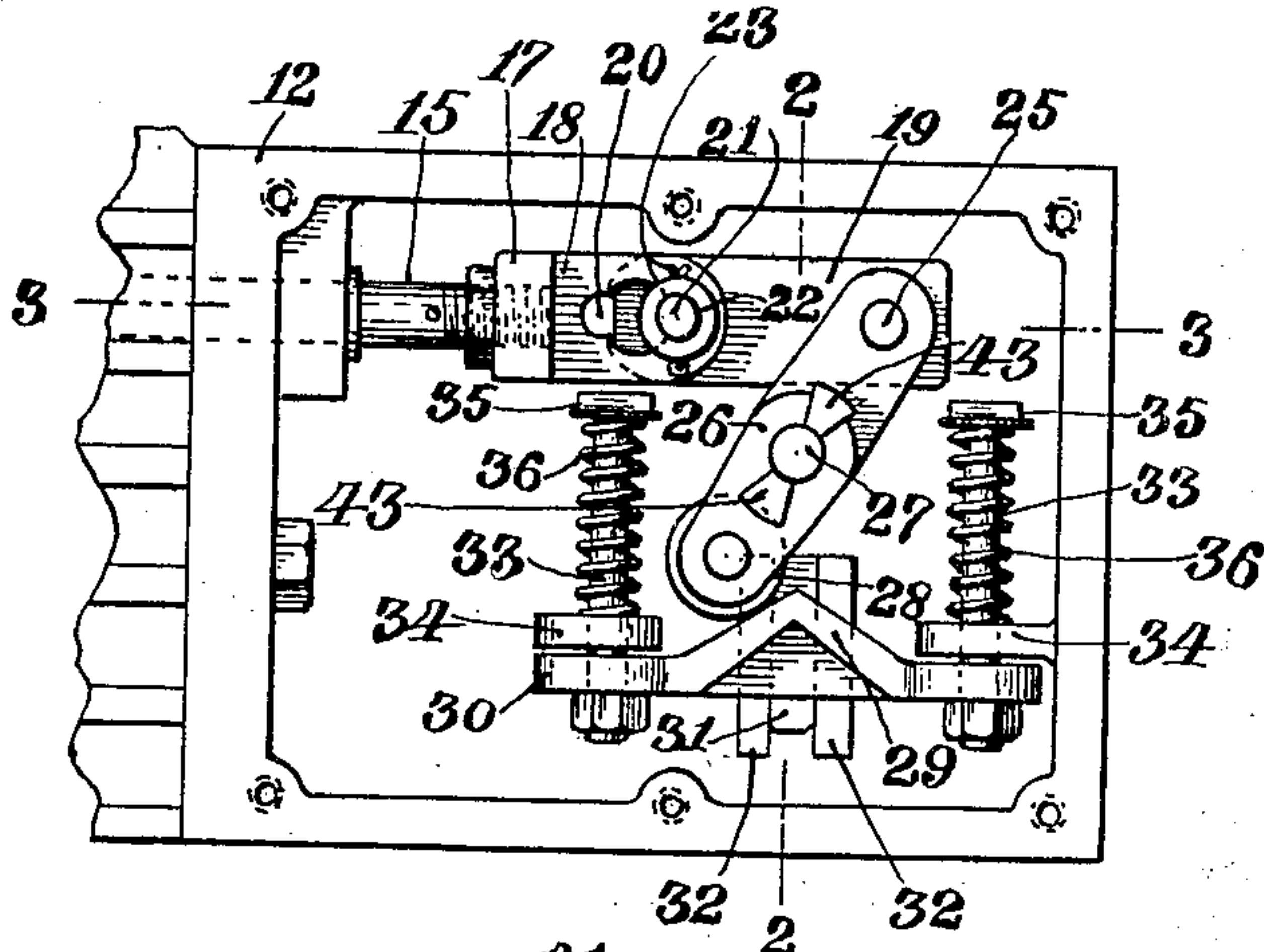


Fig. 6.

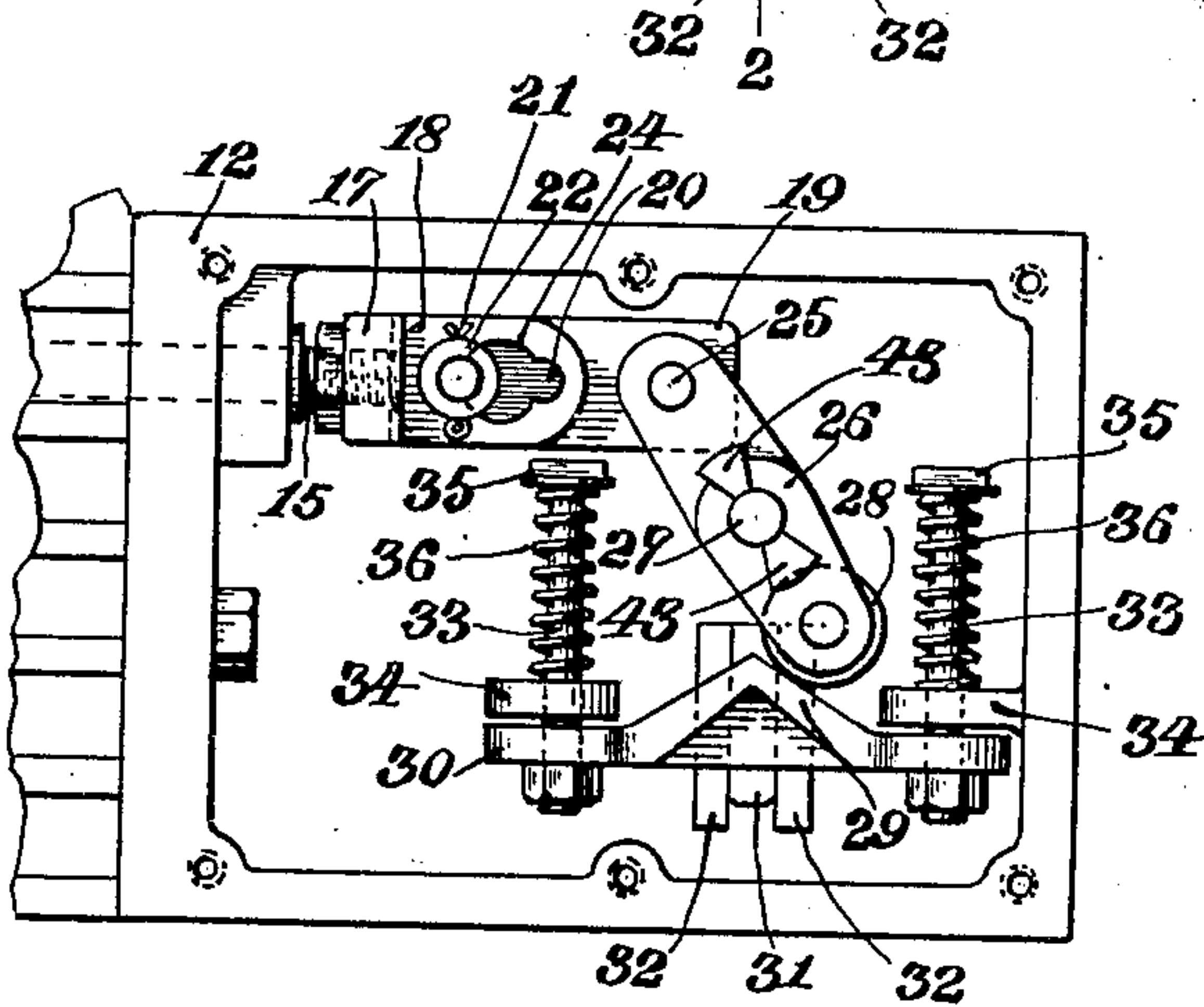
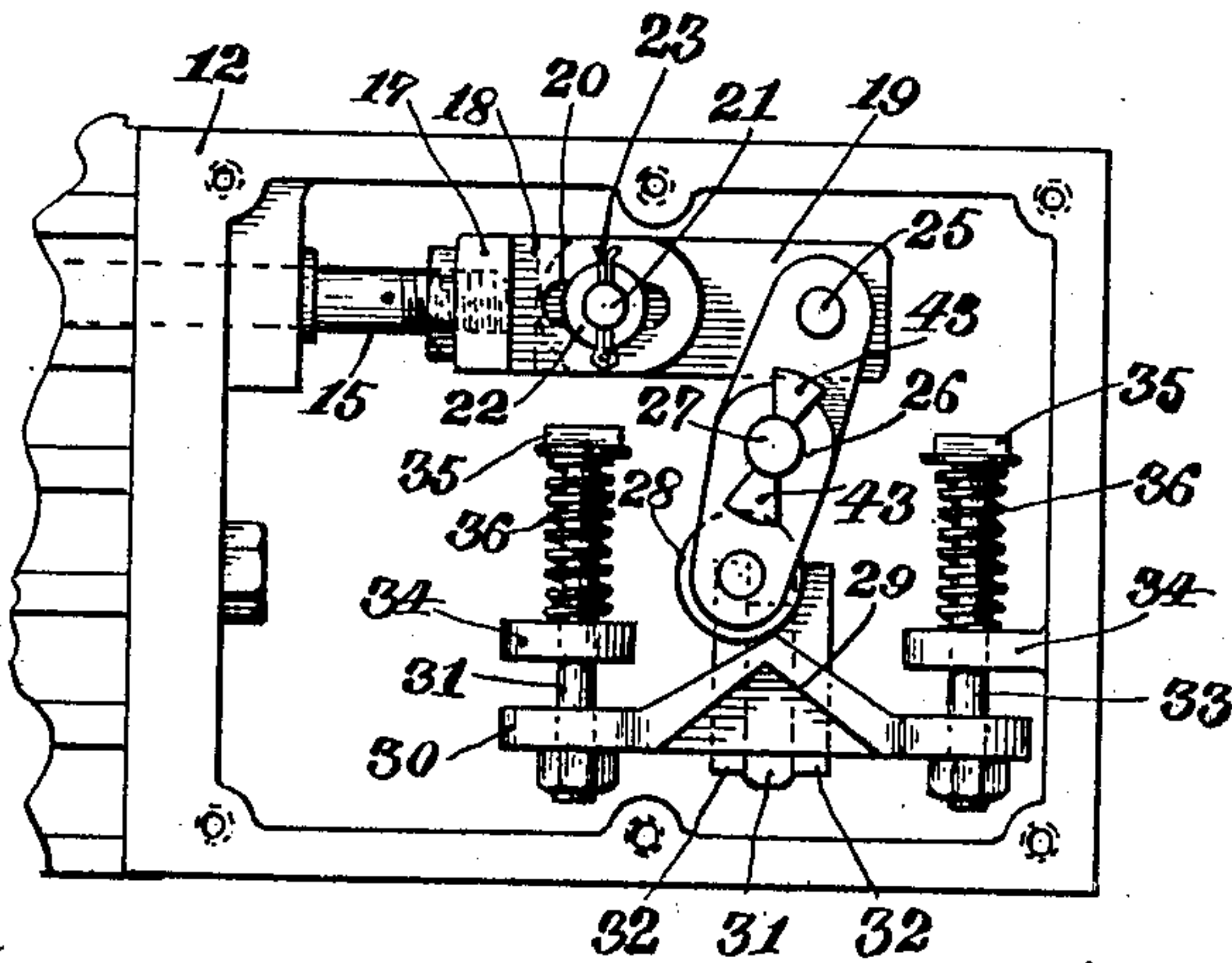


Fig. 7.



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UNITED STATES PATENT OFFICE.

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RAILWAY-SWITCH.

No. 925,726.

Specification of Letters Patent.

Patented June 22, 1909.

Application filed July 20, 1908. Serial No. 444,538.

To all whom it may concern:

Be it known that we, CHARLES W. REINOEHL and MALCOLM W. LONG, citizens of the United States, said REINOEHL residing at Steelton, Dauphin county, State of Pennsylvania, and said LONG residing at Harrisburg, Dauphin county, State of Pennsylvania, have invented certain new and useful Improvements in Railway-Switches, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

Our invention relates to railroad switches, the object being to provide a simple, durable, and efficient means which may be set to maintain the switch tongue of a railway switch yieldingly in one of its two positions, and automatically return it to such position after being moved therefrom; which may be set to maintain the switch tongue yieldingly in its other position, and automatically return it to said other position after being moved therefrom; and which may be set to maintain the switch tongue yieldingly in either of the two positions to which it may be adjusted.

The invention consists in the novel features of construction and combinations of parts which we shall hereinafter fully describe and claim.

In the drawings:—Figure 1 is a plan view of a railway switch section provided with our invention. Fig. 2 is a vertical section, as on the line 2—2, of Fig. 5, including the cover for the casing. Fig. 3 is a vertical section, as on the line 3—3 of Fig. 5, including the cover for the casing. Fig. 4 is a bottom view of the adjustable head for setting the spring actuated mechanism. Fig. 5 is a plan view of the box or casing containing the spring actuated mechanism, showing the parts set in position to maintain the switch tongue yieldingly in one of its two positions, and automatically return it to such position after being moved therefrom; the cover for the box being removed. Fig. 6 is a view similar to Fig. 5, showing the parts set in position to maintain the switch tongue yieldingly in the other position, and automatically return it to said other position after being moved therefrom. Fig. 7 is a view similar to Fig. 5, showing the parts set in position to maintain the switch tongue yieldingly in either of the two positions to which it may be adjusted.

4 is a railway switch section, including the tongue 5, the heel end of which is pivoted as at 6, and the side walls 7 and 8 between which the tongue 5 is arranged. 9 and 10 are the rails leading from the heel end of the switch, and 11, the rail leading from the point end of the switch. The tongue 5 is movable laterally into engagement with either the wall 7 or the wall 8; and when it is in engagement with the wall 7, car wheels are directed thereby between the rails 10 and 11, and when it is in engagement with the wall 8, car wheels are directed thereby between the rails 9 and 11.

Secured to one side of the switch section 4, is a box or casing 12, provided with a suitable cover 13. Extending through a stuffing box 14 in the wall of the casing 12, is a rod 15, one end of which extends through an opening in the switch section 4 below the switch tongue 5, and is secured to a lug 16 projecting downwardly from the switch tongue 5. The other end of the rod 15 within the casing 12 is screw-threaded, and screwed into a boss 17 on a plate 18 which extends over one end of a plate 19 resting upon the bottom of the casing 12. The plate 18 is provided with a longitudinal slot 20, therein, through which extends a pin 21, rising from the underlying plate 19.

The pin 21 projects above the top of the plate 18 and is provided with a collar 22 adapted to engage the top of the plate 18. A cotter pin 23 extends through the collar 22 and pin 21, to hold the collar 22 in the position just mentioned. The width of the end portions of the slot 20 is equal to the diameter of the pin 21, and said walls of the center portion of the slot 20 are expanded, as at 24, to receive and fit the collar 22, which may be adjusted into the expanded portion 24, for a purpose hereinafter explained.

The plate 19 is pivotally connected, as at 25, to one end of a lever 26, which is rotatably mounted on a pin 27 screwed into a boss on the bottom of the casing 12, and rising therefrom. The other end of the lever 26 is provided with a roller 28 which is engaged by a V-shaped cam 29 projecting centrally from a bar 30 toward the pivot pin of the lever 26. The lower portion of the cam 29 is provided with a guide-block 31 arranged between two ribs 32 on the bottom of the casing 12 and forming a guide-way to direct the cam 29 toward and from the pin

27 of the lever 26. The ends of the bar 30 are provided with pins 33 which project parallel to the guide-blocks 31 and through perforations in lugs 34 on the casing 12. The projecting ends of the pins 33 are provided with heads 35 between which and the lugs 34 are interposed springs 36 which encircle the pins 33 and force said pins and therewith the bar 30 and the V-shaped cam 29 normally toward the pivot pin 27 of the lever 26.

Seated in a depression 37 in the cover 13, is a head 38 which is rotatably mounted on the pin 27. The upper end of the pin 27 is provided with a nut 39 which engages a washer in the bottom of a depression 40 in the head 38 to maintain the head 38 in position within the depression 37. The head 38 is provided with a downwardly extending boss 41 the bottom of which is arranged just above the top of the lever 26.

The bottom of the boss 41 is provided with two teeth 42 which are arranged in the same horizontal plane with and between two teeth 43 projecting upwardly from the top of the lever 26, whereby the head 38 may be turned to cause the teeth 42 to engage the teeth 43 and turn or adjust the lever 26 for a purpose hereinafter explained. The head 38 is provided with suitable radially-arranged slots 44 into which any suitable tool or bar may be inserted for the purpose of turning the head 38.

The operation is as follows:—When it is desired to maintain the switch tongue 5 yieldingly against the wall 8, and to automatically return it to said position after being moved therefrom, the parts are set in the position shown in Figs. 1, 2, 3, and 5. In this position of the parts, the Y-shaped cam 29 is acting upon the roller 28 and lever 26 to force the plate 19 in a direction away from the switch section 4, thus causing the pin 21 to engage one end of the slot 20 and act upon the plate 18 and rod 15 in a manner to draw the switch tongue 5 over into engagement with the wall 8. Should the switch tongue 5 be moved from its position against the wall 8, against the action of the springs 36, the roller 28 will not pass over the point of the cam 29; therefore, when the pressure moving the switch tongue 5 is removed, the cam 29 will act upon the lever 26 to return the switch tongue to its position against the wall 8. When it is desired to maintain the switch tongue 5 yieldingly in its other position, in engagement with the wall 7, and to automatically return it to said other position after being moved therefrom, a bar or other suitable tool, is inserted in one of the slots 44 in the head 38, and the head 38 is turned to cause the teeth 42 thereof to engage the teeth 43 of the lever 26 and turn the lever to move its roller 28 past the point of the Y-shaped cam 29 against the action of the springs 36, and into engage-

ment with the other side of said cam, as shown in Fig. 6. This adjustment of the lever 26 moves the pin 21 through the slot 20 and into engagement with the other end thereof, and acts upon the plate 18 and there- with the rod 15, in a manner to force the switch tongue 5 over into engagement with the wall 7; in which position it is held yieldingly by the action of the cam 29 and its connections. Should the tongue 5 be moved against the action of the springs 36, the roller 28 will not pass over the point of the cam 29; therefore, when the pressure moving the switch tongue 5 is removed, the cam 29 will act upon the lever 26 to return the switch tongue to its position against the wall 7. When the parts are in the position shown in Fig. 6, to retain the switch tongue yieldingly in engagement with the wall 7, and it is desired to return them to the position shown in Fig. 5 and retain the switch tongue yieldingly in engagement with the wall 8, this may be done by inserting a bar or other tool in one of the slots 44 of the head 38, and turning said head to adjust the lever 26 to the position shown in Fig. 5. When it is desired to maintain the switch tongue 5 yieldingly in position against either the wall 7 or the wall 8 to which it may be adjusted, the lever 26 is adjusted upon the pin 27 to the position shown in Fig. 7, thus bringing the pin 21 to a position midway between the ends of the slot 20; whereupon, the cotter pin 23 is removed from the collar 22 and pin 21, and the collar 22 is dropped into the expanded central portion 24 of the slot 20. The cotter pin 23 is then replaced within the opening in the pin 21, above the collar 22, to retain said collar in its position within the expanded portion of the slot. When the parts are in the position shown in Fig. 7, the roller 28 is very near the point of the Y-shaped cam 29, and the action of one side of the cam 29 is to force the switch tongue 5 yieldingly into engagement with the wall 8. Should the switch tongue 5 be moved from its position in engagement with the wall 7, the roller 28 will pass over the point of the Y-shaped cam 29, against the action of the springs 36 and the other side of the cam 29 will then act upon the parts to hold the switch tongue 5 yieldingly in engagement with the wall 7. Thus, each time the switch tongue 5 is moved from side to side, the roller 28 will move over the point of the cam.

Having thus described our invention, we claim as new and desire to secure by Letters Patent:—

1. In a railway switch the combination, with the supporting structure and the movable switch tongue, of a pivoted lever, connections between said switch tongue and said lever, including two parts movable with relation to each other in a direction transversely of the switch tongue and having one

position of engagement with each other when the lever is moved in one direction and another position of engagement with each other when the lever is moved in the reverse direction; and spring operated means pressing said lever in one direction when the lever is adjusted to one position, and pressing said lever in the reverse direction when the lever is adjusted to another position, substantially as described.

2. In a railway switch, the combination, with the supporting structure and the movable switch tongue, of a pivoted lever, connections between said switch tongue and said lever, including two parts movable with relation to each other in a direction transversely of the switch tongue, and having one position of engagement with each other when the lever is moved in one direction, and another position of engagement with each other when the lever is moved in the reverse direction; means for engaging said parts with each other in a third position between said first and said second positions, and spring operated means pressing said lever in one direction when the lever is adjusted to one position and pressing said lever in the reverse direction when the lever is adjusted to another position, substantially as described.

3. In a railway switch the combination, with the supporting structure and the movable switch tongue, of a pivoted lever, connections between said switch tongue and said lever, including two parts movable with relation to each other in a direction transversely of the switch tongue, and having one position of engagement with each other when the lever is moved in one direction; and another position of engagement with each other when the lever is moved in the reverse direction, a V-shaped cam acting upon said lever and movable toward and from the pivot thereof, means for guiding said cam, and a spring pressing said cam toward said lever, substantially as described.

4. In a railway switch the combination, with the supporting structure and the movable switch tongue, of a pivoted lever, connections between said switch tongue and said lever, including two parts movable with relation to each other in a direction transversely of the switch tongue, and having one position of engagement with each other when the lever is moved in one direction, and another position of engagement with each other when the lever is moved in the reverse direction; means for engaging said parts with each other in a third position between said first and said second positions, a V-shaped cam acting upon said lever and movable toward and from the pivot thereof, means for guiding said cam, and a spring pressing said cam toward said lever, substantially as described.

5. In a railway switch the combination, with the supporting structure and the movable switch tongue, of a pivoted lever, connections between said switch tongue and said lever, including two parts movable with relation to each other in a direction transversely of the switch tongue, one of said parts having a slot therein and the other of said parts having a pin extending into said slot and adapted to engage one end of the slot when the lever is moved in one direction, and to engage the other end of the slot when the lever is moved in the reverse direction; and spring-operated means pressing said lever in one direction when the lever is adjusted to one position, and pressing said lever in the reverse direction when the lever is adjusted to another position, substantially as described.

6. In a railway switch the combination, with the supporting structure and the movable switch tongue, of a pivoted lever, connections between said switch tongue and said lever, including two parts movable with relation to each other in a direction transversely of the switch tongue, one of said parts having a slot therein and the other of said parts having a pin extending into said slot and adapted to engage one end of the slot when the lever is moved in one direction, and to engage the other end of the slot when the lever is moved in the reverse direction; means for engaging said pin with said slotted part in a position between its two positions of engagement with the two ends of said slot; and spring operated means pressing said lever in one direction when the lever is adjusted to one position, and pressing said lever in the reverse direction when the lever is adjusted to another position, substantially as described.

7. In a railway switch the combination, with the supporting structure and the movable switch tongue, of a pivoted lever, connections between said switch tongue and said lever, including two parts movable with relation to each other in a direction transversely of the switch tongue, one of said parts having a slot therein and the other of said parts having a pin extending into said slot and adapted to engage one end of the slot when the lever is moved in one direction, and to engage the other end of the slot when the lever is moved in the reverse direction; a V-shaped cam acting upon said lever and movable toward and from the pivot thereof; means for guiding said cam, and a spring pressing said cam toward said lever, substantially as described.

8. In a railway switch the combination, with the supporting structure and the movable switch tongue, of a pivoted lever, connections between said switch tongue and said lever including two parts movable with relation to each other in a direction transversely

of the switch tongue, one of said parts having a slot therein and the other of said parts having a pin extending into said slot and adapted to engage one end of the slot when the lever is moved in one direction, and to engage the other end of the slot when the lever is moved in the reverse direction; means for engaging said pin with said slotted part in a position between its two positions of engagement with the two ends of said slot; a V-shaped cam acting upon said lever and movable toward and from the pivot thereof; means for guiding said cam, and a spring pressing said cam toward said lever, substantially as described.

9. In a railway switch the combination, with the supporting structure and the movable switch tongue, of a pivoted lever, connections between said switch tongue and said lever, including two parts movable with relation to each other in a direction transversely of the switch tongue, one of said parts having a slot therein the central portion of which is wider than its end portions, and the other of said parts having a pin extending into said slot and adapted to engage one end of the slot when the lever is moved in one direction and to engage the other end of the slot when the lever is moved in the reverse direction; a collar surrounding said pin and adjustable thereon into the wide central portion of said slot; and spring operated means pressing said lever in one direction when the lever is adjusted to one position and pressing said lever in the reverse direction when the lever is adjusted to another position, substantially as described.

10. In a railway switch, the combination with the supporting structure including a casing and the movable switch tongue, of a pivoted lever within the casing, connections between said lever and said switch tongue; spring operated means within said casing and pressing said lever in one direction when the lever is adjusted to one position, and pressing said lever in the reverse direction when the lever is adjusted to another position; and a rotatable member extending from the interior to the exterior of said casing and having a part movable into engagement with said lever to adjust it about its pivot when said member is turned, substantially as described.

11. In a railway switch the combination with the supporting structure including a casing and the movable switch tongue, of a pivoted lever within the casing, connections

between said lever and said switch tongue, spring operated means within said casing and pressing said lever in one direction when the lever is adjusted to one position, and pressing said lever in the reverse direction when the lever is adjusted to another position; and a rotatable member extending from the interior to the exterior of said casing and having its axis of rotation substantially in line with the axis of the pivot of said lever, said member having a tooth adapted to engage said lever when the member is turned, substantially as described.

12. In a railway switch the combination with the supporting structure including a casing and the movable switch tongue, of a pivot stud within the casing, a lever pivotally mounted on said stud, connections between said lever and said switch tongue, spring operated means within said casing and pressing said lever in one direction when the lever is adjusted to one position, and pressing said lever in the reverse direction when the lever is adjusted to another position, and a member rotatably mounted on said pivot stud and extending from the interior to the exterior of said casing and having a tooth adapted to engage said lever when said member is turned, substantially as described.

13. In a railway switch, the combination, with the supporting structure and the movable switch tongue, of a pivoted lever, connections between said lever and said switch tongue, a V-shaped cam acting upon said lever and movable toward and from the pivot thereof, means for guiding said cam, and a spring pressing said cam toward said lever, substantially as described.

14. In a railway switch, the combination, with the supporting structure and the movable switch tongue, of a pivoted lever, a bar movable toward and from the pivot of said lever, and carrying a V-shaped cam acting upon said lever, means for guiding said bar, and a pair of springs acting upon said bar on each side of said V-shaped cam and pressing said bar toward said lever, substantially as described.

In testimony whereof, we have hereunto affixed our signatures.

CHARLES W. REINOEHL.
MALCOLM W. LONG.

Witnesses:

B. L. WEAVER,
WM. R. MILLER.