

(No Model.)

4 Sheets—Sheet 1.

J. McD. RAINEY.
AUTOMATIC CAR AND AIR BRAKE COUPLING.

No. 574,268.

Patented Dec. 29, 1896.

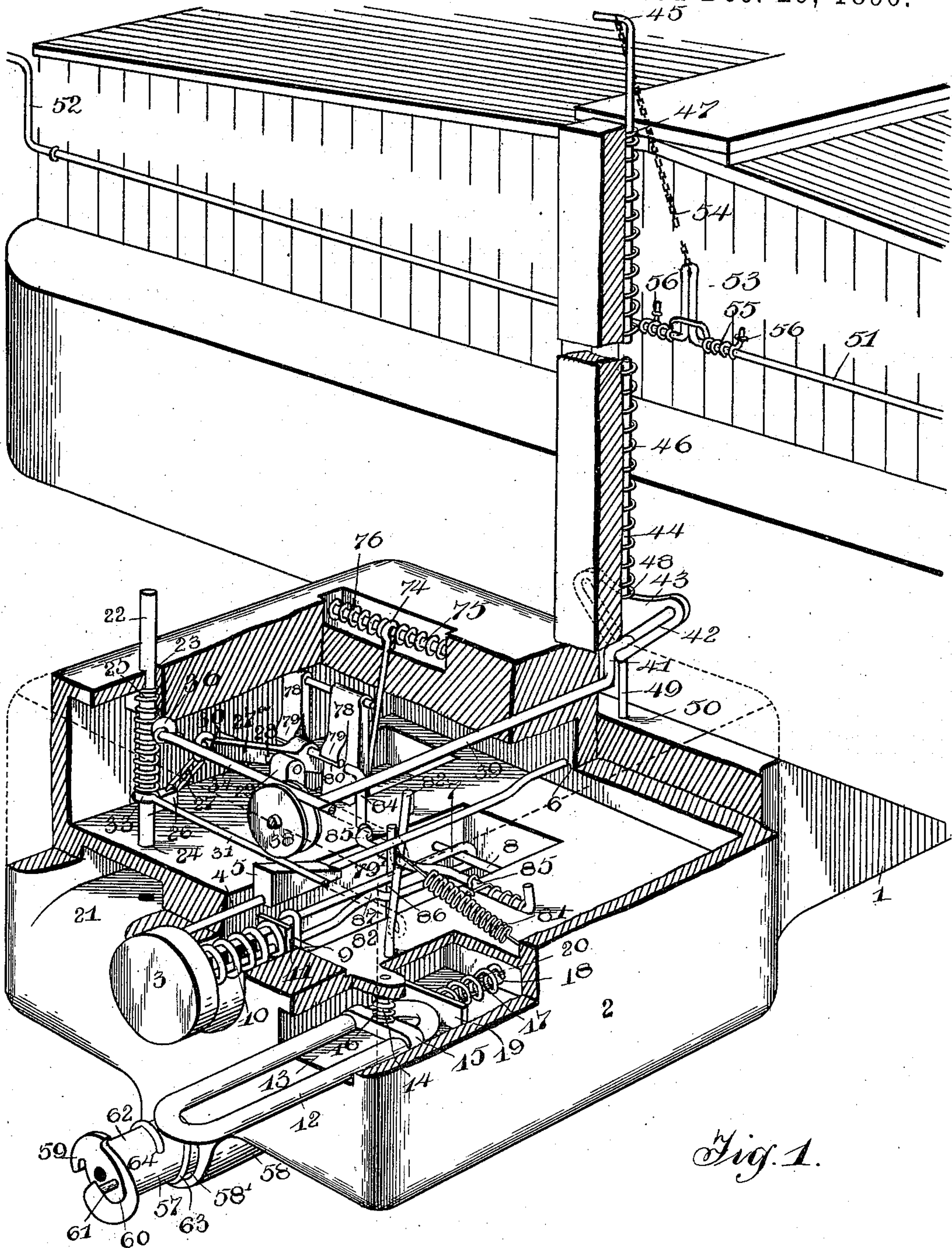


Fig. 1.

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Fig. 2.

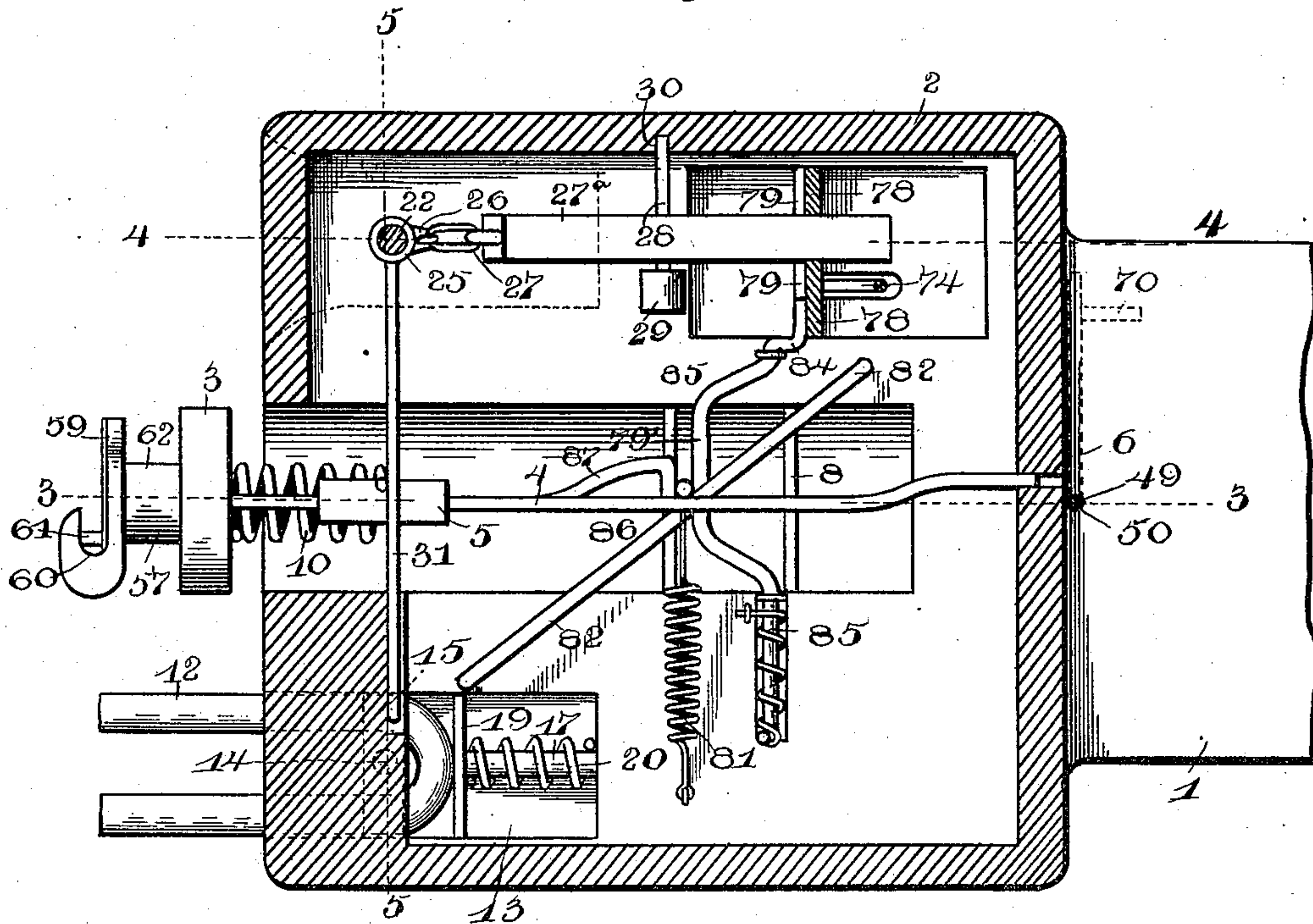
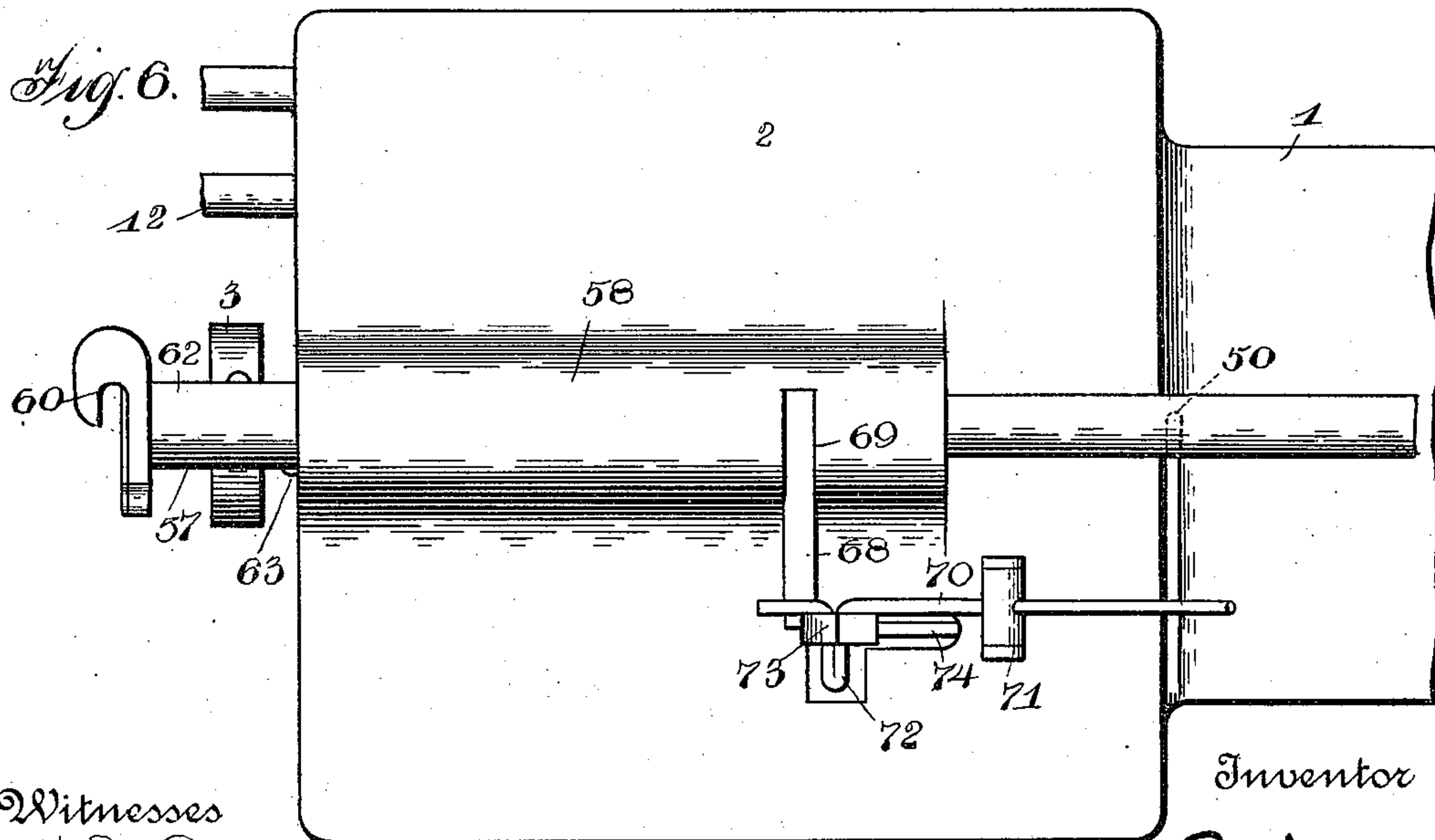


Fig. 6.



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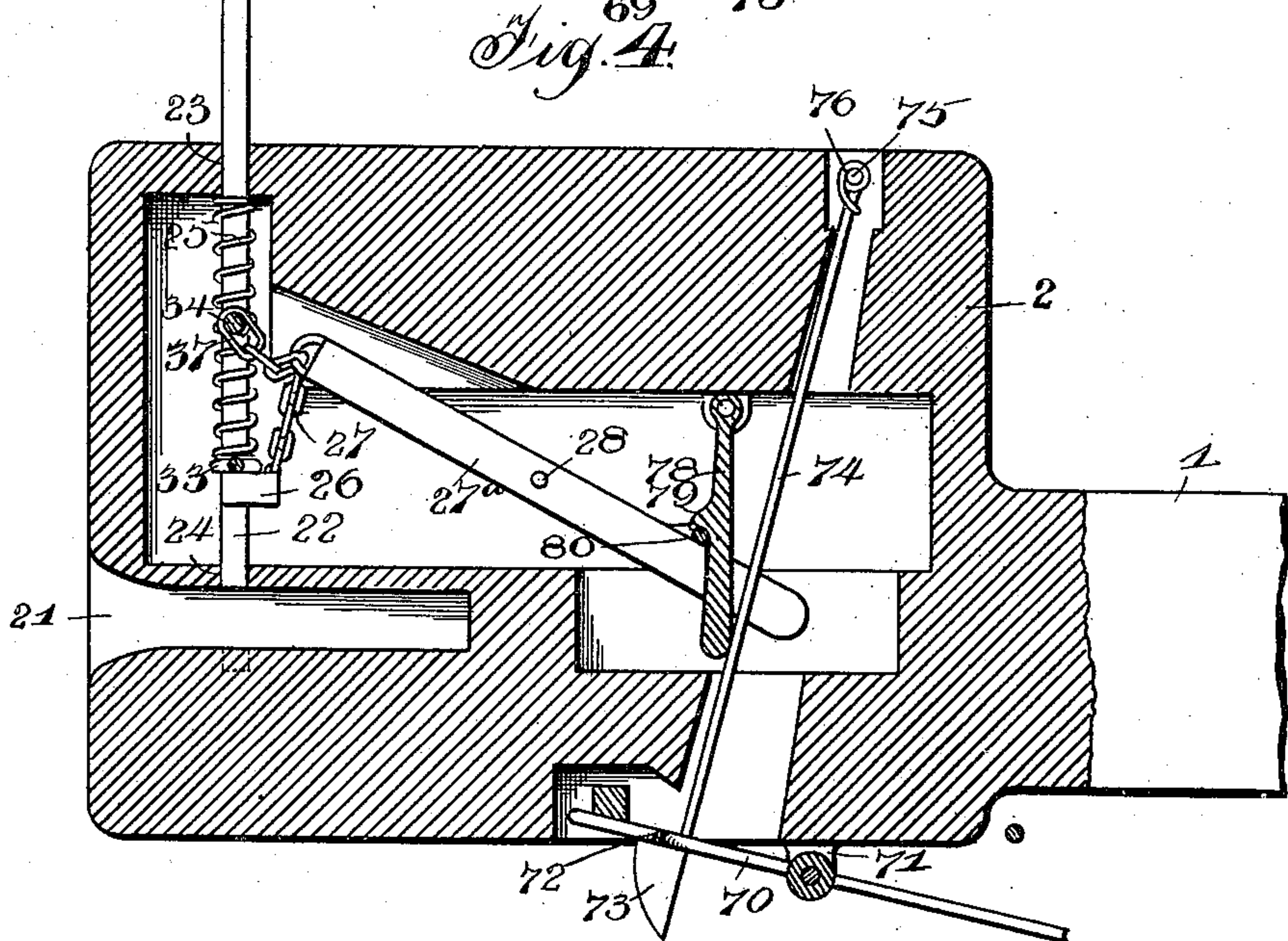
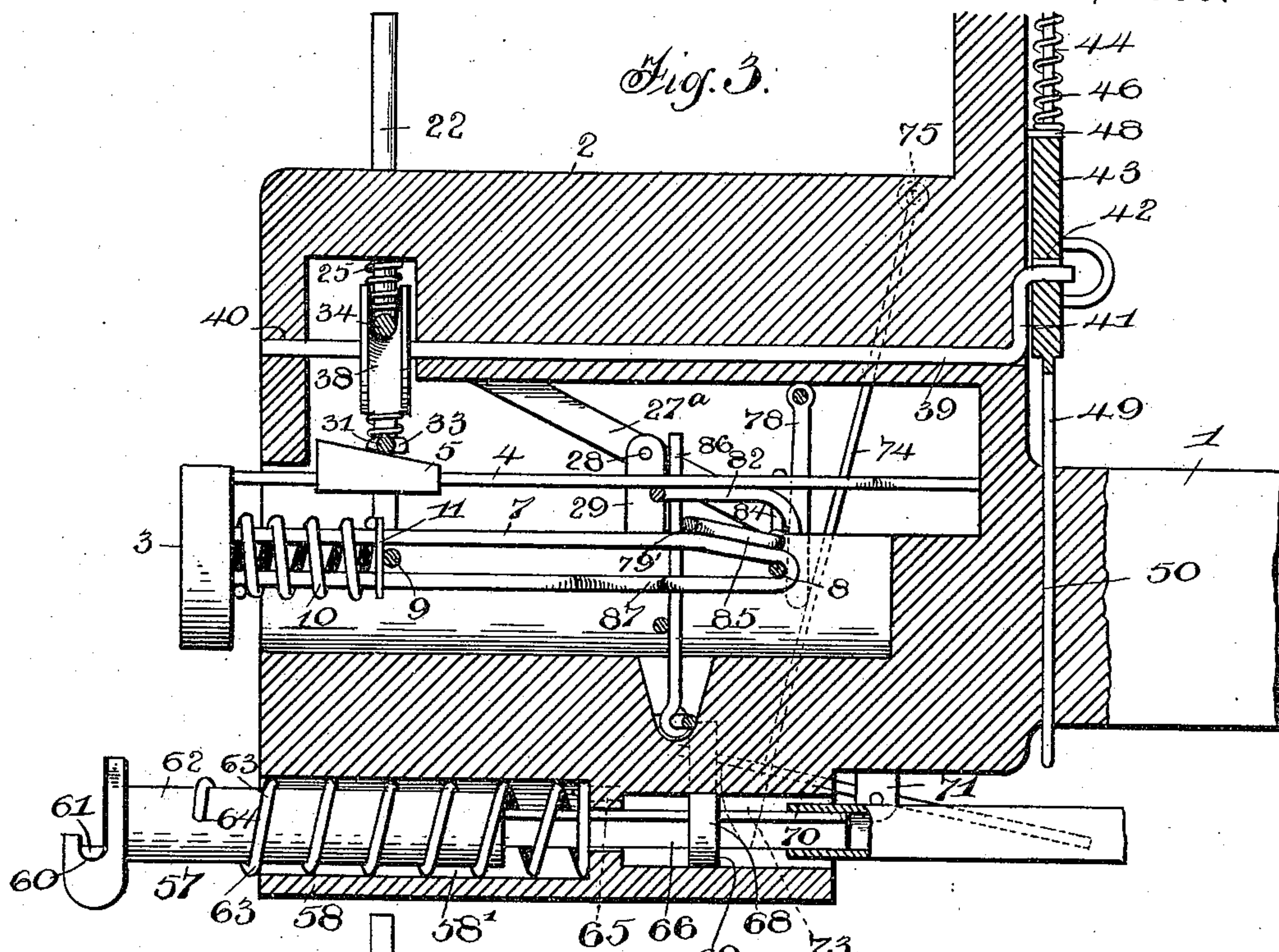
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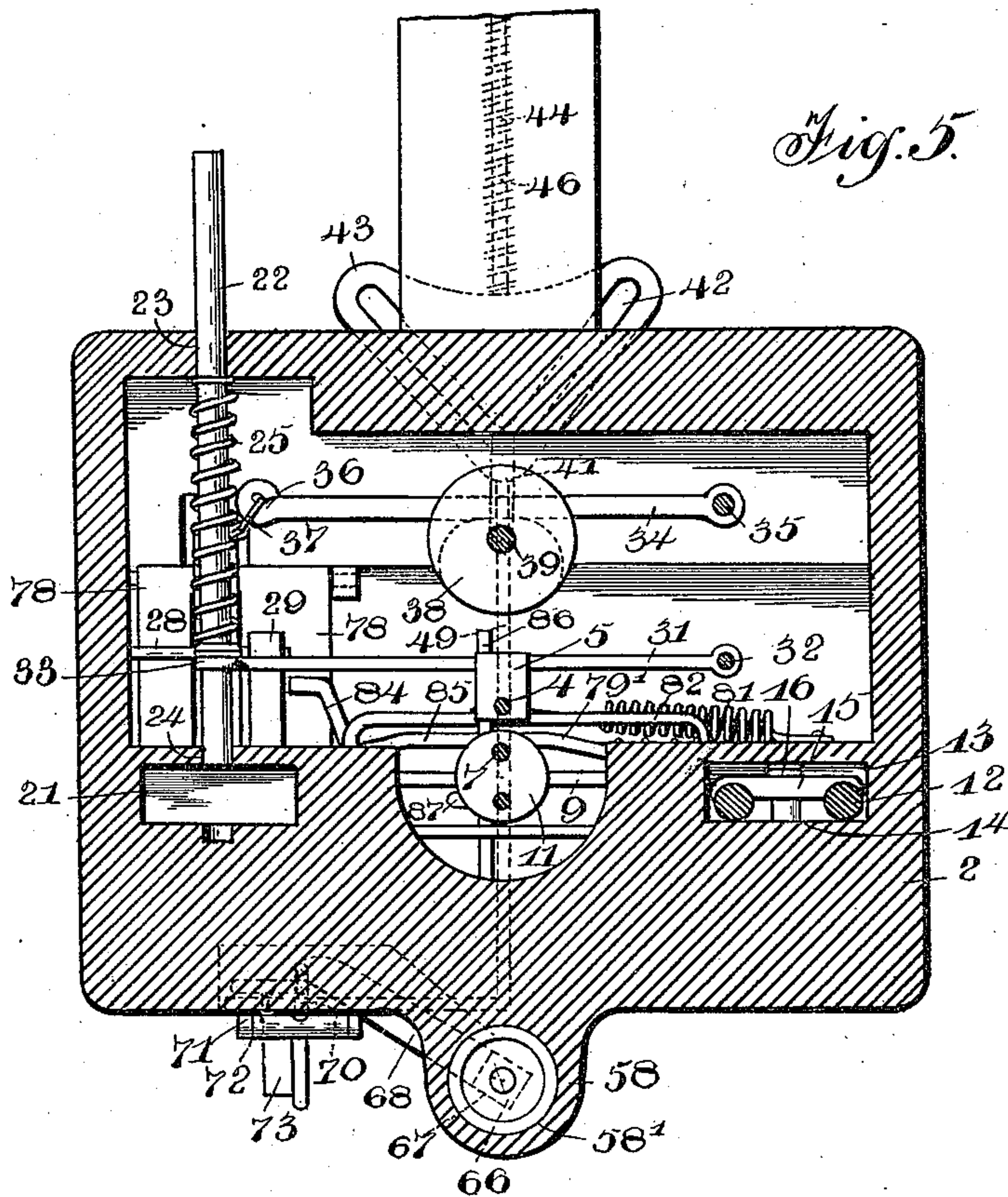


Fig. 5.

Fig. 6.

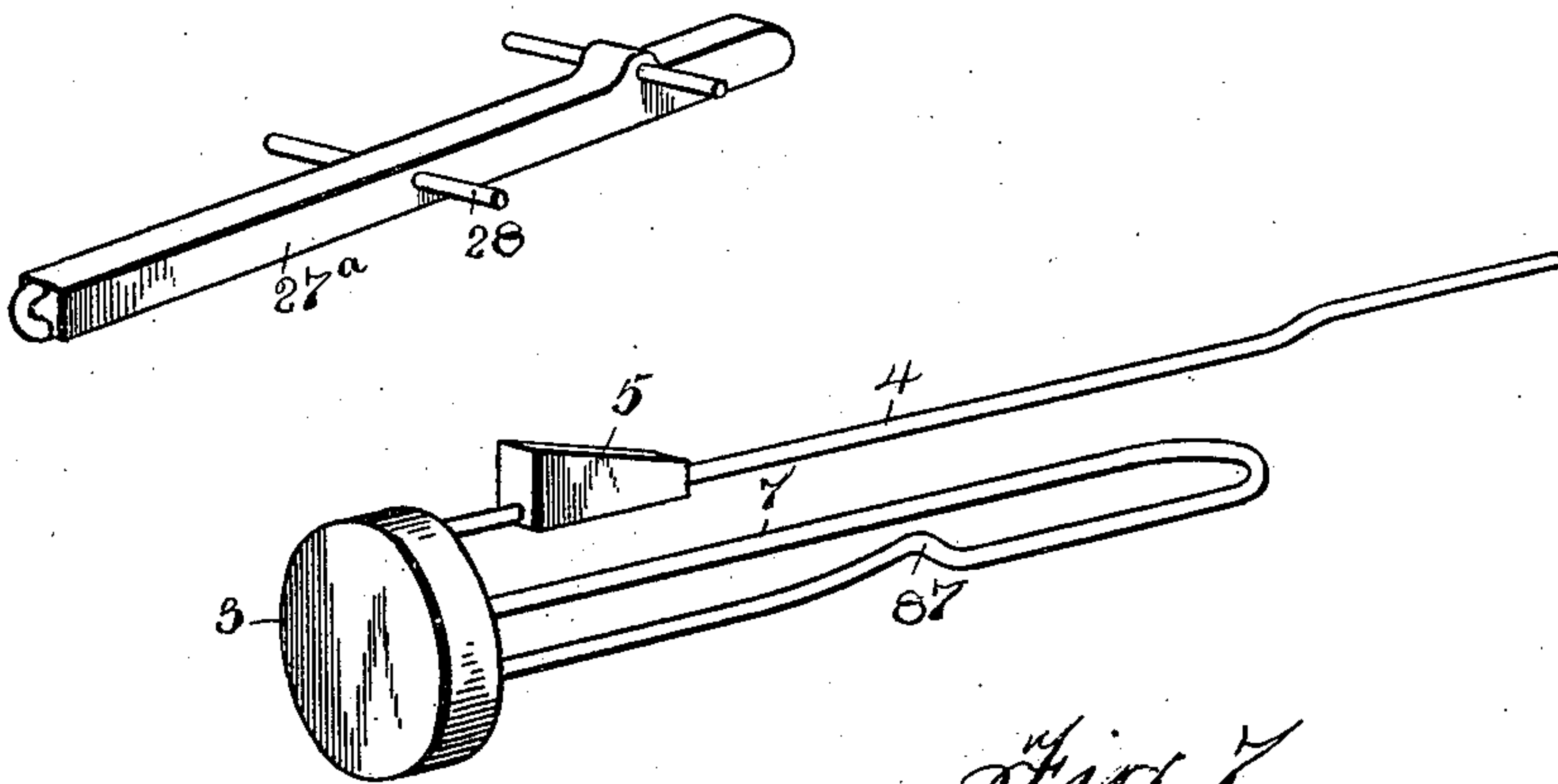


Fig. 7.

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UNITED STATES PATENT OFFICE.

JOHN McDOWELL RAINEY, OF KELLERTON, IOWA, ASSIGNOR OF ONE-HALF
TO PHILIP WHITE, OF SAME PLACE.

AUTOMATIC CAR AND AIR-BRAKE COUPLING.

SPECIFICATION forming part of Letters Patent No. 574,268, dated December 29, 1896.

Application filed September 24, 1896. Serial No. 606,843. (No model.)

To all whom it may concern:

Be it known that I, JOHN McDOWELL RAINEY, a citizen of the United States, residing at Kellerton, in the county of Ringgold and State of Iowa, have invented certain new and useful Improvements in Automatic Car and Air-Brake Couplings; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has relation to improvements in car-couplings and air-brake pipe-couplings combined; and the object of the invention is to provide an automatic device for coupling the cars and the air-brake connections at the same time.

To this end the novelty consists in the construction, combination, and arrangement of the same, as will be hereinafter more fully described, and particularly pointed out in the claims.

In the accompanying drawings the same figures of reference indicate the same parts of the invention.

Figure 1 is a perspective view of my coupling applied to one end of a car with a portion of the front and top casing removed. Fig. 2 is a horizontal section taken on a line above the bumper. Fig. 3 is a central vertical longitudinal section on the line 3 3 of Fig. 2. Fig. 4 is a similar view on the line 4 4 of Fig. 2. Fig. 5 is a transverse vertical section on the line 5 5 of Fig. 2. Fig. 6 is a bottom plan view of the coupling. Fig. 7 is a perspective view of the bumper and its guide-rods removed from the casing, and Fig. 8 is a similar view of the coupling-pin lever.

1 represents the draw-bar, and 2 the draw-head.

3 represents the bumper, provided with a rearwardly-extending guide-rod 4, having a wedge-shaped lug 5 secured thereto, the rear end of said rod being inserted in a guide-orifice 6.

7 is a link, its forward end being secured in said bumper and its rear end encompassing a guide bolt or rod 8, secured transversely in the draw-head, while a similar transverse guide-rod 9 is located in the forward end of the draw-head and passes through said link

7. A spiral spring 10 encompasses the forward end of said link, one end of the spring resting against the bumper and the other end against a washer 11, which in turn presses against the guide-rod 9, the office of said spring being to normally press and hold said bumper out from the front face of the draw-head.

12 represents a coupling-link detachably held in place in a recess 13 in the right-hand side of the draw-head by a vertical pin 14, passing through the rear end of said link. A yoke 15 on the pin 14 extends across the sides of the link, and a spiral spring 16, encompassing the pin, presses on the link to hold it in a horizontal position and at the same time allow the free end to have a vertical movement to correspond to the engaging recess in the opposite draw-head.

17 is a guide-rod working in a guide-orifice 18 in the rear end of the recess 13, its forward end being provided with a follower or plate 19, which rests against the rear end of the link 12, while a spiral spring 20 encompasses the guide-rod 17 and serves to press the link outwardly.

21 represents the recess on the left-hand side of the draw-head which receives the end of the coupling-link on the opposite draw-head. 22 is a vertical coupling-pin working in guide-orifices 23 24 in said head, and a spiral spring 25 encompasses said pin to normally press it down to engage the link when the cars are coupled. This pin is formed with an integral lug 26, from which a short chain 27 is connected to the forward end of the coupling-pin lever 27^a, which is fulcrumed on a shaft 28, one end of which is journaled in a bracket 29 and the other end in an orifice 30 in the contiguous wall of the draw-head.

A transverse rod 31 is fulcrumed on a bolt 32 and thence extends over the face of the wedge-shaped lug 5, its opposite end terminating in a horizontal eye 33, which encompasses the coupling-pin 22.

34 represents a similar transverse rod fulcrumed on a bolt 35, its free end terminating in a link 36, to which is attached a chain 37, connecting it with the free end of the coupling-pin lever 27^a. This rod 34 passes between the flanges of an eccentric disk 38, secured to and oscillating with a longitudinal

rod 39, the forward end of which is mounted in a guide-orifice 40 in the front end of the draw-head and its rear portion in a corresponding longitudinal orifice in the rear part of the draw-head. The rear end of this rod 39 terminates in a crank-arm 41, which engages a V-shaped slot 42 in a heart-shaped plate 43, secured to the vertical rod 44, which extends up the end of the car, its upper end terminating in a handle 45. A spiral spring 46 encompasses this vertical rod, the upper end of said spring resting against a collar 47, secured to the rod, while the lower end of the spring rests against a guide-bracket 48, secured to the draw-head, the tension of said spring being exerted to keep the rod 44 upward, as shown in Fig. 1. The lower end of the plate 43 is provided with a guide-rod 49, which plays in a vertical guide-orifice 50 in the draw-bar.

A transverse rock-shaft 51 is mounted across the front of the car, so that its crank-handles 52 are within convenient reach of a person standing on the ground. This shaft is formed with an integral double-crank arm 53, the outer end of which is provided with a chain 54, connecting it with the handle of the vertical rod 44.

A spiral spring 55 encompasses the shaft 51, passing across the crank-arm 53, its free end being secured by staples 56 to the end of the car, the tension of said spring being exerted to retain the crank-arm 53 vertically parallel with the rod 44, as shown in Fig. 1.

57 represents the air-pipe coupling, being journaled in a recess 58' in the longitudinal lug 58, integral with the bottom of the draw-head, and its face is formed with a concentric hook 59, a recessed jaw 60, and a longitudinal pin 61. Its forward portion 62 is cylindrical and is encompassed by a spiral spring 63, the forward end of which is secured in a radial recess 64 in the portion 62 of the pipe-coupling and the rear end in a recess 65 in the lug 58, so that the torsional tension of the spring is exerted to turn the coupling 57 to the left and longitudinal tension to press it outwardly from the draw-head.

The rear portion 66 of the pipe-coupling 57 is square, and it slides freely through a square orifice 67 in an arm 68, which has an oscillating movement in a transverse recess 69 in the longitudinal lug 58. The outer end of this arm 68 is in contact with one end of a lever 70, fulcrumed in a bracket 71 on the under side of the draw-head, and on one side of this end of the lever is a lug 72, which engages a toe 73 on the lower end of a pendulating lever 74, fulcrumed on a bolt 75. A spiral spring 76 on the upper end of the lever 74 serves to throw its lower end forward to engage the lug 72 on the lever 70, which in turn supports the free end of the arm 68 in an elevated position.

Rigidly secured to a short transverse shaft 77 are two levers 78 78, which project downwardly, a horizontal tooth 79 on each engag-

ing the outer ends of a cross-rod 80, secured to the coupling-pin lever 27, which normally holds the forward end of said lever 27, and consequently the coupling-pin, in an elevated position ready for coupling, as shown in Fig. 1.

About midway of its length the lever 74 presses against the lower end of one of the levers 78 to normally hold the tooth 79 in engagement with the rod 80.

The cranked arm 84 of a shaft 85 projects in front of the contiguous lever 78, and its horizontal double crank 79' extends across the bumper-link 7, and an upwardly-projecting pivoted bar 86 lies in the plane of this double crank 79'. An integral transverse offset 87 on the lower parallel arm of the link 7 abuts against the pivoted bar 86, so that if the bumper 3 be pressed inwardly the offset 87 will force the pivoted bar 86 against the double crank 79', its outer cranked end 74 pressing the levers 78 backward, releasing the coupling-pin lever 27, and allowing the coupling-pin 22 to drop. At the same time the levers 78 are pressed backward they force the lever 74 backward, which causes its toe 73 to release the lever 70, which in turn releases the arm 68, and the tension of the spring 73 turns the pipe-coupling to the left to engage a similar coupling on the opposite draw-head.

81 is a spiral spring attached to the upper end of the bar 86, and 82 is a stationary diagonal rod, against which the bar 86 rides as it is forced backward by the offset 87 on the bumper-link, and after the diagonal rod 82 has released the bar 86 from said offset the spring 81 restores it to its normal position.

Although I have specifically described the construction and relative arrangement of the several elements of my invention, I do not desire to be confined to the same, as such changes or modifications may be made as clearly fall within the scope of my invention without departing from the spirit thereof.

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

1. An automatic car-coupling, comprising the draw-head, the coupling-pin 22, the spring 25 mounted on said pin, and the pivoted lever 31, in combination with the bumper 3 provided with the guide-rod 4 having wedge-shaped block 5, substantially as shown and described.

2. An automatic car-coupling, comprising the draw-head, the coupling-pin 22 mounted therein and provided with the integral lug 26, the chain 27 connecting said lug with the lever 27^a, having transverse rod 80, the lever 78 having tooth 79, in combination with the lever 34, the free end of which is connected by a chain 27 to said lever 27^a, the flanged eccentric disk 38 mounted on the longitudinal shaft 39, provided with the crank-arm 41 engaging a V-shaped slot 42 in the plate 43 secured to the vertical rod 44, provided with

the spiral spring 46, substantially as shown and described.

3. A coupling of the class described, comprising the sleeve 62, spring 63, and square
5 portion 66, the arm 68, the lever 70 engaging said arm and provided with a lug 72, the pendulating lever 72 provided with a toe 73, in combination with the lever 78, the shaft 85, the rod 86, and the link 7 formed with the

offset 87 and bumper 3, substantially as and 10 for the purpose set forth.

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

JOHN McDOWELL RAINEY.

Witnesses:

PHILIP WHITE,
A. CAMP.