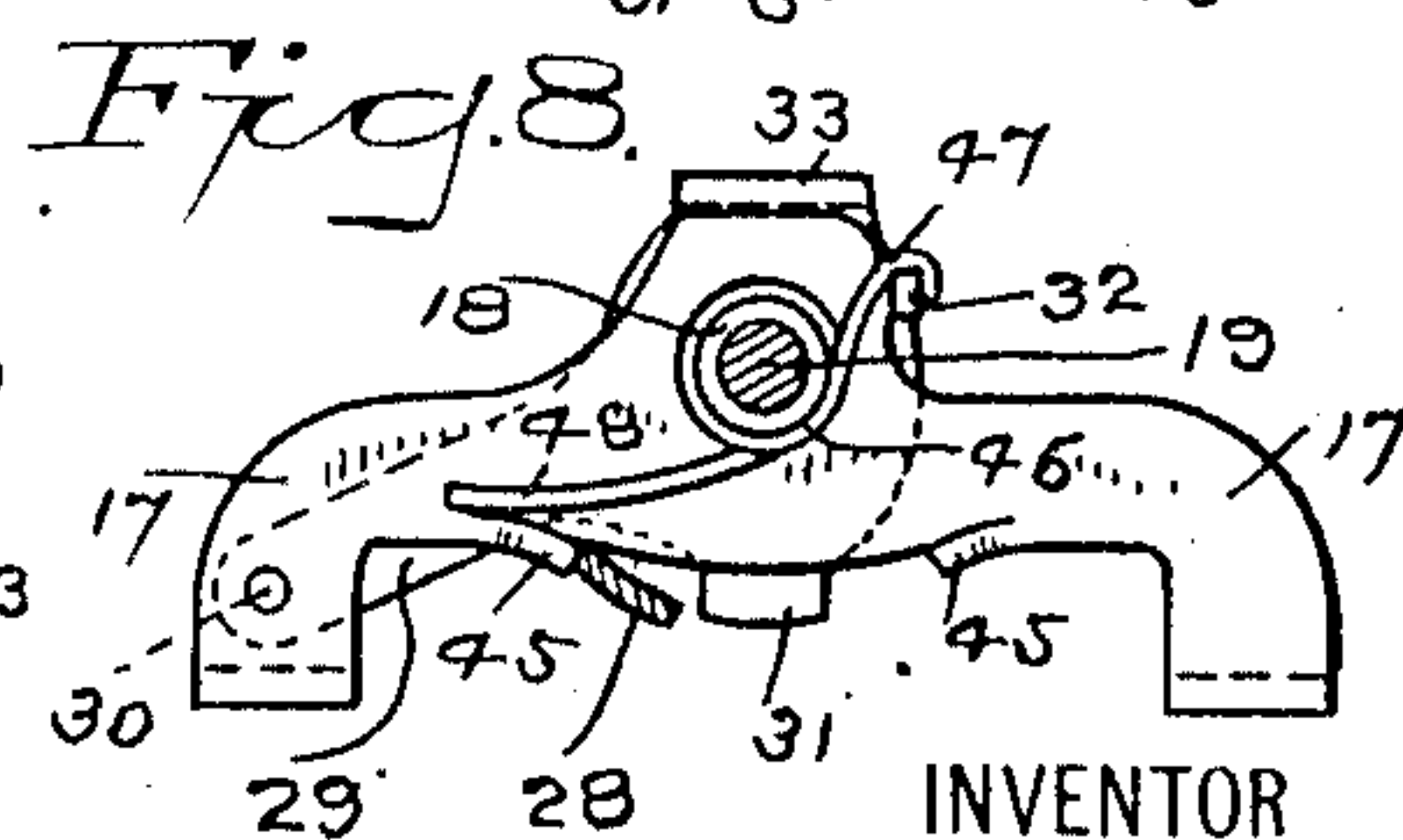
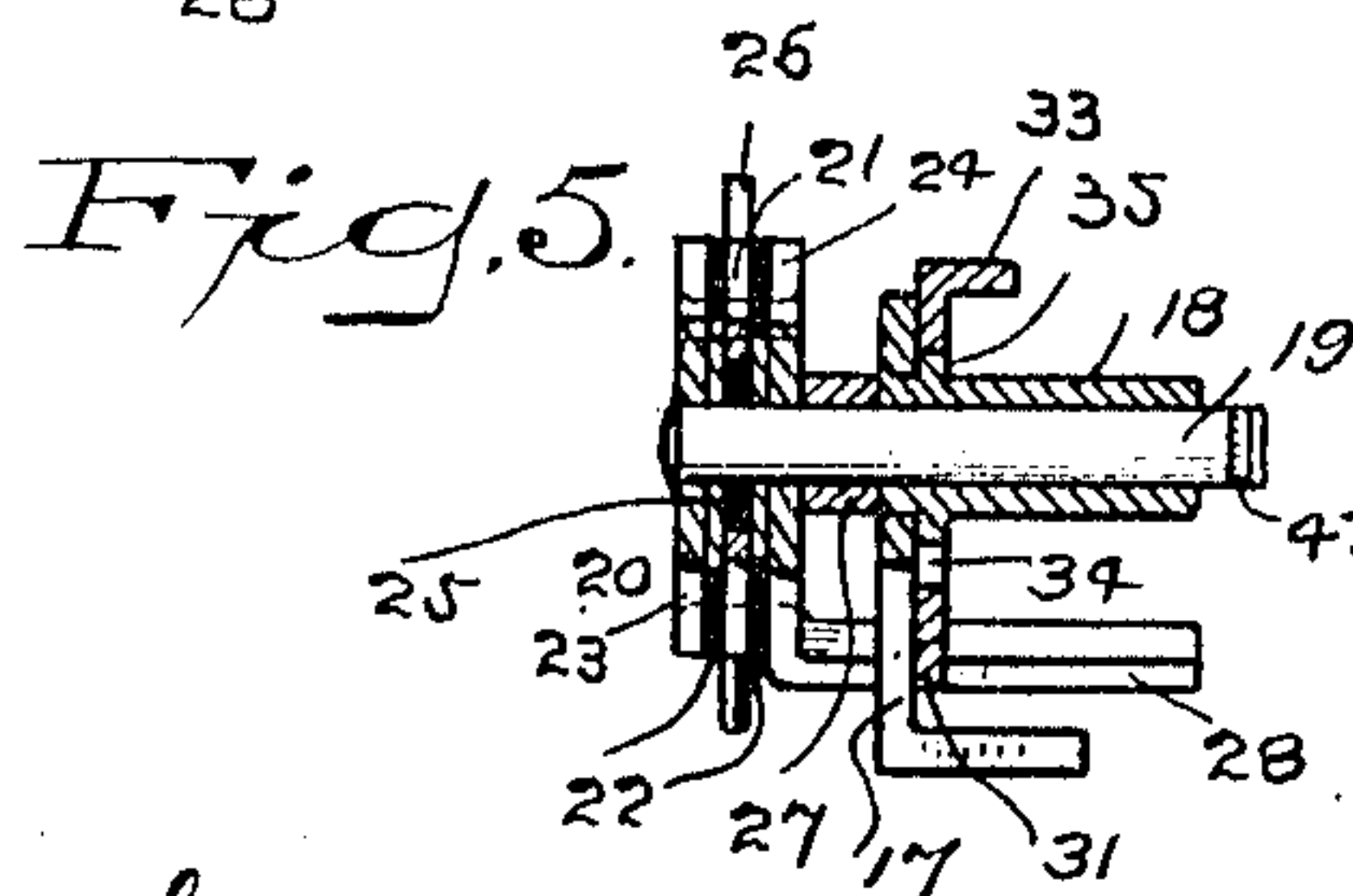
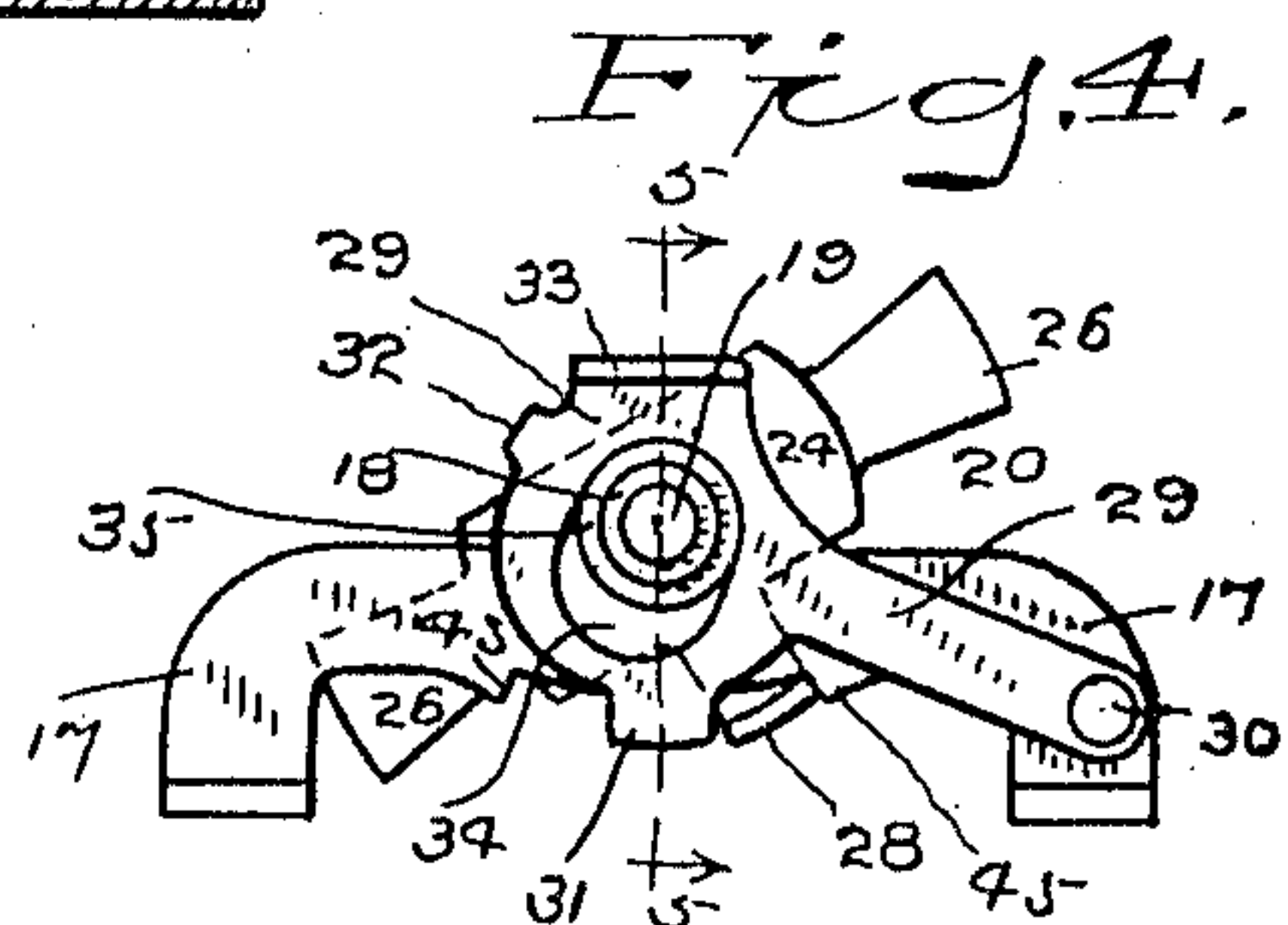
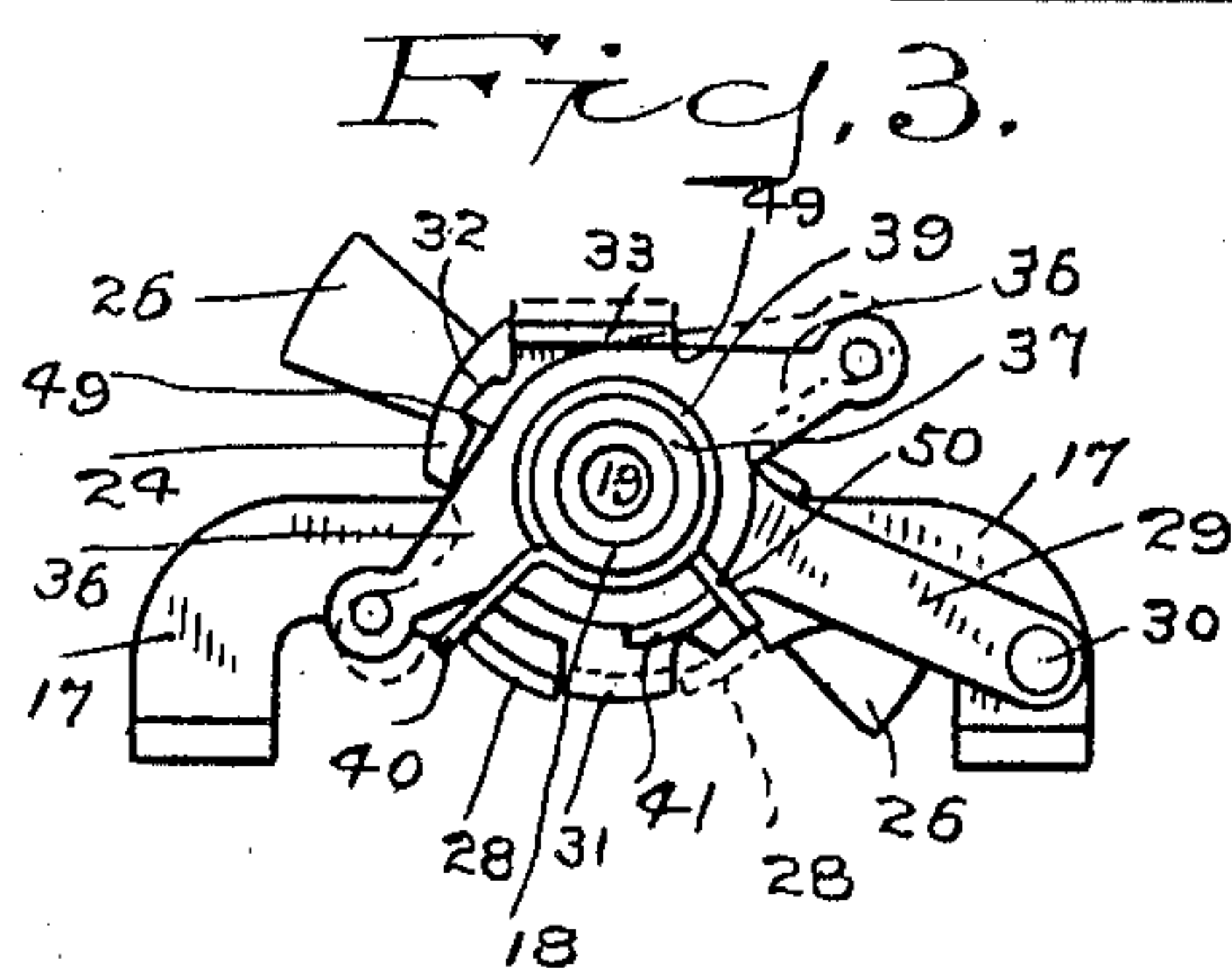
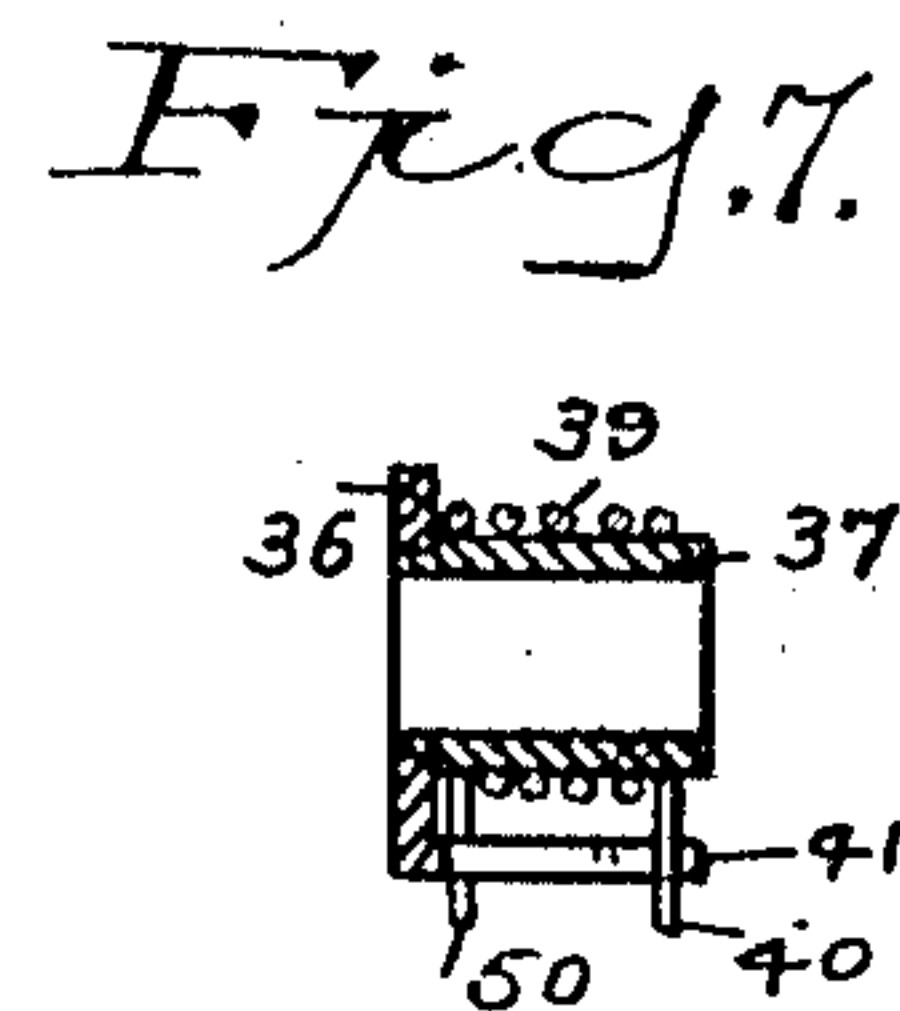
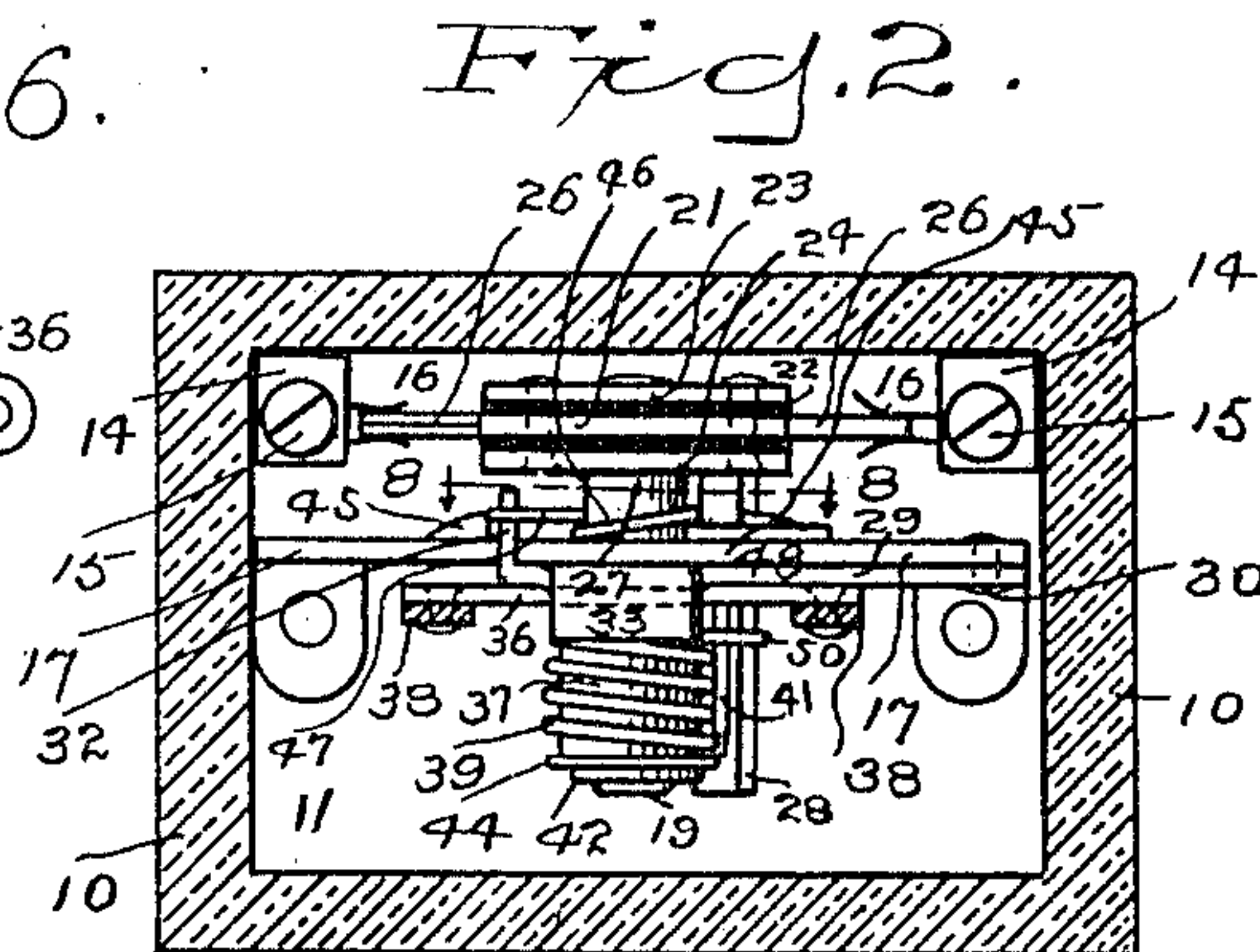
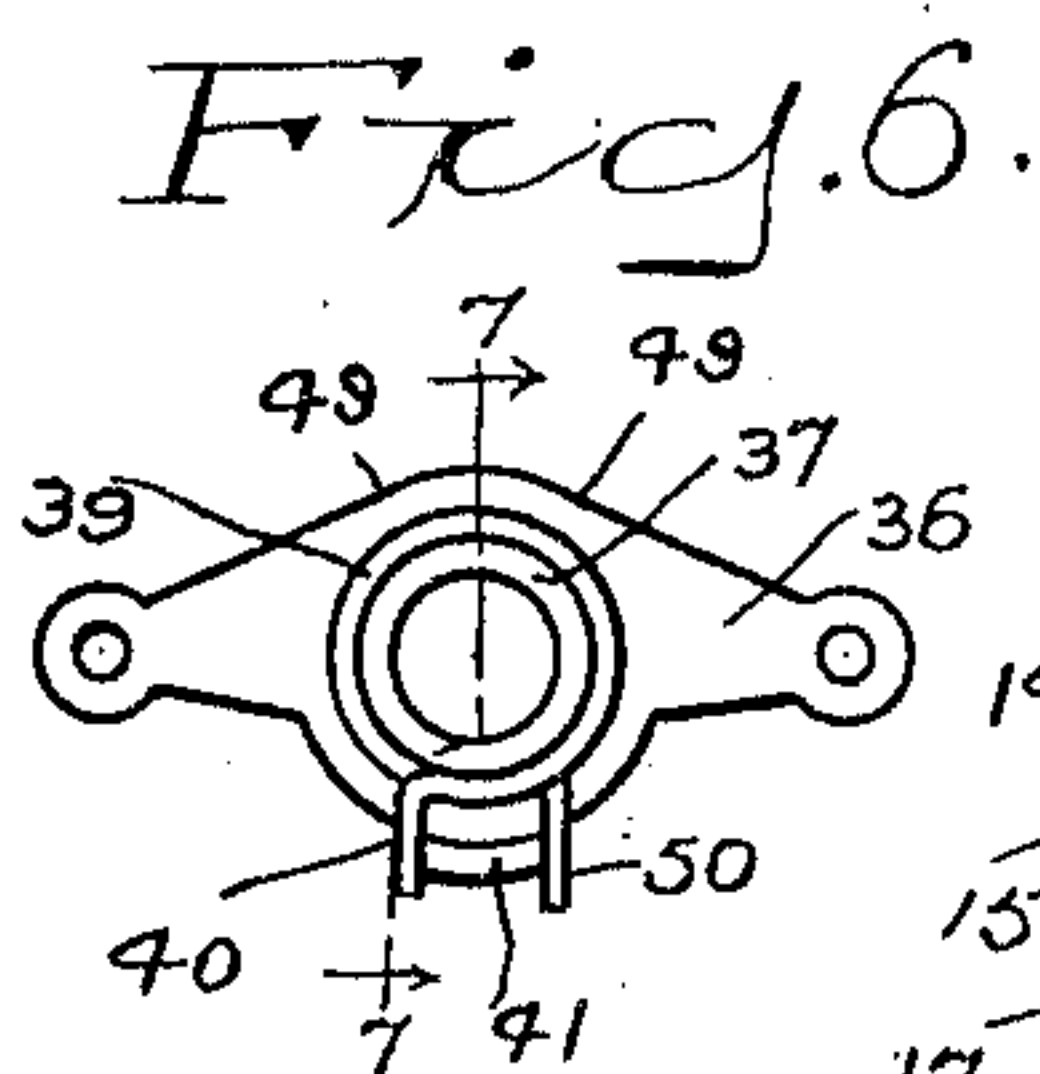
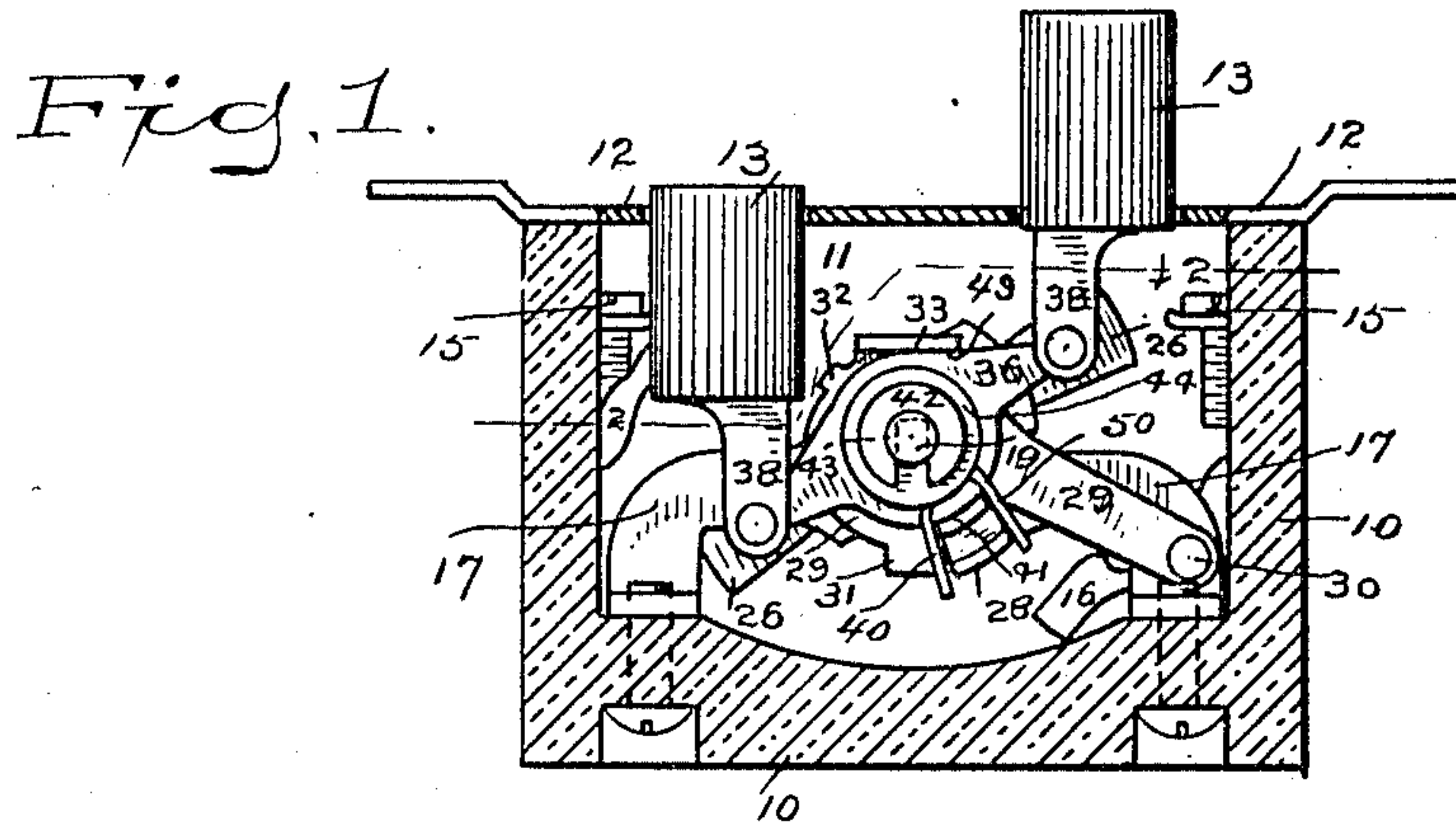


C. D. PLATT.
PUSH BUTTON SWITCH.
APPLICATION FILED JUNE 14, 1909.

969,723.

Patented Sept. 6, 1910.



WITNESSES:

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CLARENCE D. PLATT, OF BRIDGEPORT, CONNECTICUT.

PUSH-BUTTON SWITCH.

969,723.

Specification of Letters Patent.

Patented Sept. 6, 1910.

Application filed June 14, 1909. Serial No. 501,976.

To all whom it may concern:

Be it known that I, CLARENCE D. PLATT, a citizen of the United States, residing at Bridgeport, county of Fairfield, State of Connecticut, have invented an Improvement in Push-Button Switches, of which the following is a specification.

This invention relates to push button switches and has for its object to produce an efficient and durable mechanism having a relatively small number of parts, all of which are extremely simple and easy to make as many of the operations usually required in the manufacture of this class of switches are avoided and the mechanism as a whole being easy to assemble, thereby greatly reducing the cost of production.

In the accompanying drawing forming a part of this specification, Figure 1 is a longitudinal section of the base and yoke, showing the switch mechanism in elevation; Fig. 2 a horizontal section on the line 2—2 in Fig. 1, the switch mechanism being in plan; Fig. 3 an elevation of the switch mechanism detached, the blade carrier being in the reverse position, the slotted retaining washer removed and the rocker arm and latch being shown in full lines in their position an instant before the release of the blade carrier and in dotted lines in their position after the release of the blade carrier; Fig. 4 a similar view showing the position of the blade carrier after the actuating movement, the slotted washer and the spring being removed; Fig. 5 a section on the line 5—5 in Fig. 4, looking in the direction of the arrows; Fig. 6 an elevation of the rocker arm and spring detached; Fig. 7 a section on the line 7—7 in Fig. 6 looking in the direction of the arrows; and Fig. 8 is a section on the line 8—8 in Fig. 2, looking in the direction of the arrows.

10 denotes the base which is provided with a recess 11 to receive the switch mechanism, 12 the yoke which is secured to the base and serves as a guide for the push buttons 13. The terminals 14 are secured in the base and are provided with binding screws 15 and with pairs of contact plates 16.

17 denotes an arched standard which is rigidly secured to the base and 18 a sleeve which is rigidly secured to the standard and serves as a bearing for a shaft 19.

20 denotes the blade carrier as a whole, which consists of a blade plate 21, insulat-

ing plates 22 on opposite sides thereof and metal plates outside the insulating plates. The shaft passes through an insulating plate 25 which is inserted in a recess in the blade plate and insulates said plate from the shaft. Plate 23 is riveted to the end of the shaft and the blade carrier as a whole is secured together by rivets passing through the blade plate, the insulating plates and plates 23 and 24. At the ends of the blade plate are blades 26 which are adapted to engage the pairs of contact plates 16. Between the blade carrier and the standard is a spacing washer 27.

28 denotes an arm which extends from the blade carrier at right angles thereto and passes freely under the standard. In the present instance this arm is shown as made integral with plate 24.

29 denotes a latch which is pivoted to the standard as at 30, is provided with a downwardly extending lug 31 which is adapted to lie in the path of movement of arm 28 to lock said arm and the blade carrier at either extreme of its movement, with a rearwardly extending lug 32, with a forwardly extending lug 33 and with an opening 34 which receives sleeve 18 loosely. In the present instance I have shown the sleeve as provided with a collar 35 which bears against the standard and insures perfect rigidity of the sleeve, opening 34 being large enough to receive this collar loosely.

36 denotes the rocker arm which is rigidly secured to a collar 37 mounted to oscillate on sleeve 18. The shanks 38 of the push buttons are pivoted to the ends respectively of the rocker arm.

39 denotes a coil spring carried by collar 37 and having an outwardly extending end 40 which is engaged by the right side of an arm 41 which extends forward from the center of the rocker arm and by the right side of arm 28 which extends from the blade carrier, and an outwardly extending end 50 which is engaged by the left side of arm 41 and by the left side of arm 28. The upper side of the rocker arm is provided with cam portions, indicated specifically by 49, which engage forwardly extending lug 33 on the latch and act to lift the latch and release arm 28 extending from the blade carrier when the rocker arm is oscillated, as will be more fully explained. Collar 37 is retained in place upon the shaft by a slotted washer 42 which engages slots 43

(one only being shown) at the outer end of the shaft.

44 is a washer interposed between the slotted washer and the end of the collar.

45 denotes stop lugs extending rearwardly from the standard which are engaged by arm 28 extending from the blade carrier and serve as stops to limit the movement of the blade carrier in each direction.

46 denotes a spring which is coiled about spacing washer 27 and is provided with an end 47 which engages rearwardly extending lug 32 on the latch and with an end 48 which engages one of the stop lugs 45 on the standard. The action of this spring is to press the latch downward the instant pressure upon a push button is relieved and move lug 31 into the path of movement of arm 28, thus locking the blade carrier at either extreme of its movement.

The operation is as follows: The blades engage the pairs of contact plates 16 in the usual manner. When the blades are in engagement with the contact plates the circuit is closed, and when out of engagement the circuit is open. Suppose, for example, that in the position of the parts shown in Figs. 1 and 4 the circuit is open, and in the position shown in Fig. 3 the circuit is closed but is just about to be opened. Starting with the parts in the position shown in Fig. 1, to close the circuit the right push button is pushed inward, which swings the rocker arm toward the reverse of the position shown in Fig. 1. During the first portion of the movement, arm 41 carries end 40 of spring 39 toward the right, which winds the spring. An instant later the left cam portion 49 of the rocker arm will engage lug 33 upon the latch and will lift the latch raising lug 31 and releasing arm 28 extending from the blade carrier. The instant this release is effected, arm 50 of spring 39 through its engagement with arm 28 of the blade carrier will act to throw the blade carrier and blades from the position shown in Fig. 1 to the position shown in Fig. 3 with a snap. The right push button, as seen in Fig. 1, will now be in the depressed position and the left push button in the raised position, the blade carrier will be in the position shown in Fig. 3 and the rocker arm will lie parallel therewith. To open the circuit, the left push button (which is now in the raised position) is pressed downward. This swings the rocker arm from the position parallel with the blade carrier in Fig. 3 toward the position shown in full lines in said figure and arm 41 of the rocker arm carries end 50 of spring 39 to the position shown in Fig. 3, which winds the spring. When the rocker arm is in the full line position in Fig. 3, further downward movement of the left push button causes the right cam portion 49 of the rocker arm through its

engagement with lug 33 on the latch to raise the latch to the dotted position in Fig. 3, which causes lug 31 on the latch to release arm 28 of the blade carrier. The instant this release is effected, end 40 of spring 39 through its engagement with arm 28 will swing said arm and the blade carrier to the position shown in Fig. 1, thus opening the circuit with a snap, stop lugs 45 upon the standard limiting the movement of the blade carrier in each direction.

Having thus described my invention I claim:

1. A switch of the character described comprising a shaft, an oscillating blade carrier mounted on said shaft, a spring for throwing the blade carrier to either extreme of its movement, a pivotally mounted latch provided with a single projection for locking the blade carrier in either extreme of its movement, said latch being provided with an opening for the passage of said shaft, and means for reciprocating said latch.

2. A switch of the character described comprising a shaft, an oscillating blade carrier mounted on said shaft, a spring for throwing the blade carrier to either extreme of its movement, a pivotally mounted latch provided with a single projection for locking the blade carrier in either extreme of its movement, said latch being provided with an opening for the passage of said shaft, a spring for retaining said latch in operative position, and means for moving said latch against the tension of said spring.

3. A switch of the character described comprising a shaft, an oscillating blade carrier mounted on said shaft, a spring for throwing the blade carrier to either extreme of its movement, a pivotally mounted reciprocable latch provided with a single projection for locking the blade carrier in either extreme of its movement, said latch being provided with a lug, a spring for retaining said latch in operative position, and a rocker arm adapted to engage said lug to move said latch against the tension of said spring.

4. A switch of the character described comprising an oscillating blade carrier having an arm extending therefrom, an oscillating rocker arm having an arm extending therefrom, a spring having ends bearing upon the opposite sides of said arms, for the purpose set forth, and a pivotally mounted reciprocable latch having a lug engaged by the rocker arm and a single projection extending into the path of movement of the blade carrier arm to lock the blade carrier at either extreme of its movement, oscillation of the rocker arm acting to wind the spring and to lift the latch which releases the blade carrier, the spring then throwing the blade carrier to the other extreme of its movement.

5. A switch of the character described comprising a standard having a sleeve extending therefrom, a shaft journaled in the sleeve and carrying contact blades and a forwardly extending arm, a rocker arm mounted to oscillate on said sleeve and having a forwardly extending arm, a spring having ends engaging the opposite sides of said arms and a pivotally mounted reciprocable latch having a single projection engaged by the rocker arm and a lug normally lying in the path of movement of the arm carried by the shaft; oscillation of the rocker arm acting to raise the latch, and the spring acting to throw the contact blades to the other extreme of their movement.

6. A switch of the character described comprising a standard having a sleeve extending therefrom and also provided with stop lugs, a shaft journaled in the sleeve and carrying contact blades and an arm adapted to engage the stop lugs, a rocker arm mounted to oscillate on said sleeve and having a forwardly extending arm, a spring having ends engaging the opposite sides of said arm, and a pivotally supported latch provided with an opening for the passage of said sleeve, said latch being operated by said rocker arm and provided with a single projection which normally locks the contact plates at either extreme of their movement.

7. A switch of the character described comprising an oscillating blade carrier having a forwardly extending arm, an oscillating rocker arm having a forwardly extending arm, a spring having ends engaging the opposite sides of said arms, movement of the rocker arm acting to increase the tension on the spring, and a pivotally mounted reciprocable latch having one end provided with a projection lying in the path of movement of the blade carrier arm, the other end being arranged to intercept the movement of said rocker arm, the spring acting to throw the blade carrier to the opposite extreme of its movement when the blade carrier arm is released.

8. A switch of the character described comprising a standard having a sleeve extending therefrom, a shaft journaled in the

sleeve and carrying contact blades and a forwardly extending arm, a rocker arm having a sleeve mounted to oscillate on the standard sleeve and a forwardly extending arm, a spring coiled on the rocker arm sleeve and having ends engaging the opposite sides of the arms and a pivotally mounted reciprocable latch adapted to be raised by the rocker arm and having a single projection arranged to be engaged by the arm upon the shaft to lock the blade carrier at either extreme of its movement.

9. In a switch the combination with a rocker arm, and a spring for throwing said arm to either extreme of its movement, of a pivotally mounted latch having one end provided with an overhanging lug arranged to intercept the path of movement of said rocker arm whereby said latch may be moved by said rocker arm, the other end thereof being provided with a single locking projection, and a spring for retaining said latch in operative position.

10. A switch of the character described comprising a shaft, a blade carrier thereon, a spring for oscillating said blade carrier, a pivotally mounted reciprocable latch, for locking the blade carrier in either extreme of its movement, a spring for normally holding said latch in the locking position, and means for raising the latch against the tension of said spring, the movement of said latch being limited by said shaft.

11. A switch of the character described comprising a shaft, a blade carrier thereon, a spring for oscillating said blade carrier, a pivotally mounted reciprocable latch for locking the blade carrier in either extreme of its movement, a spring encircling said shaft and holding said latch normally in the locking position, and means for raising said latch against the tension of said spring, the movement of said latch being limited by said shaft.

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

CLARENCE D. PLATT.

Witnesses:

A. M. WOOSTER,
S. W. ATHERTON.