

March 5, 1929.

G. W. JANSON

1,704,389

MESSENGER CALL BOX

Filed Aug. 20, 1926

2 Sheets-Sheet 1

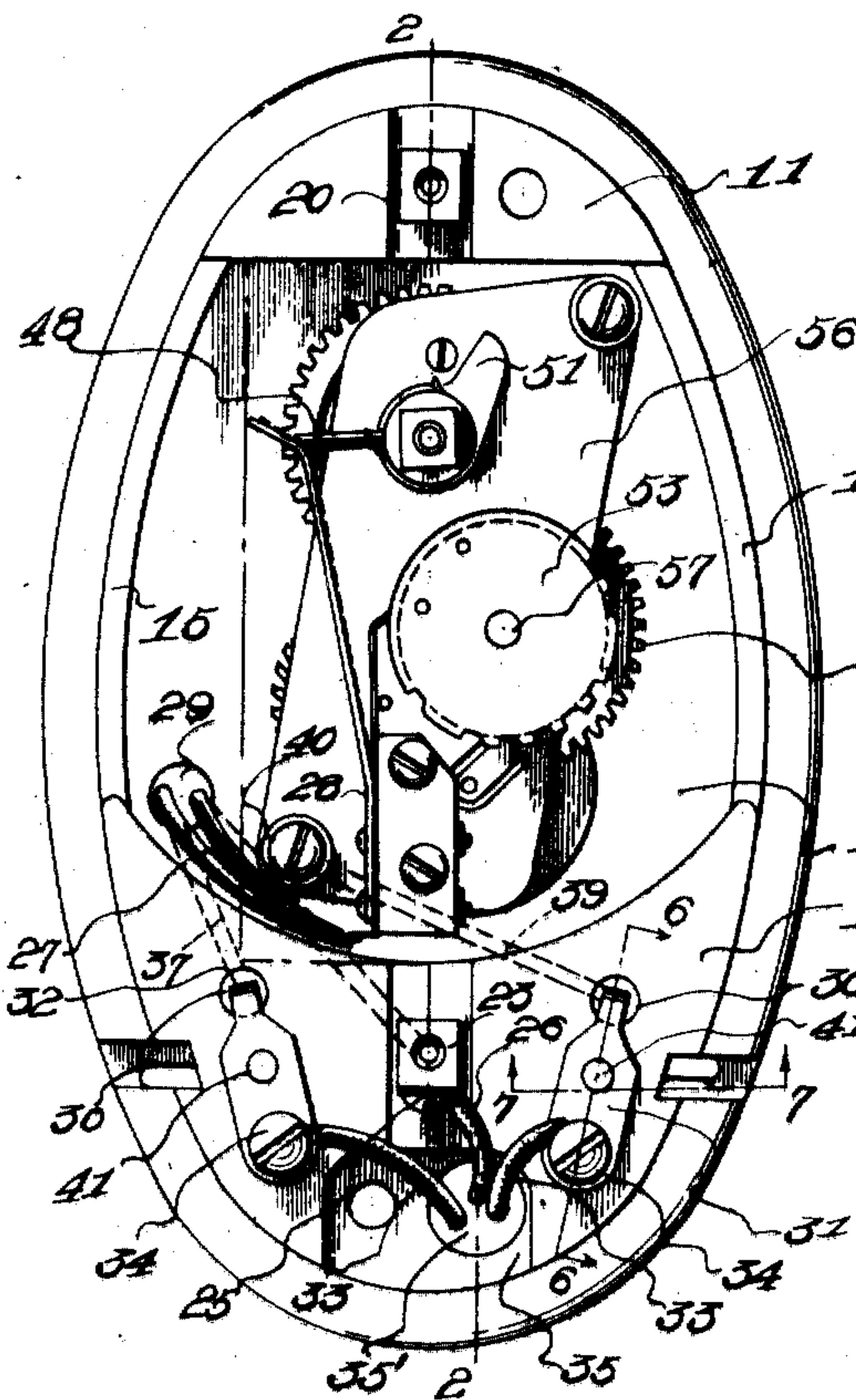


Fig. 1

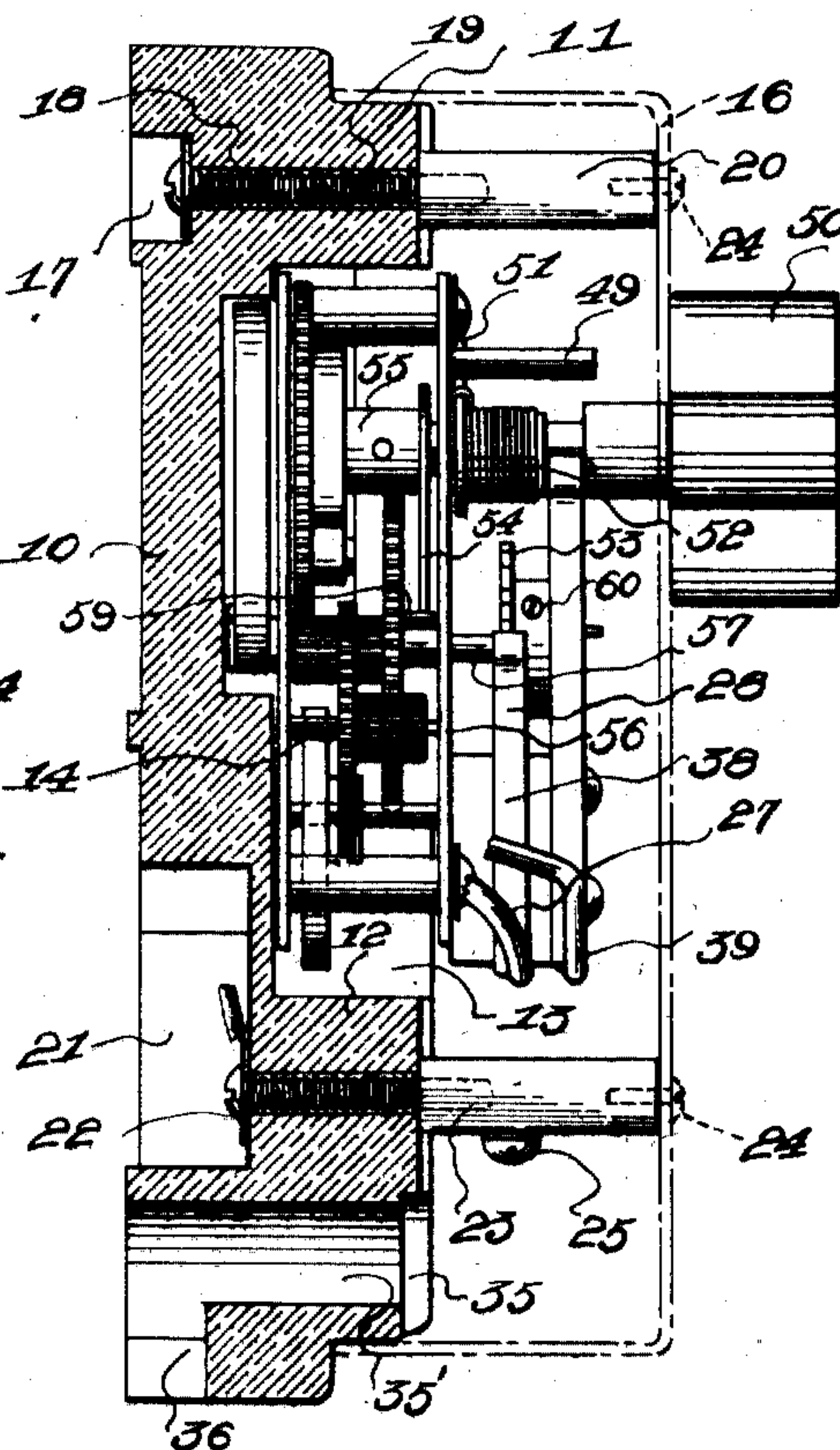


Fig. 2

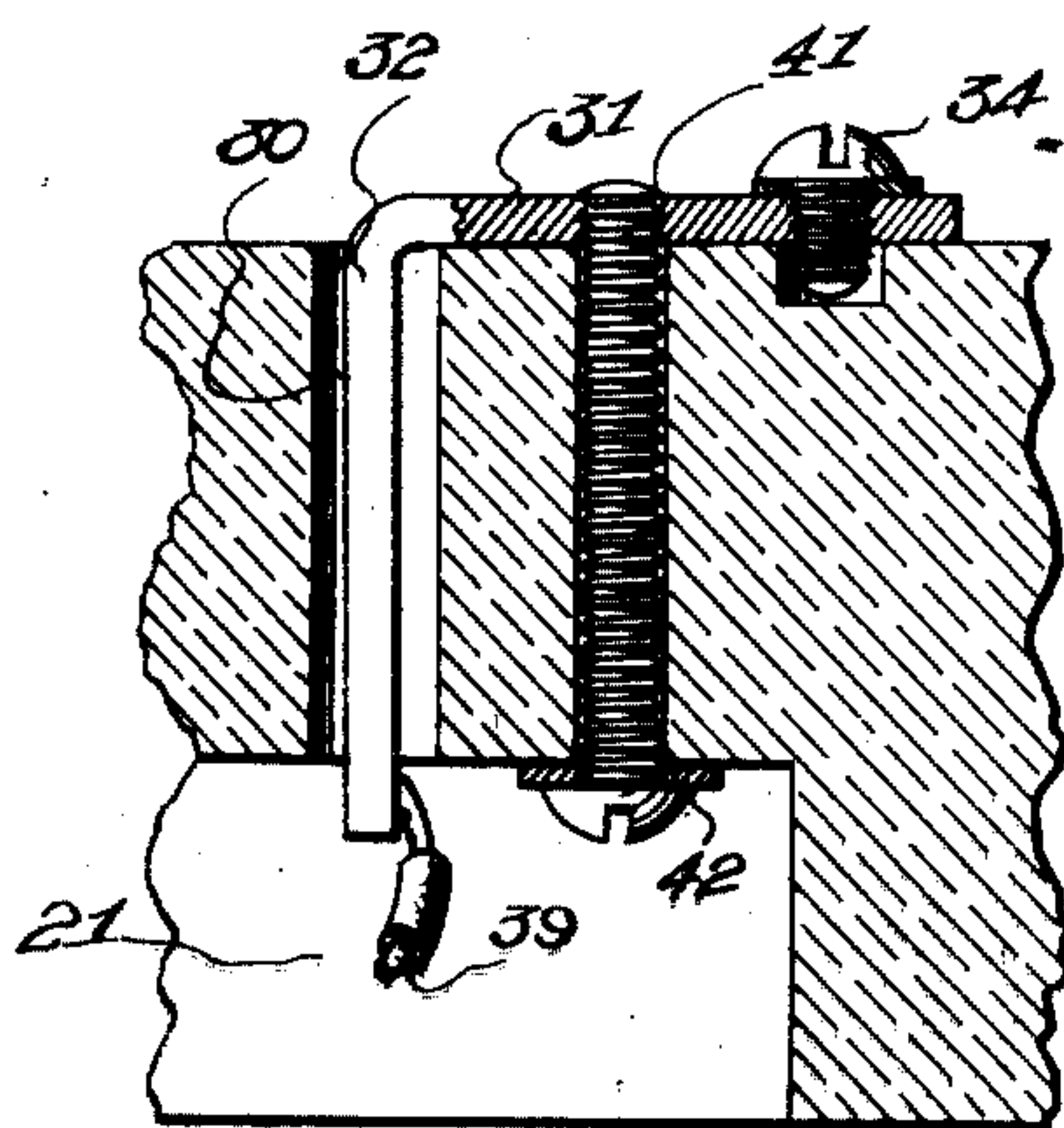


Fig. 3

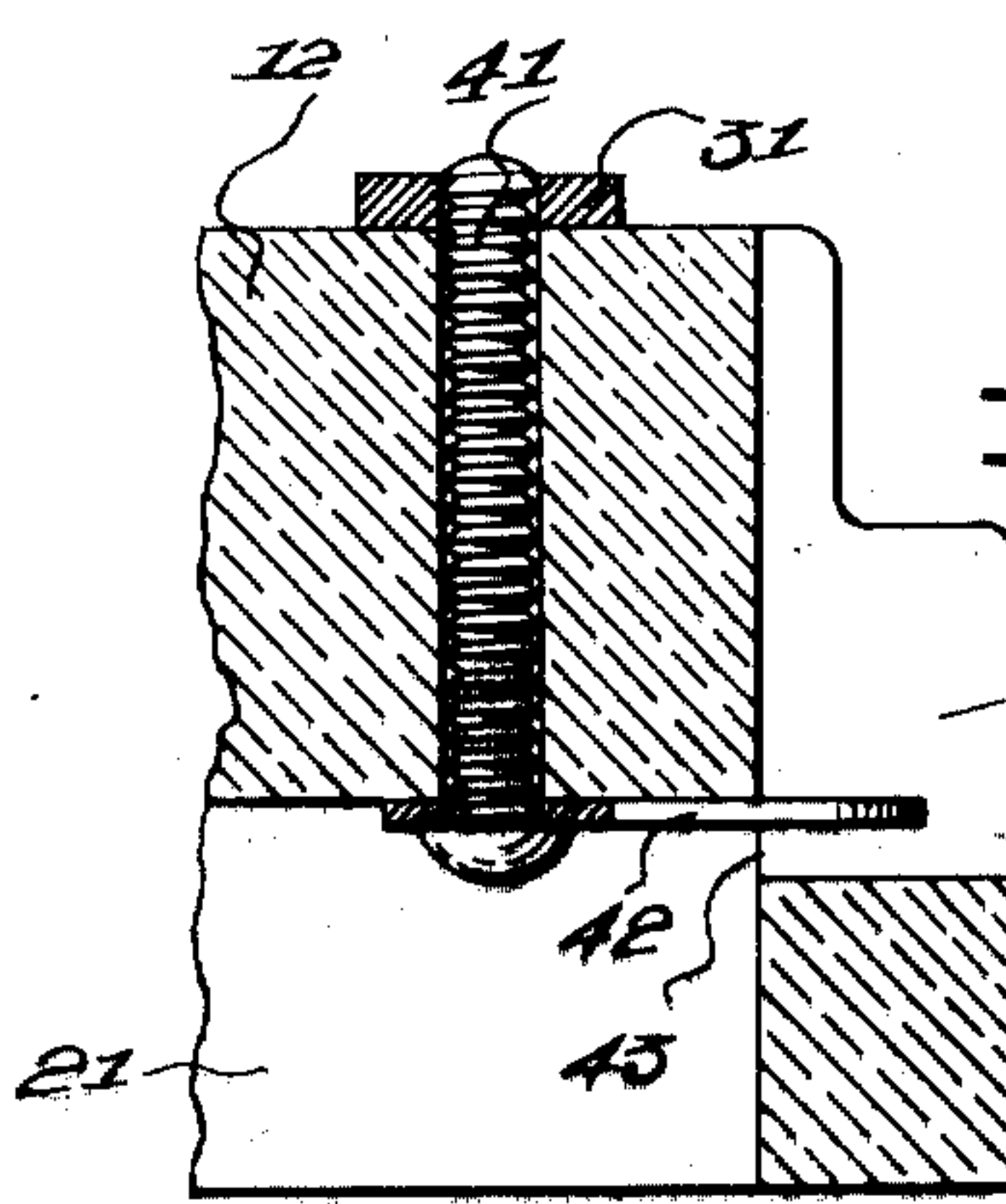


Fig. 4

Fig. 7

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2 Sheets-Sheet 2

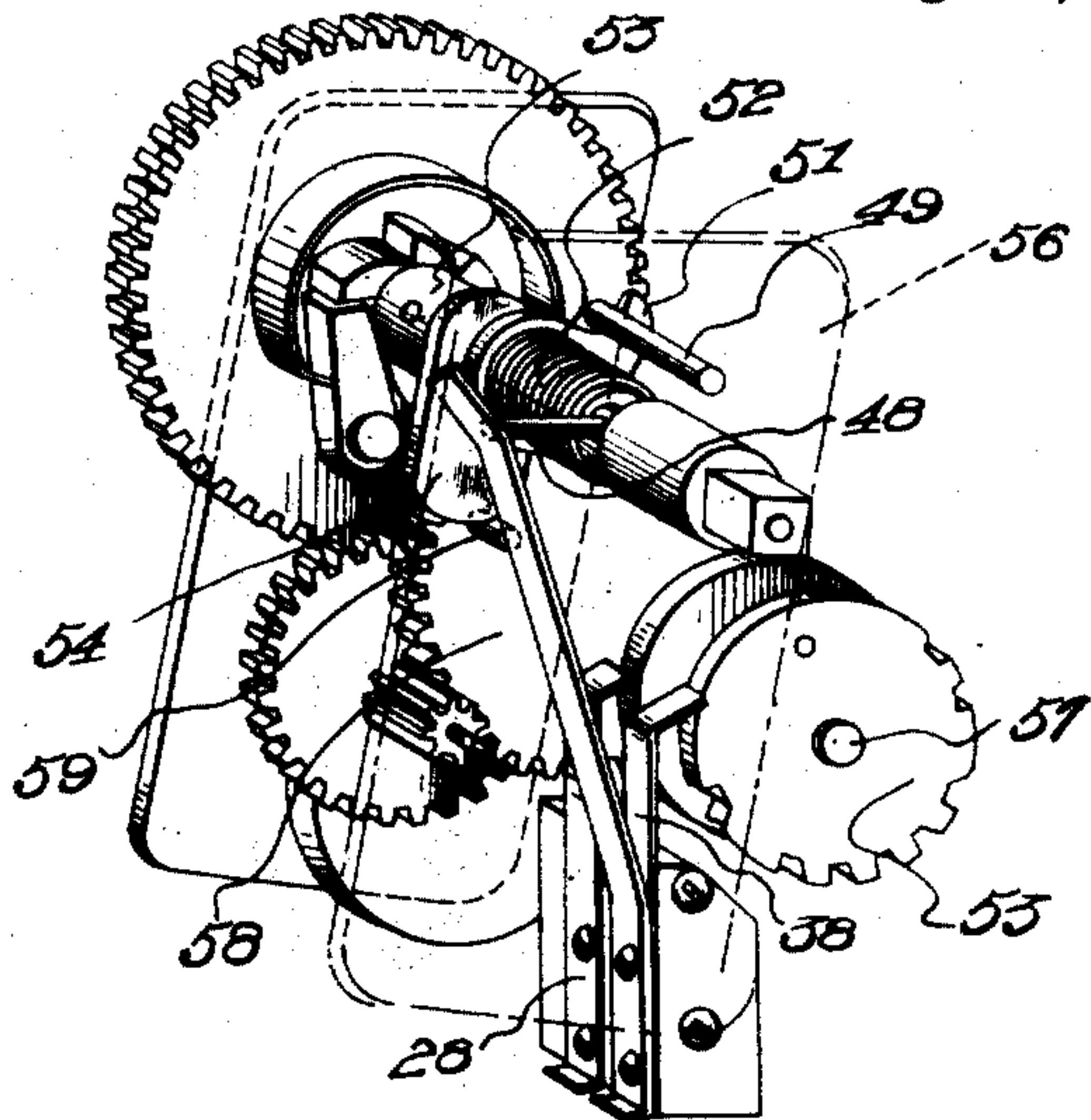


FIG. 4

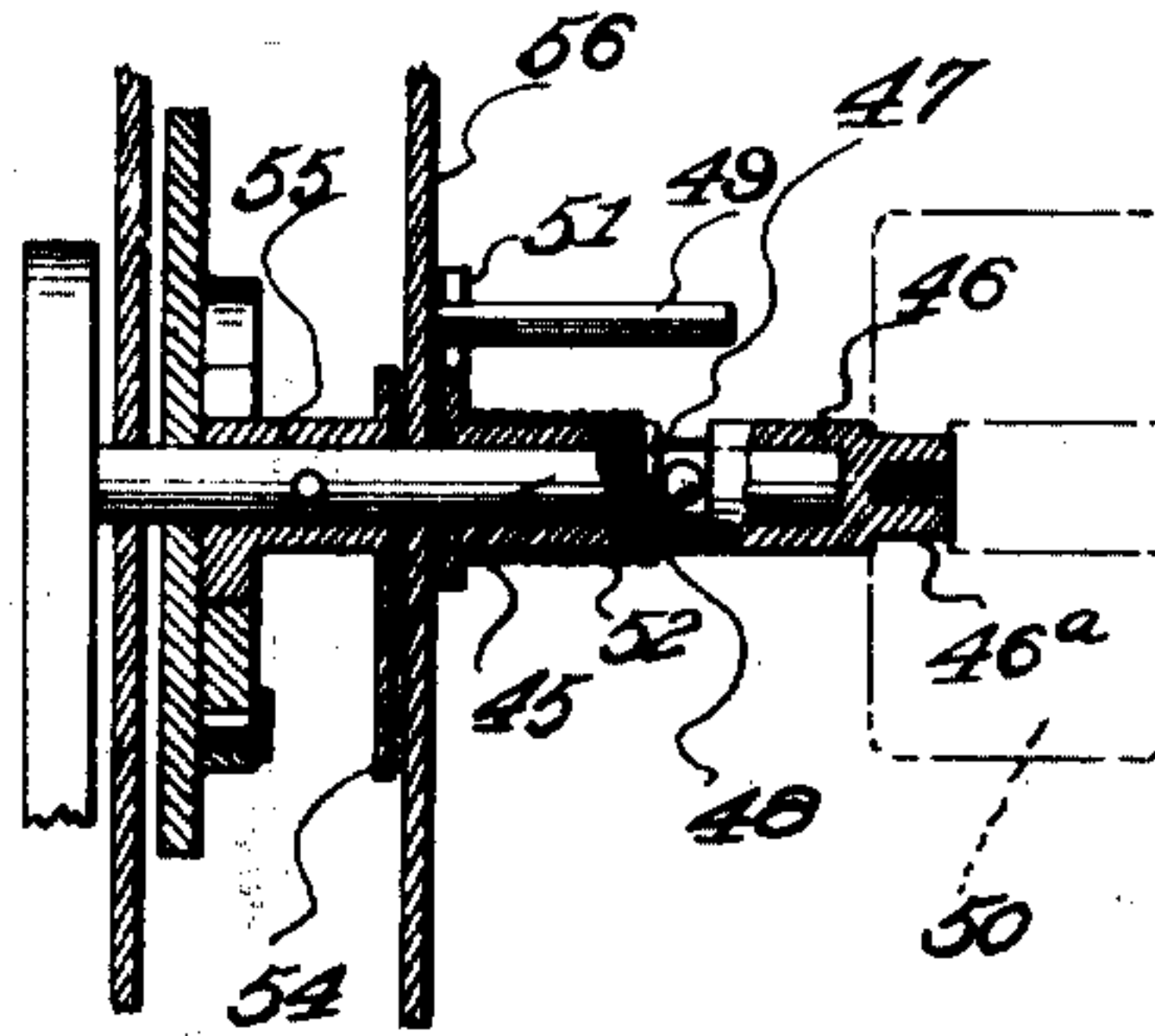


FIG. 5

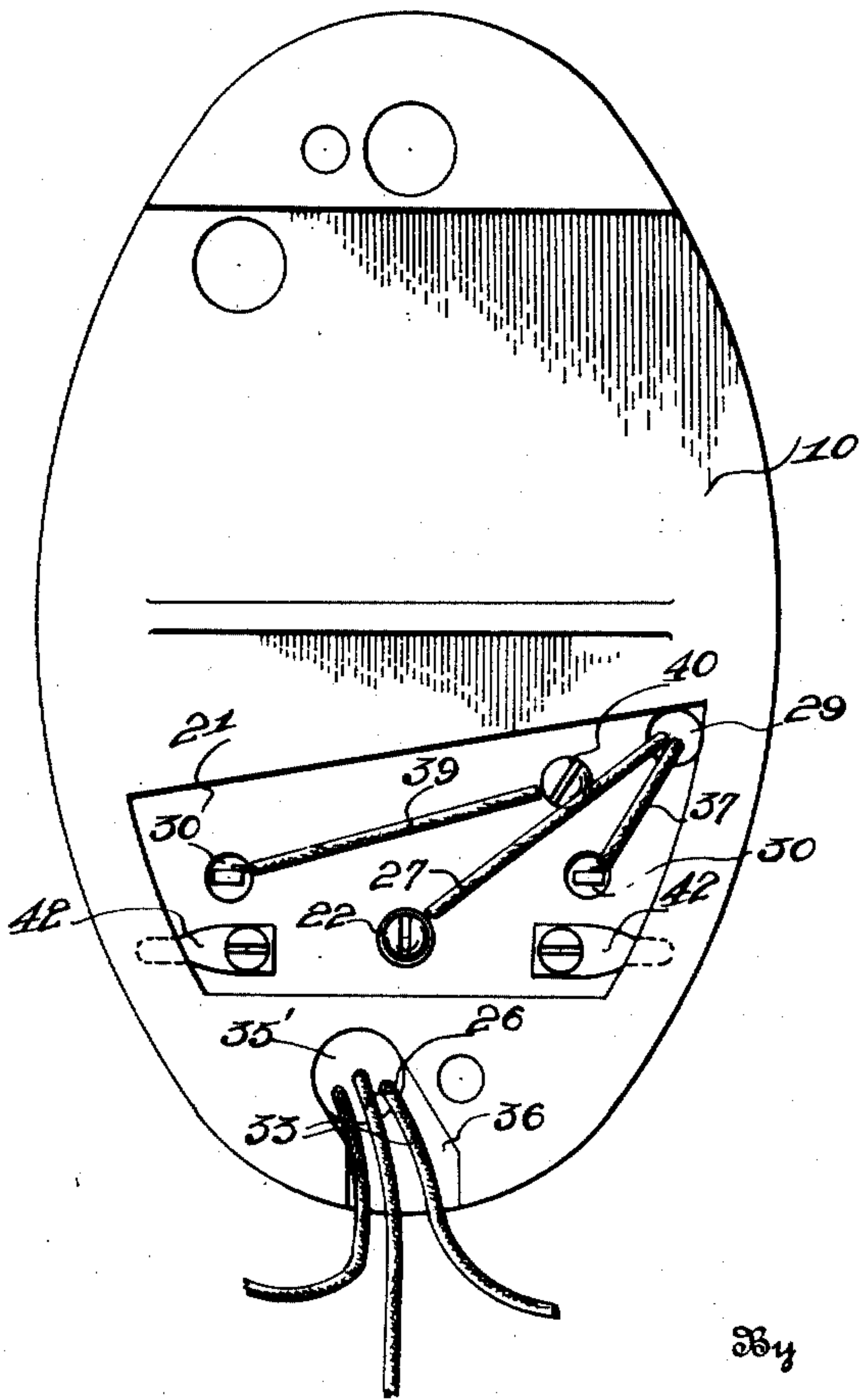


FIG. 3

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UNITED STATES PATENT OFFICE.

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MESSENGER CALL BOX.

Application filed August 20, 1926; Serial No. 130,523.

This invention relates to messenger call boxes such as are employed in the well known McCulloch call system, the boxes being of the general type disclosed in Patent Number 1,164,069 granted to A. A. Clokey, December 14, 1915.

This type of box, which is now in general use may be briefly described as having a base on which the working mechanism is mounted, three posts being provided at one end of the base for the connection of two line wires and a ground wire. The working mechanism is provided with a cover or casing leaving the posts exposed.

This arrangement is open to serious objections since the exposed posts offer convenient pegs on which to hang objects of various sorts, such as ladies' purses and the like. Naturally, if the object be of such nature that the part engaging the posts is of conductive nature a short circuit is formed so that no signal can be sent from the box. Again, modern practice employs currents of quite high voltage so that a person touching two of the posts at the same time is quite apt to receive a shock which, if not dangerous, is at least unpleasant. Also the exposed position of these posts permits of mischievous tampering by connecting two of the posts with a wire.

Another objectionable feature exists in the present type of call box in that the shaft to which the turning knob is secured is geared to the spring and the knob or lever being fixed on this shaft permits manual assistance being given the spring in its effect on the break wheel. When such manual pressure is exerted the rotation of the break wheel is so speeded that it becomes impossible to properly read the number called at the central station. Many persons have a habit of thus speeding up the action of the call box under the impression that more rapid service is obtained, but the result is inefficiency in operation and delay in service.

A third objection to the present devices occurs less frequently but is of great annoyance to installation men. This arises from the fact that it is often necessary to exchange the break wheel in an installed box for one having a different number as, for instance, when a subscriber moves from one office to another. With the present construction there is provided, on the upper

surface of the break wheel, a stop pin which normally engages a stop segment which normally overlies the break wheel. This segment is carried on the spring shaft or arbor in which the knob or handle is fixed and is turned aside only when the spring is tensioned as the handle is rotated, moving back over the break wheel upon release of the handle. In order to remove the break wheel from the arbor, to which it is held by a set screw, it is necessary for the installation man to hold the knob in position with the spring wound up with one hand while the other hand has to perform all the operations of unscrewing the set screw, removing the break wheel, placing the new wheel on its arbor, adjusting its position and screwing up its set screw. Moreover, much care has to be taken to ensure the stop pin properly engaging the stop segment.

With these difficulties in mind the principal objects of the present invention include the provision of an improved call box wherein the construction of the base and cover is such that the connecting posts are housed beneath the cover while provision is made for the application of the usual testing instruments; the provision of an operating handle mounting arranged to prevent manually break wheel operative movement of the spring arbor; and an improved stop arrangement by means of which the break wheel may be removed and replaced without winding the spring and without making necessary nicety of adjustment of the break wheel on its arbor.

In the accompanying drawings wherein like characters of reference are used throughout,

Figure 1 is a plan view of the box with the cover removed;

Figure 2 is a section on the line 2—2 of Figure 1;

Figure 3 is a bottom plan of the box;

Figure 4 is a perspective view of the operating mechanism detached from the base;

Figure 5 is a detail showing the spring arbor and associated parts;

Figure 6 is an enlarged detail section on the line 6—6 of Figure 1;

Figure 7 is a similar section on the line 7—7 of Figure 1.

As here shown there is provided a base 10 of the usual elliptical shape, this base being molded from porcelain or other suit-

able insulating material. On the face of this base at the upper end there is provided a raised portion 11, and at the lower end a larger raised portion 12 so that a well 13 is left between these portions wherein is seated the working mechanism indicated in general at 14. Inasmuch as this working mechanism is of the general type now used, the specific details are not necessary to be described and only those parts will be particularly referred to which enter into the present invention. At the sides of the well there is provided a raised flange 15, the end surfaces of the raised portions and the outer surfaces of these flanges forming, in plan, an ellipse on which is fitted the top or cover 16 which thus covers the entire base except for a narrow rim projecting evenly all around from beneath the cover. At the upper end of the base there is provided on its under surface a small recess 17 from which extends a screw-receiving passage 18 opening through the top of the base. Through this passage extends a screw 19 which projects through the base and carries a post 20 on which the top of the cover rests. At the lower end of the base a much larger irregularly shaped recess 21 is formed in the under side and from this recess also extends an opening receiving a screw 22 which projects like the screw 19 and, like it, carries a post 23 on which the top of the cover rests. These posts are provided with thread openings to receive screws 24 holding the cover removably in position. A binding screw 25 is screwed into the lower side of this post 23 for connection of the ground wire 26 so that the post not only holds the cover but also acts as the ground post and perform the function of the exposed ground post in the present form of call box. The screw 22 is connected by a wire 27 with the grounding contact pen 28 of the mechanism, the wire passing through an opening 29 leading from the recess 21 to the well 13. At each side of the post 23 an opening 30 extends downwardly through the raised end 12 to the recess 21. Positioned on the face of the raised portion 12 is a pair of terminal plates 31 having fingers 32 which extend into the recess 21 through the openings 30. These plates have the line wires 33 secured thereto by binding screws 34 and these wires and the ground wire 26 pass into a recess 35 formed in the lower part of the portion 12 and thence through an opening 35' and downwardly through a slot 36 opening through the rear face of the base at the bottom thereof. The fingers 32 have lead wires soldered to them and one wire 37 passes up through the opening 29 and is connected to the contact pen 38. The other of these wires 39 leads to one of the frame screws 40, the lower end

of which projects into the recess 21. Thus, with the cover in place, the ground post 23 and terminals 34 are enclosed and inaccessible to tampering unless the cover be deliberately removed.

In order to provide testing contacts without removing the cover, the terminal plates 31 are held in position by screws 41, the heads of which hold contact members 42. These contacts pass out of the recess 21 through lateral openings 43 and terminate in small channels 44 formed in the sides of the base. The contacts 42 may thus be touched by testing instrument terminals inserted in these channels but the contacts are so housed that they cannot be touched with a person's fingers. It will be seen in Figure 7 that the recesses 44 each have an inner wall aligned with a side wall of the recess 21 so that no drilling or coring is necessary to form the opening 43 and the base block can be molded in a simple two part mold. Thus the terminals for the line and ground wires are housed without interfering with the application of testing instruments.

This invention, like those now in use, has a pawl and ratchet controlled spring arbor 45 but, unlike the present type, the operating handle is not mounted directly on this arbor. On the contrary there is mounted on the arbor 45 a sleeve 46 (see Fig. 5) having intermediate its ends a circumferentially extending arcuate slot 47 wherethrough extends a stop pin 48 secured to the arbor, limiting the winding movement of the arbor by the usual engagement with a stop pin 49. The sleeve has a squared end 46^a on which is mounted the operating handle or knob 50. A stop finger 51 projects from this sleeve and limits its movement in unwinding direction by engagement with said pin 49. A torsion spring 52 surrounds the sleeve 46 and is secured at its ends to the pin 48 and finger 51 so that it tends to hold one end of the slot 47 against the pin 48 in readiness for the winding operation. With this arrangement the spring arbor is rotated to wind the main spring in the ordinary manner but reverse or unwinding pressure on the operating handle simply rotates the sleeve freely on the arbor until the finger 51 engages the pin 49. The slot 47 is, of course, made sufficiently long to prevent the pin 48 being engaged by the remaining end of the slot at any time.

In order to leave the break wheel 53 free for ready removal and replacement, the stop segment commonly overlapping said wheel is removed and a stop segment 54 is carried by a sleeve 55 pinned to the arbor 45 adjacent its rear end and thus behind the frame plate 56, the break wheel being mounted on its arbor 57 in front of the

frame plate 56. These two arbors are connected by the usual gear train and on a gear 58 of this train is mounted a stop pin 59 which engages the stop segment when the break wheel has been rotated sufficiently to send a complete signal. The parts are thus arrested while the main spring is held under a slight tension.

With this arrangement, it is unnecessary to turn the spring arbor before removing the break wheel, as was the case in the prior call boxes having the stop segment above the break wheel, and the latter may be lifted off the arbor by simply loosening the set screw 60, while all the parts are in their normal idle positions. Thus the installation or repair man can readily substitute a new break wheel on an instrument. Also, accuracy of adjustment is unnecessary since it is only essential that the spring contact fingers shall engage the break wheel in advance of the first notches usual in said wheels, the position of the wheel in no way affecting the time of engagement of the segment 54 and the pin 49.

The arrangement for the ready removal and replacement of the code wheel is claimed in my divisional application Serial No. 278,514, filed May 17, 1928, and the arrangement for covering the terminals is

claimed in my divisional application, Serial No. 278,515, filed May 17, 1928.

I claim:

1. In a messenger call box provided with the usual pawl and ratchet controlled spring arbor, a code wheel shaft geared to said arbor, a sleeve rotatably mounted on said arbor and having an operating handle or knob secured thereto, said sleeve having a circumferential slot substantially the length of the peripheral travel of the arbor, a pin projecting from the arbor through the slot, and means for stopping the backward movement of the sleeve when the rear end of the slot is at the initial position of said pin.

2. In a messenger call box provided with the usual pawl and ratchet controlled spring arbor, a code wheel shaft geared to said arbor, a sleeve rotatably mounted on said arbor and having an operating handle or knob secured thereto, said sleeve having a circumferential slot substantially the length of the peripheral travel of the arbor, a pin projecting from the arbor through the slot, and spring means normally holding the sleeve in initial position so that said pin is positioned adjacent the rear end of said slot.

In testimony whereof I affix my signature.
GEORGE W. JANSON.