

No. 664,681.

Patented Dec. 25, 1900.

E. E. SALISBURY.
ELECTRIC CALL BOX.

(Application filed July 24, 1900.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1

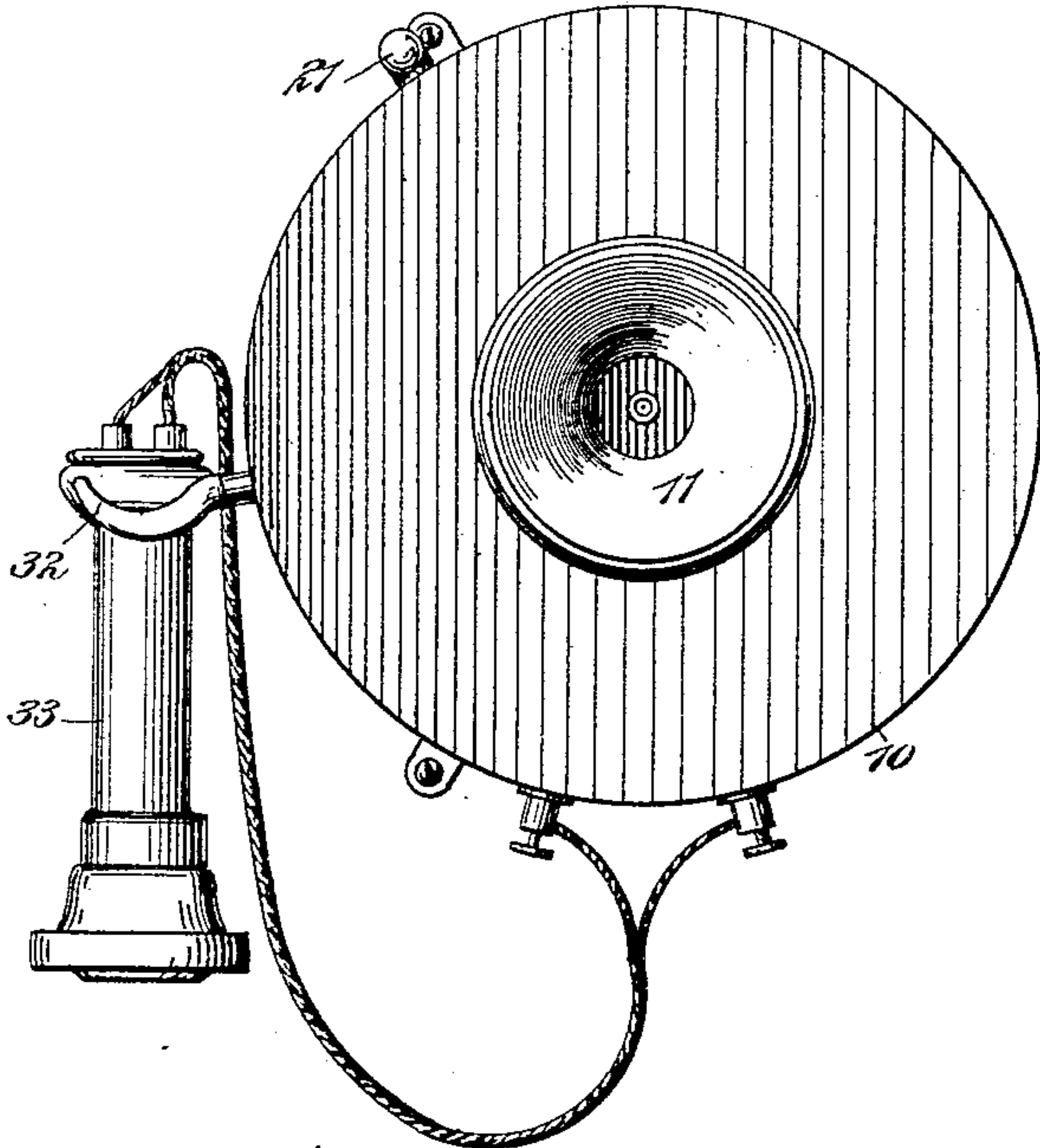


Fig. 2

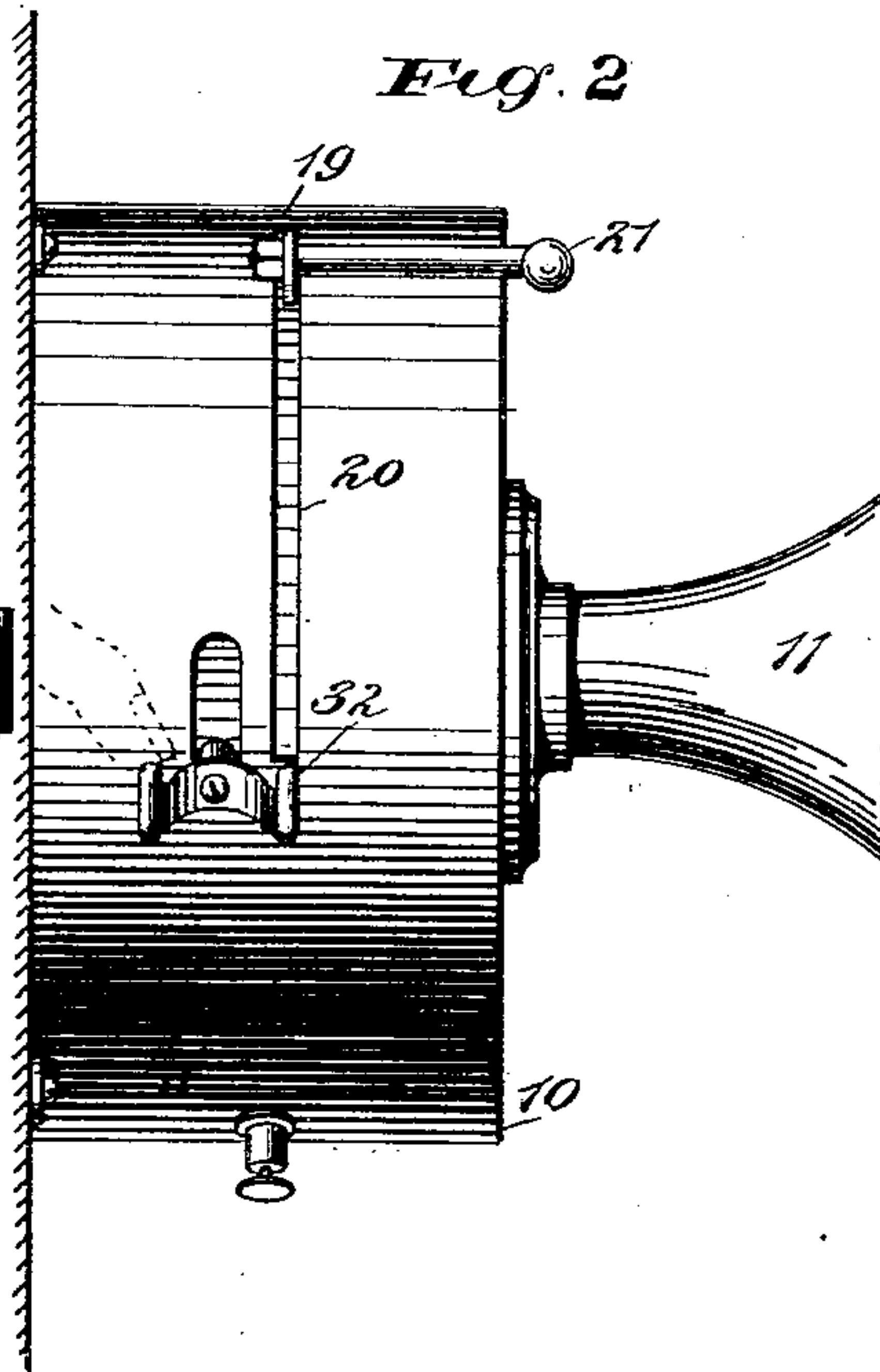


Fig. 3

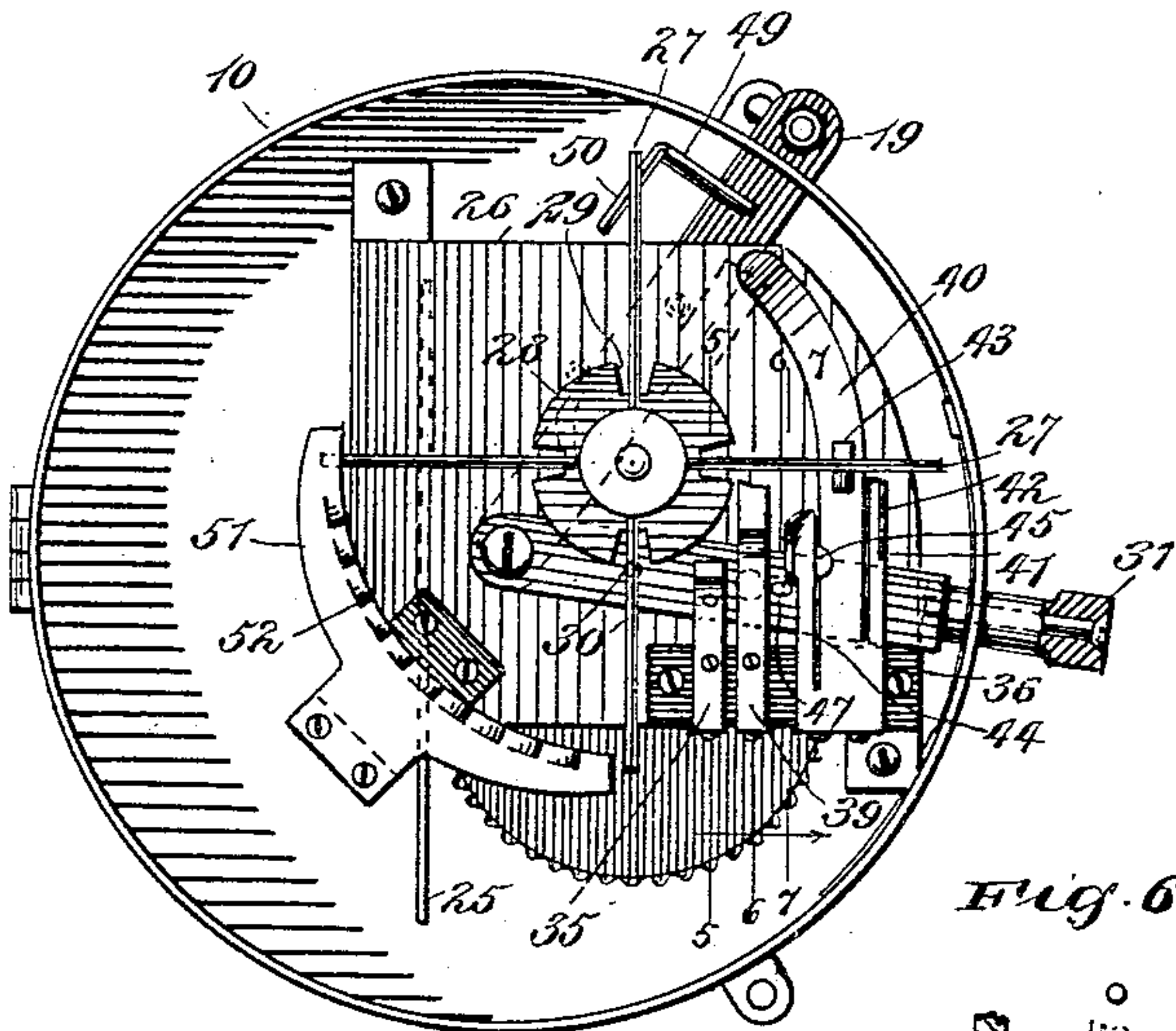


Fig. 4

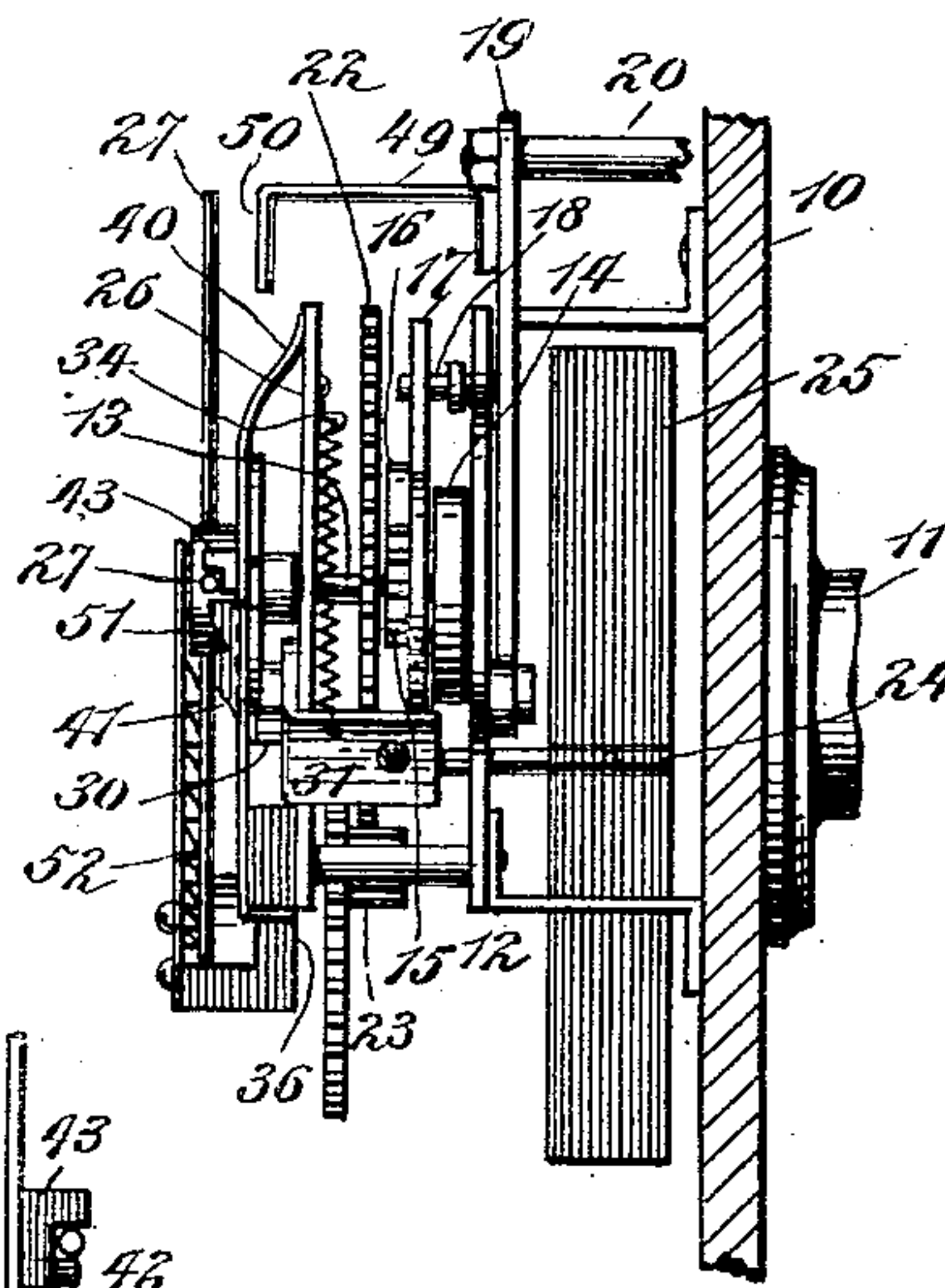


Fig. 5

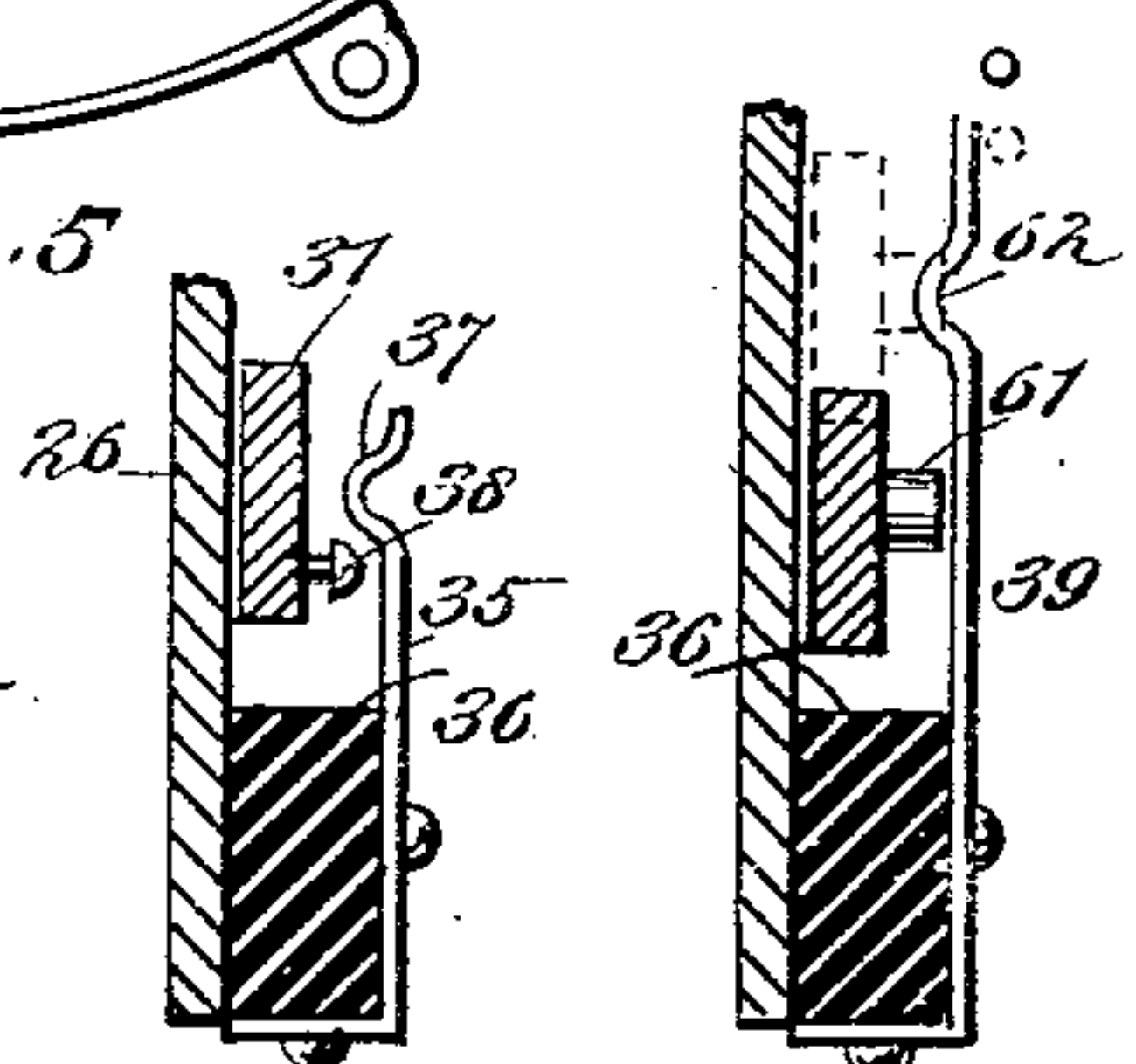


Fig. 6

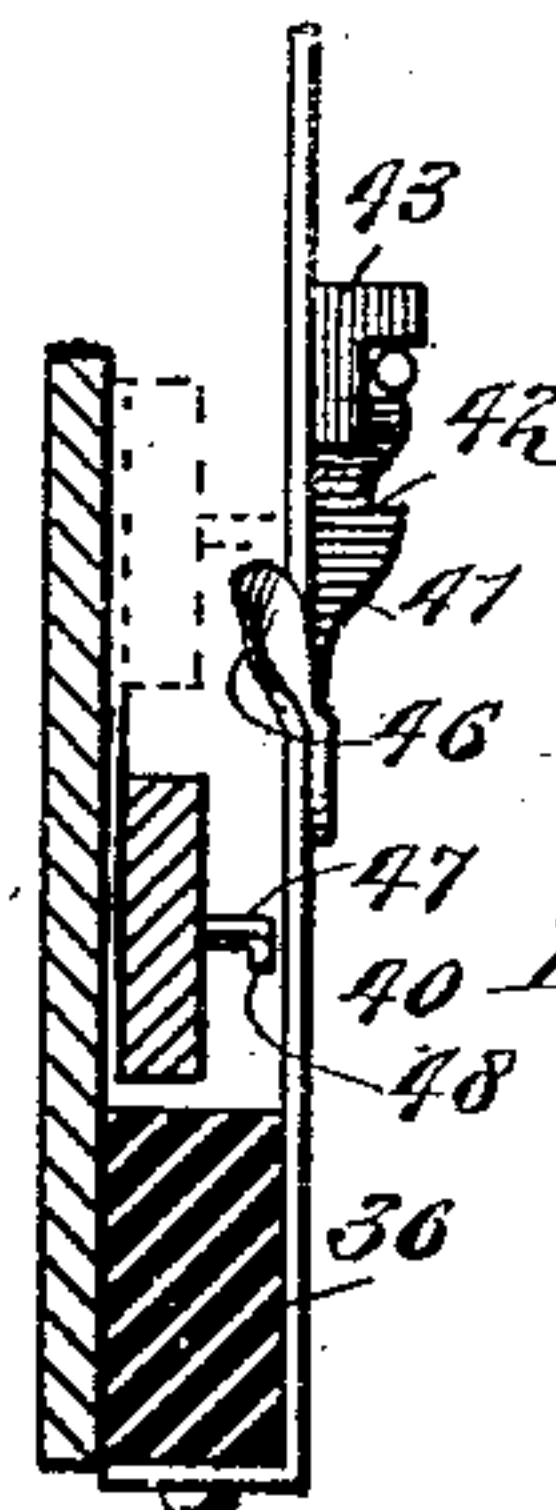
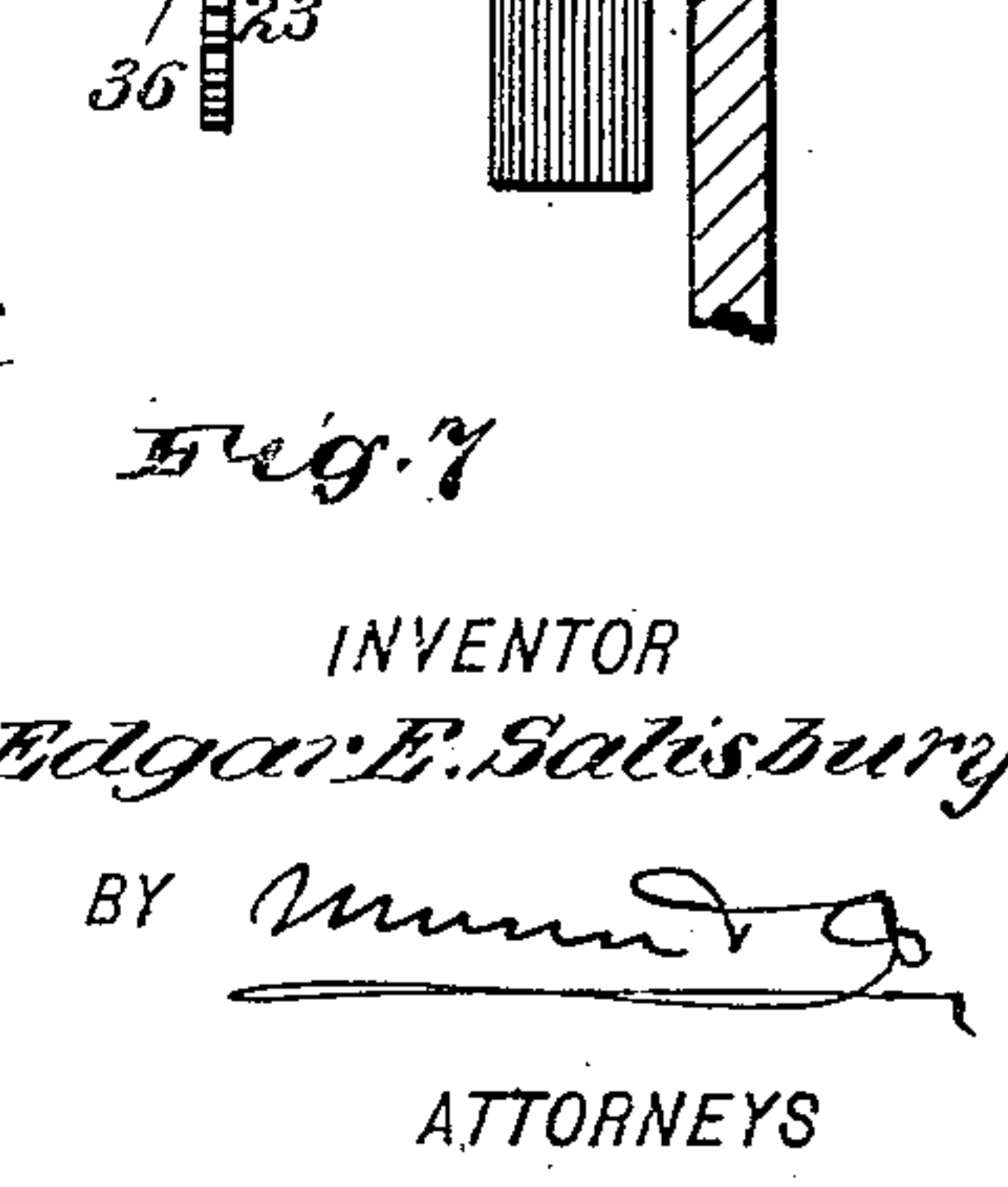


Fig. 7



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No. 664,681.

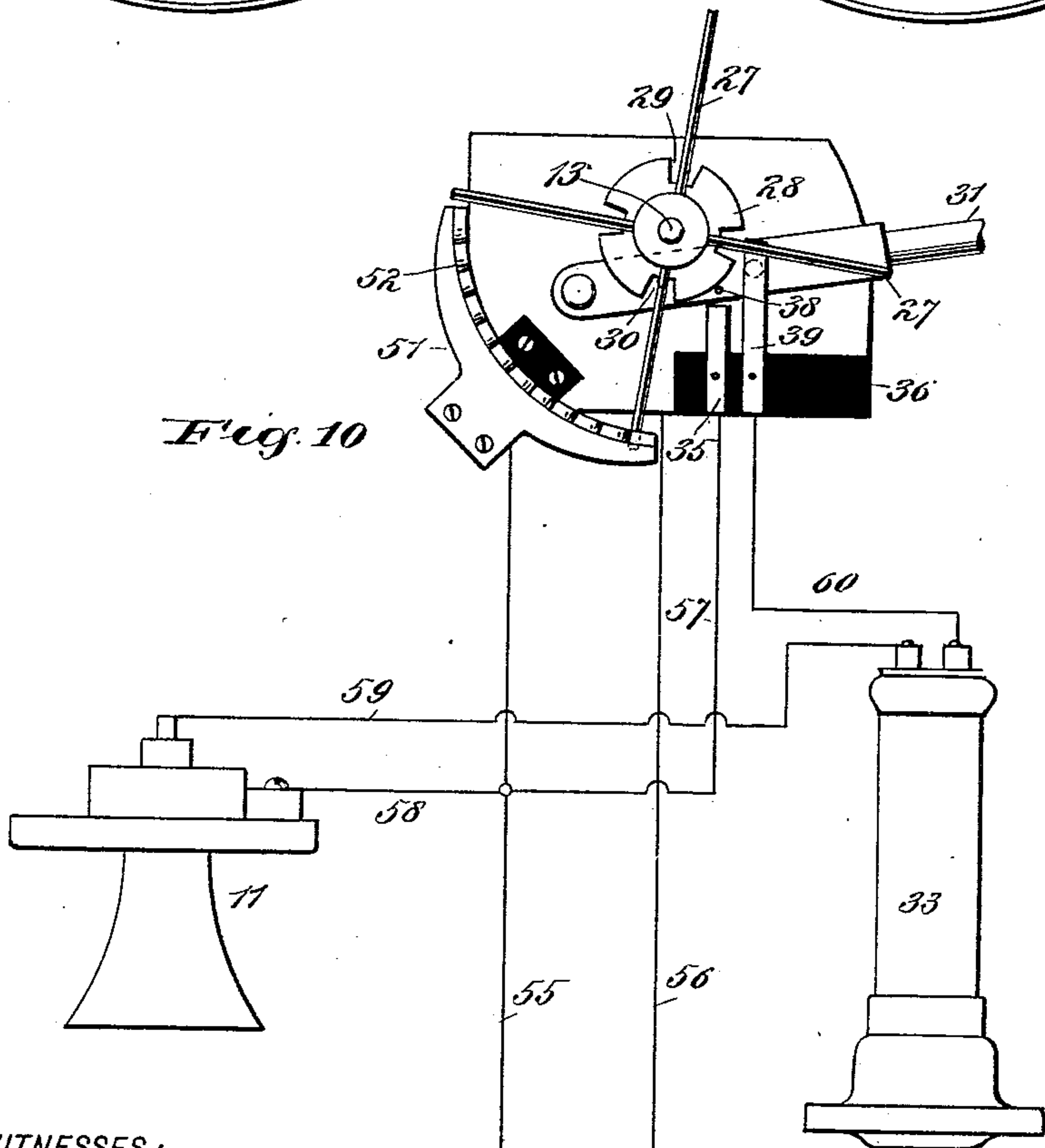
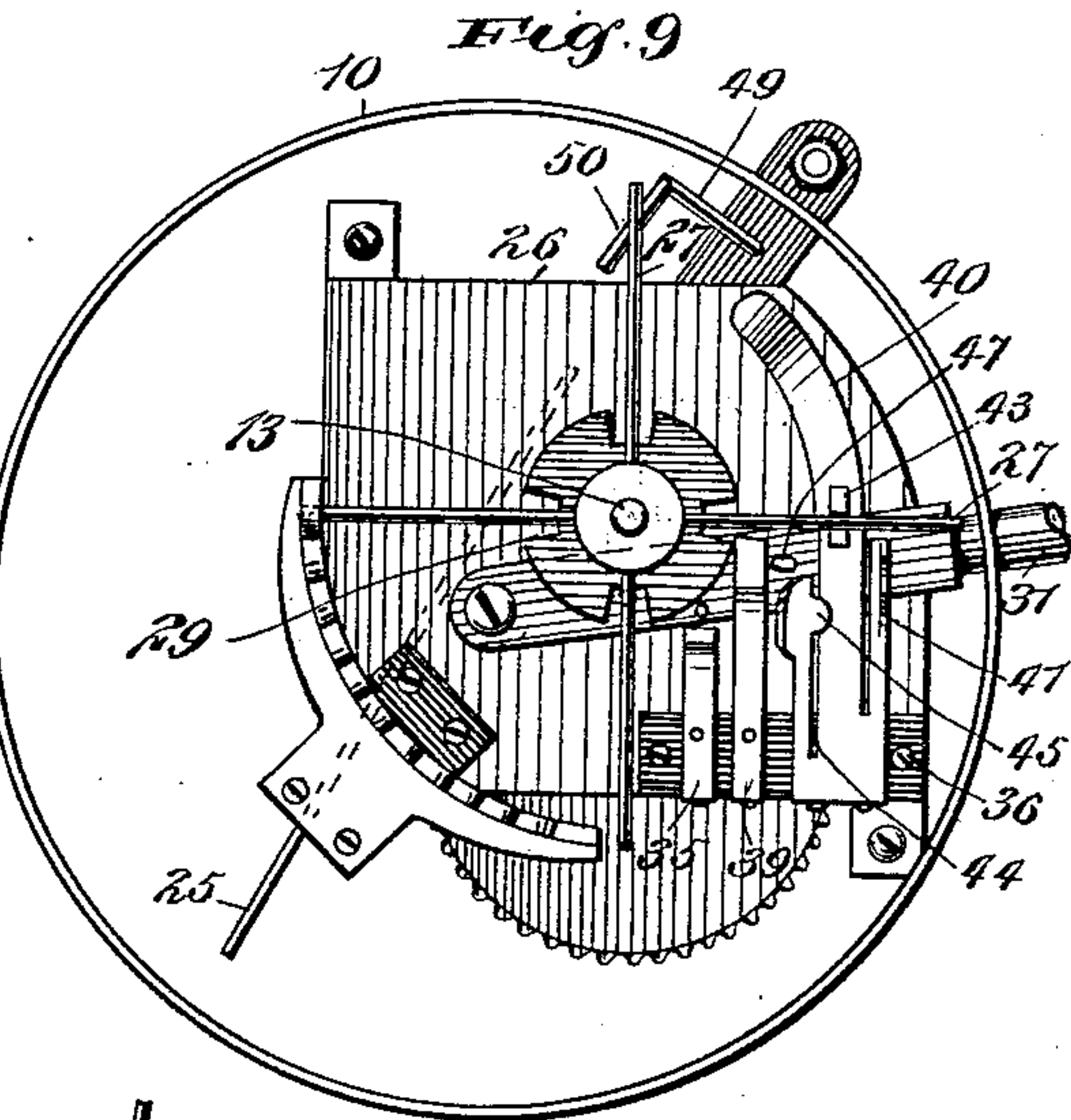
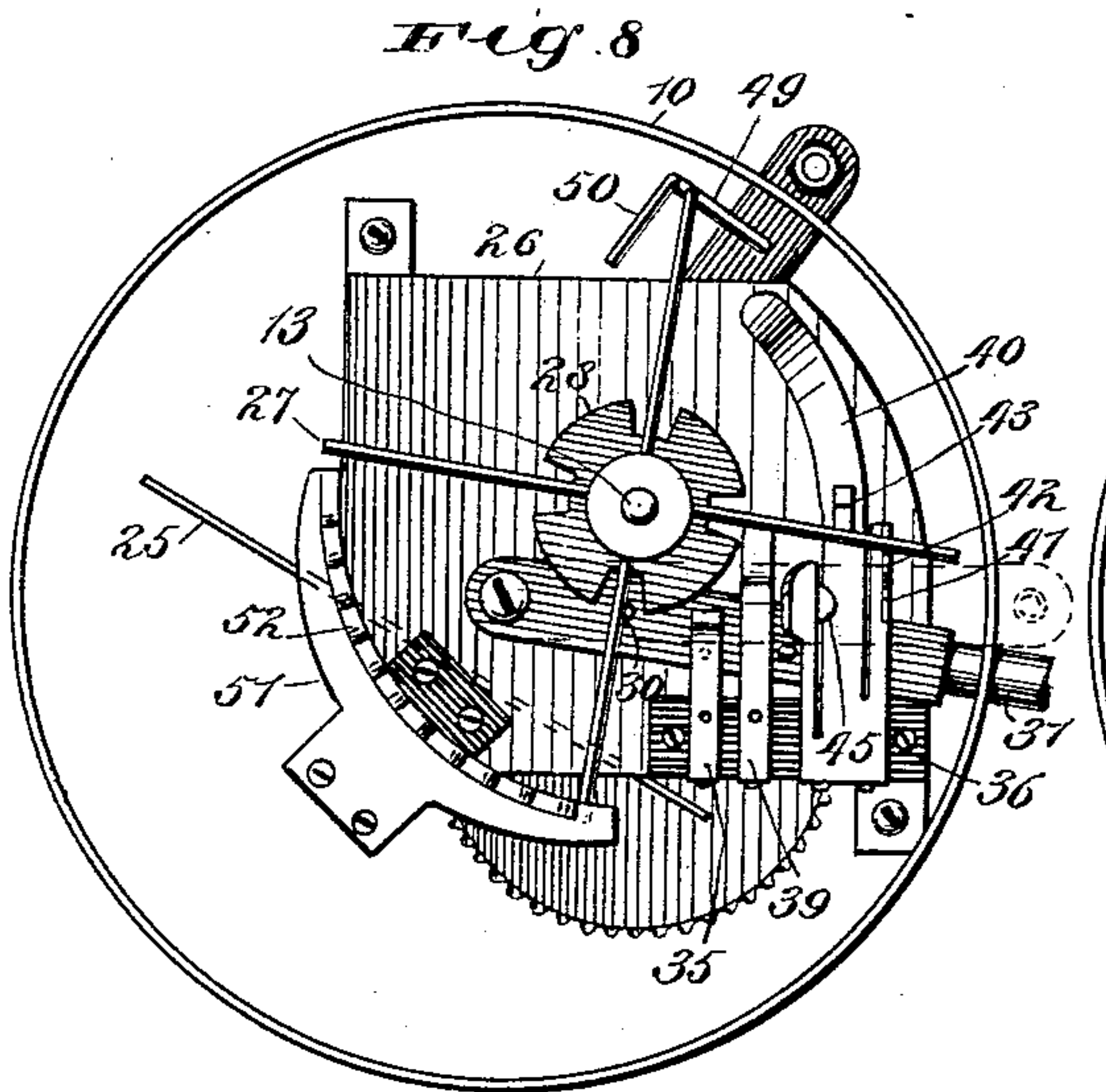
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WITNESSES:

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UNITED STATES PATENT OFFICE.

EDGAR E. SALISBURY, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE NATIONAL AUTOPHONE COMPANY, OF SAME PLACE.

ELECTRIC CALL-BOX.

SPECIFICATION forming part of Letters Patent No. 664,681, dated December 25, 1900.

Application filed July 24, 1900. Serial No. 24,650. (No model.)

To all whom it may concern:

Be it known that I, EDGAR E. SALISBURY, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented a new and Improved Electric Call-Box, of which the following is a full, clear, and exact description.

This invention relates to improvements in electric call-boxes; and one object is to provide a simple mechanism adapted for connection with a telephone system that may be employed to send to central a telephone call or to serve as a messenger call.

A further object is to provide in connection with an electric call-box a novel form of circuit-breaker.

I will describe an electric call-box embodying my invention and then point out the novel features in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a front view of a call-box embodying my invention. Fig. 2 is a side elevation. Fig. 3 is an interior view showing the normal position of the parts prior to sending in a call. Fig. 4 is a side view thereof. Fig. 5 is a section on the line 5 5 of Fig. 3. Fig. 6 is a section on the line 6 6 of Fig. 3. Fig. 7 is a section on the line 7 7 of Fig. 3. Fig. 8 is an inside view showing the position of parts when the talking-circuit is about to be cut in by an upward movement of the receiver-lever. Fig. 9 is a view showing the parts in normal position, as in Fig. 3, but indicating the talking-circuit as cut out and the receiver-hook in its upper position, thus preventing listening; and Fig. 10 is a diagrammatic view, the receiver being removed and the talking-circuit cut in.

The call-box comprises a casing 10, upon the front of which is a transmitter 11 of the usual construction. Arranged within the casing is a frame 12, supporting a gearing for operating the circuit-controller. This gearing comprises a shaft 13, attached to which is one end of a spring 14, the other end being attached to the frame, and a ratchet-wheel 15 on the shaft 13 is engaged by a pawl 16, attached to an arm 17, mounted to swing on

the shaft 13 and engaged by a pin 18, extended from an actuating-lever 19, which projects outward through a circumferentially-disposed slot 20 in the wall of the casing 10, and on the outer end of the actuating-lever is a finger-piece 21. A gear-wheel 22 on the shaft 13 meshes with a pinion 23, on the shaft of which is a gear-wheel engaging with a pinion on a shaft 24, to which a governor is attached, this governor being shown in the form of a fan 25. The shaft 13 has a bearing in and projects through the inner plate 26 of the supporting-frame, and attached to this projected end of the shaft are radially-disposed circuit-closing arms 27, four of these arms being shown in the drawings. Also mounted on the projected end of this shaft 13 is a disk 28, having notches 29 in line with the arms 27, as plainly indicated in the drawings, these notches being designed to receive a pin 30, mounted on the receiver-lever 31 to form a stop, as will be hereinafter described.

The receiver-lever 31 extends outward through an opening in the wall of the casing 10 and is provided at its end with the usual yoke 32, in which the receiver 33 may be placed in the usual manner. The lever is pivoted to the plate 26 and is moved upward upon the removal of the receiver by means of a spring 34, connected at one end to said lever and at the other end to the plate 26. A contact-spring 35 is attached to a block 36, of insulating material, secured to the plate 26, and at its upper end this contact-spring 35 has a depressed portion 37, adapted to be engaged by a pin 38 during the upward or downward movement of the lever 31 to indicate to central office by signal when the receiver is removed from the lever and conversation over the telephone is desired or to signal to central when the said lever is moved downward by placing the receiver thereon, indicating that the conversation is ended. Also connected to the block 36 is a spring contact-plate 39, which I may term a "talking" contact-plate, as it is designed to be moved into electrical connection with one of the arms 27 to complete the talking-circuit by the upward movement of the lever upon removing the receiver. Also attached to the block 36 is a spring-plate 40, designed to control the movements of the

arms 27. The upper end of this retarding-plate 40 is curved downward and has sliding engagement with the plate 26. At one end this plate has an outwardly-extended portion 41, provided with a notch 42, designed to receive either one of the arms 27, and it is also provided forward of its holding device 41 with a stop-lug 43, designed also at a certain time to be engaged by either one of the arms 27.

At the side of the plate 40, opposite that having the projection 41, is a spring-plate 44, having a lug 45, adapted to engage against the outer side of the spring-plate and also having an inwardly-curved cam-shaped ear or portion 46, designed to be engaged on its inner side during the upward movement of the lever 31 by a pin 47, attached to said lever, and this pin 47 has a hook portion 48, designed to engage with the outer surface of said ear or cam portion 46 during the downward movement of the lever 31, the purpose of which will appear later.

The actuating-lever 19 carries an arm 49, which has a finger 50 projected therefrom and adapted to engage with the outer side of the spring-plate 40 for the purpose of releasing an arm 27 from the lug 43 when a signal is to be turned in.

Coacting with the circuit-closer, consisting of the arms 27, is a circuit-breaker, consisting of a metal plate 51, formed in the segment of a circle and mounted on the work-supporting frame, but insulated therefrom. At the inner edge this circuit-breaker plate has circumferentially-disposed teeth 52, designed to be turned inward or toward the plate 26 to be engaged by the arms 27 to close the circuit. Obviously the said teeth 52 may be turned in such position as to cause the closing of the circuit at any desired number—that is, the number of the call-box. The teeth not desired to be engaged by the arms of course will remain in a plane with the plate 51. By this construction of circuit-breaker it is obvious that it may be readily changed from one number to another without removing it from the call-box.

In the diagrammatic view shown in Fig. 10 53 and 54 indicate the line-wires, the line-wire 53 being connected by a wire 55 with the circuit-breaker 51 and the wire 54 being connected through the work-supporting frame with the arms 27 by means of a wire 56. From the contact-plate 35 a wire 57 extends to a connection with the wire 55, and from this wire 55 a wire 58 leads to the transmitter 11, which has a wire connection 59 with the receiver 33, which is in connection with the contact-plate 39 by means of a wire 60.

The operation is as follows: The normal position of the parts with all the circuits open is as indicated in Fig. 3. Should it be desired to send in a messenger call, the lever 19 is to be drawn downward, which will cause a winding of the spring 14 through the agency of the pawl-and-ratchet mechanism, and during this downward movement of the lever 19 the

finger 50 by engaging upon the spring-plate 40 will depress said plate, so as to disengage the lug 43 from an arm 27. Then upon releasing the lever it will be carried back to its normal position, and during this movement the spring 14 will rotate the shaft 13, consequently moving one of the arms 27 over the circuit-breaker, closing the call-circuit through the main wires and the wires 55 and 56. Should it be desired to use the telephone upon sending in a signal, as just described, the receiver is to be removed from its lever, so that said lever will be moved upward by the spring 34. As the lever moves upward the pin 38 will wipe over the projection 37 of the spring-plate 35, closing the circuit through the wires 57, 55, and 56, and the main wire, which will send in a single ring, indicating to central that telephone-service is desired. Of course when the pin 38 passes above the projection 37 the said signal-circuit will be again opened. At each operation the circuit-closer makes one-fourth rotation, and when the lever 31 is in its uppermost position the pin 30 will engage in one of the notches 29. The object of this is to permit the lever 31 to rise when the arms 27 are at their resting-point and after the call is recorded at central. When the said lever 31 is in its uppermost position, as indicated in Fig. 10, a block 61, of insulating material, mounted on the lever 31, will engage with an inward projection 62 of the spring-plate 39, forcing said spring-plate outward into engagement with one of the arms 27, thus closing the talking-circuit. It may be here stated that when the talking-circuit is closed an arm 27 will be engaged in the notch 42, and during the upward movement of the lever 31 the pin 47 will engage against the inner side of the ear or cam 46 and force it outward without imparting motion to the spring-plate 40. Upon finishing the conversation and hanging the receiver upon the lever the lever will be moved downward and the hook portion 48 of said pin 47 will pass over the ear or cam 46, which will bend the plate 40 inward sufficiently to release the arm 27 from the notch 42, and then the said arm will move out of engagement with the contact-plate 39 or will be stopped from further movement by engaging with the lug 43 in the normal position of the parts. Therefore it will be seen by reference to Fig. 9 that no listening can take place at the telephone should the receiver be removed and the lever 31 moved upward because electrical connection is cut out from the plate 39. After finishing the conversation and moving the lever downward by the weight of the receiver the cut-off signal will be automatically sounded through the plate 35.

The notch 42 in the part 41 is designed to prevent a backward movement of the arms 27 when pulling down the lever 19. It will be observed that the plan of cutting in the telephone is executed by the action of the call mechanism and the upward movement of the

lever 31. The telephone cannot be gotten into the circuit without first sending the signal, and after one conversation is finished and the receiver replaced a second conversation cannot be had without repeating the call.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In an electric call-box, a spring-actuated circuit-closer, consisting of radial arms in the electric circuit, a circuit-breaker coacting with said arms, an actuating-lever adapted to wind the spring, and a retaining device for the circuit-closer adapted to be moved out of its retaining position by a movement of said lever, substantially as specified.

2. In an electric call-box, a spring-motor, circuit-closing arms operated by said motor, a circuit-breaker coacting with said arms, a receiver-lever, a retaining device for holding the arms in circuit-closing position and also for holding the arms in a normal or open position, and an actuating-lever for releasing said retaining device and also for winding the spring, substantially as specified.

3. In an electric call-box, a spring-motor, radial arms arranged in the electric circuit and adapted to be rotated by said motor, a circuit-breaker coacting with the arms, a receiver-lever, a disk on the shaft supporting the arms, the said disk being provided with notches, a pin on the receiver-lever for engaging in either one of said notches, a contact-spring adapted to be moved into circuit-closing position by the upward movement of the receiver-lever, and a lever for winding the motor, substantially as specified.

4. In an electric call-box, a motor, a shaft operated by the motor, circuit-closing arms extended radially from said shaft, a circuit-breaker coacting with said arms, a receiver-lever, a contact-spring arranged in the talking-circuit and adapted to be moved into circuit-closing position by the upward movement of the receiver-supporting lever, and a contact-plate arranged in the signal-circuit and adapted to be closed by either an upward or downward movement of said lever, substantially as specified.

5. In an electric call-box, a motor, a shaft operated by said motor, circuit-closing arms extended from said shaft, a circuit-breaker coacting with the arms, a receiver-supporting

lever, a contact-plate arranged in the talking-circuit and adapted to be moved to circuit-closing position by the upward movement of said supporting-lever, a retaining-plate having an outwardly-turned portion at one edge provided with a notch to receive an arm of the circuit-closer, a stop on said retaining-plate, a device carried by the receiver-supporting lever for depressing the retaining-plate to release the arm from the notch and permit it to move to the stop device on the retaining-plate, thus breaking the circuit, an actuating-lever, and means carried by said actuating-lever for depressing the retaining-plate to release it from an arm, substantially as specified.

6. In an electric call-box, a spring-actuated shaft, circuit-closing arms extended radially from said shaft, a circuit-breaker coacting with said arms, a receiver-supporting lever, a circuit-closer in the talking-circuit, and moved to its closing position by the upward movement of said lever, a spring-yielding retaining-plate, a stop device for the circuit-closing arms connected to said retaining-plate, a stop-lug also on said retaining-plate, a cam-plate having a projection bearing upon said retaining-plate, a hook carried by the receiver-supporting lever for engaging the outer surface of said cam-plate to depress the retaining-plate and thus release an arm from the first stop and permitting it to engage with the next stop, and means for winding the spring of the motor and at the same time releasing the arm from the first-named stop or lug, substantially as specified.

7. In an electric call device, a circuit-breaker, consisting of a metal plate having teeth formed on one edge adapted to be bent or turned laterally of the plate to circuit-closing position, substantially as specified.

8. In an electric call-box, a circuit-breaker, consisting of a segmental metal plate having a series of teeth on its concaved edge adapted to be turned at an angle relatively to the body of the plate, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDGAR E. SALISBURY.

Witnesses:

FRANK B. TAYLOR,
C. H. WILMERDING.