

No. 689,530.

Patented Dec. 24, 1901.

G. W. ADAMS.
CLOCK.

(Application filed Aug. 22, 1900.)

(No Model.)

4 Sheets—Sheet 1.

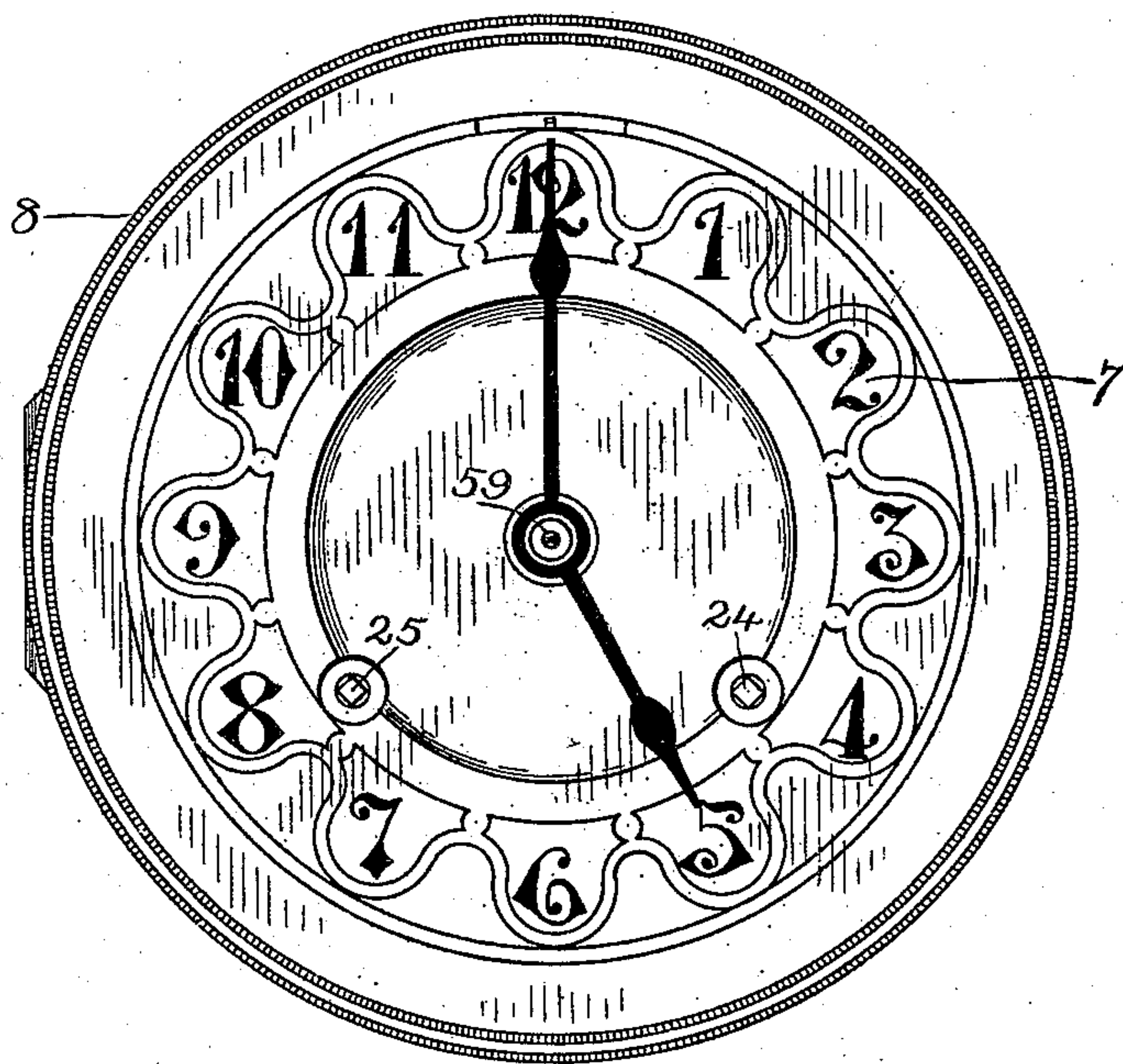


FIG. 1.

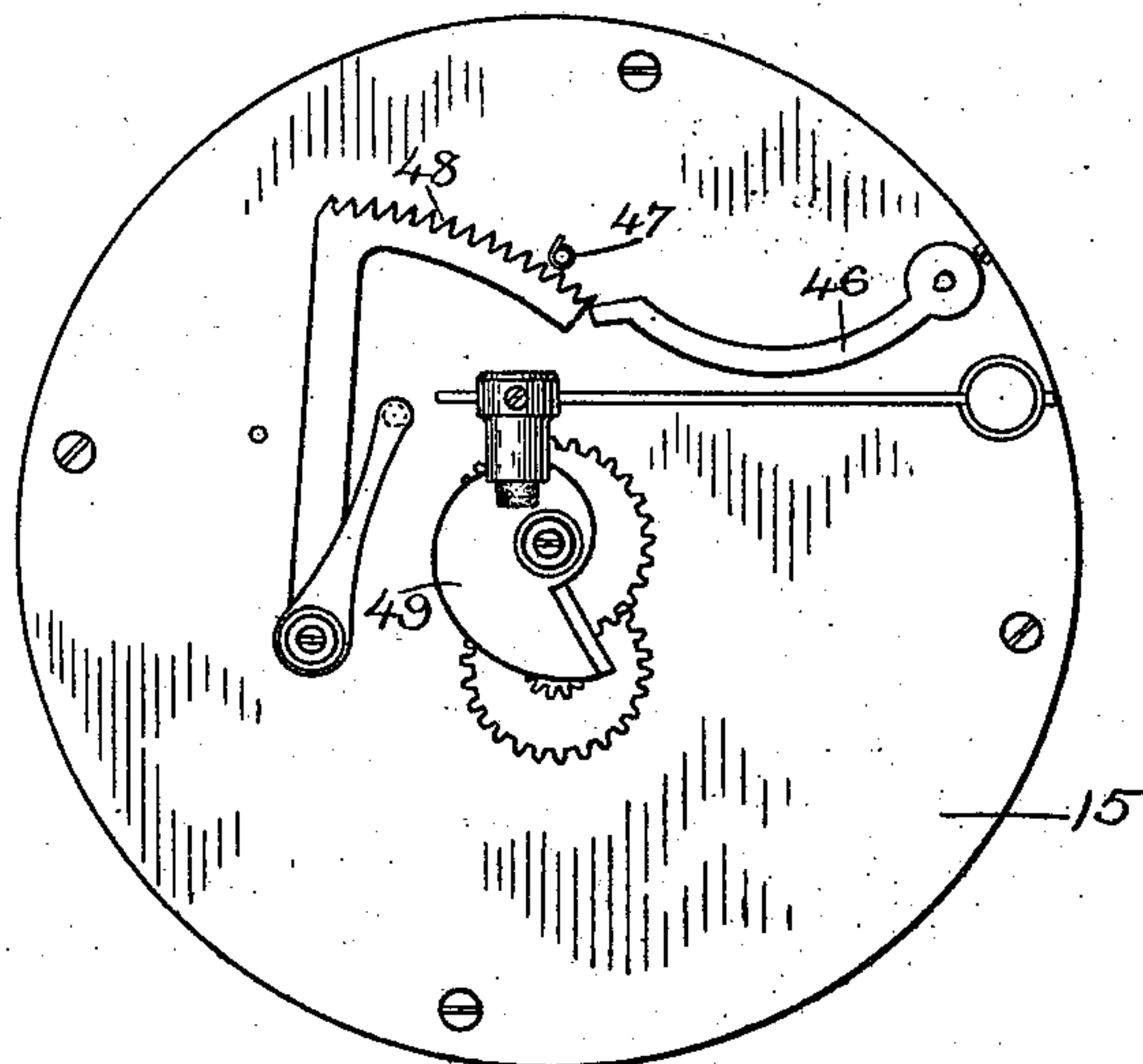


FIG. 2.

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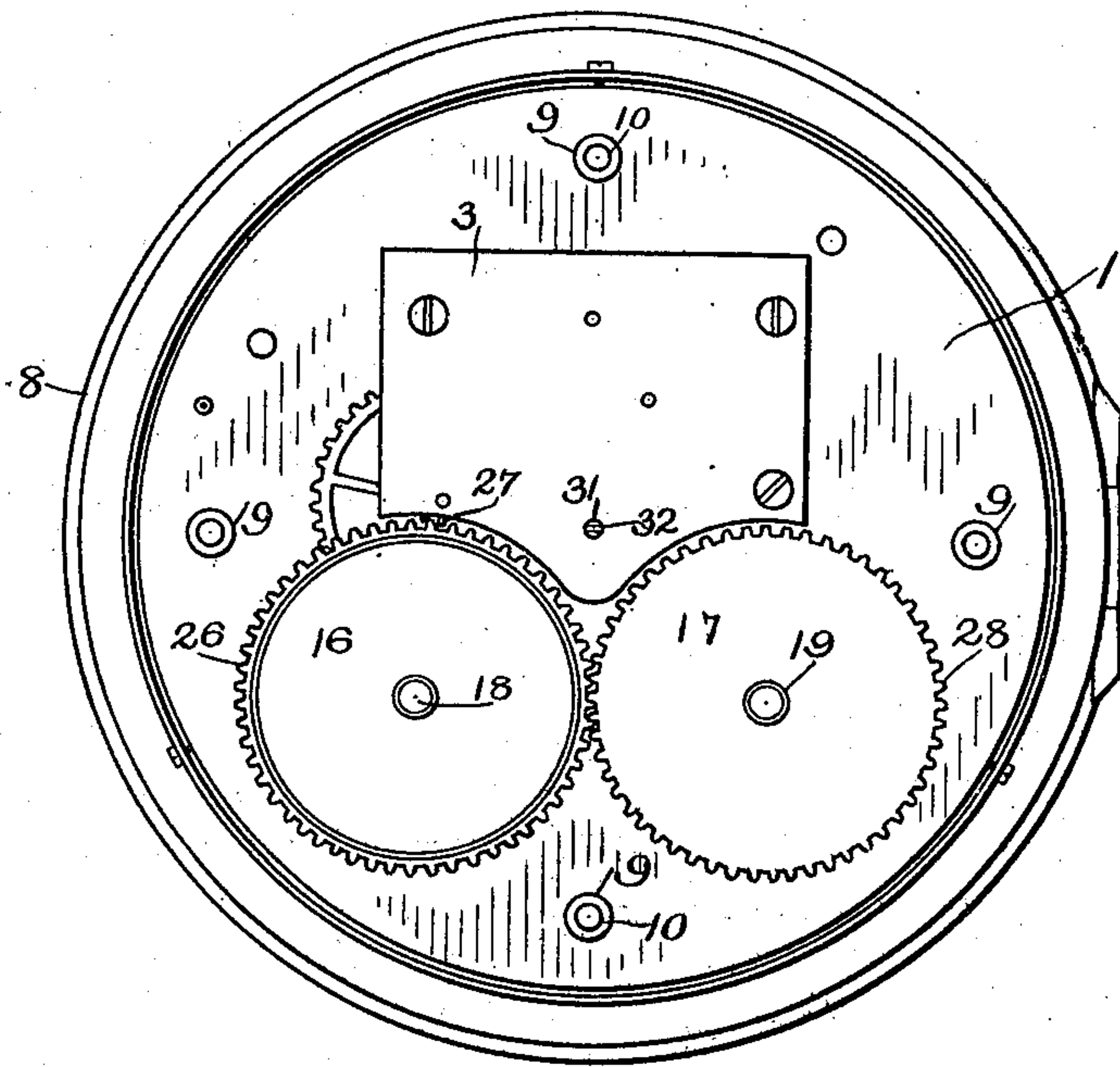
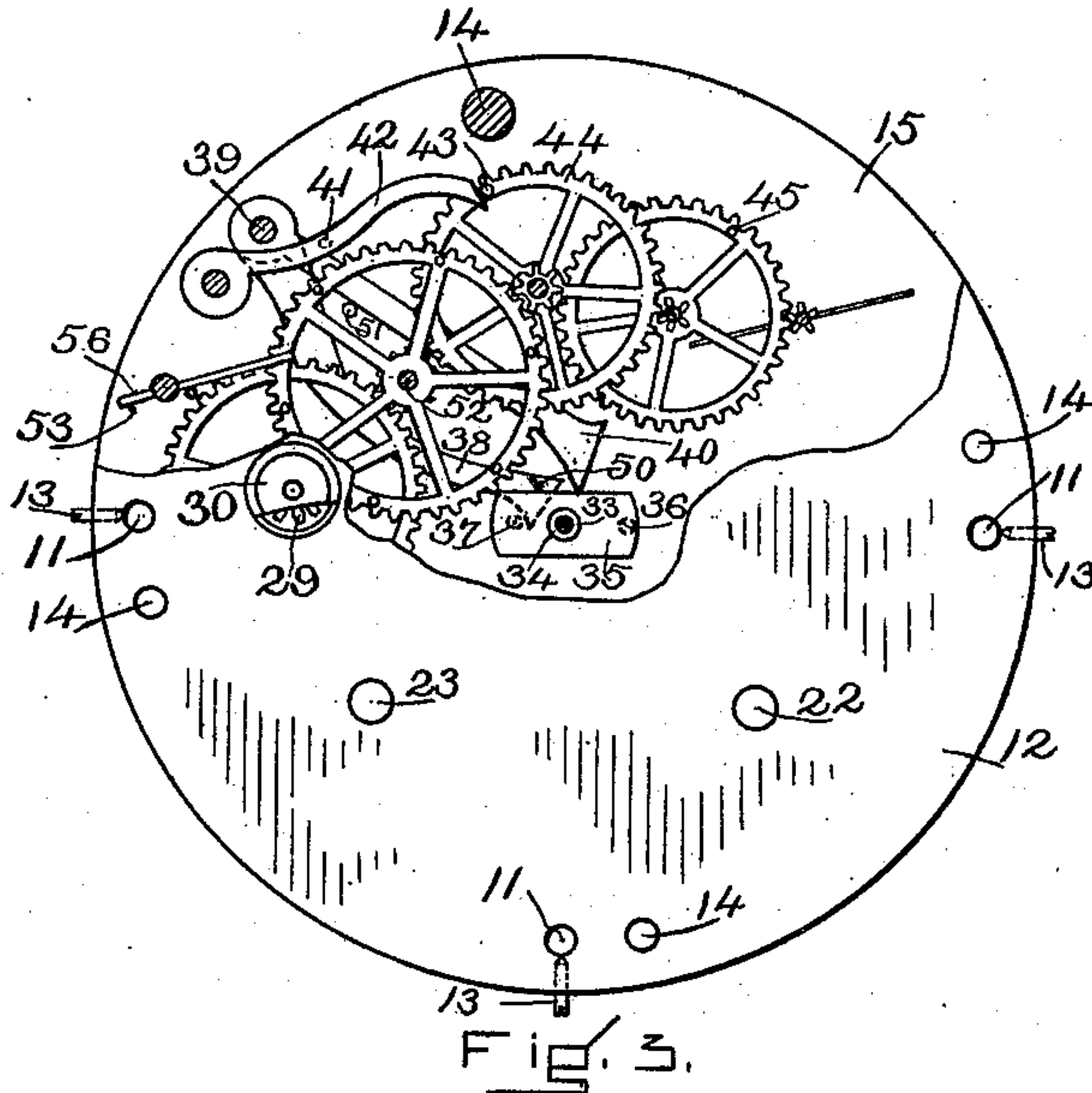
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FIG. 4.

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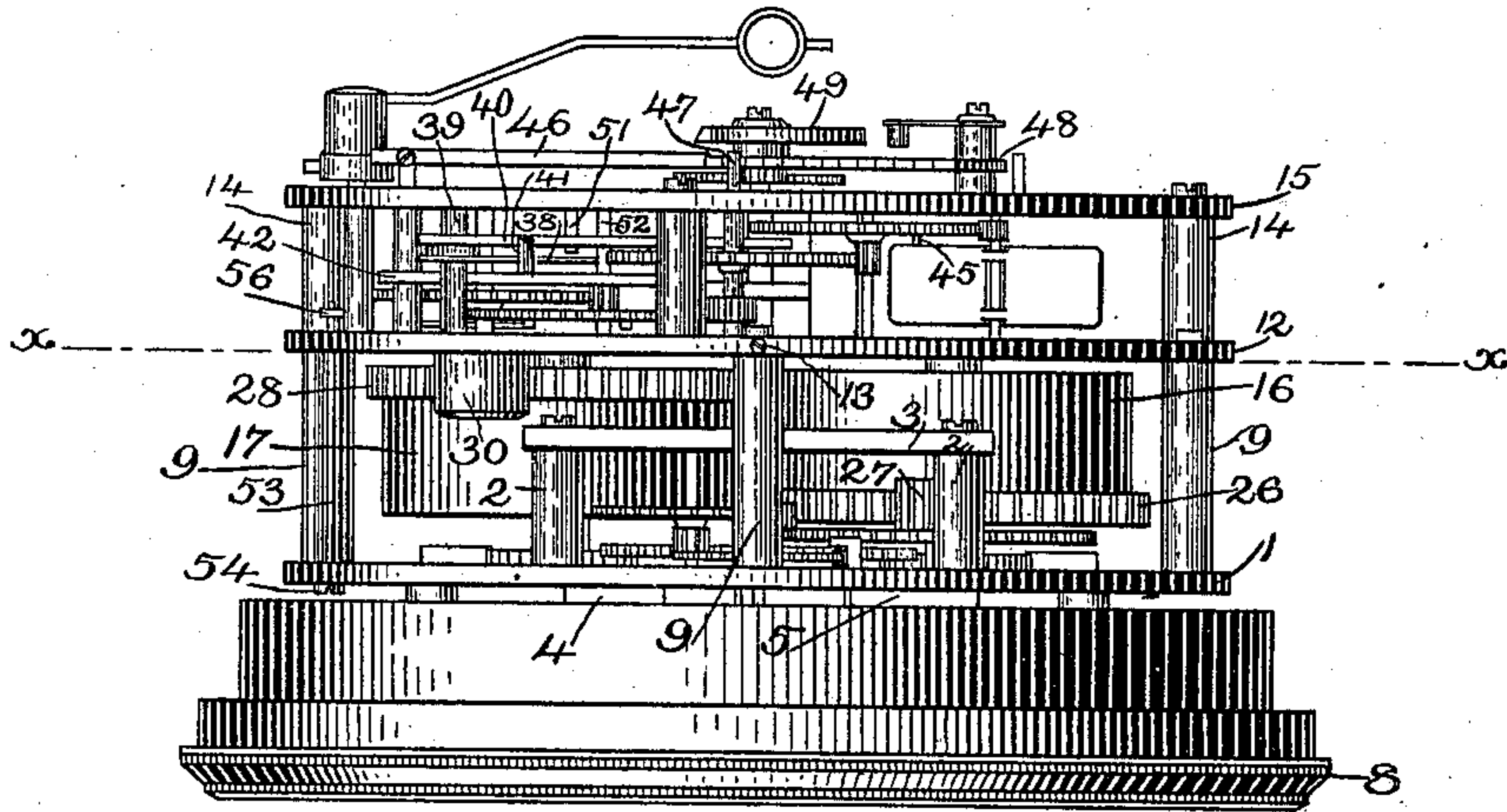


Fig. 5.

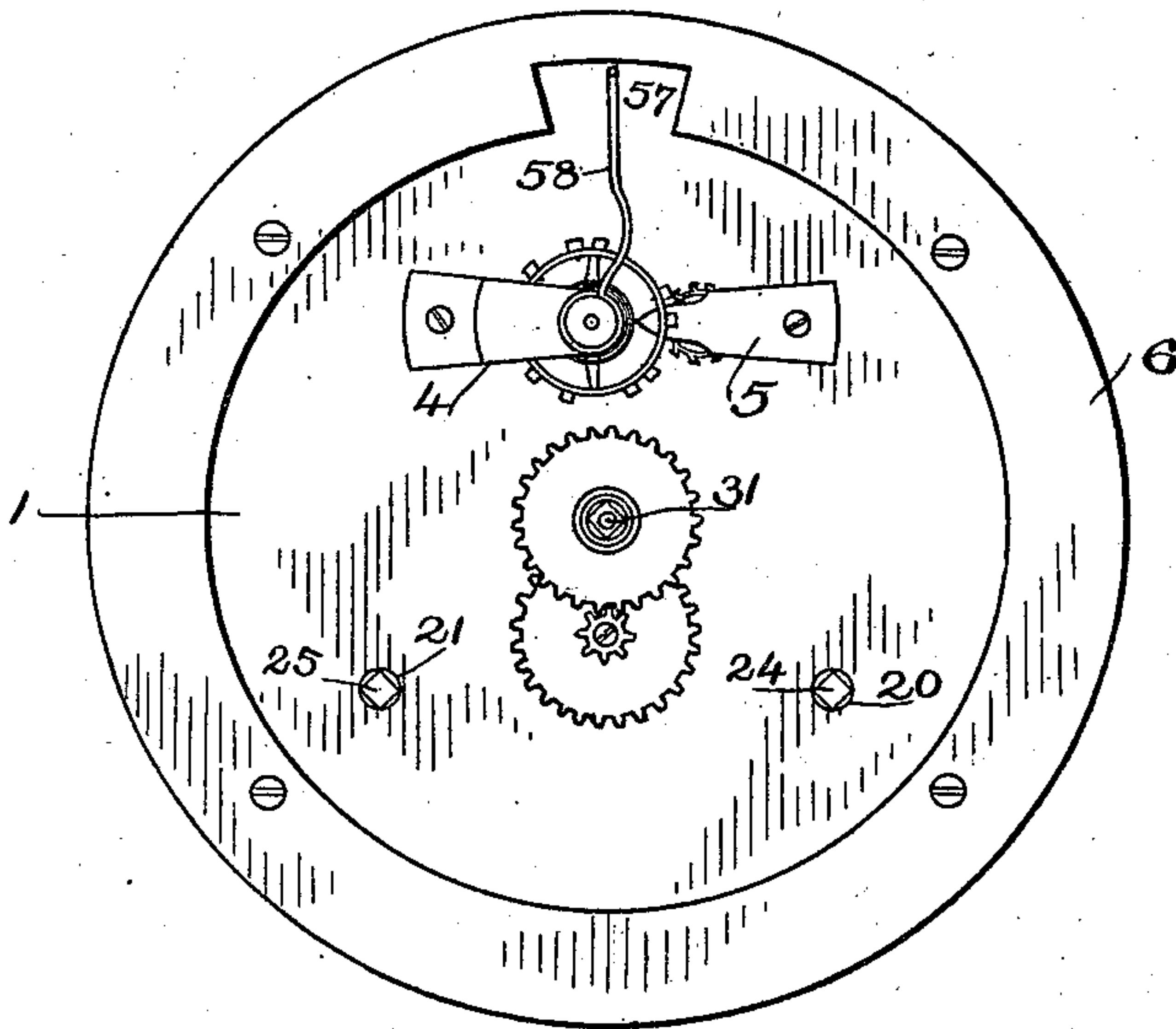


Fig. 6.

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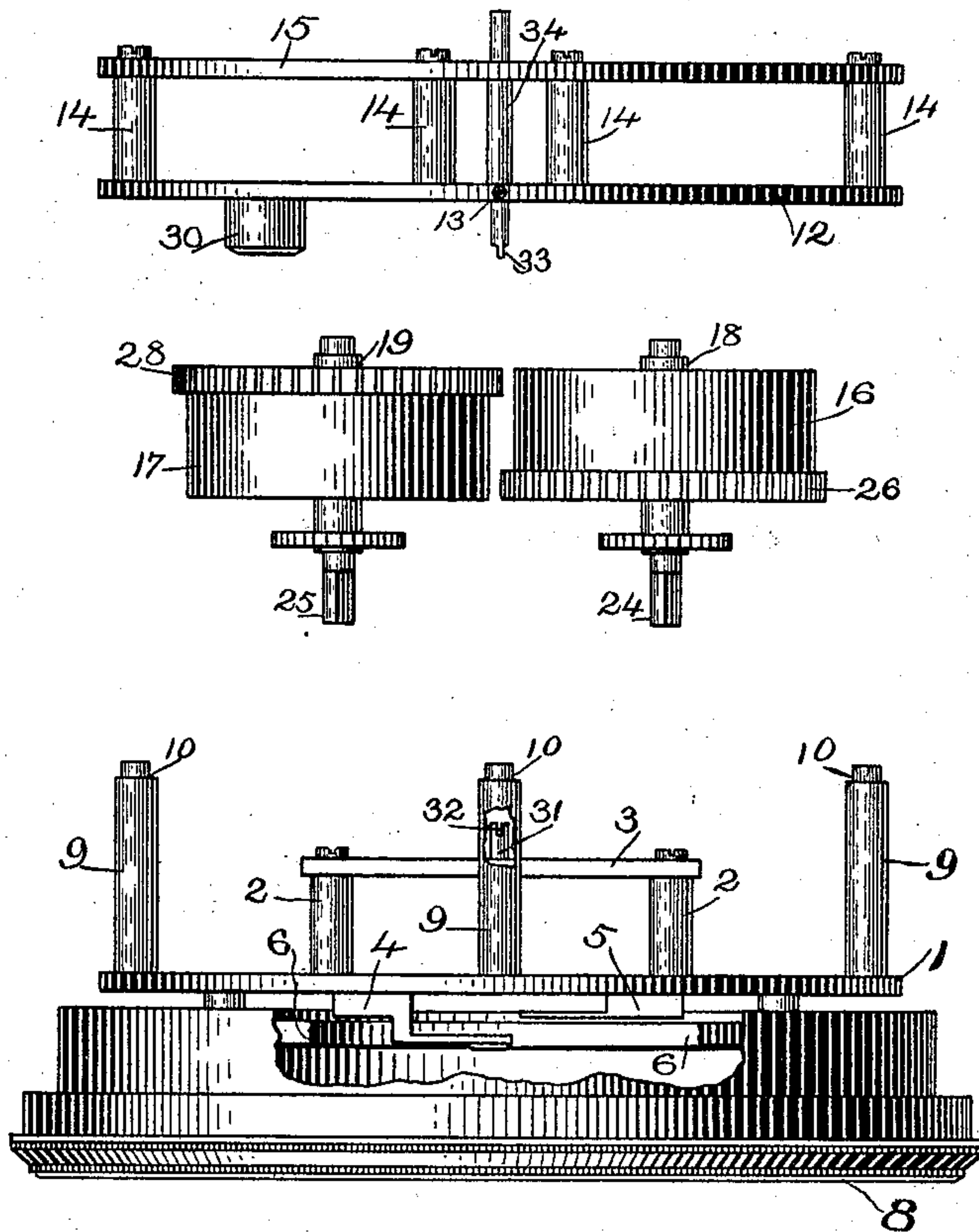
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(No Model.)

4 Sheets—Sheet 4.

FIG. 7.



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UNITED STATES PATENT OFFICE.

GEORGE W. ADAMS, OF STOUGHTON, MASSACHUSETTS.

CLOCK.

SPECIFICATION forming part of Letters Patent No. 689,530, dated December 24, 1901.

Application filed August 22, 1900. Serial No. 27,684. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. ADAMS, a citizen of the United States, residing in Stoughton, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Clocks, of which the following, taken in connection with the accompanying drawings, is a specification.

This invention relates to details of the construction of clocks that cheapen manufacture, improve the product, and render the work of repairing quicker and less expensive than in the common forms of such timepieces.

As clocks are now made one man sets up both the time and striking trains, because many of the arbors run through from the front to the back plates. This compels the man to have a great many pieces scattered over a large bench, occasioning much reaching to assemble the several parts, which is very tiresome when working on so complicated an instrument. To make even trifling repairs on such a clock, as replacing a broken spring, it often becomes necessary to remove the hands, dial, bezel, and to take the whole movement down, hence entailing much useless labor.

The object of this invention is to remedy faults such as suggested; and to this end the invention consists of a clock having time and striking trains so constructed as to be readily separable from each other without disturbing either train, and when so separated the train-motors are removable without affecting the trains or taking off the bezel, dial, or hands, designing the connections between the time and striking trains so the moving parts are light and flexible to diminish the chance of unintentionally actuating the gong.

In a good form of my clock I support the time-train on the front plate by means of an intermediate plate covering the train and by bridges supplying bearings for the escapement. Pillars attached to the front plate are fitted to support a middle plate in a readily-detachable manner, this latter plate having bearings for the arbors of the actuating devices (which I will for convenience call "motors") for driving the two trains, the squared ends of the arbors extending through the front plate, so the clock may be wound by ex-

posing the face. From the middle plate I project a potence to step the intermediate pinion of the striking-train so it may be driven by the great wheel of its motor, and between the middle and rear plates the striking-train is supported.

The drawings show, in Figure 1, the face of my clock; Fig. 2, an elevation of the rear plate; Fig. 3, an elevation of the frame-section carrying the striking-train as from the line *xx* of Fig. 5; Fig. 4, an elevation of the frame-section carrying the time-train as from the line *xx* of Fig. 5; Fig. 5, a side elevation of the two frame-sections assembled; Fig. 6, an elevation of the front plate and its supporting-ring; Fig. 7, a view of the frame-sections and motors separated.

Attached to the back of the front plate 1 by means of studs 2 and screws is the intermediate plate 3, which furnishes a rear support for the arbors of the time-train. Balance and pallet bridges 4 and 5 are screwed to the front of the said plate to furnish bearings for the front pivots of the escapement. The ring 6 for supporting the clock in its case is attached to studs extending from the front plate, and the dial 7 and bezel 8 are secured to the said ring in any convenient manner. Pillars 9, fast in the front plate 1, extend rearward therefrom and are shouldered at 10 to enter holes 11 in the middle plate 12, that carries the striking mechanism, the said studs being secured in the holes by means of set-screws 13, tapped in the middle plate. The front plate 1, intermediate plate 3, bridges 4 and 5, and pillars 9 make up the time-section of the clock-frame, which is separable from the striking-section at the middle plate. At the back of the middle plate studs 14 are screwed to support the rear plate 15, the two plates furnishing bearings for the pivots of the striking-train and constituting the striking-section of the clock-frame, which is distinct and separable from the above-described time-section of the said frame. The time and striking trains are driven by spring-motors 16 and 17, adapted to be supported by their arbors 18 and 19 in bearings 20 and 21 in the front plate 1 and bearings 22 and 23 in the middle plate, the squared ends 24 and 25 of the arbors extending through the front plate,

so the clock may be wound from the face. When the motors are in position, the great wheel 26 of the motor 16 meshes with the intermediate pinion 27 of the time-train and great wheel 28 of the motor 17 meshes with the intermediate pinion 29 of the striking-train, the said pinion being supported by the potence 30 on the front side of the middle plate.

The actuating mechanism for the trains may be of any description; but the spring-motors 16 and 17, above alluded to, are well adapted for the work and consist of an arbor, as 18, upon which pivots are ground to fit bearings in the front and middle plates. Upon this arbor a great wheel, as 26, is pivoted, from which extends a barrel having a removable head, and a spring is located within the barrel, one end of which is fastened to the great wheel and the other to the arbor. A ratchet-wheel is fastened to the arbor, so that in connection with a click on the frame the spring may be held under tension. Attention is directed to these integral and separable driving-motors, which when the frame is divided into its sections may be allowed to remain in either section or entirely removed without affecting any other part of the clock-frame, and it is to be also noted that the bezel 8, dial 7, and the hands remain undisturbed in their places on the time-section.

To control the striking mechanism without preventing separation of the sections of the frame, the center arbor 31 of the time-train is provided with a slot 32 just outside of the intermediate plate 3, and the center arbor 34 of the striking-train projects forward beyond the middle plate and has at its inner end a tongue 33, which engages the slot of the time-arbor. The arbor 34 of the striking-train thus constitutes an extension of the arbor 31 of the time-train. This extension-arbor carries at its outer end the lifting-block 35, having hour and half-hour lifting-pins 36 and 37, adapted to strike alternately the lifting lever or blade 38, the hub of which is frictionally connected with the arbor 39 of the warn-lever 40, so the warn-lever may, by touching the pin 41 in the locking-lever 42, remove it from the stop-pin 43 on the third wheel 44 of the train to allow the train to run to starting position with the pin 45 of the warn-wheel in contact with the end of the warn-lever. The dog 46 on the arbor of the locking-lever 42 and gathering-pallet 47 control the movement of the rack 48 from the position determined by the snail 49 in the customary manner.

The hammer-spring 53 is fastened for convenience to the front plate at 54 and passes freely through a hole in the middle plate to come into contact with the pin 56 in the hammer-arbor. I have notched the ring 6 at 57 to afford limiting-stops for the regulator 58,

as thereby the regulator may be more simply constructed and conveniently put in place. 65

When it is necessary to have access to the time-train, the two sections of the clock are separated by removing the striking from the time section at the middle plate, and the intermediate plate 3 is then taken off, when all but the center arbor will be free. This latter may, however, be pulled through the usual cannon pinion-sleeve from the rear of the front plate by removing the screw 59, that holds the hands to the center arbor, as the hole in the dial will position the said cannon pinion-sleeve well enough to permit the center arbor to be again inserted after having repaired the parts. If it is necessary to repair the striking mechanism, the rear plate 15 is removed, when every piece may be taken out. 70 75 80

Having described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In a clock, the combination of two connected separable frame-sections disposed one in front of the other, a time mechanism disposed in one of said frame-sections, a striking mechanism disposed in the other of said frame-sections and operatively connected with the time mechanism, and separable motors for the time and striking mechanisms respectively disposed in the connected frame-sections, the arbors of the motors being supported at their opposite ends in both the frame-sections, the separation of the frame-sections leaving their respective time and striking mechanisms intact and the motors free. 85 90 95

2. In a clock, the combination of two connected frame-sections disposed one in front of the other, the front section being provided with studs supporting an intermediate plate and with rearwardly-extending pillars and the rear section comprising connected middle and rear plates, means for detachably connecting said middle plate with said pillars, a time mechanism disposed in one of said frame-sections, a striking mechanism disposed in the other frame-section and operatively connected with the time mechanism, separable motors for the time and striking mechanisms respectively disposed in the connected frame-sections, the arbors of the motors being supported at their opposite ends in both the frame-sections, the separation of the frame-sections leaving their respective time and striking mechanisms intact and the motors free. 100 105 110 115

In testimony whereof I have hereunto subscribed my name this 14th day of August, A. D. 1900. 120

GEORGE W. ADAMS.

Witnesses:

E. T. DENHAM,
A. O. ORNE.