

No. 827,592.

PATENTED JULY 31, 1906.

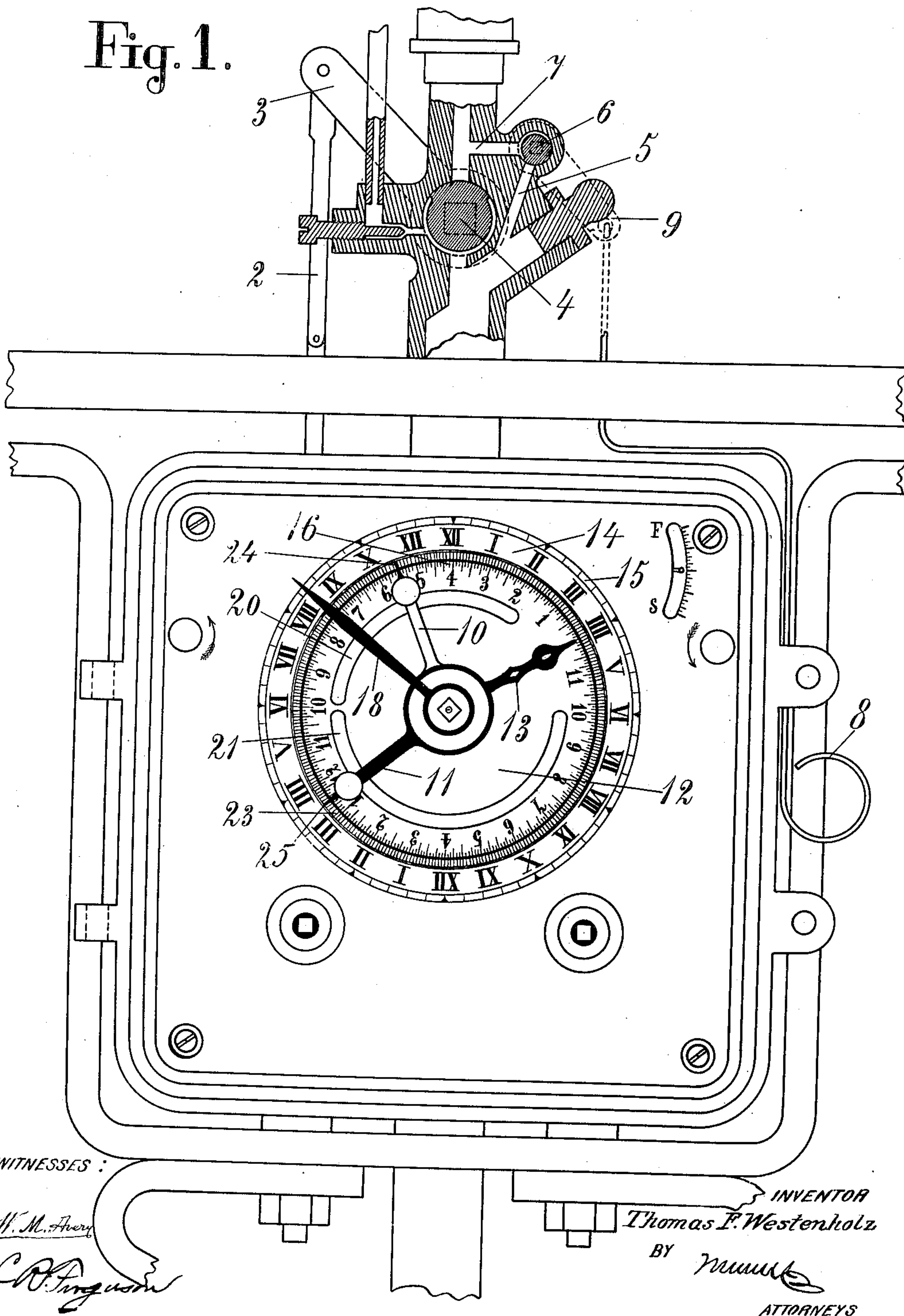
T. F. WESTENHOLZ.

TIME GAS LIGHTING AND EXTINGUISHING APPARATUS.

APPLICATION FILED JULY 17, 1905.

4 SHEETS—SHEET 1.

Fig. 1.



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4 SHEETS—SHEET 2.

Fig. 2.

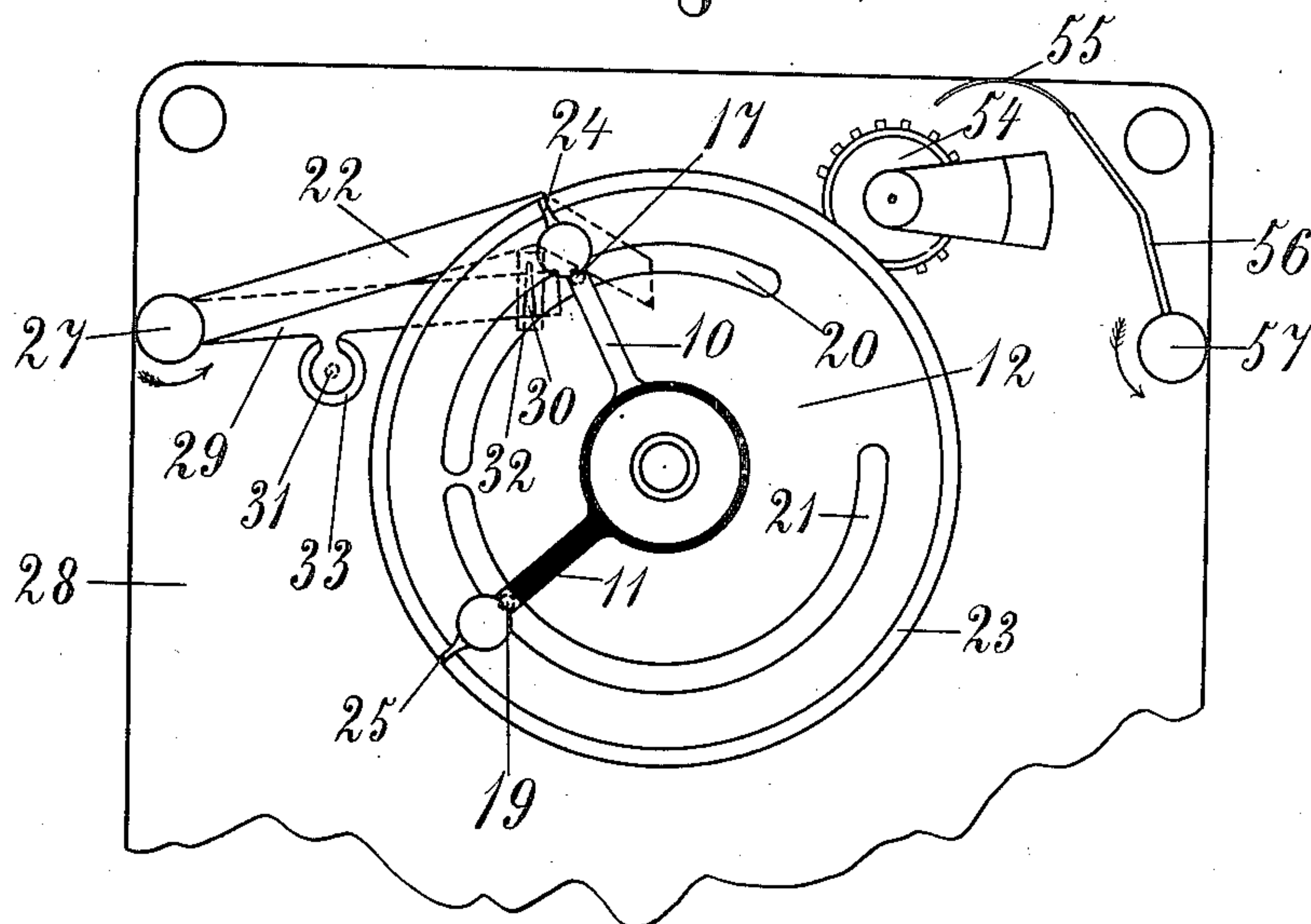
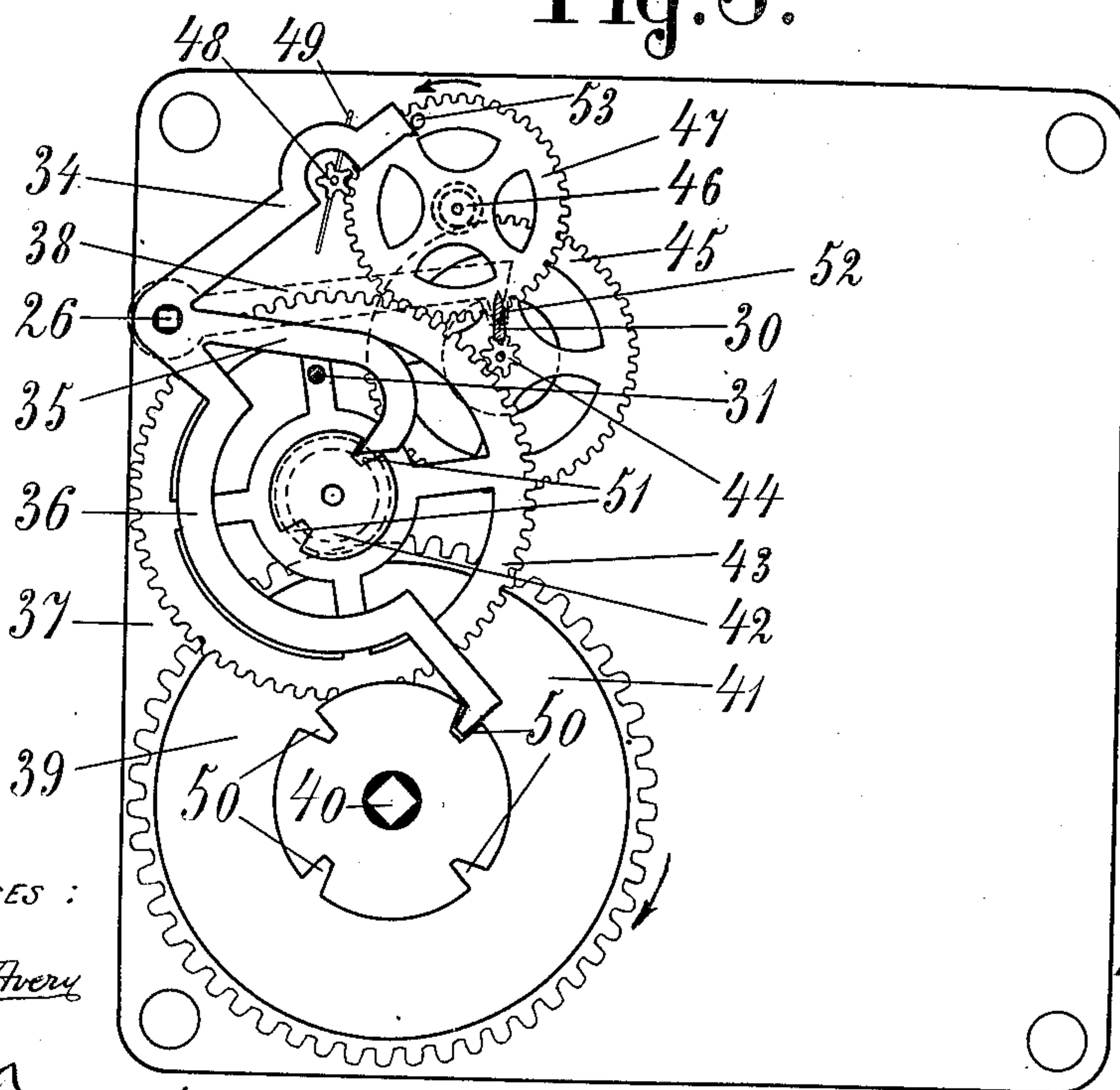


Fig. 3.



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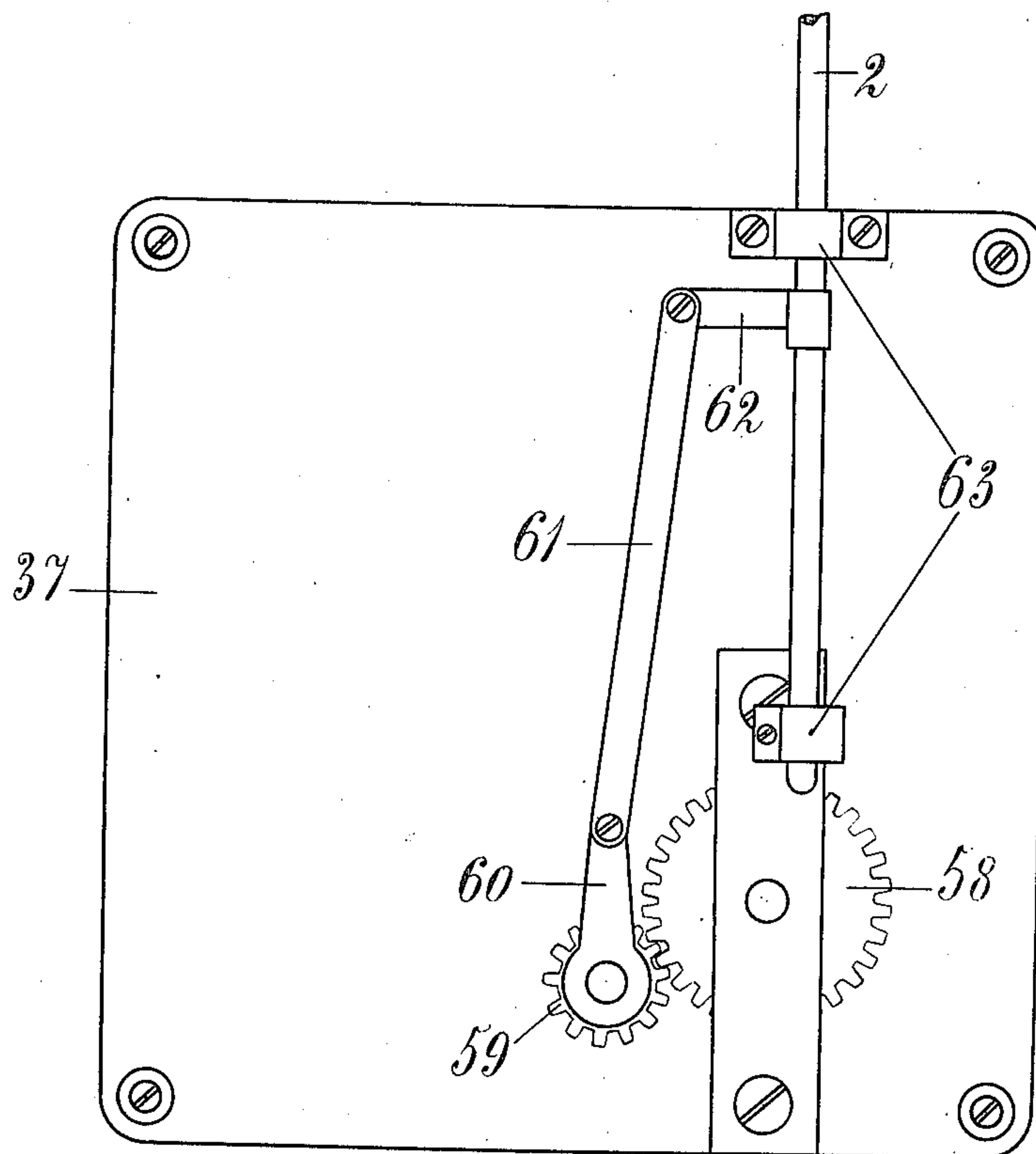
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4 SHEETS—SHEET 3.

Fig. 4.



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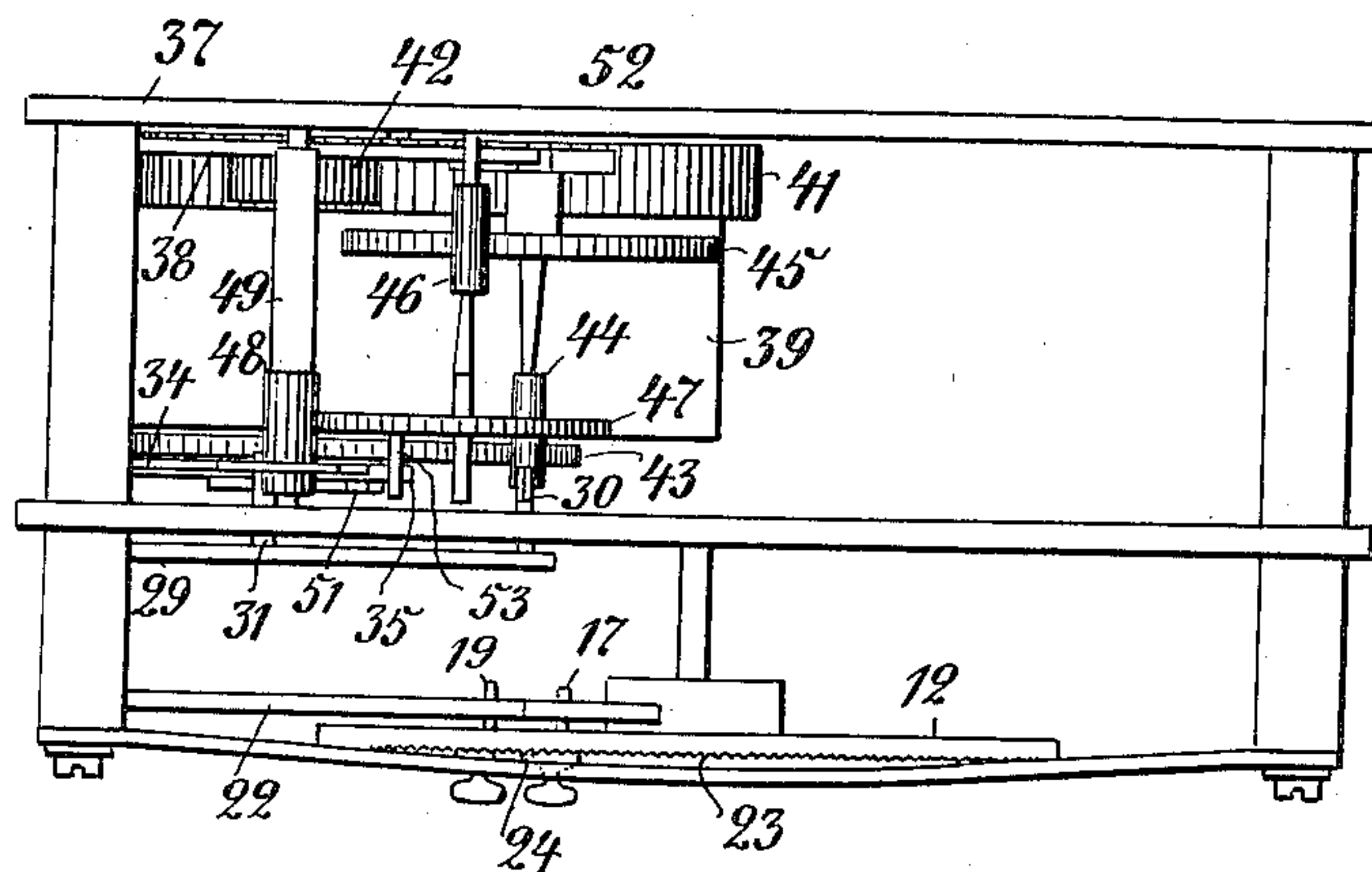
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4 SHEETS—SHEET 4.

Fig 5



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# UNITED STATES PATENT OFFICE.

THOMAS FREDERIK WESTENHOLZ, OF HELLERUP, DENMARK.

## TIME GAS LIGHTING AND EXTINGUISHING APPARATUS.

No. 827,592.

Specification of Letters Patent.

Patented July 31, 1906.

Application filed July 17, 1905. Serial No. 269,956.

*To all whom it may concern:*

Be it known that I, THOMAS FREDERIK WESTENHOLZ, civil engineer, manager of the Strandvej gas-works, Hellerup, Denmark, have invented certain new and useful Improvements in Apparatus for Automatic Lighting and Extinguishing of Gas-Lamps, of which the following is a full, clear, and exact specification.

The present invention relates to a clock-work for automatic lighting and extinguishing of gas-lamps, to be employed in street-lamps and houses especially.

An example of a form of execution of the invention is shown in the accompanying drawings, in which—

Figure 1 is a front view showing the attachment of the clockwork to a street-lamp and its connection to the cock, the latter being shown in vertical section. The cover-plate on the clockwork's front is removed in order to show the clock-dial. Fig. 2 is a front view of the clockwork with the cover-plate and the fixed parts of the clock-dial removed. Fig. 3 is a front view of the clockwork, the cover-plate, clock-dial, and front partition being removed. In this figure everything belonging to the ordinary movement of the clock is omitted. Fig. 4 shows a rear view of the clockwork's back cover and also the device serving for connecting the clockwork with the lighting and extinguishing rod. Fig. 5 is a top view of the clockwork.

The lighting-hand 10 and the extinguishing-hand 11 are movably attached to the same spindle of the movable clock-dial or hour-dial 12, which makes one revolution in twenty-four hours. On dial 12 is placed or painted an hour-hand 13, which indicates the time in hours on a cipher-circle 14, inscribed with Roman numerals, while the minute-hand 18 indicates exactly the minutes on the circle 15. A divided circle 16, serving for setting the lighting-hand 10 and the extinguishing-hand 11, is found on dial 12. It will be found suitable to have a five-minute division throughout the twenty-four hours.

The lighting-hand 10 and the extinguishing-hand 11 are provided with releasing-pins 17 and 19, each of which is protruding through its circular incision 20 and 21 in the dial 12, so that the releasing-lever 22, Fig. 2, by means of these pins acts at a prefixed time corresponding to the adjustment, thereby bringing the lighting and extinguishing mechanism into motion.

In order to prevent the hands 10 and 11 from being displaced in relation to the dial 12 and in order to obtain an easy and reliable adjustment of these hands, a metal plate 23, provided with small radial notches corresponding to the above-named five-minute division on arc 16, is fixed along the rim of the dial 12. Into these notches is catching a knife-blade 24 or 25, fixed on the back of the hands 10 and 11. That the degree of exact adjustment may be varied by choosing a suitable amount of notches in the plate 23 is a matter of course.

The releasing-lever, which is made angular, as shown in Fig. 2, is fixed on a spindle provided with a square arbor 26, Fig. 3. On the arbor is fixed a knob 27, Fig. 2, which serves for ascertaining whether the lighting and extinguishing mechanism is acting satisfactorily without having to revolve the dial 12 for this purpose, for by moving the knob 27 in the direction indicated by the arrow in Fig. 2 the releasing-lever 22 is raised, whereby the lighting or extinguishing mechanism is brought into motion. On the spindle provided with the knob 27 is, besides the releasing-lever 22, found a lever 29, immediately in front of the front partition 28. This lever is provided with a blade-formed stop 30 and a pin 31, both of which protrude through their respective incisions in the front partition 28. Immediately behind the front partition 28 and on the said spindle is placed a lever provided with three arms 34, 35, and 36, and immediately in front of the back partition is found another lever 38.

In the spring-box 39 is found a heavy spiral spring, which serves for winding in the usual manner by means of a key placed on the pinion 40. The motion is transmitted from the spring-box 39 to the fan-regulator 49 through a series of cog-wheels 41, 42, 43, 44, 45, 46, 47, and 48. The spring-box 39 has four notches 50, into which the end of arm 36 may catch. The cog-wheel 43 has two notches 51, into which the end of arm 35 may catch, and the cog-wheel 45 has one notch 52, into which the end of arm 38 may catch. The cog-wheel 47 is supplied with a stop 53, resting against the end of the arm 34.

The described mechanism works in the following manner: When the lighting-hand during the working of the clock reaches the releasing-lever 22, it raises this, and with it the lever 29, which is fixed on the same coupling on the spindle as is the lever 22. The



pin 31, fixed on the lever 29, raises by this the arm 35 and through this also the arms 36, 34, and 38. The raising of the arm 34 releases the pin 53, and the cog-wheel 47 is thereby moved in the direction indicated by the arrow in Fig. 3 but half a revolution only, as it is stopped by the pin 53 meeting the stop 30, which is raised, together with the lever 29. The releasing-pin will not fall down again before at the moment it passes the uttermost sharp edge of releasing-lever 22, and by this the stop 30 will release the pin 53, which starts the clockwork, and the spring-box 39 will move a quarter of a revolution in the direction indicated by the arrow in Fig. 3. When this has taken place, the tooth on the end of the arm 36 will fall down into the next notch 50, and stoppage is, moreover, insured by the end of arm 35 simultaneously falling into a notch 51, the end of the arm 38 falling into the notch 52, and the pin 53 striking against the end of the arm 34. The motion of the spring-box 39 is employed for lighting the gas in the manner described below, and the gas will then burn until the releasing-pin 19 again brings the spring-box into motion by actuating the lever 22.

In Fig. 2 is shown a device which serves for starting the works of the clock. It consists of an arm 56, fixed on a spindle and which may be moved by means of a little knob 57. On the end of the arm 56 is fixed a spring 55, which brings the balance into motion, and thereby starts the clock. On the back of the clockwork's back partition the spring-box 39's spindle is provided with a cog-wheel 58, which is catching into a pinion 59, supplied with a crank 60. By means of a rod and crank 61 the crank 60 is connected with an arm 62, which is fixed on rod 2, which is capable of upward and downward motion along the guides 63 and leads to the stop-cock. When the cog-wheel 58 is moved a quarter of a revolution, the crank 60 is moved half a revolution—that is, from its highest to its lowest position, or vice versa—and the rod 2 is by this motion carried up or down, through which lighting or extinguishing is effected.

So far all known constructions of the kind

related to here have presented the defect that the clockwork was always connected with the stop-cock, so that the latter could not be worked independently of the clockwork, and the lighting of the gas at other hours than the one at which lighting was effected by the clockwork itself has therefore required a manipulation of the clockwork injurious to it. In the present invention, however, is found a device for lighting the gas-flame by fixing a duct provided with a special stop-cock outside of the main stop-cock which makes it possible to light or extinguish the gas even if the main stop-cock be closed. This is of importance when testing the burner during foggy weather, conflagrations, and in similar cases. A form of accomplishment of above-named device is shown in Fig. 1. The rod 2, worked by the lighting and extinguishing mechanism, actuates the arm 3 on the stop-cock shank 4. Outside of the main stop-cock is a duct 5, leading to an extra stop-cock 6, which when opened connects duct 5 with duct 7. The stop-cock 6 is actuated by the extra lever 9, connected to the handle 8.

The above explains fully the working of the apparatus. When the handle 8 and the lever 9 are raised, the gas will be lighted, even if the main stop-cock be closed, as the gas will pass through the ducts 5 and 7.

What I claim, and desire to secure by Letters Patent, is—

In a device for the purpose described, an hour-dial, a lighting-hand movable over the dial, an extinguishing-hand movable over the dial, a spindle on which both of said hands are mounted, a pinion, a releasing-lever for engaging the said pinion, a lever 29 having a blade-shaped stop 30, a pin 31, a wheel on which said pin is mounted, arms 34, 35, 36 and 38, and devices in which said arms are designed to engage to stop the motion of the lighting and extinguishing mechanism.

Signed by me at Copenhagen, Denmark, this 30th day of June, 1905.

THOMAS. FREDERIK WESTENHOLZ.

Witnesses:

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H. C. EVANS.