

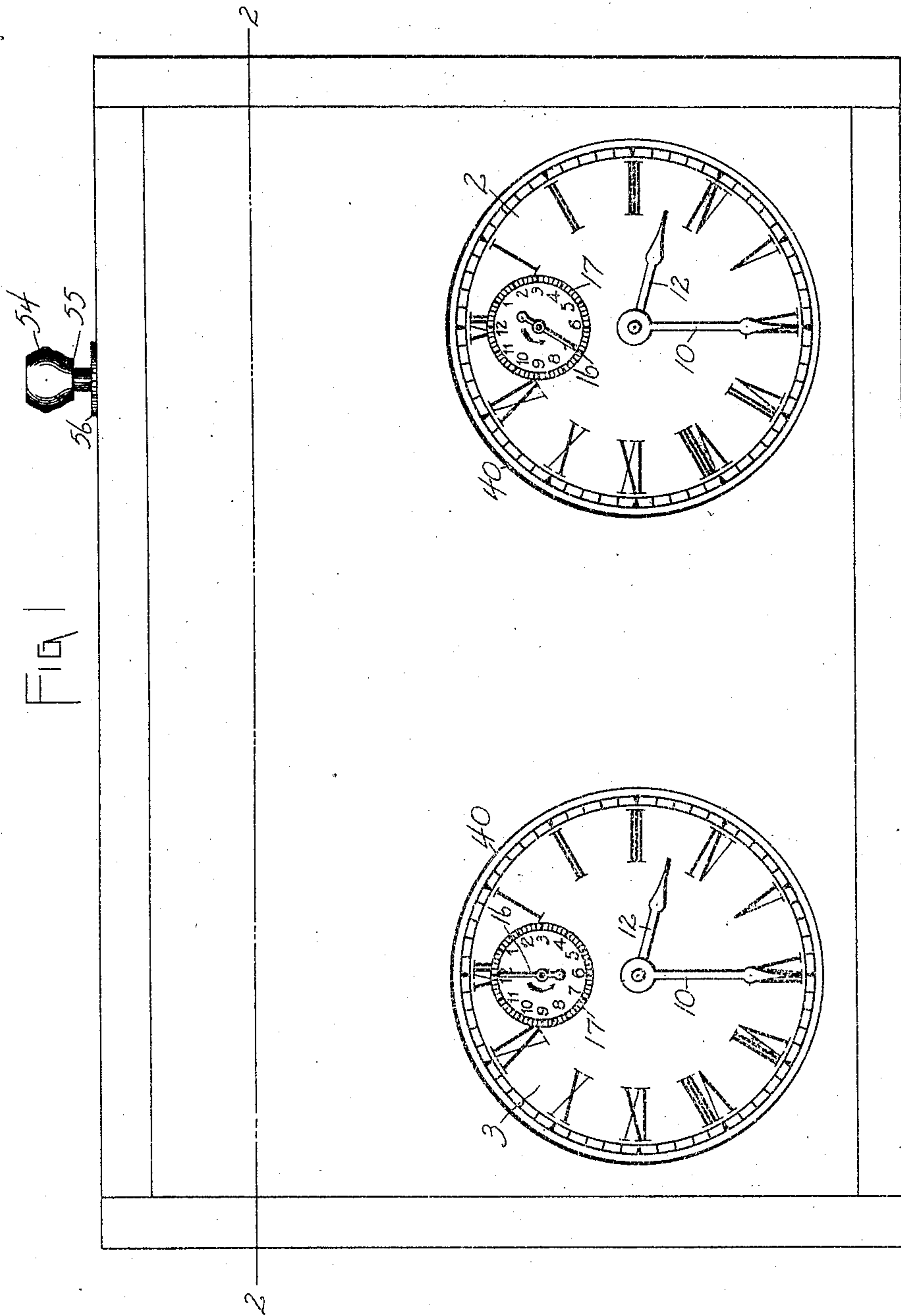
No. 774,019.

PATENTED NOV. 1, 1904.

J. E. YATES.
ELECTRIC TIME SWITCH.
APPLICATION FILED AUG. 12, 1903.

NO MODEL.

3 SHEETS—SHEET 1.



WITNESSES
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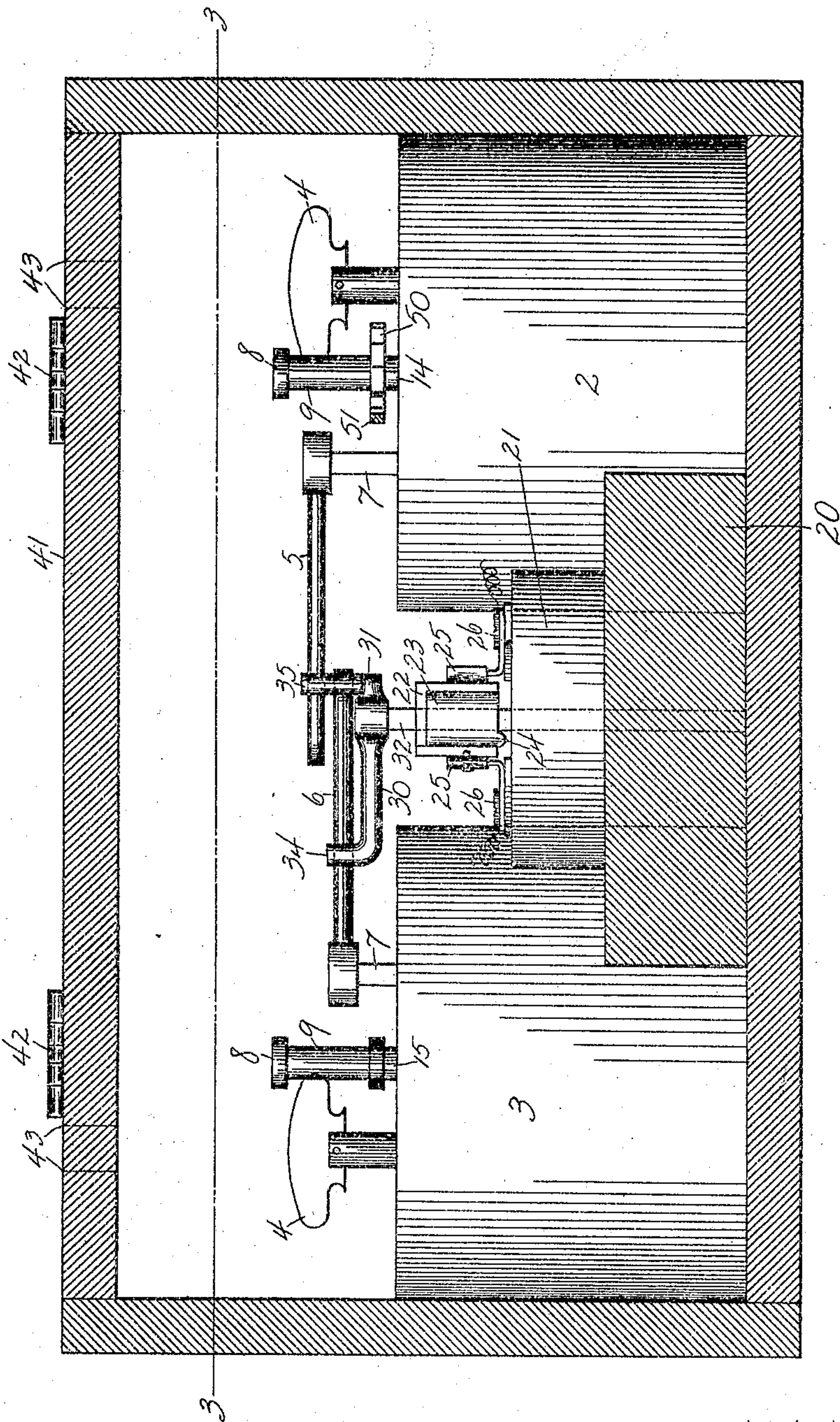
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NO MODEL.

3 SHEETS—SHEET 2.

FIG 2



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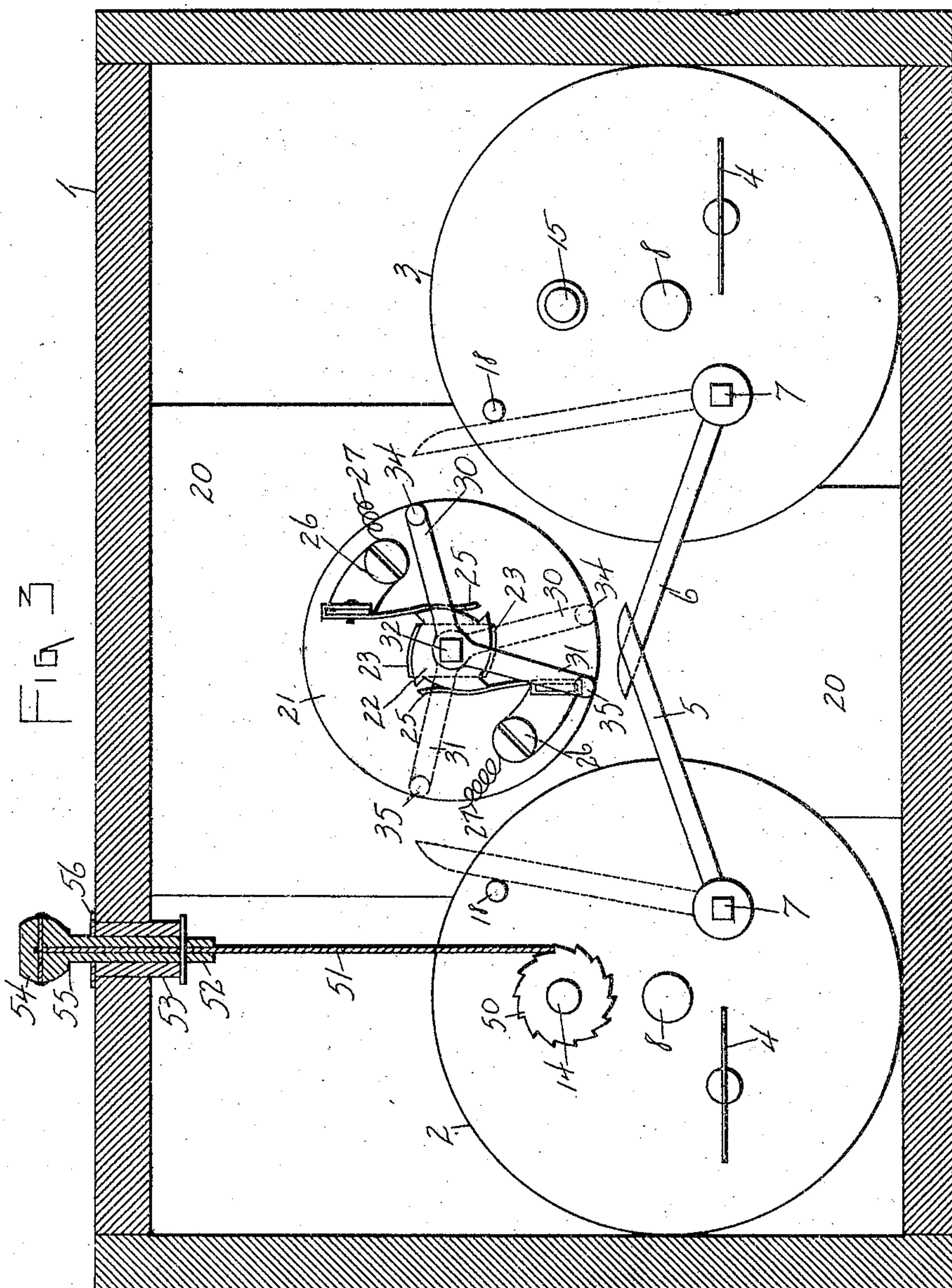
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NO MODEL.

3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

JAMES E. YATES, OF SCHENECTADY, NEW YORK.

ELECTRIC TIME-SWITCH.

SPECIFICATION forming part of Letters Patent No. 774,019, dated November 1, 1904.

Application filed August 12, 1903. Serial No. 169,196. (No model.)

To all whom it may concern:

Be it known that I, JAMES E. YATES, a citizen of the United States, residing at Schenectady, county of Schenectady, and State of New York, have invented certain new and useful Improvements in Electric Time-Switches, of which the following is a specification:

The invention relates to such improvements; and it consists of the novel construction and combination of parts hereinafter described and subsequently claimed.

Reference may be had to the accompanying drawings, and the reference characters marked thereon, which form a part of this specification.

Similar characters refer to similar parts in the several figures.

Figure 1 of the drawings is a front elevation of a case containing my improved electric time-switch, showing the faces of two alarm-clock mechanisms, for operating the switch, seen through openings in the front wall of the case. Fig. 2 is a horizontal section taken on the broken line 2 2 in Fig. 1. Fig. 3 is a vertical section taken on the broken line 3 3 in Fig. 2.

The box or case 1 contains two alarm-clock mechanisms 2 and 3, which are of the usual well-known pattern, and it is therefore unnecessary to describe the interior construction of such mechanisms.

The keys 4 are shown applied to the arbors of the time-keeping mechanism, by which such mechanism can be wound up from time to time as may be required. The levers 5 and 6 are fixed upon the arbors 7 of the alarm mechanism. The thumb-wheels 8 are fixed upon stems 9, which pass through the clock-cases and connect with the hands 10 and 12 on the faces of the clocks. (Shown in Fig. 1.)

By turning these thumb-wheels the hands of the clocks can be set to any desired hour and minute. The stems 14 and 15 pass through the clock-cases and connect with the alarm-hands 16, by which such hands can be turned to any desired hour on the alarm-dial 17. Before the levers 5 and 6 are placed upon the arbors 7 7 the alarm mechanism is wound up to the desired tension in the usual manner.

The levers are then fixed upon the arbors so

as to occupy the position shown by the solid lines in Fig. 3, when the alarm mechanism is inactive or held in restraint by the time mechanism, and when the alarm mechanism is released in the usual well-known manner by the time mechanism the levers are carried by the arbors of the alarm mechanisms from the position shown by the solid lines in Fig. 3 to the position shown by the dotted lines in the same figure, being prevented from a farther movement by the stops 18.

In the space between the clocks is provided an upright piece 20 of wood or other suitable material, to the inner face of which is secured the insulating portion 21 of an ordinary rotary switch comprising a rotary hub 22, of some insulating material, as porcelain, upon two opposite sides of which are secured the contact-pieces 23, connected with each other, as by the part 24, Fig. 2, and the electrodes 25, secured at one end upon the binding-posts 26, with their other ends bearing upon the insulating-hub 22. Extending from the binding-posts are the line-wires 27, forming a part of an electric circuit which may contain electric lamps or other electric devices. When the hub 22 is given a quarter-turn, the electrodes 25 are brought into engagement with the contact-pieces 23, which closes the electric circuit in the usual well-known manner. As a means for imparting a partial rotary movement to the hub I provide the levers 30 and 31, which are fixed upon the stem 32, upon which is also fixed the hub 22. The lever 30 is provided with a crank-pin 34 and lever 31 with a crank-pin 35. The lever 5 is so located that during its movement from the position shown in solid lines in Fig. 3 to the position shown by the dotted lines in the same figure it will engage the pin 35 and move it and lever 31 from the position shown by solid lines to that shown by the dotted lines in Fig. 3, the lever 30 at the same time being moved from its position shown by the solid lines to the position shown by the dotted lines in the same figure.

The operation of the mechanisms is as follows: It being desired to close the electric circuit at a predetermined time, the hand of the alarm-dial of clock mechanism 2 is turned to

the position indicating that time— as, for example, seven o'clock—which may be done at any time within twelve hours previous—as, for example, at 3.30 o'clock, the time indicated in Fig. 1. As the alarm mechanism of clock 2 is released at seven o'clock the lever 5, Fig. 3, is positively moved against the pin 35 on the switch mechanism and forces the pin, with its lever 31, from the position shown by solid lines to the position shown by dotted lines in Fig. 3, which closes the switch and establishes an electric circuit on the line. To open the switch and break the circuit at a predetermined time, the hand of the alarm-dial on clock mechanism 3 is turned to the time indicated—as, for example, twelve o'clock, as shown in Fig. 1—at which time the alarm mechanism of that clock is released and the lever 6 engages the pin 34 and positively forces the lever 30 from the position shown by dotted lines to that shown by solid lines in Fig. 3, thereby restoring the switch to the open position shown in the drawings and breaking the circuit by the positive action of the alarm mechanism upon the switch. It will thus be seen that my improved mechanism is capable of positively and automatically opening or closing the electric switch at a predetermined time. It is further adapted to automatically close the switch at a predetermined time and without further manipulation to open the switch at a later predetermined time. For example, should it be desired to arrange during the day, as at 3.30 p. m., for automatically lighting a series of electric lamps at seven o'clock in the evening and automatically putting out those lights at twelve o'clock at night it would only be necessary to set the hands of the alarm mechanism at the points indicated in Fig. 1 of the drawings, and all the lamps in the circuit controlled by the switch would be automatically lighted at seven o'clock in the evening and automatically extinguished at midnight.

The improved mechanism herein shown affords a very simple, direct, and positive means for operating the switch, as the alarm mechanism acts directly upon the switch to open or close the same without the intervention of other mechanisms, as heretofore practiced, which are liable to get out of order and are more or less unreliable.

When desired, the openings 40 in the case, through which the faces of the clock mechanism are seen, may be closed by a glass plate,

so that the hands will not be accessible. The case or box may also be provided with a hinged side 41, which can be opened to obtain access to the inclosed mechanism, the butts or hinges 42 being shown in Fig. 2. The side 41 may also be provided with apertures (indicated by dotted lines) 43 for the insertion of a key to wind up the time mechanism without opening the box when desired, in which case the keys 4 (shown in the drawings) would be detached. I have also shown means for changing the hand 16 on the alarm-dial of the clock 2, consisting of a ratchet-wheel 50, fixed upon stem 14, and a pawl 51, consisting of a strip of sheet metal fixed in the slide-block 52, movable vertically in a bearing-block 53, inserted through an aperture in the case-wall, as seen in Fig. 3. The slide-block is provided with a knob or handle 54 for operating the same. By pushing down upon the knob until the shoulder 55 strikes the washer 56 the pawl moves the ratchet-wheel 50 one notch, or the wheel may be moved any desired lesser distance by pushing the handle down the required distance until the hand 16 of the alarm-dial is forced to the desired point. It is obvious that a similar device may be applied to clock 3.

Both right-handed and left-handed alarm-clocks can be procured at the clock-stores. The clock 2 on the left in Fig. 3 is right-handed, the arbor 7 turning in the direction of the hands of a watch to wind up the alarm mechanisms, and the arbor 7 in clock 3 turns in the opposite direction to wind its alarm mechanism.

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

The combination with an electric switch; of two sets of alarm mechanisms having their winding-arbors rotary in opposite directions; an arm secured to one arbor engageable directly and positively with the switch when open to close it; an arm secured to the other arbor engageable directly and positively with the switch when closed to open it; means for releasing one arbor at a predetermined time; and means for releasing the other arbor at a subsequent predetermined time, substantially as described.

In testimony whereof I have hereunto set my hand this 10th day of August, 1903.

JAMES E. YATES.

Witnesses:

GEO. A. MOSHER,
E. M. O'REILLY.