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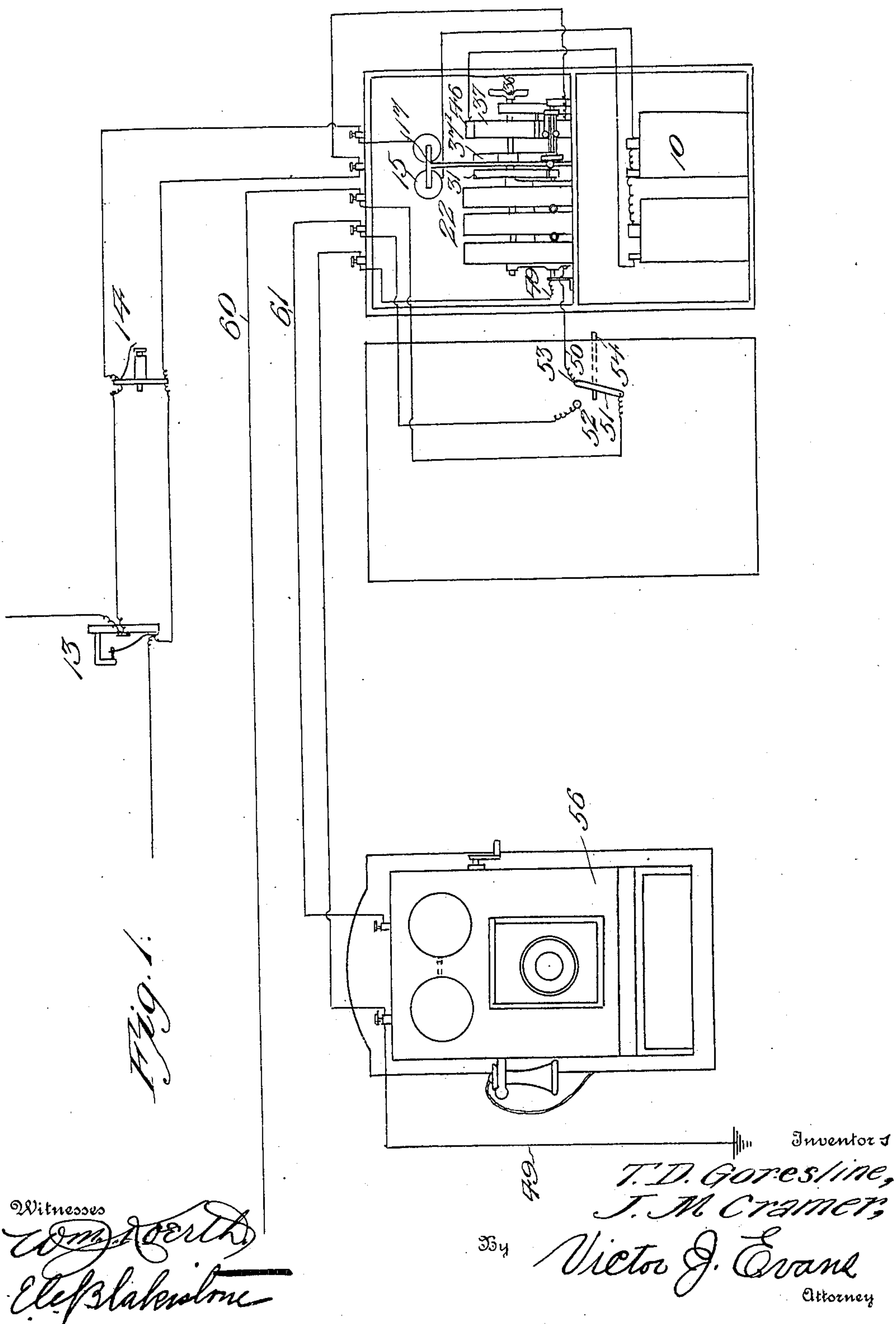
PATENTED JULY 10, 1906.

T. D. GORESLINE & J. M. CRAMER.

BURGLAR AND FIRE ALARM.

APPLICATION FILED JUNE 7, 1904.

4 SHEETS—SHEET 1.



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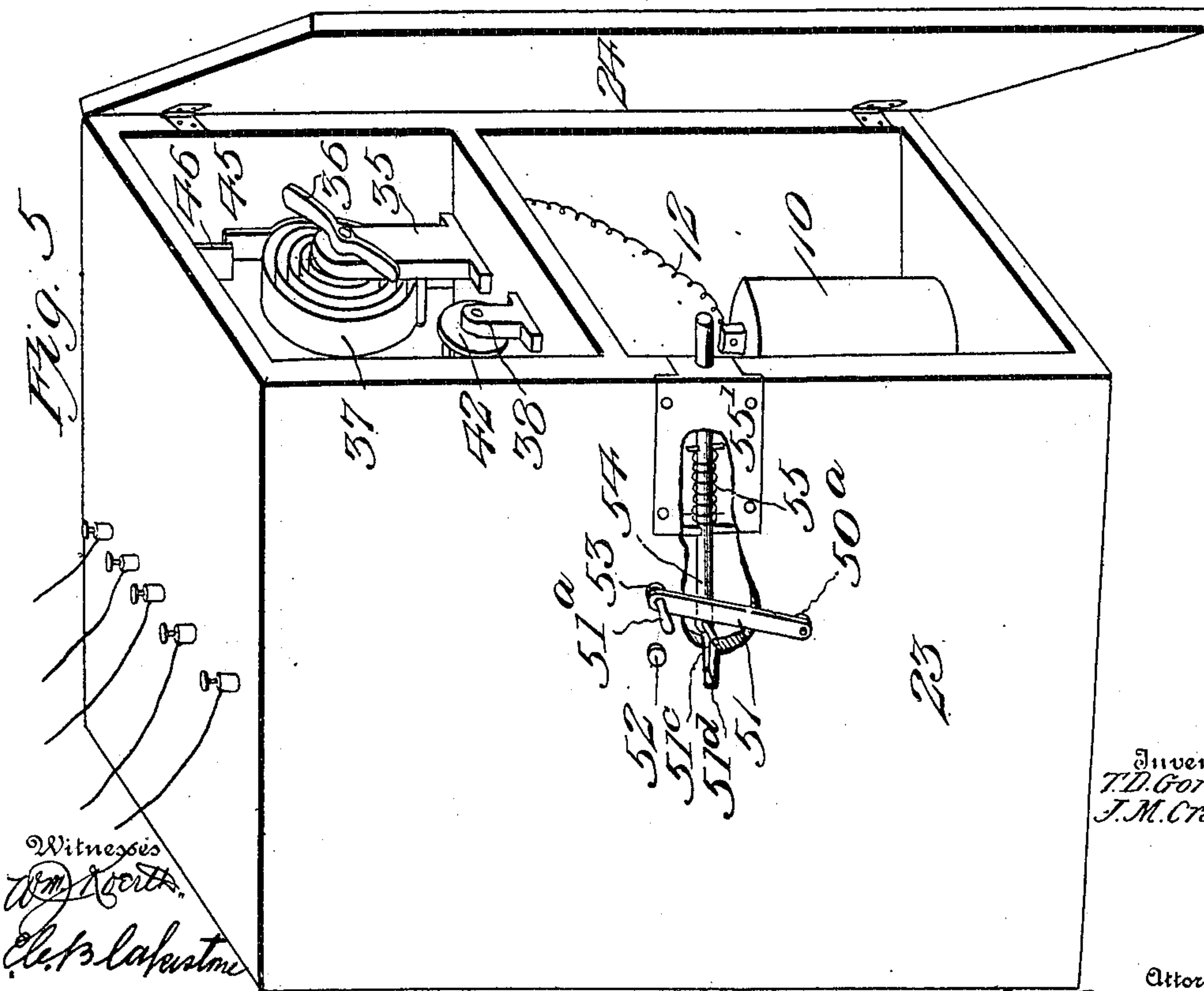
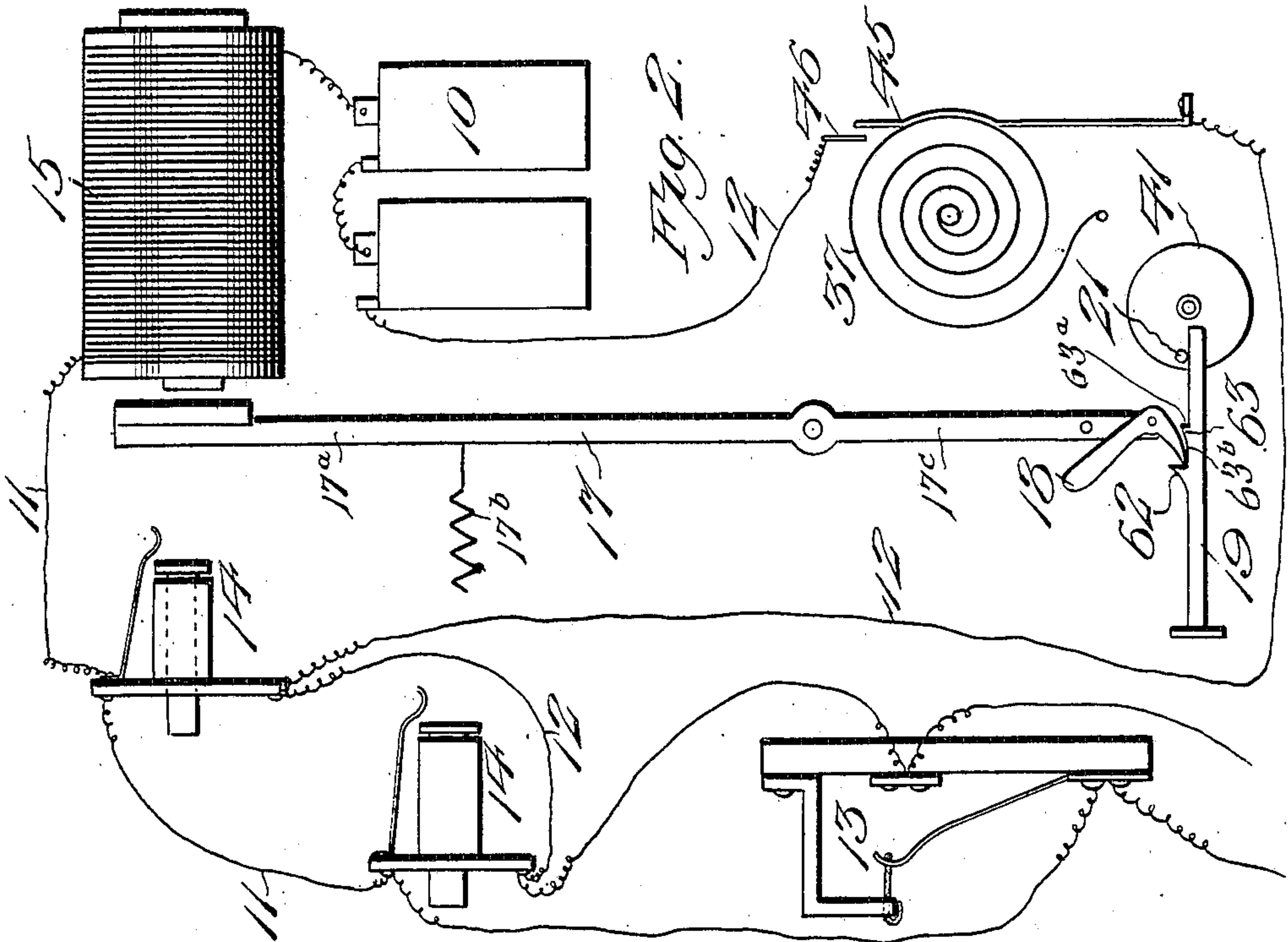
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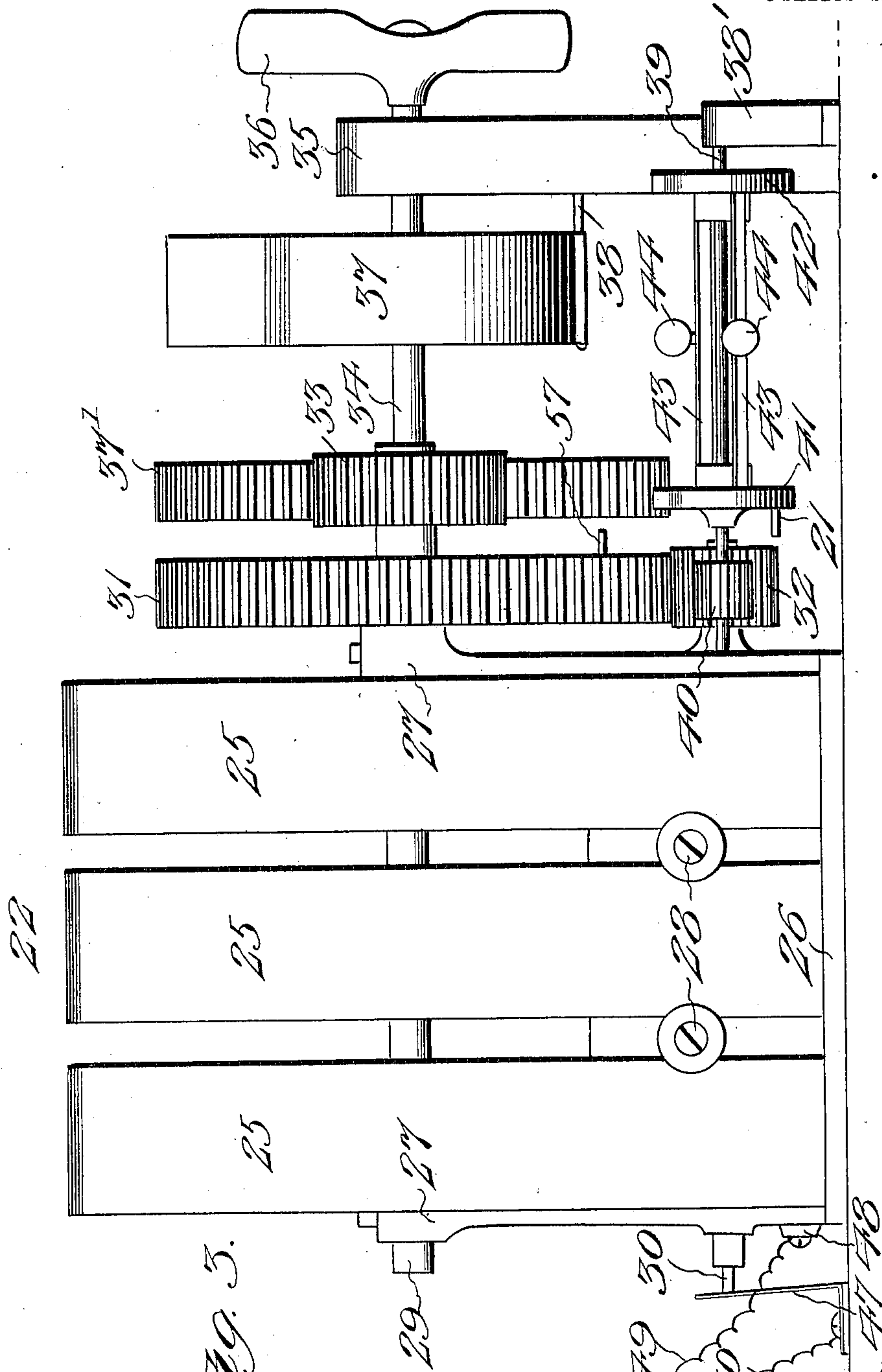
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4 SHEETS—SHEET 3.



Witnesses

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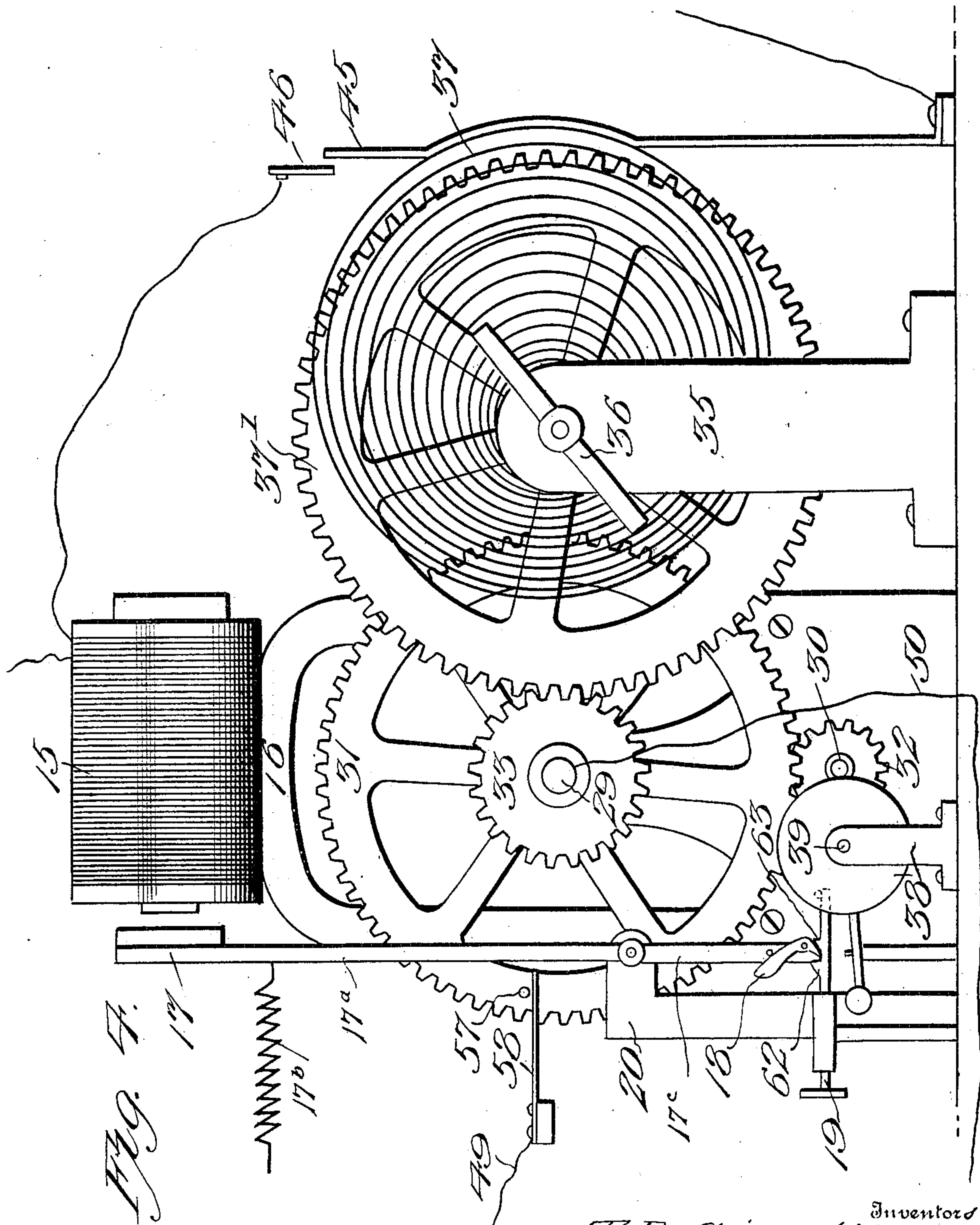
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4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

TRUMAN D. GORESLINE AND JUDSON M. CRAMER, OF GARDNER, KANSAS.

BURGLAR AND FIRE ALARM.

No. 825,823.

Specification of Letters Patent.

Patented July 10, 1906.

Application filed June 7, 1904. Serial No. 211,542.

To all whom it may concern:

Be it known that we, TRUMAN D. GORESLINE and JUDSON M. CRAMER, citizens of the United States, residing at Gardner, in the county of Johnson and State of Kansas, have invented new and useful Improvements in Burglar and Fire Alarms, of which the following is a specification.

Our invention relates to a combined fire and burglar alarm system; and it consists of certain novel features of construction, combinations, and arrangements of parts, as will be hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a diagram showing the arrangements of the circuits of the system and the connected apparatus. Fig. 2 represents diagrammatically the local circuit employed, together with its included elements. Fig. 3 represents in side elevation the magneto-generator, together with the spring-motor and gearing mechanism required for driving same, while Fig. 4 represents in end view the driving mechanism adapted for use with a central source of electric energy and showing in connection therewith the magnetic controlling means for releasing said driving mechanism. Fig. 5 represents in perspective a casing or box for housing the apparatus.

Like numerals indicate like parts in the several figures.

Referring to the drawings by numerals, 10 designates an open-circuit battery, which may consist of two or more cells that are connected at their respective poles by conducting-wires 11 and 12, which extend to form a local circuit and that include in multiple arrangement at suitable intervals a series of circuit-closers 13 and 14. These circuit-closers may be of any desired type, such as thermostats 13 or circuit-closing attachments 14, which may be arranged contiguous to doors, windows, and the like and the function of which is to automatically close the circuit.

15 designates an electromagnet-relay that is mounted on the frame 16 and which is included in the above-referred-to normally open local circuit and which serves to attract a spring-retracted armature 17, that is pivoted, as shown, to standard 20 and which is provided on its lower free end with a pivoted catch or latch 18, that is adapted to operatively engage with a horizontally-disposed toothed locking-bar 19, that is supported for longitudinal movement in the standard 20 and which when in a locking position is

adapted to engage with the detent or set-off pin 21 of a stop-engaging member that is employed in the control of the armature of a magneto-generator. This locking-bar is provided with teeth 62 and 63, the latter having a curved outer face 63^a and a straight inner shoulder 63^b.

22 designates a magneto-generator that is mounted in a box or casing 23, having a door 24. The generator may be of any ordinary construction, but which is shown as comprising a battery of three horseshoe permanent magnets 25, arranged in line edgewise, with the center one interposed between the outer magnets and with their like poles joined by common pole-pieces. (Not shown.) These magnets are held firmly together in spaced parallelism on the base 26 between the end plates or standards 27 by the screw-bolts 28.

29 designates the driving arbor or shaft, which is supported within bearings in the end plates 27 and by which the armature-shaft 30 is driven. The shaft 29 is provided with a large gear-wheel 31, which engages and meshes with the pinion-gear 32, mounted on the end of the armature-shaft 30. The shaft 29 is also provided at its extreme end with a pinion-gear 33. The armature-shaft is also supported in bearings in the end plates 27.

34 designates a shaft or arbor that is supported and journaled in the standard 35 and that is adapted to receive on its projecting end a winding-key 36. Upon this shaft is wound an overcoil-spring 37, one end of which is attached to a pin 38, that projects from the standard 35, while its opposite end is attached to the shaft 34. The spring 37 should be one that does not create friction in unwinding by having its convolutions touch each other when wound up, as the unwinding will be irregular and of varying force. Mounted on the end of the shaft 34 is a large gear-wheel 37', that engages with the pinion 33, carried by the shaft 29.

In order to regulate the speed of the armature of the generator when driven by the above-described motor and connecting train of gearing, there is provided a centrifugal speed-governing means, which will now be described.

38' designates a standard which supports one end of a speed-governor shaft 39, while the opposite end of said shaft is provided with a bearing in the end plate 27. Mounted on the said shaft 39 at a point contiguous to

the pinion 32 of the armature-shaft is a gear-wheel 40, that engages and meshes with said pinion. Arranged in spaced relation on said shaft 39 are collars 41 and 42, the former being secured to said shaft, while the other is arranged to slide thereon. These collars are connected by a pair of governor-springs 43, which in turn are provided with the usual central balls or weights 44. When the speed of the horizontal shaft 39 by reason of its geared connection with the armature-shaft increases above that desired, the balls separate sufficiently by centrifugal force, and thereby increase the load to retard the speed of rotation of the armature-shaft. The speed, therefore, at which the armature may be rotated can be adjusted by the relative size and weight of the balls employed. The collar 41 is provided with the detent or set-off pin 21, hereinbefore referred to.

The spring 37 of the generator-driving mechanism not only serves to drive the said generator, but serves the additional function of automatically breaking the local circuit when the said spring has been unwound and the alarm given, which switching action is designed as a safeguarding means to prevent the exhaustion of the batteries of the local circuit by cutting them out after the alarm has been given in order to avoid any liability of short circuit from neglect to close a window or door or to restore the normal condition of a thermostat after an alarm has been given. To this end the means therefor consists of a switch-lever 45, which comprises a strip of conducting material adapted to engage with the contact 46 to normally close the local circuit at that point, but which is arranged in proximity to the outer coil of the spring 37, where it can be engaged thereby to cause a separation of said conducting-strip from its contact to rupture the local circuit when the spring is unwound, as shown in Fig. 2.

One pole of the generator is connected with a commutator-strip 47, which extends to and in contact with the end of the shaft 30, while the wire leading from the armature to form the termination or other pole of the armature (not shown) connects with the binding-post 48. Connected to the strip 47 and to the binding-post 48 are conducting-wires 49 and 50. The conductor 50 leads to a pin 50^a, that projects through the wall 23 of the box or casing and to the outer end of which is pivoted the lower end of a switch-lever 51, provided at its free end with a handle 51^a, said switch-lever being actuated to place it in two different positions, or in engagement either with contact 52 or the contact 53.

The switch-lever is engaged by a pin 51^c, projecting from a longitudinally-movable push-bar 54, that is engaged in turn by a coiled spring 55, mounted thereon, the said

push-bar and spring being contained within a shell 55', seated in the side wall of the box 23, so as to be flush with the side and front edge thereof. The pin 51^c of the push-bar works through a longitudinal slot 51^d, formed in the said side wall of the box, and in the closed position of the door 24 of the box the push-bar is held inwardly against the action of spring 55, the said pin 51^c at this time occupying a position at the inner end of the said slot 51^d, while the free end of the switch-lever is in engagement with contact 52. When the door of the box is opened, however, the spring forces the push-bar outwardly, and the free end of the switch-lever is carried into engagement with contact 53 by abutment of the said pin 51^c against the switch-lever. On again closing the door the push-bar is forced inwardly, as will be understood, without in any manner affecting the switch-lever, this latter being again moved in engagement with contact 52 by the operator, who grasps the handle 51^a for that purpose.

The circuit for the alarm-generator extends from the pole 48 to the ground-wire 49, while from the other pole 47 there extends a conducting-wire 50 to the contact 53 through the switch-lever 51, which in turn is connected with the line-wire 60. The circuit for the alarm-generator is thus completed when the push-bar is in a forward position, and it will be observed that when the circuit is thus completed the telephone instrument 56, with its magneto call-bell, which is located on the premises, protected by the local circuit, is shunted out of the main-line circuit, while it is included in circuit and the alarm-generator cut out when the switch-lever has been thrown into engagement with the contact 52, in which latter case the telephone-circuit is placed at this point or location in its normal circuit condition, as the line-wire 60 is then completed through the switch-lever 51, contact 52, and conducting-wire 61, leading to the telephone instrument 56.

In Fig. 4 there is shown a means for employing a central source of electric energy for the external circuit, which provides for the elimination of the magneto-generator and the substitution of a make-break means therefor, which consists of providing one of the gears 31 of the train of gears with a contact-pin 57, that in the revolution of said wheel is brought periodically into contact with the spring-terminal 58, which is connected with the conducting-wire 49 of the external circuit, while the other conductor 50 of said circuit connects with the shaft 29, upon which the gear 31 is mounted to revolve, as shown in Fig. 4.

The operation of said apparatus is as follows: Assuming the contact of the switch-lever 51 in engagement with the contact 53, as shown in Fig. 5, and the spring-motor 37 has

been wound and the latch 18 set with its tooth in engagement with the rack-tooth 64, as shown in Fig. 2, it is obvious that when the door of the building is opened upon leaving said building thus protected the circuit-closer arranged in connection therewith will be actuated and the local circuit will be completed to cause a response of the relay-magnet, and the attraction of its armature will cause the latch to be withdrawn from the tooth 62 of the locking-bar and allow the said latch to drop into the second tooth 63 without moving said locking-bar from its locked position with said pin 21. It will be understood that when the long upper arm 17^a of the armature 17 is first attracted by the magnet against the resistance of its retracting-spring 17^b the short arm 17^c of said armature will be swung outward with relation to or away from the collar 41, whereby the dog or latch 18 will push against the tooth 62 and slide the bar 19 outward, but not sufficient to release it from the detent-pin 21, thus permitting the door of the apartment to be protected to be opened to permit the person who has set the alarm mechanism to leave the apartment without operating the alarm. When the party leaving closes the door, the circuit-closer coöperating with the door will again complete the local circuit, thus deenergizing the magnet 15. When said magnet is thus deenergized, the spring 17^b will retract the armature 17, thereby swinging the arm 17^c backward or toward the collar 41, whereupon the heel of the tooth of the dog or latch 18 will ride over the curved face 63^a of the tooth 63 and drop into engagement with the straight shoulder 63^b thereof, thus so setting the bar 19 that a second attraction of the armature by the magnet will result in the bar being moved outward to a greater extent by the action of the dog on the tooth 63, whereupon the generator will be set in operation and an alarm sounded. On closing the door the said circuit-closer is opened and the local circuit restored to its normal open condition, and the apparatus is then in readiness for operation. Should the local circuit then be closed by the raising of a window or the opening of a door by any one or the closing of a thermostat by heat, then the magnet-relay will respond to release through its armature the magneto-generator, which will thereupon deliver its current to the external circuit and transmit a signal to a distant point.

In case a window or door is left open without the knowledge of the operator and the operator starts to wind the mechanism after setting the latch devices the two contacts 45 and 46 will come together, and the magnet 15 will be thereby energized to draw the armature 17 against the same, this operation of the armature causing the locking-bar 19 to be drawn out the extent of the tooth 63. The snapping sound produced by the armature

when it strikes the magnet will thereby warn the operator that the said door or window is open.

What we desire to claim as new and useful is—

1. The combination with a signal-transmitting circuit, of a generator, means for switching the generator into and out of said circuit, a driving-motor for the generator, gearing mechanism interposed between said generator and motor, a detent included in said gearing mechanism, a locking-bar arranged in operative relation to said detent and provided with teeth, a magnet-relay, an armature therefor, a latch arranged on said armature and adapted in its movement to successively engage the teeth on said locking-bar, an independent circuit for the magnet, a source of electric energy for said circuit, automatic means for closing said circuit, and means operated by the unwinding of the spring of the driving-motor of the generator for opening said circuit when the spring is fully unwound.

2. The combination with a signal-transmitting circuit, of a generator, a motor, gearing operated by the motor for driving the generator and provided with a detent, a sliding locking-bar adapted to engage said detent and to hold the gearing from operation, said bar being provided with a pair of teeth, a magnet-relay, an armature therefor, a dog or latch actuated by said armature and adapted in its movement to successively engage the teeth on said locking-bar for imparting a preliminary movement to the bar without releasing the detent and a final movement in which the detent is released, an independent circuit for the magnet, a source of electric energy for said circuit, and automatic means for closing said circuit, substantially as described.

3. The combination with a signal-transmitting circuit, of a generator, means for switching the generator into and out of said circuit, a spring-actuated motor for driving the generator, gearing between the generator and motor, a centrifugal governor associated with said gearing for controlling the speed of the armature of the generator, said governor having a collar or disk fixed against sliding movement on its shaft but revoluble therewith and provided with a detent, a sliding locking-bar adapted to engage said detent and to hold the gearing and governor from operation, said bar being provided with a pair of teeth, a magnet-relay, an armature therefor, a dog or latch actuated by said armature and adapted in its movements to successively engage the teeth on said locking-bar for imparting a preliminary movement to the bar without releasing the detent and a final movement in which the detent is released, an independent circuit for the magnet, a source of electric energy for said circuit, and auto-

matic means for closing said circuit, substantially as described.

4. The combination with a signal transmitting circuit, of a generator having its driving and armature shafts provided with intermeshing gears and its driving-shaft also provided with a pinion, a motor comprising a spring-actuated driving-shaft and a gear, the latter meshing with the aforesaid pinion, a centrifugal governor comprising a revoluble shaft having fixed and sliding collars and weighted spring-strips connected to said collars, the motor-shaft being provided with a gear meshing with the gear on the armature-shaft, and one of said collars with a detent-pin, a sliding locking-bar adapted to engage said detent-pin and to hold the gearing and governor from operation, said bar being provided with a pair of teeth, a magnet-relay, an

armature therefor, a dog or latch actuated by said armature and adapted in its movements to successively engage the teeth on said locking-bar for imparting a preliminary movement to the bar without releasing the detent-pin and a final movement in which the detent-pin is released, an independent circuit for the magnet, a source of electric energy for said circuit, automatic means for closing said circuit, and means operated by the unwinding of the spring of the motor for opening said circuit when the spring is fully unwound. 20 25 30

In testimony whereof we affix our signatures in presence of two witnesses.

TRUMAN D. GORESLINE.

JUDSON M. CRAMER.

Witnesses:

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W. J. JOHNSTON.