

No. 778,037.

PATENTED DEC. 20, 1904.

R. HERMAN.
SIGNALING MECHANISM.
APPLICATION FILED NOV. 21, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1

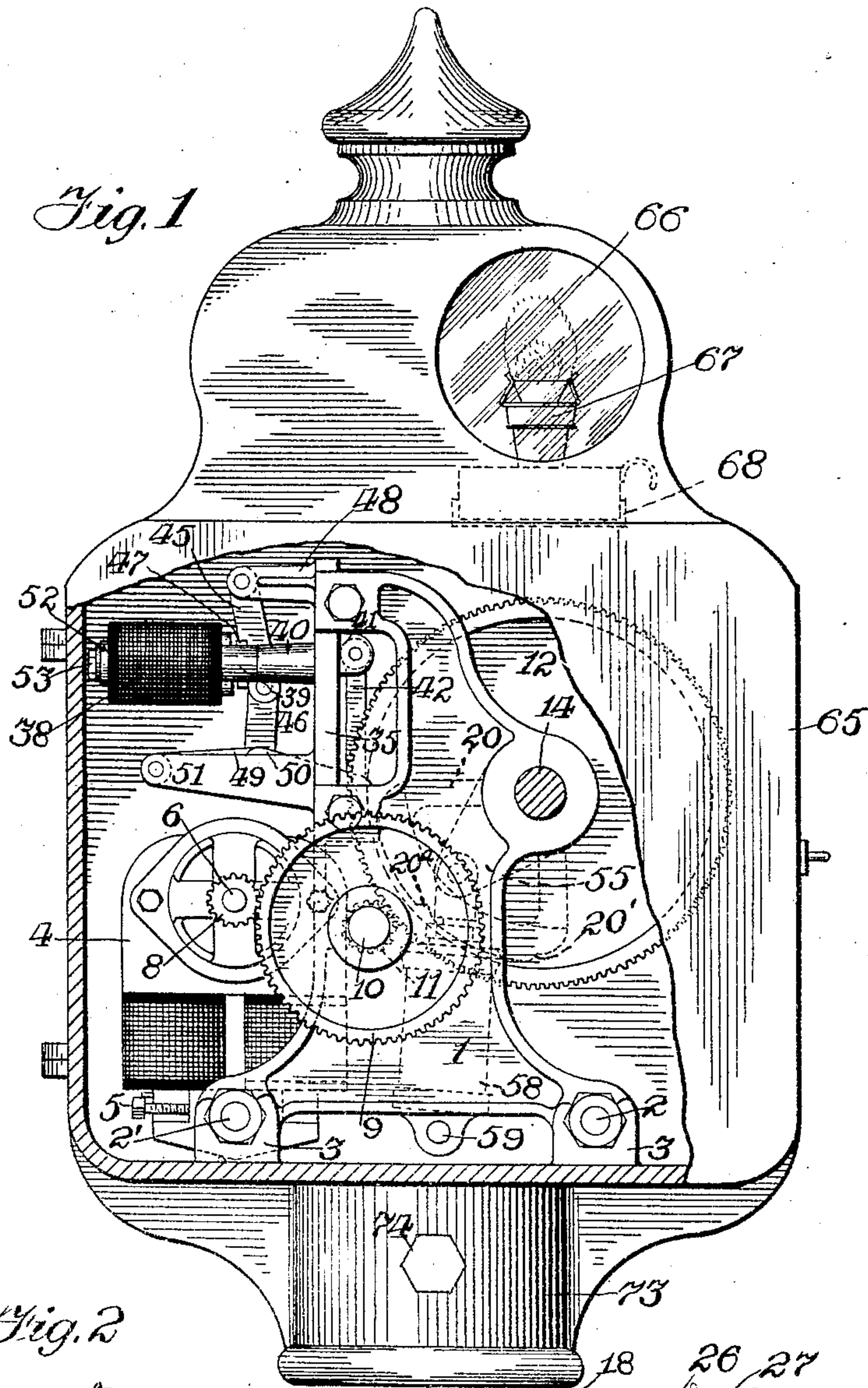
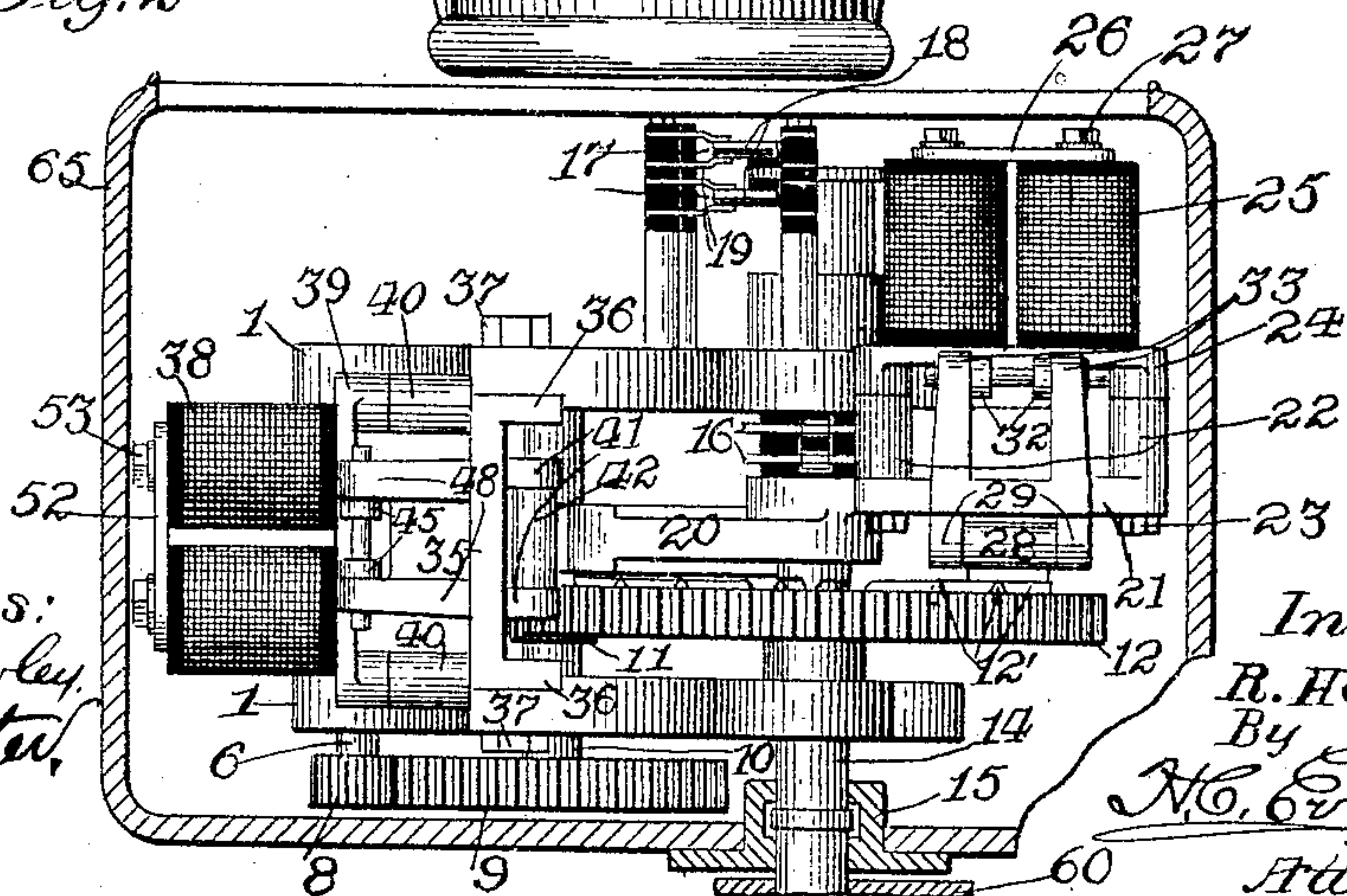


Fig. 2



Witnesses:
Geo. B. Rowley,
E. E. Potter,

Inventor
R. Herman,
By
H. C. Everett,
Attorneys.

R. HERMAN.
SIGNALING MECHANISM.
APPLICATION FILED NOV. 21, 1903.

NO MODEL.

2 SHEETS—SHEET 2.

Fig. 3

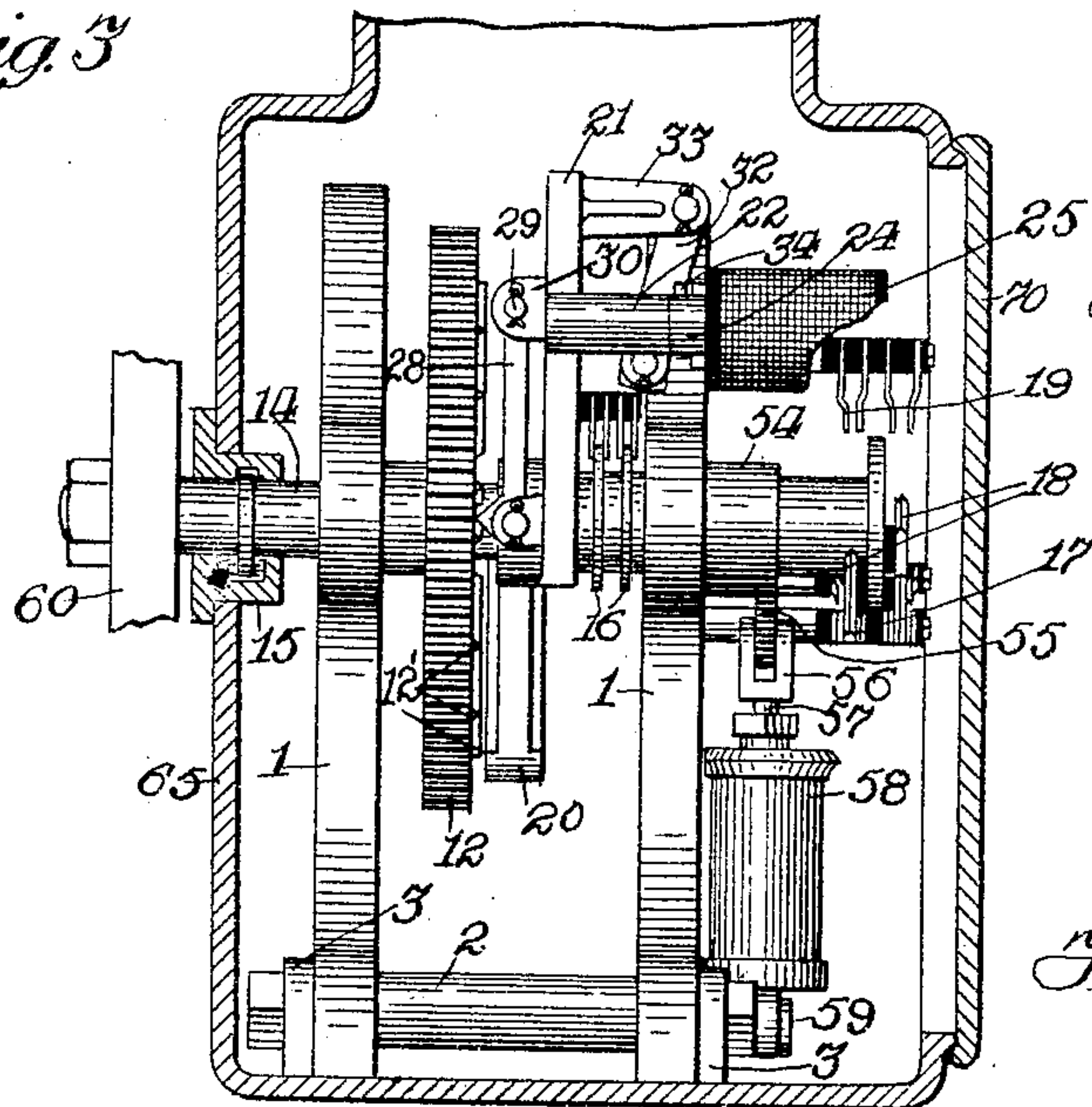


Fig. 4

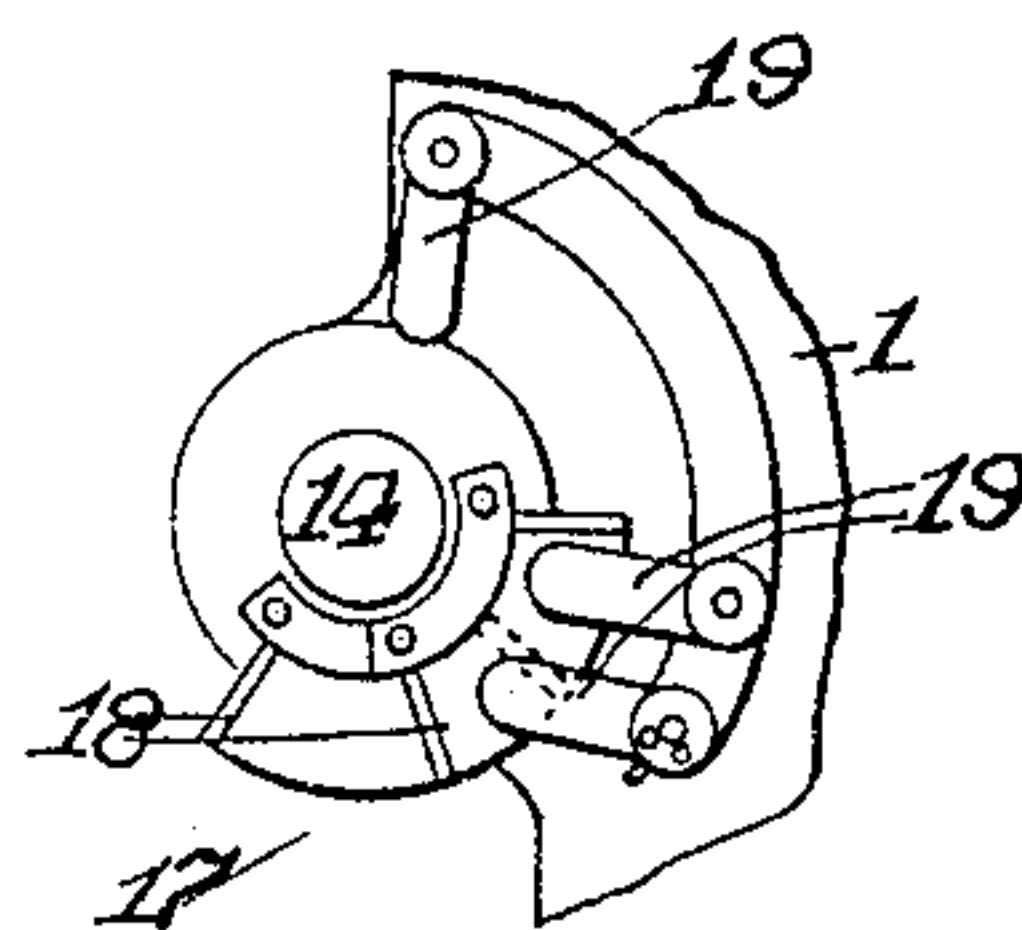


Fig. 6

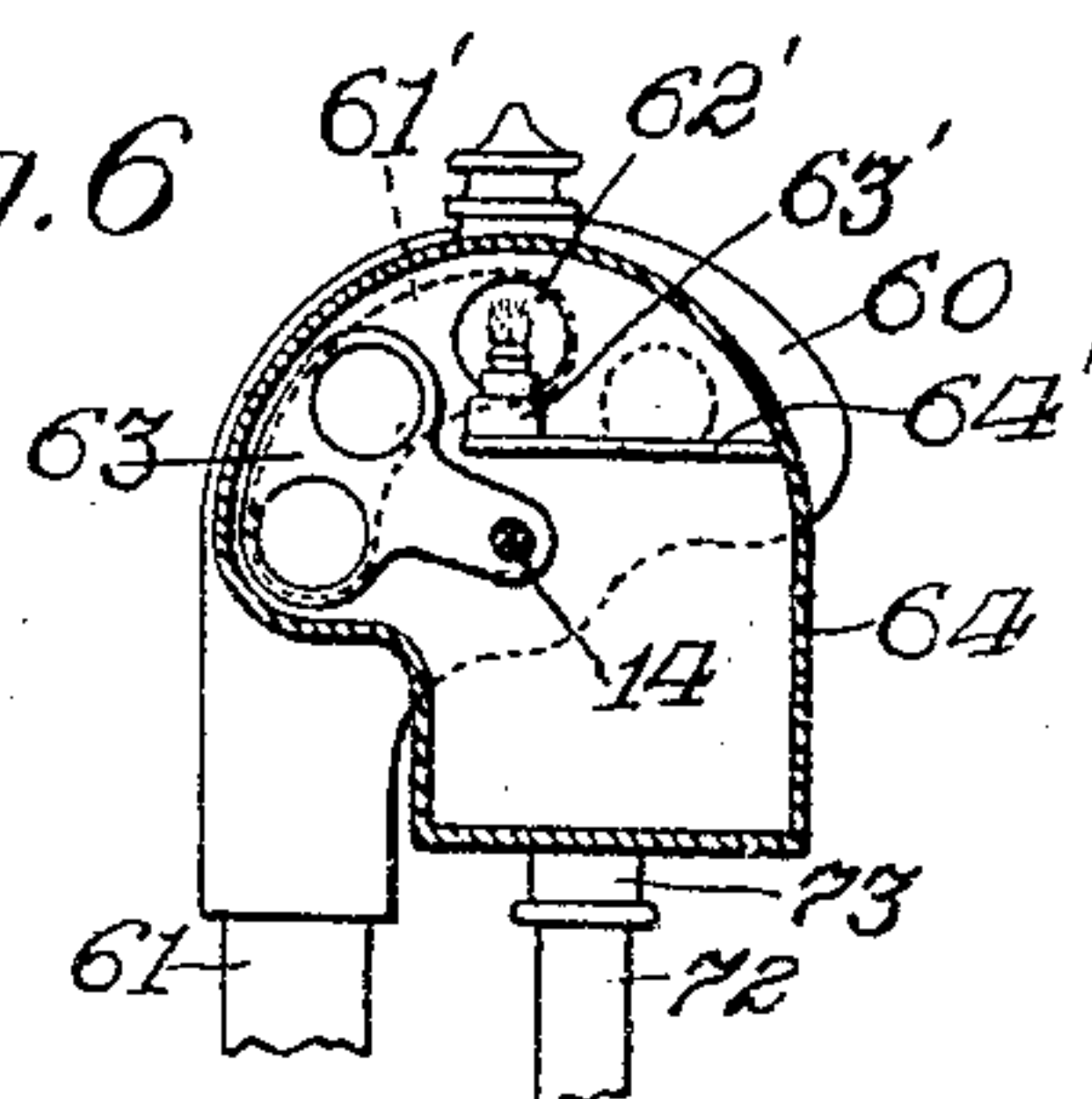
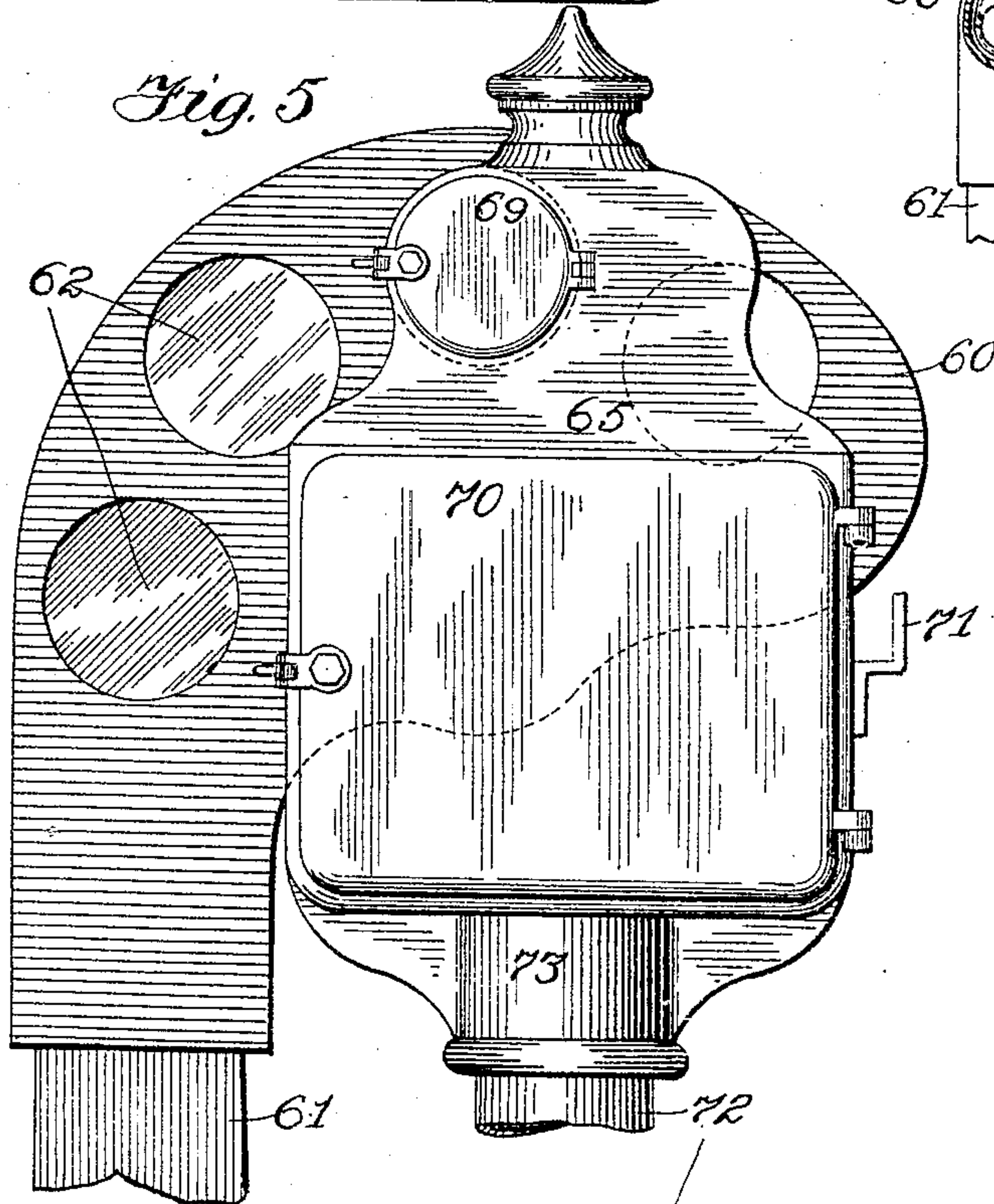


Fig. 5



Witnesses:
Geo. B. Rowley.
E. E. Potter.

Inventor;
R. Herman,
By A. C. Frost & Co.
Attorneys.

UNITED STATES PATENT OFFICE.

REINHOLD HERMAN, OF CRAFTON, PENNSYLVANIA.

SIGNALING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 778,037, dated December 20, 1904.

Application filed November 21, 1903. Serial No. 182,138.

To all whom it may concern:

Be it known that I, REINHOLD HERMAN, a citizen of the United States of America, residing at Crafton, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Signaling Mechanism, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to certain new and useful improvements in signaling mechanism, and relates more particularly to that type of signals generally known as "semaphore-signals," one of the main objects of the present
15 invention being to provide a signal mechanism in which the semaphore or signal is connected directly to the drive-shaft of the mechanism.

Another of the main objects of the present
20 invention is to provide a signaling mechanism adapted to be mounted on top of the supporting-post instead of located at the bottom of the post, as is the usual method of operating semaphore-signals.

25 A still further object of the present invention is to provide a signaling mechanism in which the lamp employed for giving a night signal or indication is mounted within the housing or casing of the signal mechanism,
30 and thereby not only protected, but the heat derived from the lamp will act to maintain a normal temperature in the housing or casing at all times irrespective of changes in atmospheric conditions.

35 A still further object of the present invention is to provide a signaling mechanism capable of movement with its inclosing housing or casing on top of the supporting-post, the housing or casing being rotatable on top of
40 the supporting-post and the signal mechanism being movable in unison with the housing or casing, whereby to give any desired position to the semaphore-signal that may be desired.

45 The invention resides in the novel construction, combination, and arrangement of parts to be hereinafter more fully described, and specifically pointed out in the claims.

50 In describing the invention in detail reference is had to the accompanying drawings,

forming a part of this application, wherein like numerals of reference indicate like parts throughout the several views, in which—

Figure 1 is an elevation of my improved signaling mechanism mounted within its hous- 55 ing or casing, the latter being partly broken away. Fig. 2 is a plan view of the mechanism with the housing in section and partly broken away. Fig. 3 is an end elevation of the mechanism partially broken away and 60 with the housing in section and partly broken away. Fig. 4 is an elevation of the circuit-controller. Fig. 5 is a rear elevation of a signal constructed in accordance with my invention, showing the signal or semaphore-arm 65 and the supporting-post partly broken away. Fig. 6 is a sectional detail of a modified form of lens arrangement.

In the operation of the signal constructed in accordance with my present invention it is 70 understood that a track-circuit is employed to control the operation of the signal by train movements, and a circuit, such as shown in my patent dated September 24, 1901, No. 683,397, may be used with the signal mechan- 75 ism herein shown and described. The present invention is applicable alike to a signal having two or more positions, and the mechanism includes an improvement in a locking device for holding the signal at certain posi- 80 tion or positions, and which locking device has been shown and described in detail in the companion application for improvements in dwarf semaphore-signals filed on even date herewith. 85

To put my invention into practice, I provide a pair of standards or uprights 1, mounted on bolts or shafts 2 2', that are seated in notched lugs 3, carried by the bottom of the inclosing housing or casing. On the bolt or 90 shaft 2' is mounted an actuating-motor 4, that is adjustable on the bolt or shaft in order to obtain proper meshing of its pinion with the gear and to permit the disconnecting of the pinion from the gear for safety purposes at 95 any time when working with the mechanism for repairs or the like. The motor is held in its proper adjusted position on the bolt or shaft by set-screws 5 or other approved means. The armature-shaft 6 of the motor carries a 100

high-speed pinion 8, which meshes with a gear 9, that is mounted on the shaft 10, journaled in the standards or uprights. Also mounted on the shaft 10 is a pinion 11, which
 5 meshes with a driving-clutch gear-wheel 12, mounted on the drive-shaft 14. The one end of this drive-shaft 14 extends through the wall of the housing or casing to have the signal mounted thereon, and in the wall through
 10 which the drive-shaft extends there is preferably provided a suitable bearing 15 for said shaft. (See Figs. 2 and 3.) On the drive-shaft 14 are also mounted a rotary circuit-con-
 15 nector 16 and a circuit-controller 17. The knives or blades 18 of the circuit-controller and the clips 19 thereof are of a number as may be required, according to whether the signal is being employed as a two or three
 20 position signal, the clips 19 being suitably supported from one of the standards. Mounted on the drive-shaft 14 is a sector 20, which carries an integral arm or bracket 21, from
 25 which the toggle-links and the swinging lock-lever operating in conjunction with the clutch-magnets are supported. This arm or bracket carries a pair of projecting posts or studs 22,
 to which is secured by bolts 23 a strap or plate 24, into which the ends of the cores of the
 30 clutch-magnets 25 are threaded, these cores at their outer ends being provided with conical portions to fit in the strap 26, connecting the cores of the two magnets, the strap being
 held in position by screws 27. This particular construction in detail is described in my
 35 companion application filed herewith for improvements in dwarf semaphore-signals. The swinging lock-lever 28 is pivotally supported at its upper end by the pivot-pin 29, extend-
 40 ing through a pair of lugs 30, carried by the bracket 21. The toggle-links 32 are of the same form of construction as described in detail in my companion application, the upper
 link being supported in arms 33, carried by the bracket 21, and the said upper toggle-link
 45 carrying the armature of the magnets 25. The swinging lock-lever is adapted to engage with the teeth 12', circumferentially formed on the driving clutch-wheel 12.

A locking device exactly similar in form to
 50 that described in detail in my companion application for dwarf semaphore-signals is provided for locking the signal at danger position. This locking device comprises a back
 55 plate 35, the angular ends 36 of which are secured by bolts 37 to the standards 1, the cores of the lock-magnets 38 being threaded at their rear ends into the strap or plate 39,
 bolted or otherwise permanently secured to studs 40, carried by the back plate 35. This
 60 back plate is provided with rearwardly-extending lugs 41, in which the swinging lock-lever 42 is pivotally mounted, and the toggle-links 45 46 are pivotally secured together,
 the former carrying an armature 47 and being
 65 pivoted at its upper end in arms 48, car-

ried by the back plate, with a link 46 pivoted to toggle-links 49 50, the former of which is pivoted at its outer end in brackets 51, carried by the back plate, and link 50, pivoted at its other end to the swinging lock-lever 42.
 70 The cores of the magnets are provided with conical portions which seat in the connecting-strap 52, secured by screws 53, as is described and shown in detail in my companion applica-
 75 tion for dwarf semaphore-signals referred to.

The sector 20 is provided with a notch 20', with which the swinging lock-lever engages for holding the signal in the danger position, and in event it is desired to use the signal as
 80 a three-position signal the sector will be provided intermediate the ends of its working face with a notch 20", in which the tooth of the swinging lock-lever will engage for locking
 the signal in caution position. Mounted on the drive-shaft 14 is a crank-disk 54, the
 85 crank 55 of which is pivotally connected to the yoke or clevis 56, carried on the upper end of the stem or rod 57 of the piston (not shown) which works in the cylinder 58, the
 said piston and cylinder forming the dash-pot
 90 or buffer. This cylinder is mounted to swing or oscillate on the rod or shaft 59, mounted in the standards 1, the swinging movement or oscillation of the dash-pot being necessary
 in order to insure the proper alining thereof,
 95 according to the position of the crank 55.

In this invention the drive-shaft is extended through one wall of the housing or casing, and the signal is mounted direct on this extended end of the drive-shaft. In Fig. 5 I
 100 show a semaphore-casting 60, to which the semaphore-arm 61 is suitably connected, which casting is provided with as many lenses 62 as may be required, according to whether the
 two or three position signal is being employed.
 105

In Fig. 6 I show a modification of construction in which the lens-frame 63 is mounted on the drive-shaft 14 within an inclosing
 housing or casing 64, while the semaphore-casting 60, which carries the semaphore-arm
 110 61, is mounted on the drive-shaft outside of the housing or casing 64. In this construction the semaphore-casting may simply be provided with a segmental slot 61', the hous-
 ing having a lens 62', back of which is a lamp
 115 63', mounted on a bracket or other suitable support 64'.

With the form of signal as shown in Figs. 1 to 5, inclusive, I employ an inclosing hous-
 120 ing or casing 65, provided in its wall adjacent the signal with a lens-opening 66, and within the housing or casing back of the lens-open-
 ing is placed a lamp 67, suitably supported, as by a bracket 68 or other suitable means. In
 its opposite side wall the housing or casing is
 125 provided with a door 69, by means of which access may be had to the lamp, and also a door
 70, by means of which access may be had to the mechanism, both doors being adapted to
 be locked. It will be evident that I may mount
 130

the lamp outside the box or housing on a bracket 71, and in this event the color of the several lens would be stepped forward two spaces. The housing or casing is rotatably mounted on a suitable supporting-post 72, and it will be observed that the circuit-wires to the track may be led up through this supporting-post, if so desired. In my Patent No. 685,139, granted October 22, 1901, I show a rotatably-mounted signal-head which enables me to properly aline the signal to conform to track conditions. In the present invention it will be observed that the signal, together with its inclosing housing and the signal-operating mechanism, may be similarly rotated on the supporting-posts, whereby to obtain the desired positioning of the signal. The inclosing box or housing is provided on its bottom with a suitable socket 73, which fits onto the post and has a set-screw 74 for firmly securing the mechanism in the adjusted position.

In operation when the motor is energized by the train leaving the block the circuit is completed through the clutch-magnets 35, causing the swinging lock-lever thereof to engage with driving clutch-wheel 12, and as the motor, through the medium of pinion 8, gear 9, pinion 11, and drive-wheel 12, rotates drive-shaft 14 the signal is automatically moved to clear position, and upon the energizing of lock-magnets 38 the swinging lock-lever 28 thereof engages in notch 20' of the sector and locks the signal in clear position. It will be evident that where a three-position signal is being used the circuit-controller will be so constructed as to energize the lock-magnets 38 to cause the swinging lock-lever 28 to engage with the notch 20" when circuit is so made as to lock the signal in the caution position.

While I have herein shown and described in detail a practical embodiment of the invention as it is practiced by me, yet I do not wish to be understood as confining myself to the construction shown and described, as it will be evident that various changes may be made in the construction such as has been indicated herein in the description without departing from the spirit or scope of the invention.

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

1. In semaphore-signals, a signal-operating mechanism including a drive-shaft and a motor for actuating said shaft, an inclosing box or casing for the operating mechanism and motor through one side wall of which the drive-shaft extends, and which box or casing is provided with a lens-opening, a supporting-post on which the mechanism and box or casing is mounted, a signal mounted on the extended end of the drive-shaft, electrically-controlled means for locking the signal in danger position, and electrically-controlled means for locking the signal in clear position.

2. In semaphore-signals, an electrically-

controlled operating mechanism, a motor for actuating said mechanism, an inclosing box or casing for the mechanism and motor, and provided with a lens-opening, a supporting-post on which the box or casing is mounted, the drive-shaft of the mechanism extending through the box or casing, a signal mounted on said drive-shaft outside the casing, and electrically-controlled means for locking the signal in danger position.

3. In electrically-operated semaphore-signals actuated by track-circuits controlled by train movements, a signal-operating mechanism including a drive-shaft and an inclosing box or casing provided with a lens-opening and through which casing one end of the drive-shaft extends, a motor for operating said mechanism, and a semaphore-casting mounted on the extended end of the drive-shaft and movable thereby to bring its lens-opening into registry with the lens-opening in the inclosing box or casing.

4. In semaphore-signals, an electrically-controlled signal-operating mechanism, comprising supporting-standards, a drive-shaft journaled therein and extending beyond each standard, a circuit-controller mounted on one extended end of the drive-shaft, an inclosing box or casing through which the other end of said shaft extends, a signal mounted on said extended end of the shaft outside the box or casing, a motor within the box or casing for actuating the mechanism and a supporting-post on which the box or casing is mounted.

5. In electrically-operated semaphore-signals actuated by track-circuits controlled by train movements, a signal-operating mechanism including a drive-shaft extending beyond each side of its supporting-standards, a motor for actuating said mechanism, a signal mounted on one end of the drive-shaft, a crank-disk mounted on the shaft adjacent its opposite end, an oscillatory dash-pot, and a yoke or clevis connecting the stem of the dash-pot piston to the crank-disk.

6. In signals, an operating mechanism including a drive-shaft, and standards in which said drive-shaft is journaled, an inclosing box or casing through one side of which the drive-shaft extends, a signal mounted on said end of the shaft extending outside the casing, a crank-disk on the drive-shaft adjacent its other end, and an oscillatory dash-pot inclosed by the box or casing and having the stem of its piston pivotally connected to the crank-disk on the drive-shaft.

7. In signals, an operating mechanism including a drive-shaft, and standards in which the shaft is journaled with both ends extending beyond the standards, a signal mounted direct on one of the extended ends of the drive-shaft, a crank-disk mounted on the shaft adjacent its other end, and an oscillatory dash-pot having the stem of its piston pivotally connected to the crank-disk.

8. In signals, an operating mechanism including a drive-shaft, a signal mounted direct on one end of the shaft, a crank-disk mounted on the shaft adjacent its other end, and an
5 oscillatory dash-pot having the stem of its piston pivotally connected to said crank-disk, substantially as described.

9. In semaphore-signals, an electrically-controlled signal-operating mechanism, comprising supporting-standards, a shaft jour-
10 naled therein, an inclosing box or casing

through which the said shaft extends and is journaled, a signal mounted on the end of the shaft, outside the box or casing, and a motor within the box or casing for actuating the
15 mechanism.

In testimony whereof I affix my signature in the presence of two witnesses.

REINHOLD HERMAN.

Witnesses:

A. M. WILSON,
E. E. POTTER.