

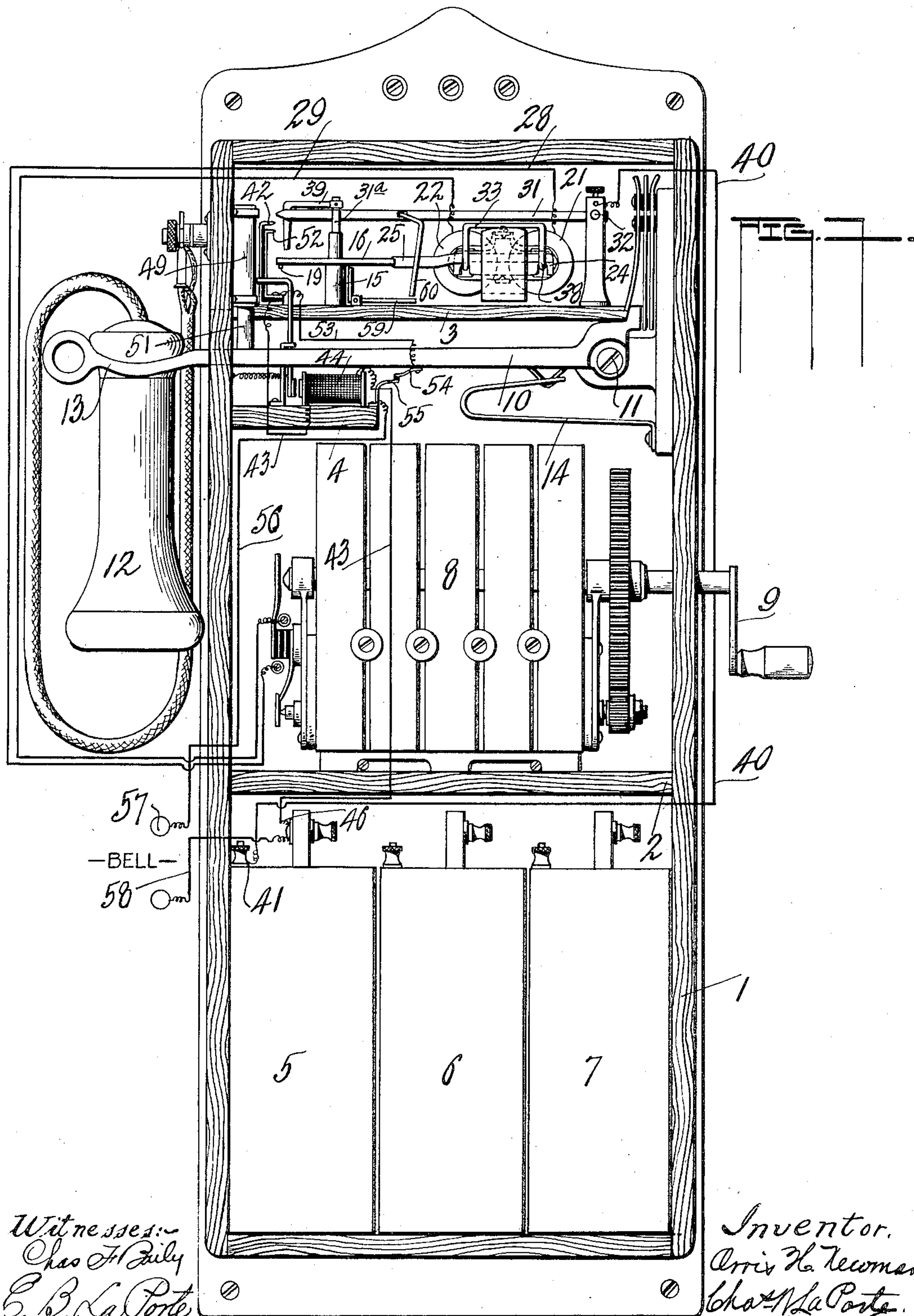
No. 821,820.

PATENTED MAY 29, 1906.

O. H. NEWMAN.
SELECTIVE RINGING AND LOCKING DEVICE.

APPLICATION FILED APR. 3, 1905.

2 SHEETS—SHEET 1.



Witnesses:
Chas F. Daily
C. B. LaPorte

Inventor.
Orris H. Newman
Chas F. Daily
C. B. LaPorte
Atty.

By

No. 821,820.

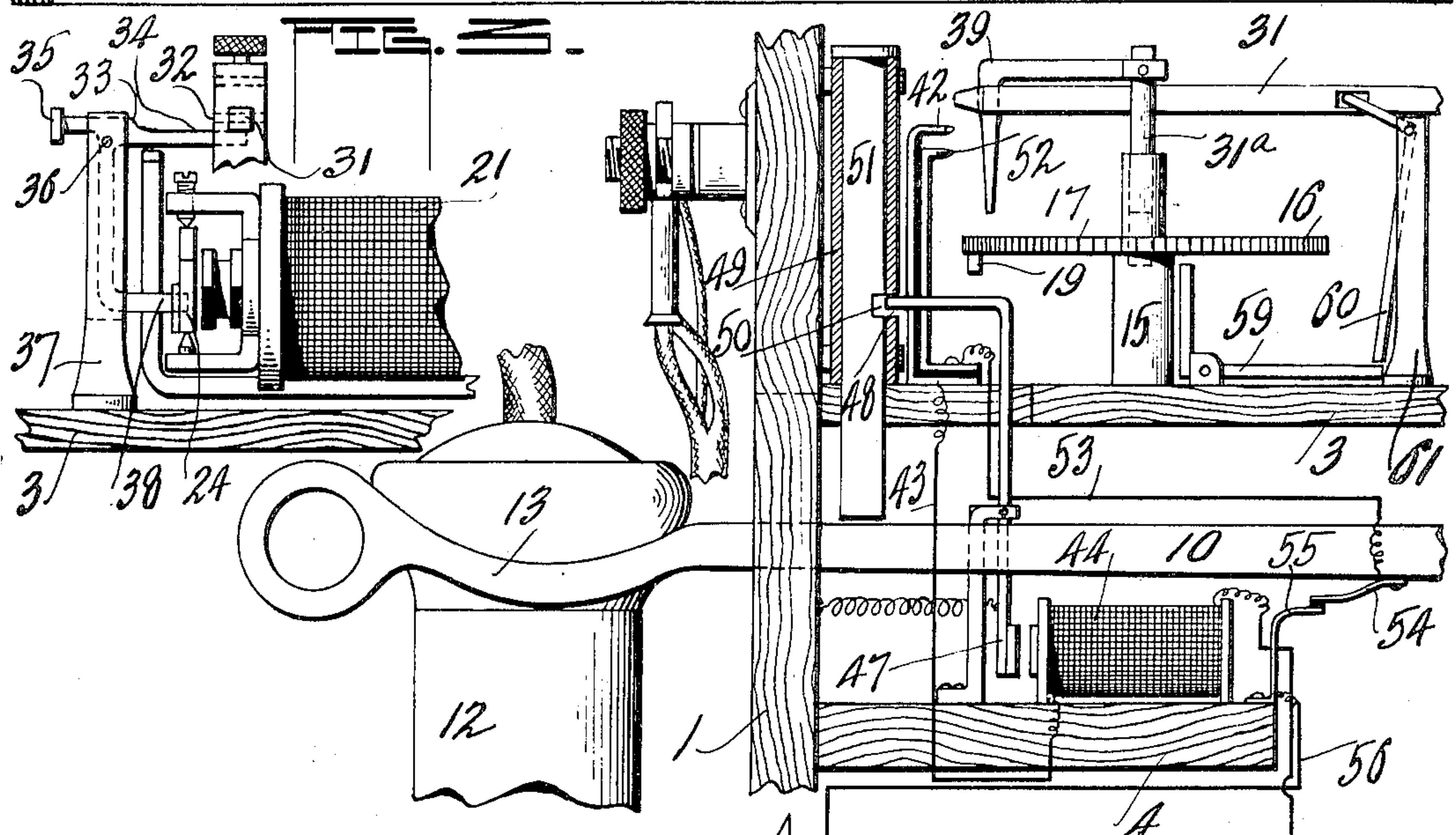
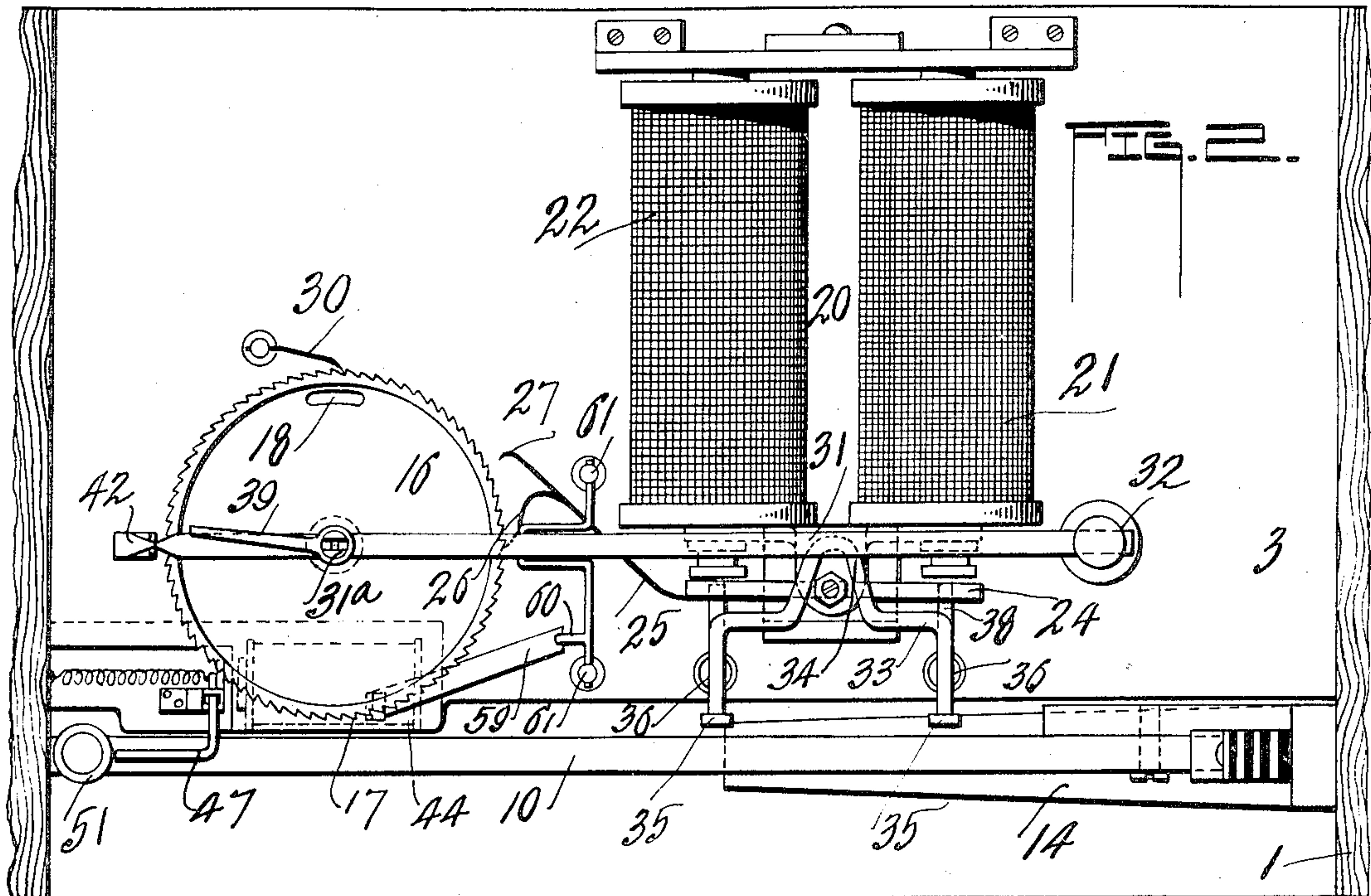
PATENTED MAY 29, 1906.

O. H. NEWMAN.

SELECTIVE RINGING AND LOCKING DEVICE.

APPLICATION FILED APR. 3, 1905.

2 SHEETS—SHEET 2.



Witnesses:
Chas F. Bailey
Eleanor B. La Porte

Inventor.
Orris H. Newman.
By Chas F. Bailey Atty.

UNITED STATES PATENT OFFICE.

ORRIS H. NEWMAN, OF PEKIN, ILLINOIS.

SELECTIVE RINGING AND LOCKING DEVICE.

No. 821,820.

Specification of Letters Patent.

Patented May 29, 1906.

Application filed April 3, 1905. Serial No. 253,553.

To all whom it may concern:

Be it known that I, ORRIS H. NEWMAN, a citizen of the United States, residing at Pekin, in the county of Tazewell and State of Illinois, have invented certain new and useful Improvements in Selective Ringing and Locking Devices; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

This invention has reference to an improved telephone selective ringing device, being more particularly adapted to phones on independent lines; but the principle therein embodied may be adapted to other signaling systems.

One of the objects which I have in view is selecting the various signals according to the number of revolutions of a magneto by means of which the signaling is done.

A further object of the invention is a selector actuated by an armature-lever which is moved through the instrumentality of a magneto and to a controlling device adapted for locking all of the receiver-hooks of the various phones on a line other than the one for whom a call is made.

A further object of the invention is to provide a selector adapted to be actuated in a step-by-step movement, an armature-lever movable through the energizing of an electromagnet and provided with a suitable escapement for moving and controlling the movement of the selector; a magneto for energizing the magnet to adapt the movement of the armature-lever, and thereby the selector, and means controlled by the number of revolutions imparted to the magneto for selecting the phone desired to be called and the ringing of the call-bell of such phone upon the desired number of revolutions being imparted to the magneto.

The invention consists, further, of a selector-disk adapted to be moved through the action of an armature-lever, an electromagnet for intermittently oscillating the said lever when the respective coils of said magnet are energized and deenergized, a second lever, means for holding the lever raised when the said magnet is energized, a magneto for energizing the said magnet, means controlled by the second lever for locking the receiver-hooks of the phones not called and for releasing the hook of the phone through which communication is desired, and means carried by the

said second lever coacting with the selector-disk for stopping said disk in accordance with the number of revolutions imparted to a magneto when calling the respective phones.

With these and other objects in view, as will hereinafter appear more fully, the invention consists in the novel construction and arrangement of parts hereinafter described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportion, size, and minor details may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is a front elevation, somewhat reduced, of a telephone such as my invention may be attached to and having my improvements applied thereon, the cover, mouthpiece, and neck, as well as several minor details of a phone of this character, being omitted. Fig. 2 is a plan view, substantially full size, showing in plan the selector which I employ, the armature-lever and magnet for actuating the same, together with the receiver-hook and device for locking and releasing the same. Fig. 3 is a side elevation in detail of parts for holding the armature-lever raised when the magnet is energized; and Fig. 4 is a front elevation, partly in section, of the selector and armature-lever, a portion of the receiver-hook, and the means for locking the same.

In explanation of my invention it is well to call attention to the fact that the same is preferably adapted to independent telephone systems, such as are used in rural districts, where each person is his own central office and may call any of the several persons who may be connected with his phone by revolving a magneto a given number of revolutions for energizing the line to effect the adjustment of the selector to circuit-closing position of the party with whom connection is desired, when his call-bell will ring and continue to ring until his receiver is removed from its hook, when the circuit in which the bell is located will be opened by the automatic raising of the hook, or the magneto is turned by the party calling to cause the selector to return to its initial position, all of which will be more fully explained. No attempt has been made to illustrate a series of phones and the connection between the same, as it is believed these features are all well understood and need no further illustration or explanation.

tion here. It is also believed that the wiring and connections between the parts of the device to illustrate the mode of energizing the magnet and wires connecting the several parts will be readily understood.

Similar characters of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

10 In the drawings, 1 denotes a suitable casing, such as are in use for phones on independent telephone systems. The same is divided by means of partitions 2 and 3 and also provided with a shelf or rest 4. In the lower compartment of this case, formed by the partition or shelf 2, is a series of electric batteries of any well-known construction, (indicated as 5, 6, and 7,) battery 5 being employed as a part of the circuit in which my improvements are arranged, the remaining two serving as a part of the usual connections in a phone of this character. Supported by the partition or shelf 2 is shown a magneto 8, being similar to those used on telephone-circuits and consisting of the usual mechanical parts and adapted to be actuated for energizing the magnets and lines connected therewith by means of a handle 9, carried exteriorly of the casing 1 and connected with the armature in the usual way.

10 indicates a lever pivoted at 11, the same being supported within the casing, as seen in Fig. 1, and serving as the receiver-hook of a receiver 12. The forward end of the lever passes out through a slot in the wall of the casing (not shown) and is provided with a receiving portion 13 for the receiver, as shown. The lever 10 when the receiver is supported thereby is in its lowermost position; but when the receiver is removed a spring 14 will raise the same, as is the custom in all phones, for the purpose of making the proper contact, so as to transmit sound, all of which is understood. There is no difference in the construction of this lever 10 from those in use, nor are the electric connections with the same any different from those in daily use. While the batteries, the receiver-hook, receiver, magneto, and connections of such parts with the line-wires are of the usual construction, certain new and useful features are introduced for making and breaking a circuit by the lever, as well as locking the position of all the levers of the phones not called.

At a suitable point on the partition or shelf 3 is a vertically-disposed bearing 15, which supports a revolubly-carried plate or selector-disk 16, the periphery of which is provided with ratchet-teeth 17, as shown. The disk is provided with an elongated aperture 18, and from the under side of the disk and at a suitable point projects a stud or finger 19, the purpose of which will be further explained. Also supported by the shelf 3 is

seen an electromagnet 20, composed of the usual coils 21 and 22. 24 denotes an "armature-lever," so called by reason of an extension 25 from the body of the armature 24, having a pair of escapement-teeth or engaging portions 26 and 27. The said armature-lever 24 is fulcrumed in the ordinary way in front of the poles of the magnet 20 and is adapted when the poles are energized and de-energized to oscillate the said lever 24 and cause the teeth 26 and 27 thereof to engage and advance the selector-disk 16 in a step-by-step movement, the tooth 26 advancing the disk one tooth or notch at a time, while the tooth 27 insures that the disk will move only one tooth at a time. Electrical connections are made between the coils 21 and 22 and the magneto 8 by means of the wires 28 and 29, the former leading from coil 21, while the latter leads from the coil 22. Thus it will be seen as the crank 9 is turned the wires 28 and 29 will transmit an alternating current from the magneto to the magnet, thereby alternately energizing and deenergizing the coils 21 and 22 of the magnet, which will in turn alternately attract the armature-lever 24 and through the same, or rather the teeth 26 and 27 thereof, intermittingly advance the selector-disk 16 in a step-by-step movement. The said disk is prevented from backward movement by means of a ratchet-arm 30, substantially as seen in Fig. 2.

31 indicates a lever, pivoted at 32 in a suitable standard, supported on the shelf 3 and extending forwardly some distance, the front end passing through a vertically-movable spindle 31^a, reciprocally carried in the bearing 15. (See Fig. 4.) The end of this lever at predetermined intervals is adapted to close an electric circuit for ringing a call-bell. Said lever is controlled more or less by means of a forked lever 33, a portion 34 of which the lever is carried over, and the lever 33, through weighted extensions 35, is pivotally supported at 36 in standards 37, (omitted in Fig. 1 for the purpose of disclosing other features,) and said lever is provided with extensions 38, which when the poles of the magnet 20 are energized are alternately attracted to such poles for raising the forward end of the lever 31, to which is operatively connected a depending arm 39, the arm 39 being attached or secured in a suitable way to the upper end of the spindle 31^a, which insures it being simultaneously raised or lowered at the same time the lever 31 is raised or lowered. The lower end of the arm 39 rides above the revoluble selector-disk 16 to govern the downward movement of the spindle 31^a and the lever 31, which will drop a given distance when the magnet 20 is deenergized; but when the aperture 18 of the disk 16 is coincident with the arm 39 and the magneto is stopped, the arm will descend in the movement of the spindle 31^a and the lever 31 into the aperture

aforesaid of the disk, permitting the lever to drop a much greater distance and by so doing make a suitable contact with parts to be described as to complete an electric circuit with the call-bell of the party whose selector-disk and arm 39 are adjusted to the number of revolutions imparted to the magneto. To the pivotal point of the lever 31 is connected an electric wire 40, which at its opposite and is connected with the battery 5 at 41.

It will be understood as the magneto is revolved the coils 21 and 22 are alternately energized and deenergized in the manner specified, which will have a tendency, through the arms 38 of the lever 33, to raise the forward end of the lever 31. For example, if the selector-disk 16 and the arm 39 are adjusted to ten revolutions of the magneto 8 and the same is revolved only nine times when the magneto is released the lever 31 here shown would drop into a position with the lower end of the arm 39 resting on the face of the disk 16, causing the end of the lever 31 to engage with a contact-plate 42, supported by the shelf 3, and close a circuit 43, leading through a magnet 44, supported by the shelf 4, to the battery 5 at 46 and back to the lever through the wire 40. Closing a circuit through the magnet 44, it attracts an armature-lever 47, holding the same until the lever 31 is again raised by the action of the magnet for breaking the circuit through the wire 43. The actuation of the lever 47 moves the forward or upper end thereof through a slot 48 in a cylinder 49, supported by the wall of the casing 1, and into a notch 50 in a plunger 51, movable in the said cylinder, which will lock the position of the plunger and, as the lower end thereof is normally in juxtaposition to the receiver hook or lever, prevent the same from being raised on the removal of the receiver, so that it will be practically impossible for any one to break in on a line when in use except by the revolving of his magneto, when any or all who are using the line will be apprised of this fact, which will necessitate the readjustment of all the selector-disks. Also a party may first ascertain whether or not the line is in use by removing his receiver, and if his receiver-hook does not rise he may easily learn that the line is in use. Now if the magneto is revolved ten times it will indicate that No. 10 phone is desired. In this event all selector-disks except No. 10 will stop in positions with the arm 39 resting on the upper face of the disks for the purpose of locking the receiver-hooks, as has been described, while on No. 10 the disk will stop with its aperture in alinement with the lower end of arm 39, so that when the magnet 20 is deenergized the arm 39 of the lever will drop through the aperture 18 of the disk, carrying the lever down to a point where the end thereof will pass the contact 42 and engage a supple-

mental contact-plate 52, supported in the same manner as contact 42, but separated from the same by some suitable insulation, closing a circuit through a wire 53, leading to a contact 54 on the receiver hook or lever 10, which when the lever is in its lowermost position contacts with a contact 55, supported by the shelf 4, from which a wire 56 extends to a call-bell 57, connected by a wire 58 to the battery 5 at 46, the circuit being completed through the wire 40 from the battery 5 to the lever 31, as described. In the position just described the call-bell will continue to ring until the party called shall take down his receiver, when the contacts 54 and 55 will be separated by the raising of the lever 10 through the action of the spring 14. When through talking and the receiver is again replaced on its hook, the bell will ring until either the sender (whose duty it is) or receiver shall impart a few more revolutions to his magneto for the purpose of throwing the selector-disks to their initial positions.

The illustrations of the device are intended to show a system where twelve phones are arranged in a circuit. However, no limitation is placed on the number of phones which may be used in a circuit, so that thirteen turns of a magneto will impart one complete revolution to the selector-disks 16 through the armature-lever 24. The selector-disk, as well as the operative parts of the device here shown, are adjusted to ten (10) turns or revolutions of the magneto—that is, ten complete revolutions of the magneto will place the aperture 18 of the disk coincident with the lower end of the arm 39, adapting the arm 39 and its lever when the magnet 20 is deenergized to make its full drop to complete the circuit in the manner specified to the call-bell. It is intended that as each person uses a phone he will when finishing his talk revolve his magneto an additional number of revolutions to make a complete revolution of all the disks in the series. In this instance, as was stated, it will take thirteen turns of the magneto. On the completion of the full rotation of the disk the lug 19 thereof will engage with the upper free end of a bell-crank lever 59, pivoted to the shelf 3, the opposite end of which when the magneto is being actuated is held beneath a depending arm 60 of a crank which passes through the lever 31 and has its ends journaled in standards 61. (See Fig. 2; omitted in Fig. 1, so as to disclose other features.) The energizing of the magnet 20 and the lever 33 in raising the lever 31 will throw the arm 60 forward over the extension of the crank 59 (see Fig. 4) and lock the crank, so that the lug 19 of the disk will be prevented from passing; but upon stopping the magneto and again starting, the lug 19 of the disk will move past the bell-crank lever 59 before it can be prevented from doing so by the action of the arm 60 in en-

gaging the said crank, as in practice it has been found that the disks will move slightly quicker than the lever on starting.

Upon the attraction of the armature-lever 47 to lock the plunger 51 were some means not provided to release the same from the plunger immediately upon the deenergizing of the magnet 44 the said plunger would remain locked, and so to insure its returning to its normal position after the release of the magneto and the return of all parts to their normal positions I provide the spring 62, attached to the lower end of the lever 47 and to the side of the casing 1.

To overcome the locking of the receiver-hook of the party calling, means is contemplated which could be used to facilitate in holding the receiver-hook raised during the operation of a magneto; but this might prove impracticable, for the reason that the party calling might forget to adjust such a device, and thereby leave the line open. So in the present arrangement a party calling will raise slightly the receiver-hook of his phone until the desired number of revolutions have been imparted to the magneto to prevent the locking of his phone, all of which it is believed will be understood.

The position of phones on a wall or bracket is usually in such a position that a party desiring to use the phone naturally has to reach up, so that the position of the handle 9 would be normally as seen in Fig. 1, and a complete revolution would be construed to mean when the handle has been turned once to reassume the position shown, so that a person could hardly ever mistake the number of revolutions to be made, the parts operated by the handle being adjusted to such a position of the same.

It is obvious from the foregoing that various changes and modifications may be made in the present device without departing from the principle and scope of the invention, and I do not wish to be confined to the detail shown or described.

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

1. In a device of the class described, the combination of an electromagnet, a selector-disk provided with an aperture, an armature-lever adapted to be oscillated during the alternate energizing and deenergizing of the coils of the magnet, and provided with means for imparting a step-by-step movement to the disk, a lever pivotally supported at one end and having its opposite end in operative connection with an arm supported above the said disk, the said arm adapted to have an invariable movement at intervals when it en-

gages the face of the disk; and a variable movement also at intervals, said lever being actuated by the energizing of said magnet and the parts being so arranged that the said arm will pass through the aperture of said disk when the magnet is deenergized, and a magneto governing the movement of the disk according to the number of revolutions imparted to said magneto.

2. In a device of the class described, the combination of a receiver-hook, devices for locking said hook, a selector-disk for controlling said hook-locking devices, also a signaling-circuit, an electromagnet, a lever, and means for holding the lever raised upon the energizing of said magnet, and lowered when the magnet is deenergized, a regulating-stop in operative engagement with the lever and adapted to engage with the disk, and a magneto for energizing said magnet.

3. In a device of the class described, a selector-disk having an elongated aperture, an armature-lever for moving said disk, an electromagnet for energizing the said armature, means for energizing the magnet, a lever adapted to be controlled by the disk, contact-plates adapted to be engaged by the lever, one of such contact-plates in a circuit controlling a receiver-hook-locking device, and the other contact-plate in a circuit containing a signaling-bell.

4. In a device of the class described, a selector-disk having an elongated aperture, means for moving the disk in a step-by-step movement, a receiver-hook, a locking device for said hook, a lever, means for holding the lever raised at predetermined intervals, a contact-plate arranged in a circuit containing the receiver-hook-locking devices, and a stop regulated by the body of the disk and aperture therein for controlling the engagement of the lever with the contact-plate.

5. In a device of the character described, the combination of a toothed selector-disk for controlling a signaling-circuit, also the movement of a receiver-hook, a magnet, means actuated by the energizing of the magnet for moving the disk, two electric circuits, one containing the call-bell, the other locking devices for controlling the receiver-hook, means having a variable movement for closing both of said circuits at predetermined intervals, and means for energizing the said magnet.

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

ORRIS H. NEWMAN.

Witnesses:

ROBT. N. MCCORMICK,
CHAS. N. LA PORTE.