

J. A. & S. H. GELLER.  
TELEPHONE SYSTEM.  
APPLICATION FILED NOV. 4, 1907.

903,561.

Patented Nov. 10, 1908.

2 SHEETS—SHEET 1.

Fig. 1.

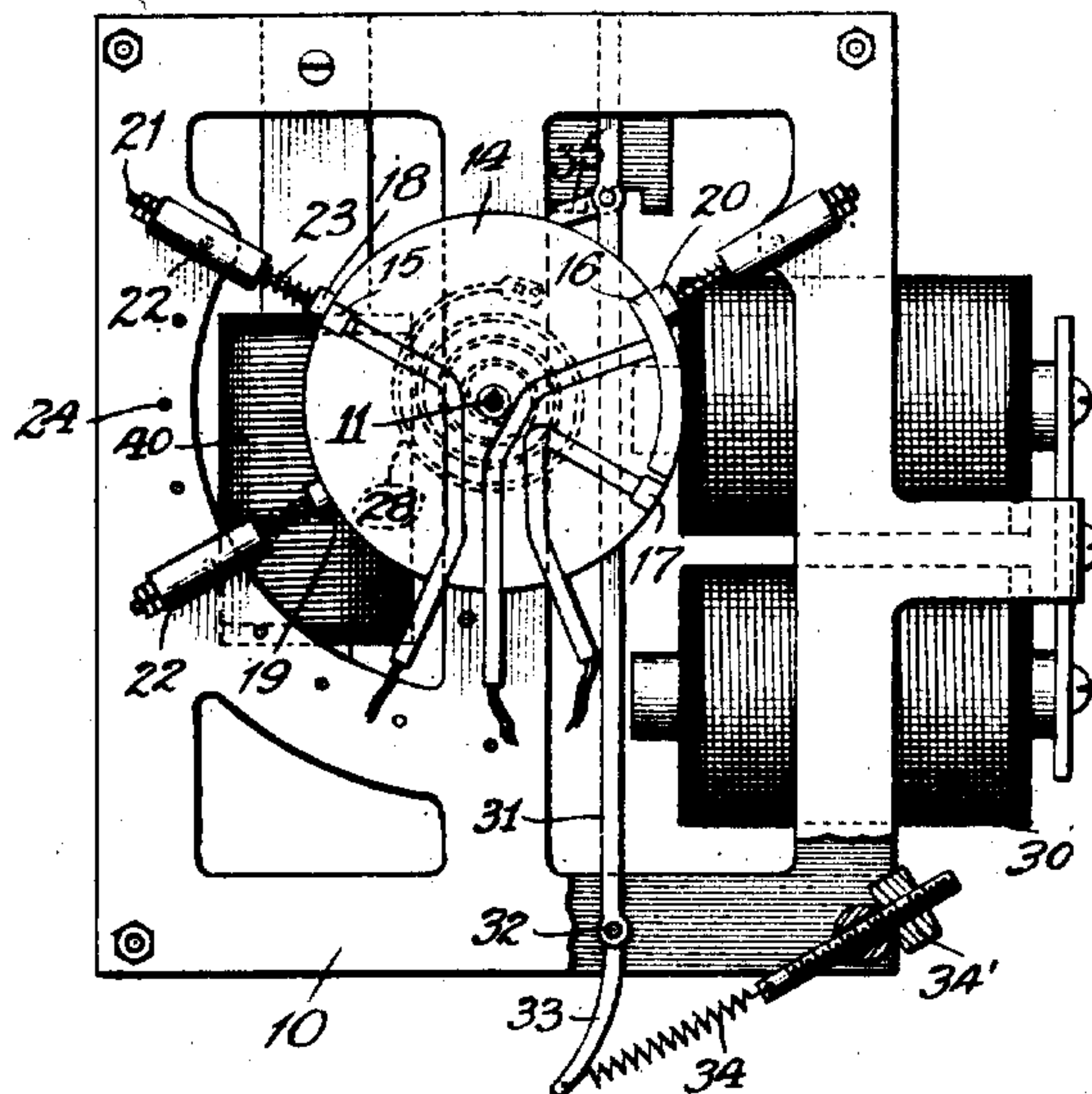
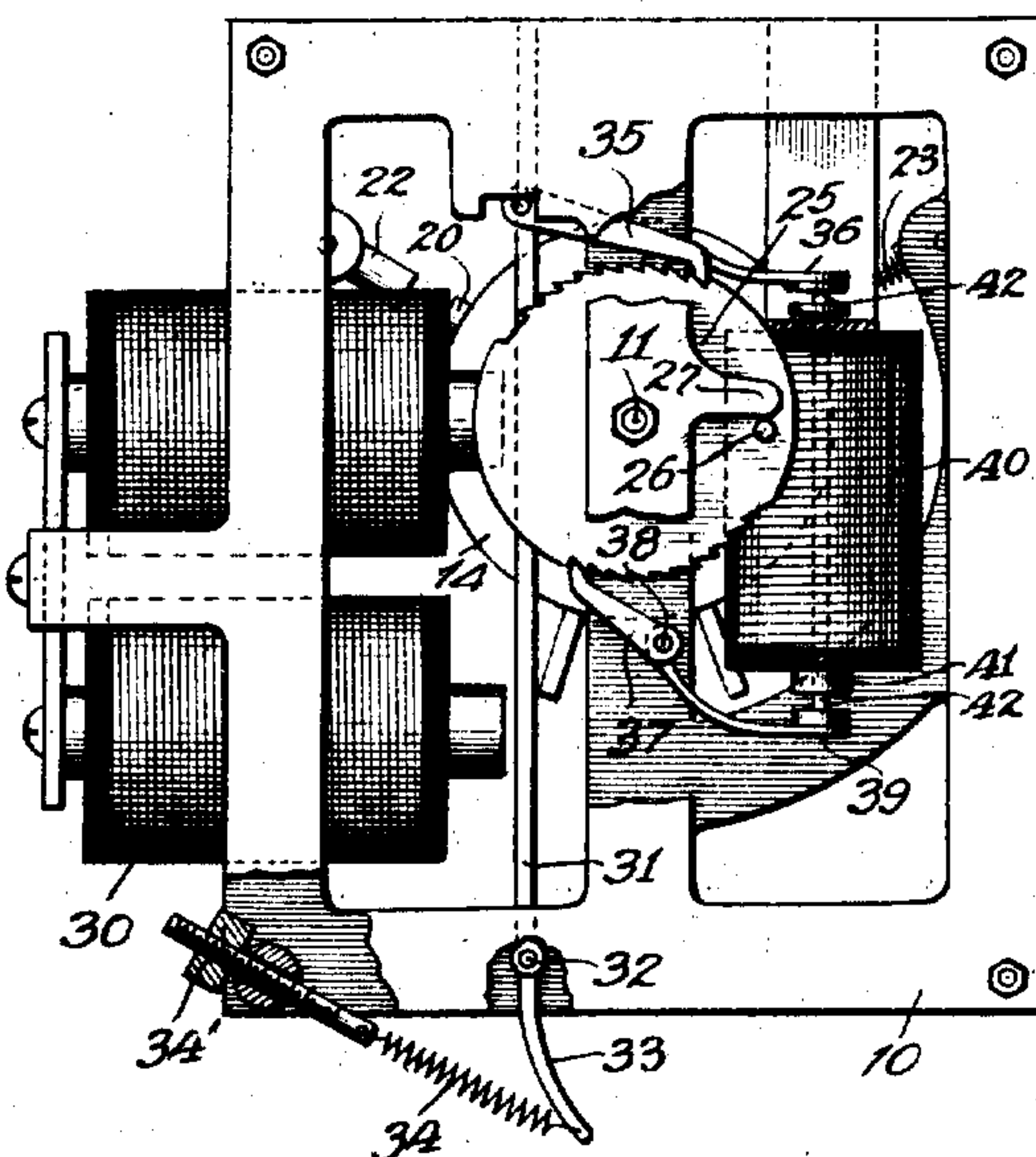


Fig. 2.



Witnesses  
Harry R. L. White.  
Ray White.

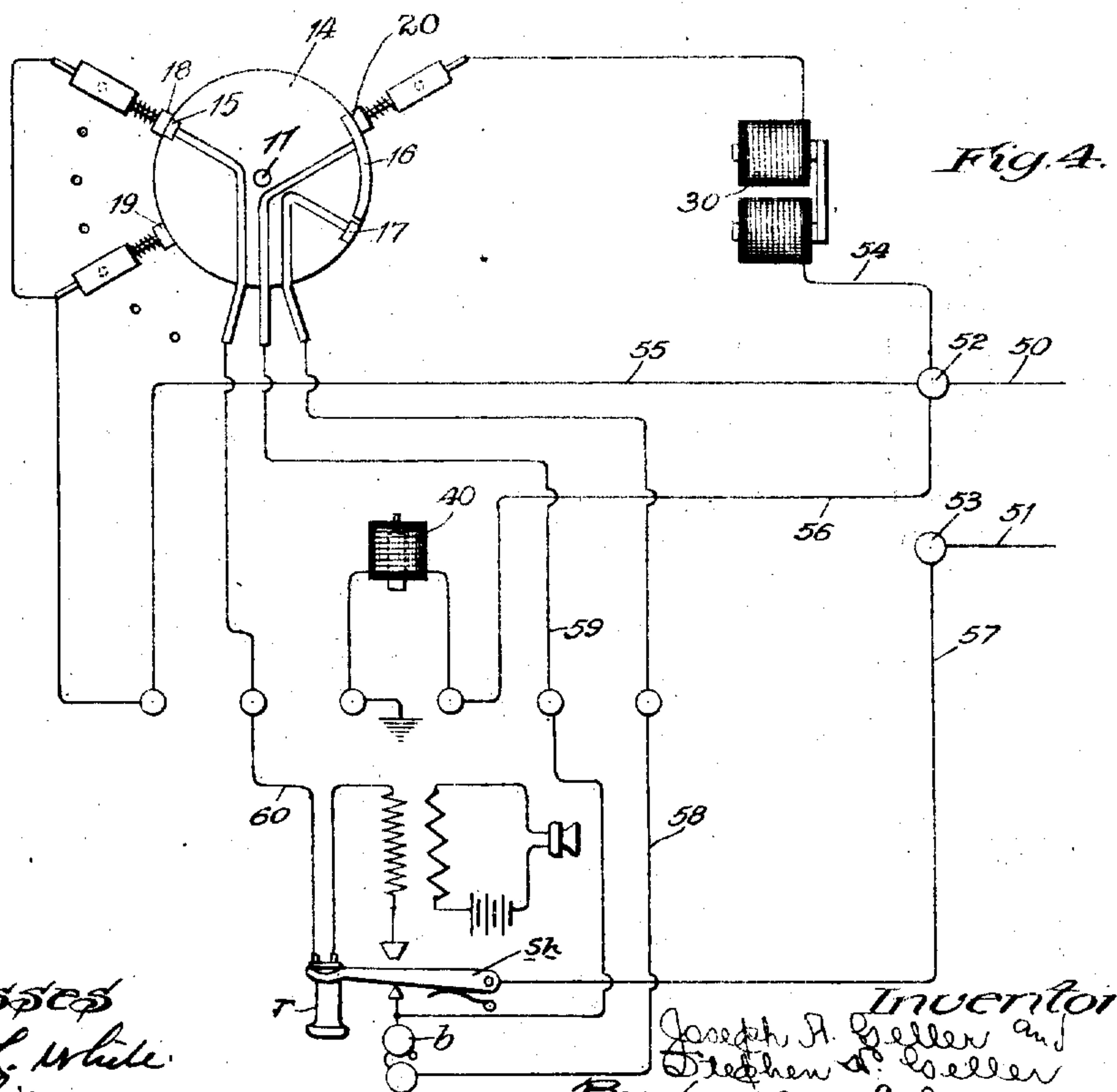
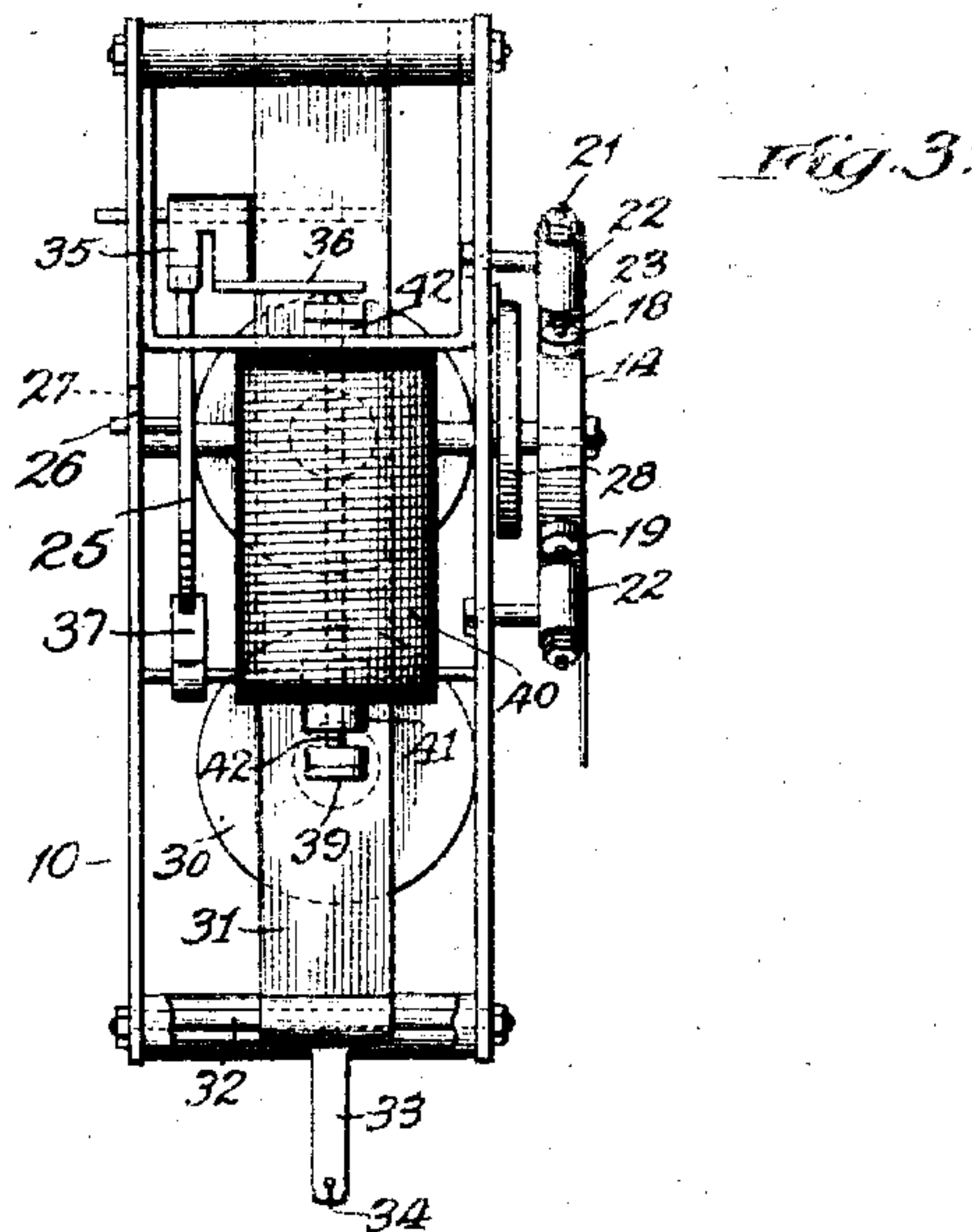
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2 SHEETS—SHEET 2.



Witnesses  
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Ray White.

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# UNITED STATES PATENT OFFICE.

JOSEPH A. GELLER AND STEPHEN H. GELLER, OF CHICAGO, ILLINOIS.

## TELEPHONE SYSTEM.

No. 903,561.

Specification of Patents Patent.

Patented Nov. 10, 1908.

Application filed November 4, 1907. Serial No. 400,487.

*To all whom it may concern:*

Be it known that we, JOSEPH A. GELLER and STEPHEN H. GELLER, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Telephone Systems, of which the following is a specification.

Our invention relates to improvements in telephone systems, and has for its primary object to provide a lock-out system for party lines, whereby on said line only the subscriber called will receive the signaling ring, and has his receiver connected for operation with the party line.

Another object of our invention is to provide simple and efficient mechanism for the purpose described, which will be cheap in construction, not liable to get out of order, easy of installation, requiring no disturbance of the ordinary line conditions and appliances, and which will not impede the voice currents in the line when a talking circuit is completed.

In the accompanying drawings, wherein we have illustrated an operative embodiment of our invention; Figures 1 and 2 are respectively front and rear elevations of the signaling apparatus with parts broken away; Fig. 3 is an end elevation thereof; and, Fig. 4 is a diagrammatic view indicating the wiring of our signaling devices in circuit.

Throughout the several views like numerals of reference refer always to like parts.

In the embodiment of our invention we provide in general contact parts fixed against rotation, which are respectively portions of the ringing and receiver circuits, movable contacts for coöperation with such stationary contacts only under predetermined conditions, for selective purposes, electro responsive devices for actuating the movable contacts, and electrically operated releasing means for restoring the contacts to normal or initial position.

In the specific embodiment shown 10 indicates in general a frame, wherein is mounted a shaft 11, bearing, on what we may term the front side of the frame, a rotative contact carrier, such as a wheel 14, preferably of insulating material, and having suitably fixed thereon three contacts, to-wit, a single contact 15 for connection in the talking circuit, an elongated or multiple contact 16 of suitable extent for the particular installation, adapted for connection in an operating

circuit, and a single contact 17 insulated from but immediately following contact 16 with reference to the direction of rotation of the wheel, adapted for connection in the ringing circuit.

Associated with the frame for bearing on the wheel are three non-rotative contacts, one of which, indicated at 18, makes normal contact with the moving contact 15, while a second contact 19 stands at a determined distance from said contact 18, to receive contact 15 when the parts are in position assumed when the corresponding subscriber is called; and the third contact 20 is arranged for normally bearing upon the elongated movable contact 16. The arrangement is such that at the contact 15 moved from coaction with contact 18 to coaction with contact 19, the contact 16 passes from beneath contact 20, and contact 17 comes into register and connection with said contact 20. The contacts 18, 19 and 20, may all be of similar construction and arrangement, each being preferably yielding in character, to such end being mounted on a stem 21 sliding in a sleeve 22, suitably secured to the frame, and maintained by a spring 23 in yielding engagement with the periphery of the wheel 14. For convenience of adjustment of the device to the use of the particular subscriber, sleeve 22 for contact 19 is removably mounted on the frame in one of a series of apertures 24, provided for the purpose in arcuate arrangement with respect to the axis of wheel 14.

Upon the shaft 11 is also mounted a ratchet wheel 25, preferably bearing a stop 26, for engagement with a stud 27 to prevent backward rotation of the ratchet past a definite point, at which the contacts will occupy the positions shown in Fig. 1, and normal maintenance of the parts in such position is insured by the provision of a spring 28 at one end secured to the shaft 11 and at its other end secured to the frame, as indicated in dotted lines in Fig. 1.

The actuating mechanism for the wheel 25 consists of an electro magnet 30, controlling an elongated armature 31 pivoted as at 32 to the bottom of the frame, and having a lower extension 33 to which is secured a spring 34 adjustable by a tension nut 34' for maintaining said armature normally out of contact with the magnet pole. The upper end of the armature carries a pawl 35, which engages the teeth of ratchet 25 with gravity action, said pawl being provided with a projection



36 extending into suitable proximity to the release magnet to be described.

A detent 37 is preferably provided for engagement with the ratchet, such detent being pivoted in the frame as at 38 and provided with an arm 39 extending below the arm 36 into suitable association with the release magnet.

The release magnet 40, is preferably made in the form of a solenoid having a core 41, connected by a suitable spindle 42 with the arm 39 of detent 37, the spindle 42 extending upward through the center of the coil into contact with the under surface of the arm 36, so that in normal condition when the release magnet 40 is deenergized the weight of its core maintains detent 37 in engagement with the ratchet, while the depression of spindle 42 permits the engagement of pawl 35 with said ratchet. In operation it will be apparent that at each time the operating magnet 30 is energized it attracts its armature 31 drawing the pawl 35 into engagement with the first tooth of the ratchet, and as the magnet becomes deenergized the spring 34 returns the armature to initial position forcing the ratchet 25 and correspondingly the contact wheel 14, ahead one step, detent 37 engaging the ratchet to prevent return of the parts with the next attraction of the armature. Such advancement of the ratchet 11, however, puts the spring 28 under tension, tending to return the parts to normal position. Consequently when the release magnet 40 is energized, so that the movement of its core 41 raises arms 39 and 36, lifting both the pawl 35 and detent 37 out of engagement with the ratchet 25, the latter returns to initial position where the stop 26 engages the abutment 27 upon the frame.

It will be apparent to those skilled in the art that other electro-mechanical devices might be used to impart the step by step movement to shaft 11, and to secure its return when released.

The device constructed as described is wired in circuit as shown in Fig. 4, wherein 50 and 51 indicate line wires entering terminals 52 and 53 respectively, terminal 52 having connection by wire 54 through the operating magnet 30 to contact 20, a second connection through wire 55, with both of the contacts 18 and 19 and a third connection, by wire 56 through the release magnet 40 to ground. The remaining terminal 53 has wire connection 57 with the switch hook *s h* of a usual telephone set whose lower contact has two connections, one through the bell *b* and wire 58 to the movable contact 17, and the other through a short-circuiting operating wire 59 direct to the elongated movable contact 16. The upper contact of the transmitter has usual connection through the receiver *r* by wire 60 to the movable contact 15.

It will now be understood, that, assuming the station under consideration to be No. 3 on the party line, the contact parts are so arranged that when three impulses of direct current are sent through the operating magnet 30, and the contact wheels are correspondingly advanced three steps, the contact 17 at station 3, will be brought beneath contact 20, and contact 15 will move forward to engagement with contact 19. Now it will be understood that, assuming the central station to be equipped with means for transmitting either direct or alternating current over line 50, and with means for grounding line 50 through a source of current supply, that the apparatus may be operated as follows;

Assuming that subscriber number 3 is to be called, the central operator transmits three direct impulses over line 50, which pass from line 50 through the circuit 54, 30, 20, 16, 59, *s h*, 57, to return wire 51, so that the operating magnet 30 is energized three times and the wheel 14 is advanced to the position heretofore described, in which contacts 17—20 and contacts 15—19 register. Now alternating current transmitted over line 50 takes the path 54, 30, 20, 17, 58, bell *b*, *s h*, 57, 51, so ringing the subscriber's bell. No other subscriber receives the ring for the reason that it requires either more or less of three impulses to bring the contact wheel of any other subscriber to such position that the effective contacts 15—19 and 17—20 described are made. Now when the subscriber removes his receiver from the hook *s h*, the talking circuit is established from wire 50 by wire 55, contacts 19—15, wire 60 through the receiver to the switch hook and back to the line 51, while obviously all other receiver circuits of the party lines are broken and listening in is, therefore, impossible.

To restore the parts to normal position the operator merely grounds line 50 through the battery so causing the grounded magnet 40 to become energized, and by attracting its armature, to release the parts and permit an automatic restoration of the signal wheels to normal position.

While we have herein described in some detail a specific embodiment of our invention, which we believe to be new and advantageous, it will be apparent to those skilled in the art that changes might be made in the specific structure without departure from the spirit and scope of our invention.

Having thus described our invention, what we claim and desire to secure by Letters Patent, is:

1. The combination with a telephone line, of a controlling mechanism for the signaling and receiving circuits, comprising a movable contact carrier, having suitable contacts thereon for completing the operating, signaling



and receiving circuits, at predetermined points only, an operating circuit bridged across the line excluding the signaling devices and normally closed through contacts on said controlling mechanism, and electro responsive means in said bridge for actuating said contact carrier to coincidentally close the receiver and ringing circuits at a predetermined point.

2. A selective apparatus for connection with a telephone system comprising a rotatable contact carrier, three contacts thereon, for connection with the talking circuit, the ringing circuit and an operating circuit respectively, and three stationary contacts, two for cooperation with the talking circuit contact on the carrier, and one for coaction with both the operating circuit and ringing circuit contacts of the carrier.

3. In a lock-out appliance for telephones, a rotatable contact carrier, a contact part thereon for connection with the receiver circuit, an elongated contact thereon for connection with an operating circuit, a contact point immediately following said elongated contact, for connection with the ringing circuit, stationary contacts normally coacting with the first two said movable contacts, and a second stationary contact for the receiver circuit contact, arranged for coaction therewith when the ringing circuit movable contact is in association with the coacting stationary contact, and means for rotating said contact carrier comprising an electro magnet connected with the stationary contact, which normally coacts with the operating circuit contact.

4. In combination with a telephone circuit, a controlling mechanism comprising stationary and movable contacts for the signaling, operating, and talking circuits, an electro responsive actuating means for the controlling mechanism included in an operating circuit, a releasing means for the controlling mechanism, and a magnet therefor in a circuit not controlled by said controlling mechanism.

5. A selective apparatus for connection with a telephone system comprising a movable contact carrier, means for imparting a step by step movement thereto including an electro responsive actuator, a contact part on said carrier for connection with a circuit of the customary telephone set, another contact on said carrier for connection in circuit with the electro responsive actuator, a stationary contact in the said circuit for the telephone set, arranged in advance of the normal, initial position of the cooperating movable contact, and a stationary contact for connection in the actuator circuit, the contacts for the actuator circuit being arranged to operatively close said actuator circuit through every step of the carrier until the circuit of the telephone set is closed by movement of such carrier.

In testimony whereof we hereunto set our hands.

JOSEPH A. GELLER.  
STEPHEN H. GELLER.

In the presence of—  
GEO. T. MAY, Jr.,  
MARY F. ALLEN.