

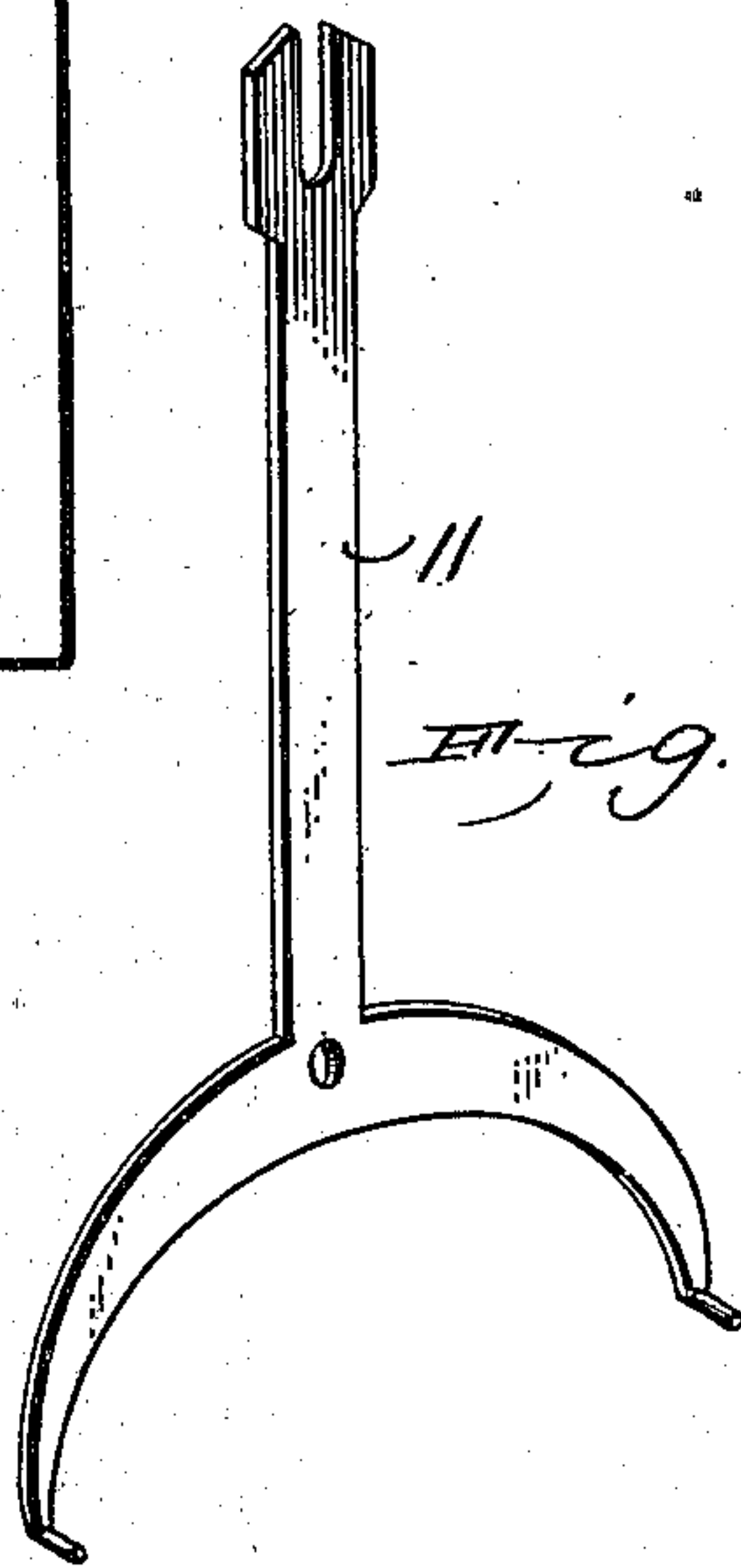
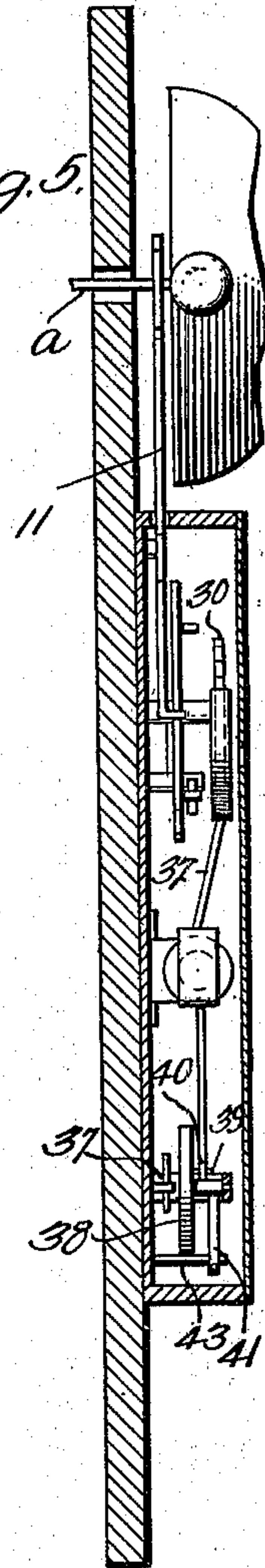
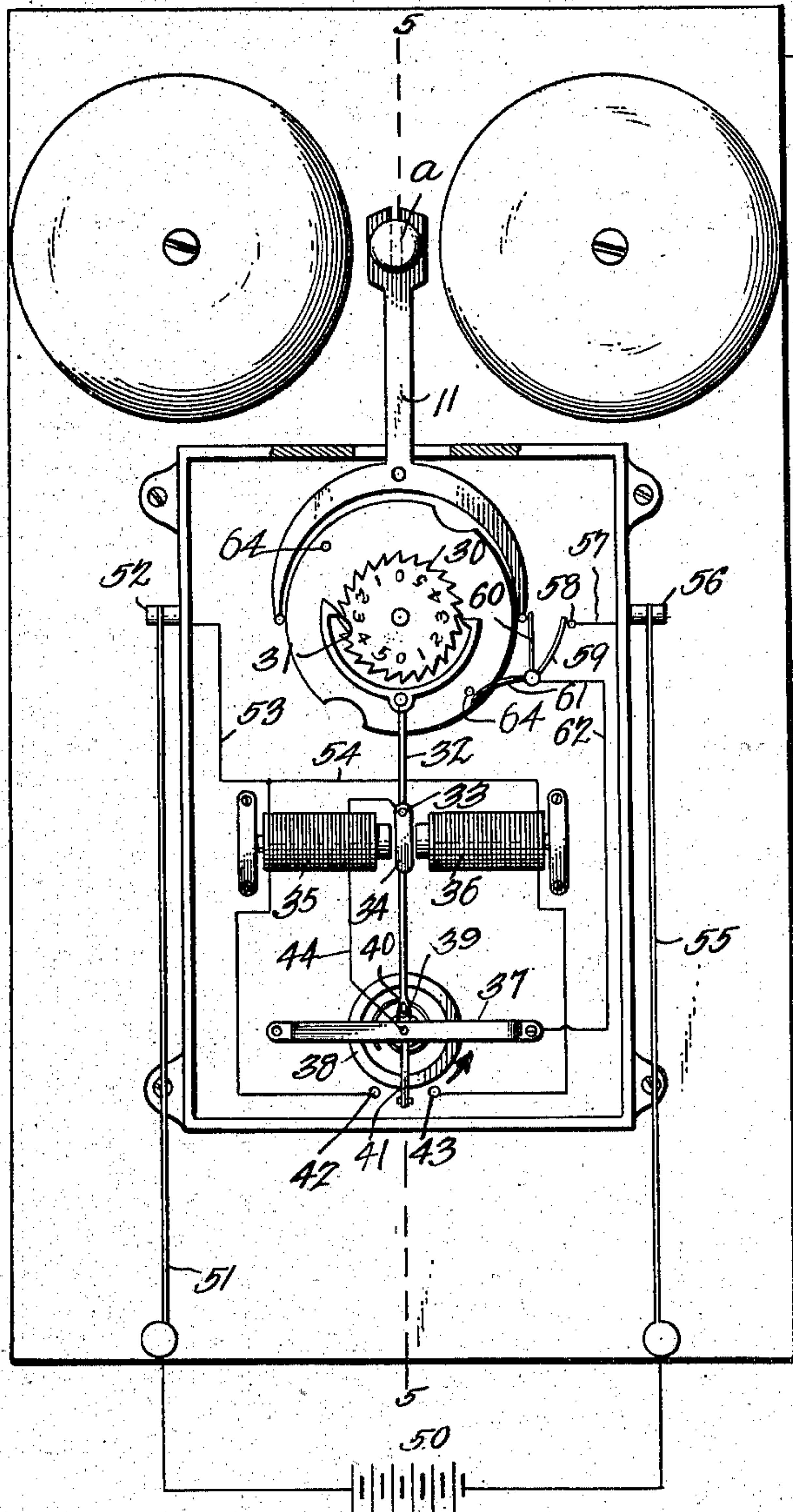
No. 736,249.

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B. HAMILTON.
TELEPHONE SELECTING DEVICE.
APPLICATION FILED NOV. 17, 1902.

NO MODEL.

2 SHEETS—SHEET 2.



Witnesses
E. H. Shwab
Jno C. Parker

B. Hamilton, Inventor.
by *C. A. Snow & Co.* Attorneys

UNITED STATES PATENT OFFICE.

BURNETT HAMILTON, OF LAWRENCE, KANSAS.

TELEPHONE SELECTING DEVICE.

SPECIFICATION forming part of Letters Patent No. 736,249, dated August 11, 1903.

Application filed November 17, 1902. Serial No. 131,685. (No model.)

To all whom it may concern:

Be it known that I, BURNETT HAMILTON, a citizen of the United States, residing at Lawrence, in the county of Douglas and State of Kansas, have invented a new and useful Telephone Selecting Device, of which the following is a specification.

The invention relates to certain improvements in selecting devices for electric signaling whereby one person may sound the call-bell or other alarm at any station along a line, and is particularly adapted for use in connection with telephone systems where a number of telephones are arranged on a party-line.

In the ordinary bridging-bell systems a calling subscriber rings the call-bell of every telephone on the line; and the object of the present invention is to provide a selecting device by means of which any one subscriber may call up any other subscriber on the line without sounding the call-bells of the remaining subscribers.

A still further object of the invention is to provide a device of this character in the nature of an attachment which may be placed in position on any ordinary telephone without any change whatever in any part of the signaling or talking circuits or in the construction of the call-bell.

A still further object of the invention is to provide an attachment of simple and economical construction, of low initial cost, and which may be placed in position by an inexperienced person and thereafter maintained without any expense whatever.

With these and other objects in view 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, proportions, size, and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is an elevation of an attachment for an electric signaling system constructed in accordance with my invention, a portion of the casing being shown in section. Fig. 2 is a longitudinally sectional elevation on the line 2 2 of

Fig. 1. Fig. 3 is a detached perspective view of a structural detail. Fig. 4 is a view similar to Fig. 1, illustrating an apparatus of somewhat-modified construction in which a current of electricity is employed as the actuating medium. Fig. 5 is a longitudinal sectional elevation of the same on the line 5 5 of Fig. 4. Fig. 6 is a detached perspective view of the detail more specifically referred to hereinafter.

Similar numerals and letters of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

The device forming the subject of the present invention may be used in connection with any class of electric-bell systems in which a number of bells are connected in series and in the drawings is illustrated as employed in connection with the ordinary call-bell of a bridging-bell telephone, the bell being of the usual construction and provided with a polarized armature to which is secured a clapper-rod A.

The various portions of the mechanism are arranged within a suitable casing 1 of any desired contour and preferably provided with a number of perforated ears 2, through which screws may be passed to secure the attachment in position, this being all that is necessary to apply the device to any ordinary telephone. Within the casing are bearings for a main arbor 3, which may be rotated through a suitable train of gearing 4 from a spring 5, the whole forming an ordinary clock-train and the movement being governed by means of an escapement 6 and spring-balance 7 of ordinary character. On the main arbor is secured a disk 8, provided with peripheral notches 9 at diametrically opposite points and with a second set of locking-notches 10, also disposed at diametrically opposite points, the latter notches being adapted for engagement with a pin 10', carried by one arm of a bifurcated lever 11, which is pivoted on a stud 12 at a point within the casing. The opposite arm 13 of the lever 11 is provided with a projecting pin 14, carrying a small spring 15 for engagement with pins 16, projecting from the face of the disk 8, one or other of said pins engaging the spring immediately before the disk is moved to locking position and the

spring serving partly to retard or check the momentum of the disk and to force the pin 10' against the periphery of said disk to insure its entrance into one of the locking-notches 10 when the latter arrives at the proper point. The outer end of the arm 11 projects through a suitable slot in the casing and at its outer end is recessed, as indicated at 17, for the reception of the bell-clapper A, the construction and relative arrangement of the parts being such that when the pins 10 and 14 are opposite any portion of the periphery of the disk 8, with the exception of the notched portions 9, movement of the bell-clapper to an extent sufficient to make contact with the bells will be prevented.

Near the outer end of the arbor 3 is secured an indicating-disk 18, bearing numerals or other data designating the positions of the notches 9, and these notches will be located opposite different numerals or at different angular distances from the notches 10 in each attachment. The indicating-numerals are exposed through a visual opening 19 in the front of the casing.

In the operation of the attachment a calling subscriber energizes the calling-circuit by turning the magneto-generator in the usual manner, the electromagnets of each bell in the line being simultaneously energized and the bell-clappers A vibrated. The vibration is limited and not in any case sufficient to allow the bell-clapper to come into contact with the bells; but in each case the movement is sufficient to move the locking-pin 10' from the notch with which it is in engagement and permit the actuating-spring to revolve the disk 8 and indicating-disk 18. All of the disks along the line are set into operation simultaneously and all revolve at precisely the same speed, so that if no other current is sent along the line the disks will continue to rotate until one of the pins 16 strikes the spring 15 and partly retards the movement of the disk and at the same time forces the locking-pin 10' against the periphery of said disk. When the pin 10' enters the next locking-notch, the disk will be again firmly locked in position after a movement to the extent of one-half of a revolution. The notches 9, as before stated, are disposed at different angular distances from the locking-notches 10, and the calling subscriber by watching the indicating-dial 18 is informed by the position of his dial of the arrival of the notches 9 at points opposite the pins 10' and 14 of the subscriber which he desires to call. The calling subscriber then energizes the line by his magneto-generator or by closing the circuit with any other source of electrical energy and again starts the vibration of the bell-clapper A. As the notches 9 are at this time opposite the pins 10' and 14 of the subscriber to be called, the lever 11 is free to vibrate to an extent sufficient to permit contact of the clapper with the bells, while the corresponding notches of

other subscribers along the line are at different points, and free movement of the levers and clapper-rods is prevented.

In the device shown in Figs. 1, 2, and 3 the motor is a spring which must be rewound at intervals, and to prevent any false or partial movement of the disk from a spring nearly relaxed or unwound I employ a stop-lever 20, pivoted to the casing and provided with a shoe or stud 21, adapted for contact with the outer portion of the spring. At the end of this lever is a shoulder 22, adapted to engage a pin 23, projecting from the disk 8, the arrangement of parts being such that when the spring is unwound the lever will be raised and the shoulder 22 moved into engagement with the pin 23 in such manner as to lock the disk 8 in position with its notches 9 opposite the pins 10' and 14, permitting any other subscriber along the line to call a subscriber whose spring has run down, while the position of the indicator will at once call the attention of the subscriber to the fact that the spring needs rewinding, such rewinding being compulsory before his indicating-disk can move to show the positions of the remaining indicating-disks on the line. The mechanism is of such character that the failure to rewind any one of the actuating-springs will not interfere with the use of the remaining instruments on the line, nor will the breakage or disarrangement of any one instrument interfere with the others, nor is it necessary that every subscriber on the line be supplied with a device of this character, although this is desirable in order to prevent the accidental ringing of the bells of telephones provided with the attachment.

While it is desirable for the sake of economy to employ a spring as motive power, the device may be operated by an electric current and for this purpose provided with an electromagnetically-propelled disk connected with the battery of the talking-circuit or with an auxiliary battery or other source of electrical energy.

In Figs. 4, 5, and 6 I have illustrated an apparatus in which the disk is propelled by an electric current, and in these figures the disk, pivoted clapper-engaging lever, and similar parts are designated by corresponding reference-numerals. To the disk-arbor is secured a disk 30, having on its periphery a continuous series of angular teeth adapted to be engaged by teeth 31, disposed on the bifurcated ends of an armature-carrying lever 32, which is pivoted at 33 and vibrated to bring the teeth of the arms into engagement with those of the disk and effect a step-by-step rotative movement of said disk in order to rotate the notched disk which controls the movement of the lever 11. The lever 32 is provided with an armature 34, disposed between the poles of two pairs of electromagnets 35 and 36, which are energized alternately to vibrate the lever 32 and effect the step-by-step movement of the disks. At a point below the electro-

magnets is a frame 37, having bearings for the arbor of a balance-wheel 38, having a roller-jewel 39, with which engages a fork 40 at the lower end of the armature-lever 32, the balance-wheel serving to govern the movement of the armature-lever and to alternately close the circuit through the two electromagnets. To the arbor and the balance-wheel is secured a switch-lever 41, movable alternately into contact with switch-points 42 and 43, and from said switch-lever extends a conducting-wire 44, leading to the pivot-point of the armature-lever, the armature, armature-lever, and roller-jewel forming a connecting-conductor leading to the frame 37. In Fig. 4, 50 designates a source of electrical energy, which may be the battery in the primary circuit of the transmitter, and from one pole of the battery leads a wire 51 to a binding-post 52 on the side of the casing of the attachment. The binding-post 52 is connected by wires 53 and 54, leading, respectively, to the coils of the electromagnets 35 and 36 and thence to the switch-points 42 and 43. The opposite pole of the battery 50 is connected by a conducting-wire 55 to a binding-post 56, from which leads a wire 57 to a switch-point 58, arranged adjacent to a pivoted switch-lever 59, having an arm 60 in the path of movement of one arm of the lever 11, and this switch-lever is connected by a wire 62 to the frame 37. When the main-line wire is energized by turning the magneto-generator, the clapper is vibrated, but, as before, is prevented from moving to an extent sufficient to make contact with the bells. The movement forces the switch 59 into contact with the switch-point at the terminus of the wire 57, and if the balance-wheel switch 41 be at this time in contact with the switch-point 42 a circuit will be established from the battery 50 through conductor 51, binding-post 52, wire 53, electromagnet 35, switch-point 42, switch 41, conductor 44, armature-lever 32, the balance-wheel, frame 37, conductor 62, switch 59, conductor 57, binding-post 56, and conductor 55 to battery. The electromagnet 35 being thus energized attracts the armature 34 and moves the armature-lever in such manner as to make a partial movement of the toothed disk 30. At the same time the balance-wheel is moved in the direction of the arrow, and the switch-lever 41 is shifted to the opposite position in contact with the switch-point 43. This results in the closing of the circuit through the electromagnets 36, and the armature is attracted in the opposite direction. This movement is kept up until the calling subscriber by watching his indicator ascertains that the notches 9 in the instrument attached to the telephone which he desires to call are in proper position, and he then again turns the magneto-generator and rings the bell of the subscriber. All of the disks are stopped in the same position by means of pins 64, secured at diametrically opposite points to the notched disk and adapted to engage an arm

61 of the switch 59. This operation occurs simultaneously in all of the instruments, and the several local circuits are immediately broken, when the vibratory movement of the armature-lever ceases.

Having thus described my invention, what I claim is—

1. The combination with an electrical signaling system including an alarm member having a movable element, of a normally locked disk having peripheral notches, a locking-lever for holding both the disk and the movable element of the alarm, said locking-lever being movable to disk-releasing position by the initial movement of said movable element, and means for rotating said disk.

2. The combination with an electric signaling system, of a call-bell, a clapper-rod, and a selecting mechanism having a locking member for engagement with the clapper-rod and movable by an impulse of said clapper-rod to releasing position.

3. The combination with an electric signaling system including an electromagnetic call-bell, of a selecting attachment having a movable lever embracing the clapper-rod of the bell, a revoluble disk normally held in locked position by said lever, said disk having peripheral notches for permitting vibratory movement of the lever, and means for actuating the disk.

4. The combination with an electric signaling system including a call-bell, of a selecting attachment having a member adapted to engage the clapper-rod of the bell and prevent operative movement thereof, a normally locked motor mechanism of which said member forms the locking element, and means for governing the speed of rotation of said motor mechanism.

5. The combination with an electric signaling system including a call-bell, of a pivotally-mounted lever embracing the clapper-rod, normally locked mechanism for limiting the movement of said lever, and means for effecting the release of said mechanism by an initial movement of the clapper-rod.

6. The combination with an electric signaling system including a call-bell, of an arm or lever engaged with the clapper-rod and vibrating therewith as the clapper-rod is actuated, and a clapper-released mechanism for limiting the vibratory movement of said arm or lever.

7. The combination with an electric signaling system including a call-bell, of a pivoted lever engaging and vibrating with the bell-clapper, a revoluble disk for limiting the vibratory movement of the lever and normally locked from rotative movement by said lever, the lever being movable to disk-releasing position by an initial effort of the clapper-rod, and means for rotating said disk.

8. A selecting attachment for signaling systems, comprising a clapper-rod, a clapper-rod-engaging lever, a notched disk normally holding said lever in locking position, and means

operable by an initial effort of the clapper-rod for moving the lever to disk-releasing position.

9. A selecting attachment for electric signaling systems, comprising a pivoted lever adapted to engage a call-bell clapper-rod and prevent the latter from moving to an extent sufficient to sound an alarm, a normally locked disk having peripheral notches for permitting vibratory movement of the lever, means for revolving said disk, and means operable by an initial movement of the clapper-rod for permitting the movement of said disk.
10. A selecting attachment for electric signaling systems, comprising a casing, a motor mechanism contained therein, a revoluble disk having diametrically opposed peripheral notches, a bifurcated lever having pins adapted to enter said notched portions of the disk, said lever having a clapper-rod-engaging portion and being movable by an initial effort of the clapper-rod to permit the revoluble movement of the disk.
11. A selecting attachment for electric signaling systems, comprising a casing, a motor mechanism contained therein, a notched disk connected to the motor mechanism, a pivotally-mounted bifurcated lever having a clapper-engaging portion, pins carried by the bifurcated arms of said lever and adapted to enter the notched portions of the disk to permit operative movement of the bell-clapper, and means actuated by the bell-clapper for permitting revoluble movement of said disk.
12. A selecting attachment for electric signaling systems, comprising a casing, a motor mechanism contained therein, a notched disk revoluble by the motor mechanism, a pivotally-mounted bifurcated lever having a clapper-engaging portion, pins carried by the bifurcated arms of said lever and adapted to enter the notched portions of the disk to permit operative movement of the bell-clapper, locking-notches also formed in said disk and adapted to be engaged by one of the pins, pins projecting from the face of the disk, and a spring carried by one of the bifurcated arms

and adapted to successively engage said pins to thereby insure the entrance of the locking-pin to the locking-notch of the disk.

13. A selecting attachment for electric signaling systems, comprising a containing-casing, a spring-motor mechanism therein, a notched selecting-disk revoluble by the motor mechanism, a clapper-engaging lever adapted for engagement with said notched disk, and means operable on the unwinding of the spring for locking and holding said disk in position to permit operative movement of the clapper-engaging lever.

14. A selecting device for electric signaling systems, comprising a revoluble disk governing the operative movement of the alarm or other mechanism, a motor-spring for revolving said disk, and means operable on the unwinding of the spring for engaging and holding said disk in position to permit operative movement of said alarm.

15. A selecting device for electric signaling systems, comprising a revoluble disk governing the operative movement of the alarm or other mechanism, an indicating-dial for displaying the position of the disk, a spring-motor for revolving the disk and dial, and means operable on the unwinding of the spring for preventing operative movement of the disk and dial until the rewinding of the spring.

16. A selecting device for electric signaling systems, comprising a revoluble disk governing the operative movement of the alarm or other mechanism, a motor-spring for revolving said disk, a pin carried by the disk, and a pivoted lever adapted to engage said pin and provided with a spring-engaging shoe or lug to thereby permit the engaging movement of the lever and pin on the unwinding of the spring.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

BURNETT HAMILTON.

Witnesses:

M. A. GORRILL,
MYRTLE MCCONNELL.