

No. 774,059.

PATENTED NOV. 1, 1904.

J. W. FOUCHE.

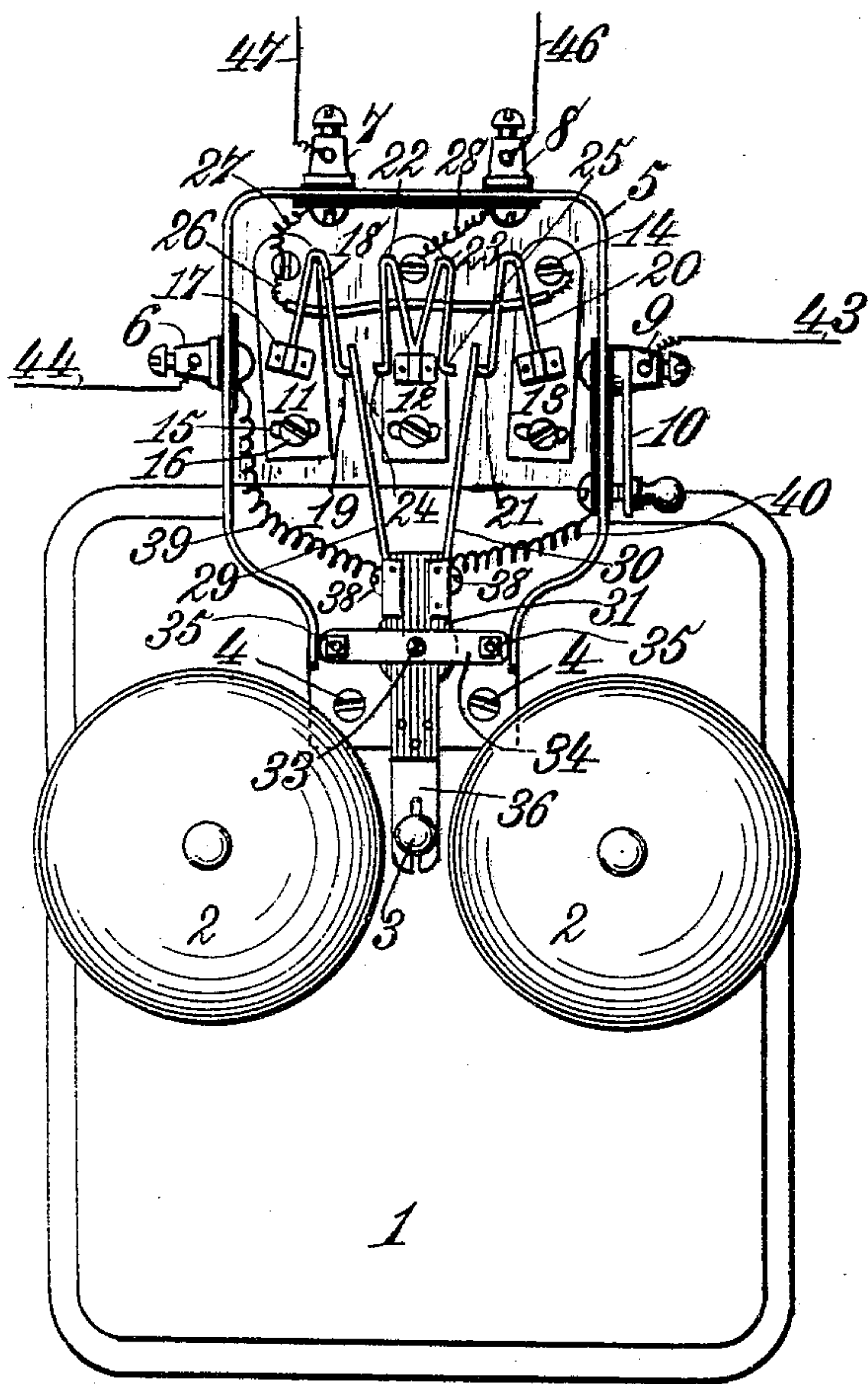
ELECTRICAL ALARM FOR TELEPHONE CALL BELLS.

APPLICATION FILED MAY 2, 1904.

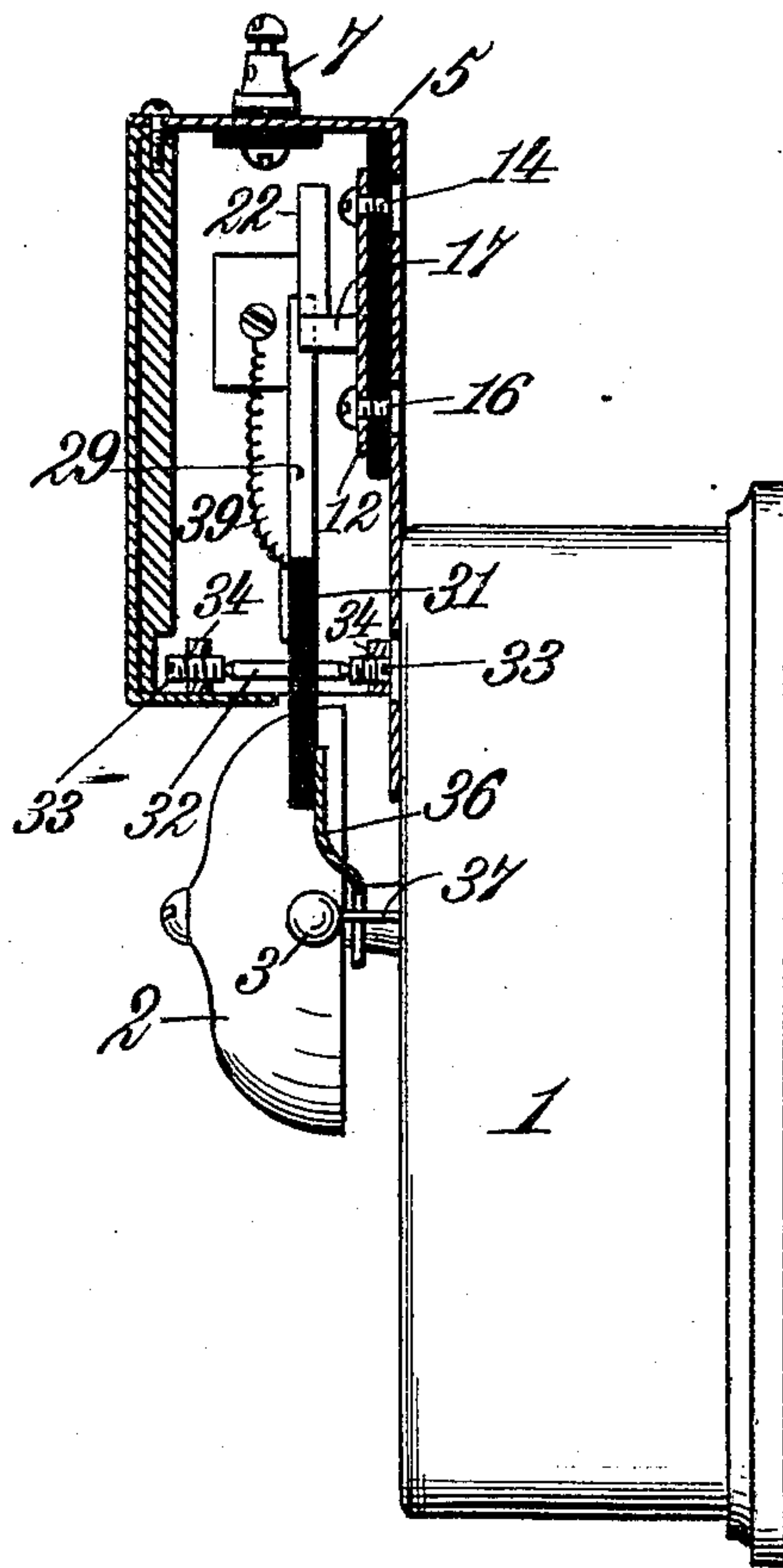
NO MODEL.

2 SHEETS—SHEET 1.

*Fig. 1.*



*Fig. 2.*



Witnesses:  
Robert Everett.  
James L. Norris, Jr.

Inventor:  
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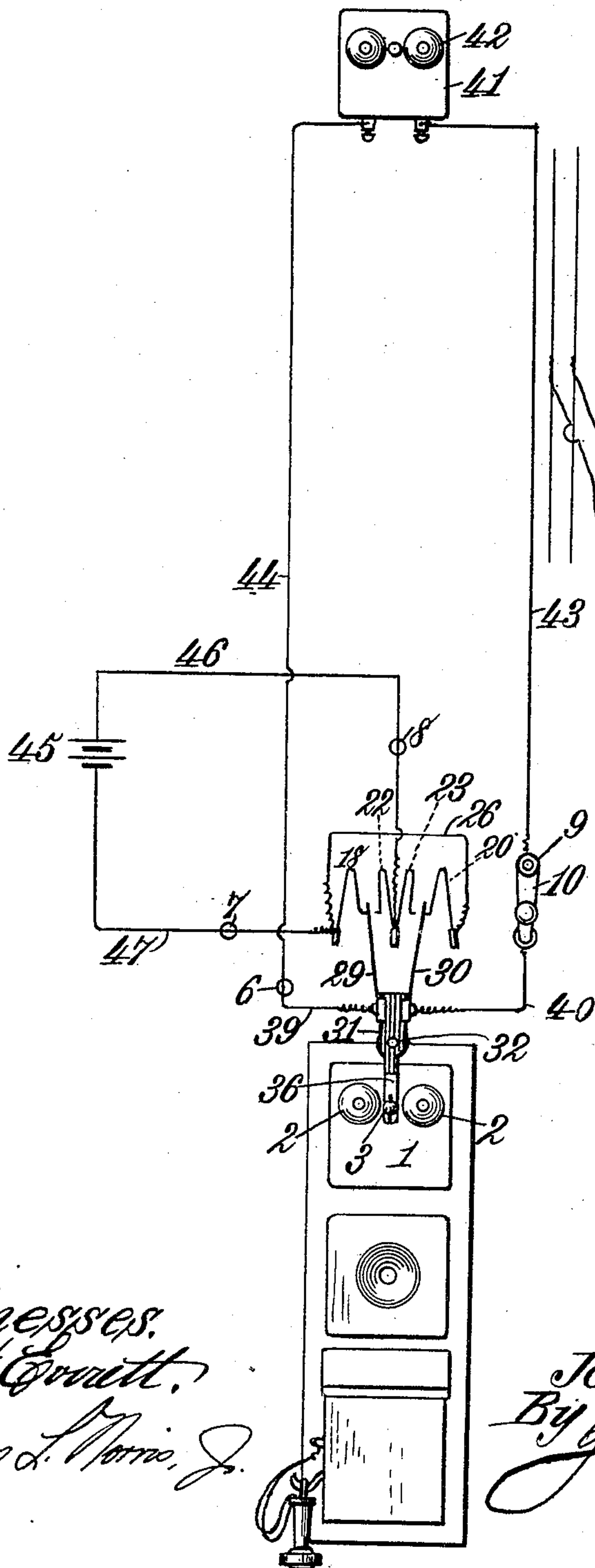
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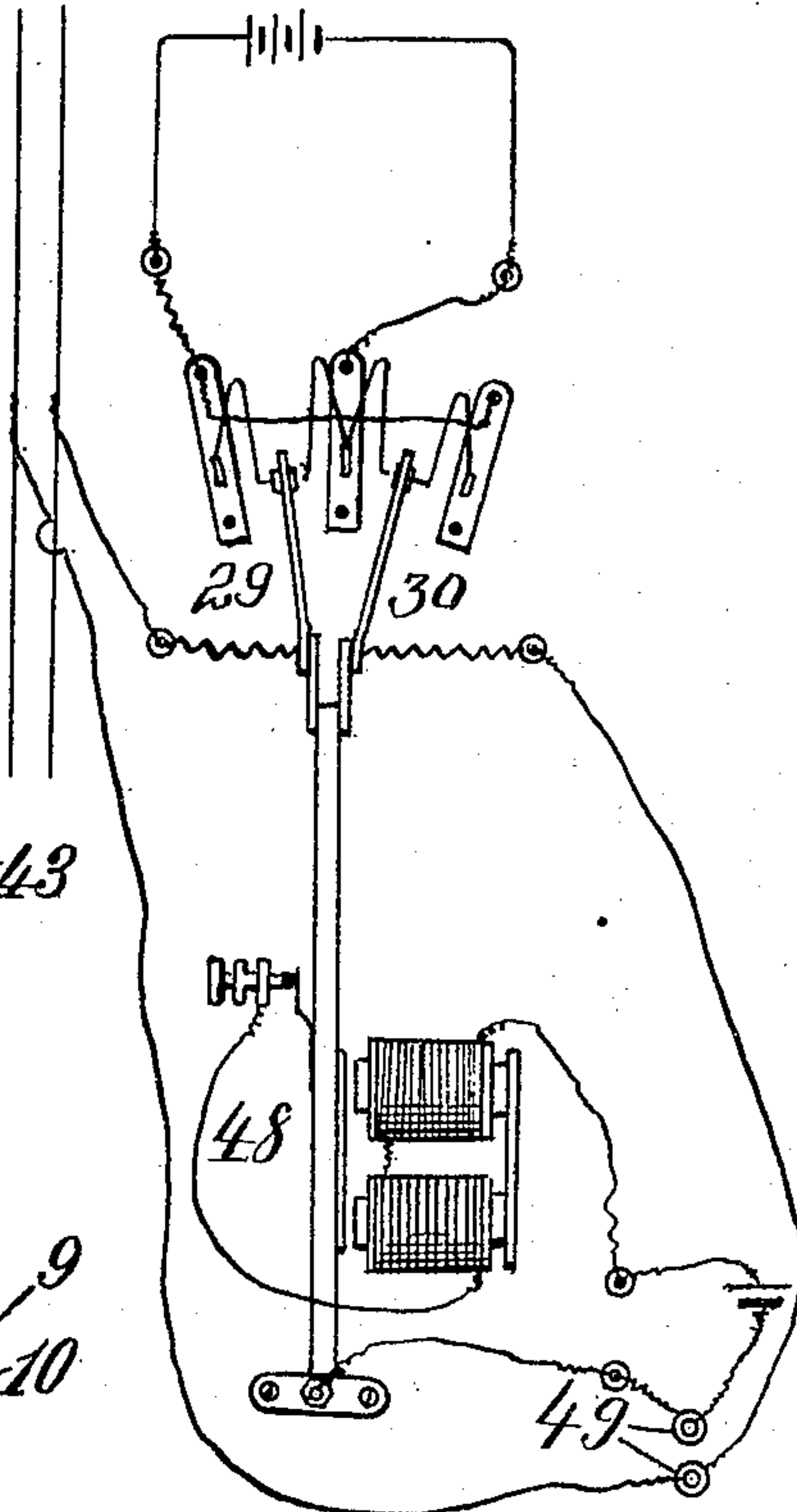
NO MODEL.

2 SHEETS—SHEET 2.

*Fig. 3.*



*Fig. 4.*



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# UNITED STATES PATENT OFFICE.

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## ELECTRICAL ALARM FOR TELEPHONE CALL-BELLS.

SPECIFICATION forming part of Letters Patent No. 774,059, dated November 1, 1904.

Application filed May 2, 1904. Serial No. 206,000. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN W. FOUCHE, a citizen of the United States, residing at Ryan, in the county of Loudoun and State of Virginia, have invented new and useful Improvements in Electrical Alarms for Telephone Call-Bells, of which the following is a specification.

This invention relates to improvements in electrical alarms for telephone call-bells adapted to be operated by an alternating current and embodies the principles of and acts as a pole-changer.

The invention aims to provide a simple and reliable device for sounding an alarm or alarms at a distant point from the telephone-station, whereby a person not within hearing distance of the usual magnetic call-bell will be notified when the call is sounded.

The invention further aims to provide an auxiliary electric alarm or what may be termed an "extension" call system for telephones which shall be simple in construction, durable, efficient in its use, and comparatively inexpensive to set up.

With the foregoing and other objects in view the invention consists of the novel combination and arrangement of parts hereinafter more specifically described, illustrated in the accompanying drawings, and particularly pointed out in the claims hereunto appended.

In describing the invention in detail reference is had to the accompanying drawings, forming a part of this specification, wherein like reference characters denote corresponding parts throughout the several views, and in which—

Figure 1 is a front elevation of the circuit-closing device constructed in accordance with this invention. Fig. 2 is a sectional side elevation. Fig. 3 is a diagrammatic view showing the arrangement of a circuit-closer in connection with the circuit-wires of the auxiliary system as well as the alarm, and Fig. 4 is a diagrammatic view showing the device employed in connection with a direct call by an operator at a telephone-exchange or at any private telephone.

Referring to the drawings by reference

characters, 1 denotes the ordinary call-box, provided with a pair of bells, (indicated by the reference character 2,) and 3 denotes the vibrating hammer for the bells 2.

The foregoing elements are of known construction, and any form of call-box can be employed, whether the bells be operated by an alternating current or a direct current. The auxiliary electric alarm device forming the subject-matter of this invention can be employed in connection with an alternating or a direct current.

Secured to the box 1 through the medium of the holdfast devices 4 is a casing 5, constructed of any suitable material and insulated in such a manner so as not to interfere with the proper working of the circuit-closer. The insulating material may be of any character or description. To one side of the casing 5 is suitably secured a binding-post 6, and to the top of the casing 5 are suitably secured the binding-posts 7 8, and to the other side of the casing 5 is suitably secured a binding-post 9, carrying a switch 10.

Secured to the inner face of the back of the casing 5 is a plurality of adjustable contact-spring-supporting plates and which are indicated by the reference characters 11, 12, and 13. The plates 11, 12, and 13 are constructed of any suitable metallic material and are connected at their tops to the back of the casing 5 through the medium of the binding-screws 14, and at their lower ends the plates 11, 12, and 13 are slotted, as at 15, and extending through the slots 15 and engaging in the back of the casing 5 are the adjusting-screws 16.

Secured to the front face of each of the plates 11, 12, and 13 is a connecting-bracket 17, and to the bracket 17 of the plate 11 is attached one end of an inverted-V-shaped contact-spring 18, and the free end of said spring 18 is bent at an angle to form a contact-point 19, and preferably the contact-point 19 is formed of platinum, and to the bracket 17 of the plate 13 is attached one end of an inverted-V-shaped contact-spring 20, and the free end of said spring 20 is bent at an angle to form a contact-point, as at 21, and preferably the



contact-point 21 is formed of platinum. To the bracket 17 of the plate 12 is secured a pair of inverted-V-shaped contact-springs, (designated by the reference characters 22 23,) and the free end of the spring 22 is bent at right angles, so as to form a contact-point 24, and the free end of the spring 23 is bent at right angles, so as to form a contact-point 25. Preferably the contact-points 24 and 25 are constructed of platinum. The contact-spring 22 opposes the spring 18 and the contact-spring 23 opposes the spring 20.

The plate 11 is connected to the plate 13 through the medium of an insulated wire connection 26. The plate 11 is also connected with the binding-posts 7 through the medium of the wire connection 27, and the plate 12 is connected to the binding-post 8 through the medium of the wire connection 28.

Operating between the contact-springs 18 and 22 is a circuit-closing arm 29, and operating between the contact-springs 20 and 23 is a circuit-closing arm 30. The arms 29 and 30 are adapted to be simultaneously vibrated and when operated alternately engage a pair of springs. For example, when moved in one direction the arms 29 and 30 will contact with the springs 20 and 22 and when moved in the other direction will contact with the springs 18 and 23 to close the circuit. The springs 18, 20, 22, and 23 are adjusted with respect to each other, so that the proper engagement between the arms 29 and 30 can be had, and said adjustment is made by adjusting the plates 11, 12, and 13, owing to the screw-and-slot connection between said plates and the back of the casing 5.

The arms 29 and 30 are operated through the medium of a vibratory operating-lever 31, which is constructed of insulating material and fulcrumed upon the pivot 32, supported by the bearing-studs 33, carried by the cross-arms 34, attached to the standards 35. The lever 31 at its lower end is provided with a bifurcated extension 36, through which extends the shank 37 of the hammer 3. It will be evident that when the hammer is operated a vibratory motion will be imparted to the lever 32, which in turn will operate the arms 29 and 30.

The arms 29 and 30 are connected at their bottoms to the upper end of the lever 32 by means of the binding-screws 38. The arms 29 and 30 are constructed of any suitable metallic material, and said arm 29 is connected with the binding-post 6 through the medium of the wire connection 39, and said arm 30 is connected with the contact-point of the switch 10 through the medium of a wire connection 40.

The reference character 41 denotes the auxiliary call-box, which is arranged at a point removed from the call-box 1, and said call-box 41 is of any suitable construction and provided with any suitable character of bells or gongs 42. The call-box 41 is connected with

the switch 10 through the medium of the circuit-wire 43 and is connected with the binding-post 6 through the medium of the circuit-wire 44. The reference character 45 denotes the battery or electrical supply and is connected through the circuit-wire 46 with the binding-post 8 and by the circuit-wire 47 with the binding-post 7.

It is thought the operation of the device can be understood from the foregoing description; but it will be stated that when used in connection with an alternating current when the arms 29 and 30 are moved to contact first with the springs 20 and 22 the circuit will be through the spring 20, arm 30, wire connection 40, circuit-wire 43 to the auxiliary call-box, from the box 41 over circuit-wire 44, arm 29, spring 22 to the battery. When the arms 29 and 30 are moved in the opposite direction, the circuit will be through spring 18, arm 29, circuit-wire 44 to the call-box 41, circuit-wire 43, arm 30, spring 23, and to the battery. The normal position of the contact-arms 29 and 30 is that the arm 29 rests against the contact-spring 18 and the arm 30 rests against contact-spring 20. Such arrangement keeps the circuit open and prevents the batteries from running down when the device is not in operation.

The device, as shown in Fig. 1, it is evident, embodies all the principles of a pole-changer and when used in connection with a direct-current source acts as a pole-changer. The device, as shown in Fig. 1, can also be employed in connection with a direct call by an operator at a telephone-exchange or at any private telephone, as illustrated in Fig. 4, and such function is obtained by the interposition of any suitable circuit-breaker 48, and in this connection the device, as shown in Fig. 1, acts as a pole-changer, and the call can be made by any suitable contact device for closing the circuit—for example, push-buttons 49. In other words, by the connecting of the device shown in Fig. 1 with any ordinary circuit-breaker it can be used as a pole-changer for operating telephone-calls with an alternating current.

It is thought unnecessary to specifically describe the manner of insulating the various parts from each other, as well as the casing 5, for the reason that any known method of proper insulating, as well as any known material, may be employed.

The casing 5 is provided with a cover of any suitable material and attached thereto in any suitable manner. The casing 5 may be of any suitable shape or contour and may be attached in position in any manner described. The switch 10 is employed for cutting off the auxiliary call system when occasion requires. The auxiliary system is such that it can be attached to any known telephone system without changing the construction of said telephone system in any manner. All that is



necessary to do is to arrange the bifurcated extension of the operating-lever with respect to the hammer or shank of the hammer of the call-bell, so that when the hammer or shank is operated the lever carrying the contact-arms 29 and 30 will be vibrated or oscillated. The binding-posts 6, 7, 8, and 9 are shown as attached to the sides of the casing 5; but it is evident that any other suitable arrangement can be employed. Any known construction of call-box for the auxiliary call system can be employed. The elements arranged within the casing 5 as an entirety will be referred to in the claims as a pole-changer.

It is thought that many advantages of my improved electrical alarm for telephone call-bells for sounding an alarm at a distant point from the telephone-station and also whereby a person not within hearing distance of the telephone call-bell will be notified when the call is sounded can be readily understood from the foregoing description, taken in connection with the accompanying drawings, and it will furthermore be evident that changes, variations, and modifications can be resorted to without departing from the spirit of my invention or sacrificing any of its advantages, and I therefore do not wish to restrict myself to the details of construction hereinbefore described, and set forth in the annexed drawings, but reserve the right to make such changes, variations, and modifications as come properly within the scope of the protection prayed.

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

1. An auxiliary electric alarm for telephone-calls comprising two pairs of contacts, a vibratory arm coöperating with each pair of contacts, an alarm, electrical connections between one of said arms and said alarm, electrical connections between the other of said arms and said alarm, a source of electrical energy, electrical connections between one pair of contacts and said source, and electrical connections between the other pair of contacts and said source.

2. An auxiliary electric alarm for telephone-calls comprising two pairs of contacts, a vibratory arm coöperating with each pair of contacts, an alarm, electrical connections between one of said arms and said alarm, electrical connections between the other of said arms and said alarm, a source of electrical energy, electrical connections between one pair of contacts and said source, electrical connections between the other pair of contacts and said source, and a cut-out for one of the connections between one of the arms and said alarm.

3. The combination with a main telephone-call, of an auxiliary electric-alarm system connected therewith, said system comprising two pairs of contact-springs, a pair of vibratory circuit-closing arms adapted to alternately en-

gage with each pair of contact-springs, a source of electrical energy connected with said springs, an alarm electrically connected with said arms, and means connected with said arms and operated by the telephone-call for vibrating the said arms, causing thereby the contact of the arms with the springs to close the circuit and operate the alarm.

4. An auxiliary electric alarm for telephone-calls, comprising a circuit-closer consisting of two pairs of inverted -V- shaped contact-springs, vibratory circuit-closing arms coöperating with said springs, a vibratory arm for each pair of springs, combined with an electrical alarm suitably connected with said arms, and a source of electrical energy suitably connected with said springs.

5. An auxiliary electric alarm for telephone-calls comprising two pairs of contacts, adjustable supporting-plates for said contacts, a vibratory arm coöperating with each pair of contacts, an alarm, electrical connections between one of said arms and said alarm, electrical connections between the other of said arms and said alarm, a source of electrical energy, electrical connections between one pair of contacts and said source, and electrical connections between the other pair of said contacts and said source.

6. An auxiliary electrical alarm for telephone-calls comprising two pairs of contacts, adjustable supporting-plates for said contacts, a vibratory arm coöperating with each pair of contacts, an alarm, electrical connections between one of said arms and said alarm, electrical connections between the other of said arms and said alarm, a source of electrical energy, electrical connections between one pair of contacts and said source of electrical energy, electrical connections between the other pair of said contacts and said source, and a cut-out for one of the connections between one of said arms and said alarm.

7. An auxiliary electrical alarm for telephone-calls comprising a pair of supporting-plates, means for electrically connecting said plates together and with a source of electrical energy, a supporting-plate interposed between said pair of plates, means for connecting said interposed plate with said source of electrical energy, a contact-spring carried by each of said plates of said pair of plates, a pair of contact-springs carried by said interposed plate, a vibratory circuit-closing arm coöperating with one opposing pair of springs, a vibratory circuit-closing arm coöperating with the other opposing pair of springs, an alarm, and means for electrically connecting each of said arms with said alarm.

8. An auxiliary electrical alarm for telephone-calls comprising a pair of adjustable supporting-plates, means for electrically connecting said plates together and with a source of electrical energy, an adjustable supporting-plate interposed between said pair of plates,



means for connecting said interposed plate with said source of electrical energy, a contact-spring carried by each of said plates of said pair of plates, a pair of contact-springs carried by said interposed plate, a vibratory circuit-closing arm cooperating with one opposing pair of springs, a vibratory circuit-closing arm cooperating with the other opposing pair of springs, an alarm, and means for electrically connecting each of said arms with said alarm.

9. An auxiliary electrical alarm for telephone-calls comprising a pair of supporting-plates, means for electrically connecting said plates together and with a source of electrical energy, a supporting-plate interposed between said pair of plates, means for connecting said interposed plate with said source of electrical energy, a contact-spring carried by each of said plates of said pair of plates, a pair of contact-springs carried by said interposed plate, a vibratory circuit-closing arm cooperating with one opposing pair of springs, a vibratory circuit-closing arm cooperating with the other opposing pair of springs, an alarm, means for electrically connecting each of said arms with said alarm, and a cut-out for said connecting means between the arms and alarm.

10. An auxiliary electrical alarm for telephone-calls comprising a pair of adjustable supporting-plates, means for electrically connecting said plates together and with a source of electrical energy, an adjustable supporting-plate interposed between said pair of plates, means for connecting said interposed plate with said source of electrical energy, a contact-spring carried by each of said plates of said pair of plates, a pair of contact-springs carried by said interposed plate, a vibratory circuit-closing arm cooperating with one opposing pair of springs, a vibratory circuit-closing arm cooperating with the other opposing pair of springs, an alarm, means for electrically connecting each of said arms with said alarm, and a cut-out for said connecting means between one of said arms and alarm.

11. An auxiliary electric alarm for telephone-calls comprising a pair of supporting-plates, means for electrically connecting said plates together and with a source of electrical energy, a supporting-plate interposed between said pair of plates, means for connecting said interposed plate with said source of electrical energy, an inverted-V-shaped contact-spring carried by each of said plates of said pair of plates, each of said contact-springs having a free end, a pair of inverted-V-shaped contact-springs carried by said interposed plate, said springs carried by said interposed plate having one end free, a vibratory circuit-closing arm cooperating with the free end of one opposing pair of springs, a vibratory circuit-closing arm cooperating with the free end of the other opposing pair of springs, an

alarm, and means for connecting each of said arms with said alarm.

12. An auxiliary electric alarm for telephone-calls comprising a pair of adjustable supporting-plates, means for electrically connecting said plates together and with a source of electrical energy, an adjustable supporting-plate interposed between said pair of plates, means for connecting said interposed plate with said source of electrical energy, an inverted-V-shaped contact-spring carried by each of said plates of said pair of plates, each of said contact-springs having a free end, a pair of inverted-V-shaped contact-springs carried by said interposed plate, said springs carried by said interposed plate having one end free, a vibratory circuit-closing arm cooperating with the free end of one opposing pair of springs, a vibratory circuit-closing arm cooperating with the free end of the other opposing pair of springs, an alarm, and means for connecting each of said arms with said alarm.

13. An auxiliary electric alarm for telephone-calls comprising two pairs of inverted-V-shaped contact-springs, each of said springs having a free end, a vibratory arm cooperating with the free end of each pair of contacts, a lever secured to said arms and adapted when operated to vibrate said arms, an alarm, electrical connections between one of said arms and said alarm, electrical connections between the other of said arms and said alarm, a source of electrical energy, electrical connections between one pair of contacts and said source, and electrical connections between the other pair of contacts and said source.

14. The combination with a telephone-call, of an auxiliary alarm-circuit having its alarm operated by an alternating current, said auxiliary alarm-circuit being independent of said call and its circuit, and an automatic pole-changer suitably connected with said auxiliary circuit, separated from said call and adapted to be actuated when the call is operated, thereby closing said auxiliary alarm-circuit to sound the alarm thereof.

15. In an electrical call, a pole-changer comprising a pair of supporting-plates, a contact-spring carried by each of said plates, a supporting-plate interposed between said pair of plates, a pair of contact-springs carried by said interposed plate, and a pair of vibratory contact-arms cooperating with said springs.

16. In an electrical call, a pole-changer comprising a pair of adjustable supporting-plates, a contact-spring carried by each of said plates, an adjustable supporting-plate interposed between said pair of plates, a pair of contact-springs carried by said interposed plate, and a pair of vibratory contact-arms cooperating with said springs.

17. In an electrical call, a pole-changer comprising a pair of supporting-plates, a V-shaped



contact-spring having one end free and carried by each of said plates, a supporting-plate interposed between said pair of plates, a pair of V-shaped contact-springs having one end free and carried by said interposed plate, and a pair of vibratory contact-arms coöperating with said springs.

18. In an electrical call, a pole-changer comprising a pair of adjustable supporting-plates, a V-shaped contact-spring having one end free and carried by each of said plates, an adjustable supporting-plate interposed between said pair of plates, a pair of V-shaped contact-springs having one end free and carried by said interposed plate, and a pair of vibratory contact-arms coöperating with said springs.

19. In an electrical call, a pole-changer comprising a pair of supporting-plates, an inverted-V-shaped contact-spring having one end free and carried by each of said plates, a supporting-plate interposed between said pair of plates, a pair of inverted-V-shaped contact-springs having one end free and carried by said interposed plate, and a pair of vibratory contact-arms coöperating with said springs.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOHN W. FOUCHE.

Witnesses:

E. L. ROBEY,  
F. A. ROBEY.