

W. F. MIKOLASEK.
TELEPHONE SIGNAL ATTACHMENT.
APPLICATION FILED MAR. 9, 1909.

967,409.

Patented Aug. 16, 1910.

2 SHEETS—SHEET 1.

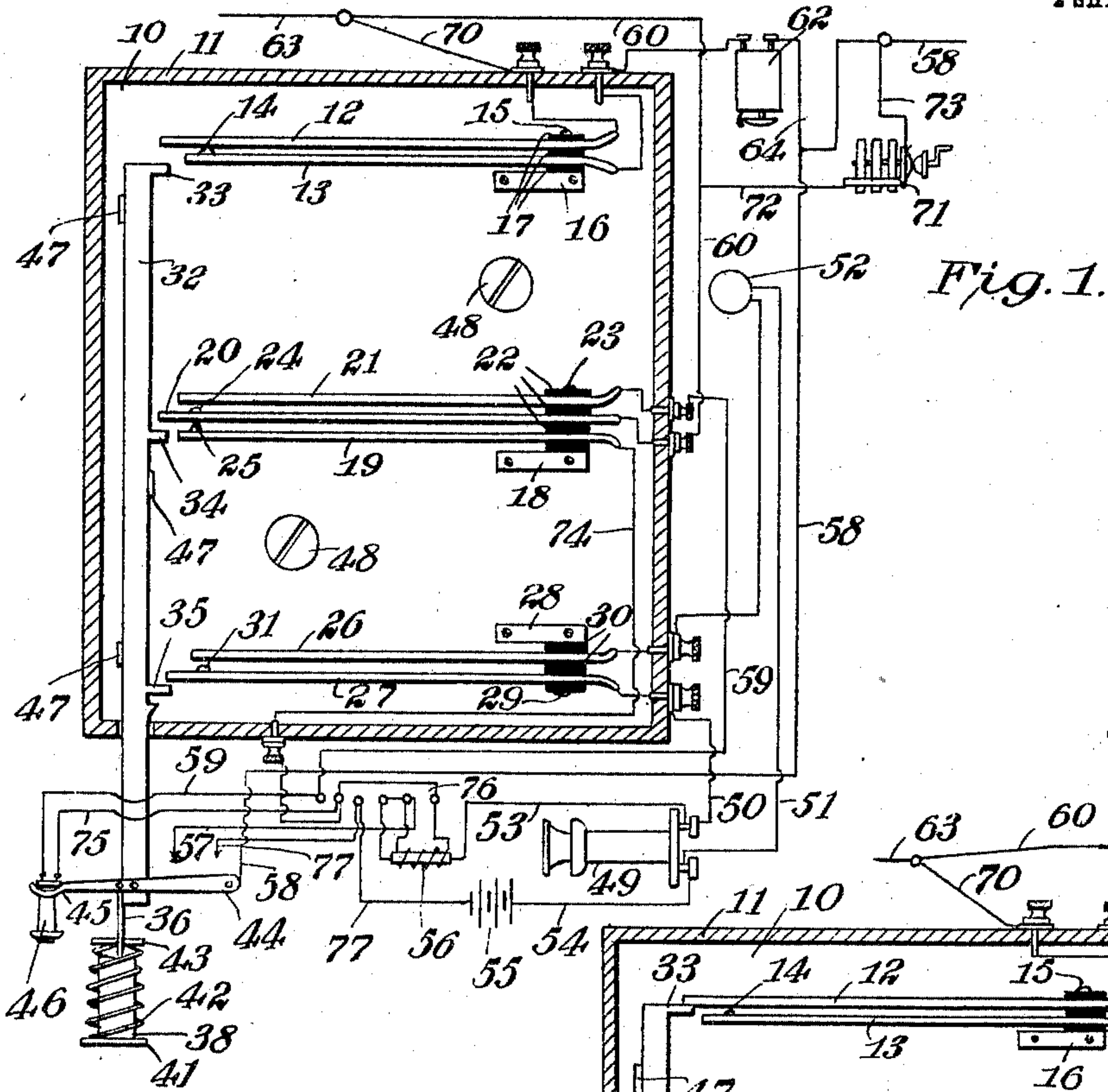
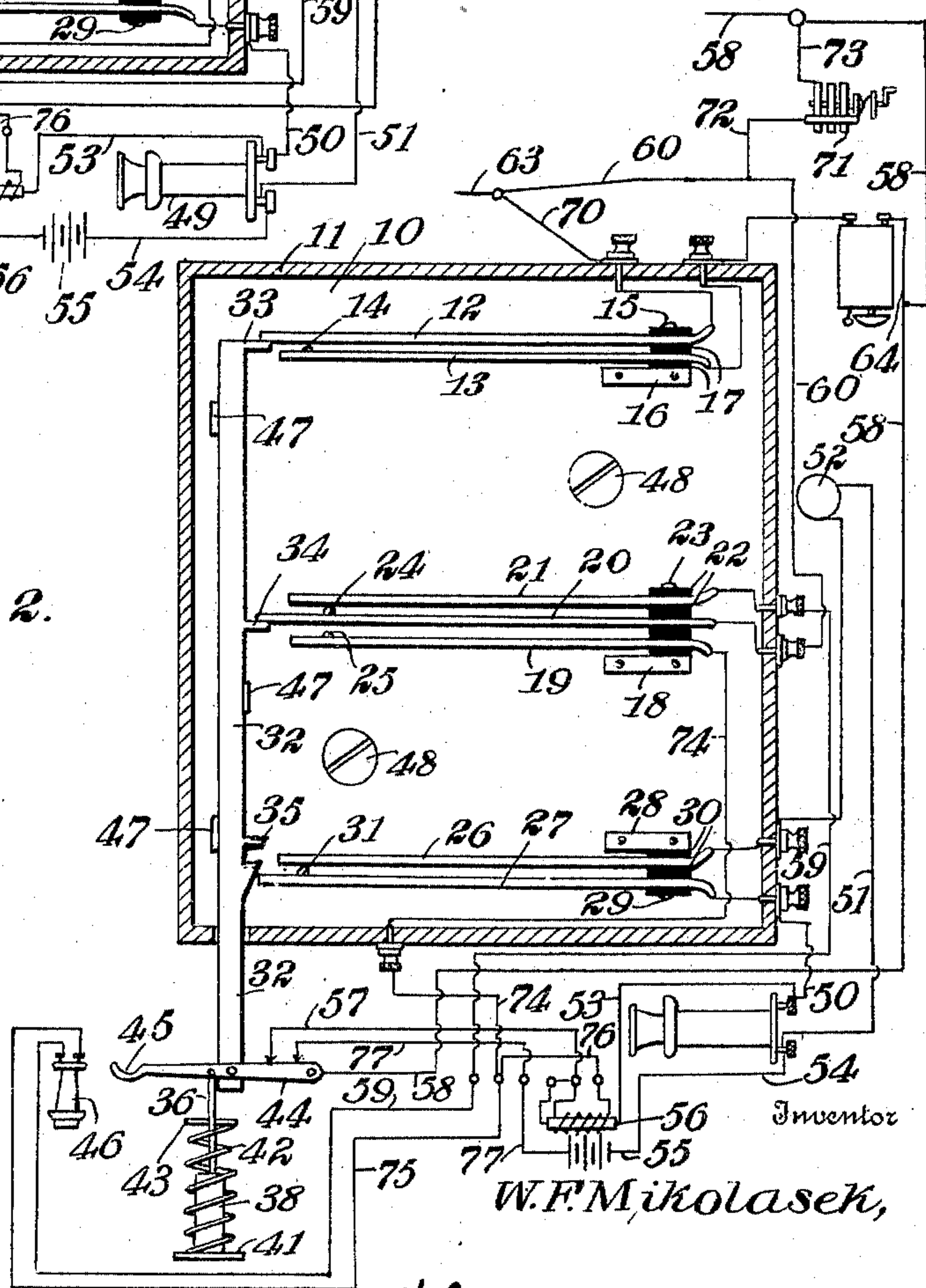


Fig. 2.



Witnesses
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2 SHEETS—SHEET 2.

Fig. 3.

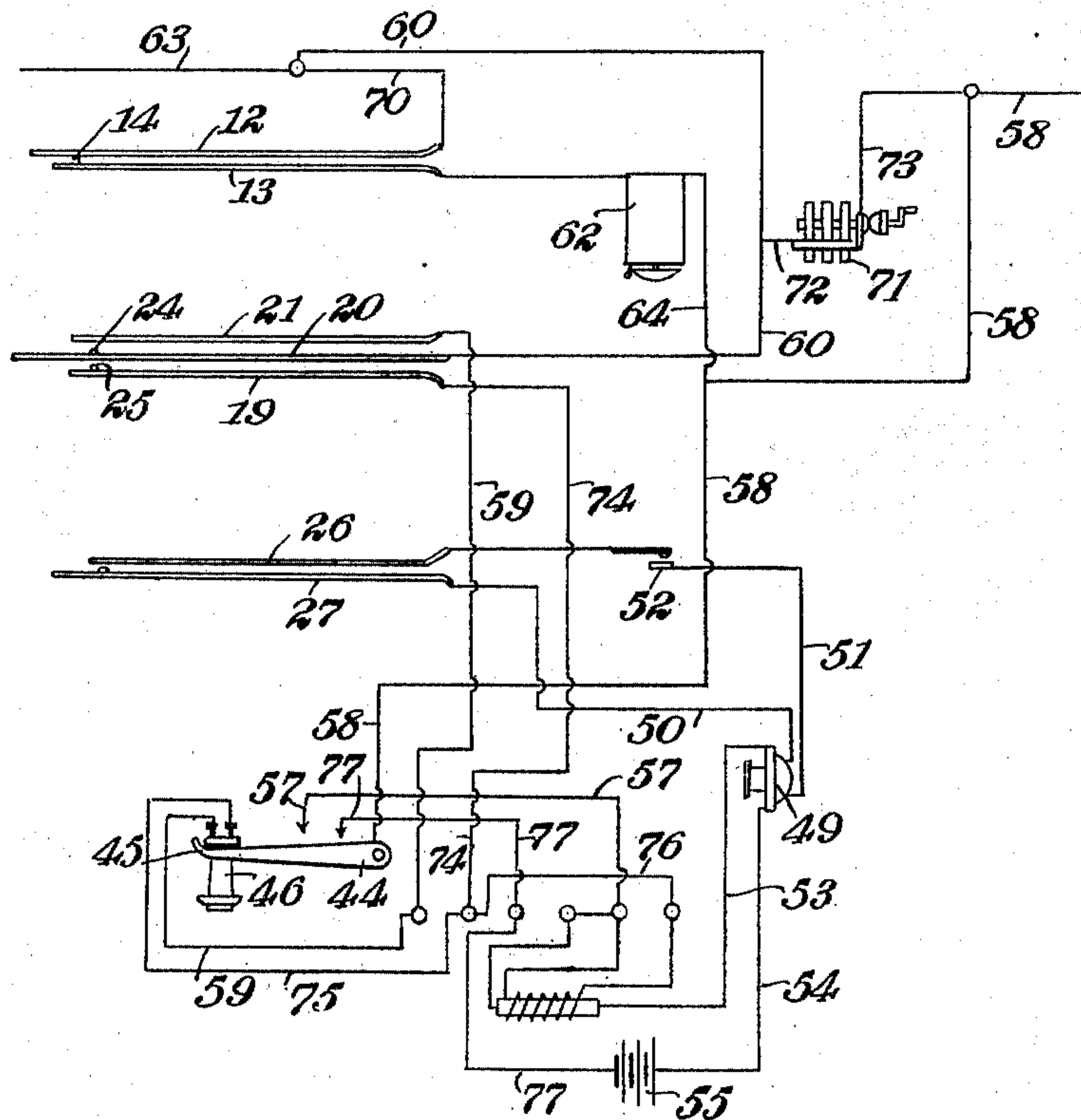
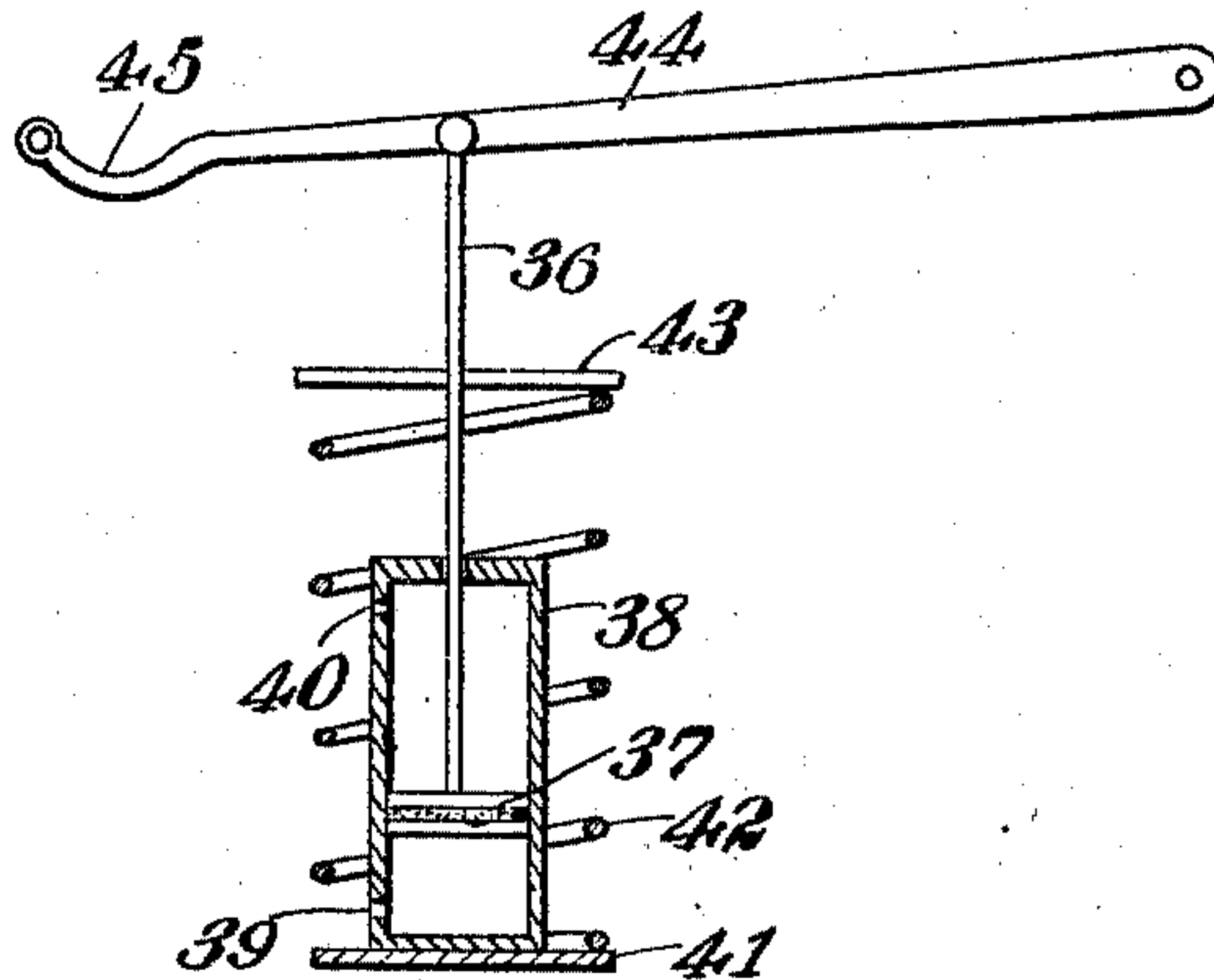


Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

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TELEPHONE SIGNAL ATTACHMENT.

967,409.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WENCESLAUS F. MIKOLASEK, citizen of the United States, residing at Scotland, in the county of Bonhomme and State of South Dakota, have invented certain new and useful Improvements in Telephone Signal Attachments, of which the following is a specification.

This invention relates to telephony and refers particularly to what is known as party line telephones.

An object of this invention is to signal any two or more connected parties on the line upon the closing of the talking circuit through another party telephone, thereby producing a practically selective system on a party line.

The invention has for another object the provision of a device which will enable the usual ringing and talking circuits to be completed without any additional contrivances to be manipulated by the parties.

A further aim of the invention is the provision of a novel means for making and breaking the contacts positioned within the telephone box and a novel arrangement of the contacts or switches by means of which the herein recited objects are effected.

A still further object of this invention is the provision of a dash-pot of novel construction by means of which the switches employed in connection with this apparatus are operated automatically and positively without jar, thereby producing the even closing of the several circuits and reducing the wear incident to their operation.

Another and still further object of this invention is to so arrange a system of contacts or switches that the ringing circuit in the telephones of the parties using the line is opened upon the closing of the talking circuit thereby preventing the ringing of the telephone already in operation.

For a full understanding of the invention reference is to be had to the following description and accompanying drawings, in which:—

Figure 1 is a section through a telephone box disclosing the improved arrangement of contacts employed by applicant showing the same in a normal position. Fig. 2 is a view of the same disclosing the contacts in position upon the removal of the receiver from the hook. Fig. 3 is a diagrammatic view of

the system of circuits employed in connection with the improved telephone. Fig. 4 is a detail of the cushioning device employed in operating the contacts.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

Referring to the drawings, the numeral 10 designates a baseboard or plate which is preferably formed of non-conducting material and which is adapted for positioning within a box 11 or casing which is usually employed in connection with telephones. The base 10 is provided upon its outer face near the upper edge thereof with leaf springs 12 and 13, the latter being provided upon the outer extremity with a contact 14 and is adapted for normal engagement under the tension of the springs 12 and 13. The springs 12 and 13 are transversely positioned across the face of the base 10 and are held in parallel relation in such position by means of a set-screw 15 which is disposed through the inner extremities of the same and terminated in a bracket 16 outwardly extended from the face of the base 10. The springs 12 and 13, which are formed of electric conducting material are insulated from each other by means of strips of hard rubber or a similar non-conducting material or composition 17 which is interposed between the rear extremities of the springs 12 and 13 and upon the opposite outer faces thereof and held in such position by the passage of the set-screw 15 therethrough, the set-screw 15 being provided with a coating of a non-conducting substance.

Intermediately and transversely positioned upon the base 10 at a spaced distance below the bracket 16 is a second bracket 18 which is provided with three leaf springs 19, 20 and 21 respectively, which are provided with strips of insulated material 22 interposed between the inner extremities of the same and which are held in parallel relation by means of a suitable set-screw 23. The intermediate spring 20 is provided upon its upper side adjacent the outer end thereof with a contact 24 which is adapted for engagement with the spring 21 and the spring 19 is provided with a contact 25 formed upon the upper face of the same to engage normally the adjoining spring 20. The base 10

is further provided with springs 26 and 27 which are positioned adjacent the lower edge thereof and which are mounted upon a bracket 28 by means of a set screw 29, the inner ends of the springs 26 and 27 being insulated from each other by the employment of strips of non-conducting material 30 which are positioned between and upon the opposite sides of the same. The spring 27 is provided with a contact 31 which is adapted to be engaged at times with the springs 26. The springs 12 and 13 which are mounted upon the base 10 are so positioned as to cause the contact 14 to normally engage, and the springs 19 and 20 are so positioned to normally engage the contact 25 carried upon the spring 19 with the lower face of the spring 20. The remaining contact points are held apart and are caused to engage only upon the operation of a sliding rod 32 which is made from non-conducting material and which is vertically and slidably positioned in the box 11 and adapted for engagement with the forward extremities of the springs 12, 20 and 27. The sliding rod 32 is adapted to normally rest in a lowered position and is provided with the projections 33, 34 and 35 which are adapted for engagement with the elongated extremities of the springs 12, 20 and 27, respectively, upon the upward movement of the sliding rod 32. The sliding rod 32 is extended downwardly in the box and is connected to a piston rod 36 which carries upon its lower extremity a piston 37 reciprocally disposed in a cylinder 38. The cylinder 38 is provided at its opposite extremities with outlet ports 39 and 40 which are adapted to admit of the gradual passage of air from the cylinder 38 in order to cushion the operation of the sliding rod 32. The cylinder 38 is flanged at its lower extremity as at 41, which flange extends outwardly and supports the lower end of a coil spring 42 which is disposed about the cylinder 38 and extended upwardly therefrom to engage with a pin 43 formed diametrically upon the piston rod 36. The spring 42 is adapted to expand and to raise the sliding rod 32 to operate the springs disposed upon the base 10.

The box 11 is provided with an arm 44 which is pivotally mounted beneath the same and extended at its outer extremity beyond the box 11 where it is forked as at 45 to support a receiver 46. The lever 44 is fulcrumed intermediately to the rod 32 and is adapted to depress the sliding rod 32 upon the engagement of the receiver 46 upon the fork 45, the operation takes place under the weight of the receiver 46. The sliding rod 32 is slidably positioned within the box 11 adjacent the outer extremities of the springs supported upon the base 10 by means of suitable lugs 47 which are disposed upon the base 10.

The base 10 is secured within the box 11 in any suitable manner as by screws 48 and is thus detachably positioned so that access may be readily gained to the operative parts of the device.

For the purpose of sounding a signal upon the line, when the line is opened between two telephones, when a third party raises the receiver to enter upon the line, the springs 26 and 27 are connected to the transmitter 49 through the medium of wires 50 and 51 respectively. A buzzer 52 is disposed in the circuit formed with the wires 50 and 51 and is adapted for operation in conjunction with the transmitter to impart vibration in the receivers which are being employed. The transmitter 49 is connected as usual to the primary coil through the wires 53 and 54, being energized by means of a suitable battery 55 disposed in the circuit, the wires 53 and 54 being connected to an induction coil 56. The secondary coil of the induction coil 56 is extended at one extremity through a wire 57 to the main line 58 while its opposite extremity is connected directly to the receiver 46. The receiver 46 is connected to the spring 21 through the medium of a conductor 59 and is adapted to be communicated with a conductor 60 which is connected to the main line 63 by means of the raising of the spring 20 under the operation of the sliding rod 32, the spring 20 being connected to the conductor 60. Bell magnets 62 are disposed in the line and are connected between the springs 13 and the main line wire 58 through the medium of a wire 64 which terminates in the main wire 58. The main line wire 63 is connected to the spring 12 through a wire 70 which is branched from the wire 63. A generator 71 is provided which is connected to the wire 60 through a wire 72 and is connected to the main line wire 58 through a wire 73 which is connected between the same. The receiver 46 is connected to the lower spring 19 through a wire 74 which is branched, one arm of which leads to the receiver 46 while the opposite arm 76 leads to the secondary of the induction coil 56. The battery 55 is provided with a wire 77 which is provided with a contact which is adapted to abut the arm 44 when the same is raised.

The operation of the device is as follows:—When the line is closed and the receiver 46 is hung upon the fork 45 to hold the sliding rod 32 in a downward position, the springs 12 and 13 will engage one another, by reason of their resiliency, and cause the contact 14 to close a circuit through the lines 63. This circuit is closed through the line wire 63, wire 70 to the spring 12, contact 14 to spring 13, thence to the bell magnets 62 to the wire 64 to the main line wire 58. This circuit admits of the ringing of the bells of the telephones which is

effected by the operation of the generator 71 of one of the telephones which causes a current to flow through the main line wire 63 to wire 60 to generator 71 through wire 72 then wire 73 to main line wire 58 to ring up the parties on the line. When two parties are using the line and a third party attempts to open their telephone circuit, the arm 44 is raised by the removal of the receiver 46 when the sliding rod 32 is carried upwardly and forces the projection 35 past the spring 27. During the initial upward movement of the arm 44, to an extent equal to the distance between the contact 31 and the lower face of the spring 26, the arm 44 is brought into engagement with the contact 57 and the following circuit is closed: the main line wire 63 through the wire 60 to spring 20, to spring 19 to wire 74 to the secondary coil of the induction coil 66, thence through wire 57 to lever 44 and out to main line 58. The current thus forced through the secondary coil sets up an induced current in the primary coil of the induction coil 56 which is carried through the wire 53 to the transmitter 49, through the wire 54 to battery 55 and out to wire 77 to the arm 44 where it passes to the wire 57 and back to the induction coil 56. This operation closes the talking line of the third party, by closing a circuit through the transmitter 49, with the two parties on the line and enables the two parties to hear anything spoken by the third party but prevents the third party from hearing the conversation between the original two parties as the springs 20 and 21 are out of contact and consequently the receiver circuit is open in such third party's telephone. As the sliding rod 32 is moved upwardly, under the action of the spring 42, the spring 27 is carried upwardly to close the call circuit passing through the same which will be sounded in the receivers of the two parties using the line, but, owing to the separation of the springs 26 and 27 in such parties' telephones, the buzzer 52 is sounded only in the third party's telephone as the projection 35 is engaged with the spring 27 and is caused to close the circuit through the buzzer 52. This causes the sounding of the buzzer 52 in the third party's telephone to notify such party of the usage of the line, but only sounds in the receivers of the two parties, primarily upon the line to notify them of the third party's entrance upon the line. After the call is given the sliding rod 32 is caused to continue in its upward sliding movement when the projection 33 strikes the upper spring 12 and raises the same from the contact 14 breaking the ringing circuit hereinbefore set forth. When the sliding rod 32 reaches its highest point the projection engages the central spring 20 and causes the contact 24 to engage the spring 21 thereby closing all

three telephones to the line enabling all three parties to talk and to hear one another.

This system enables two or more parties to talk privately over the wires as the closing of another telephone in the line is signaled to such parties using the line when their conversation may be abandoned if it is of such a nature that the parties holding conversation do not desire a third party to hear the same. This system also provides means whereby the parties are signaled by the sounding of their call bell when they desire to use the telephone if the line is already in use.

When the receiver 46 is hung upon the hook or fork 45 the sliding rod 32 is depressed and caused to consecutively open the receiver circuit, close the ringing circuit and finally to open the talking circuit relative to such telephone and to close the same through the springs 19 and 20 to the main line.

The sliding rods 32 throughout the line are so formed that the projections 35 are of different formations so as to effect the different calls according to their respective telephones, thereby automatically operating these several calls, the calls being effected by the holding of the spring 27 for different periods of time against the spring 26. In the drawings is shown a projection 35 which causes a call of one long and one short closing of the call circuit effected by the forming of the lugs in different lengths, the upper or first lug to contact being the longer to produce the long call and the lower lug, which is shorter causing the short call.

Having thus described the invention what is claimed as new is:—

1. A device as specified comprising a base, leaf springs mounted in parallel and in insulated relation at the upper end of said base, said springs adapted for normal engagement to close a ringing-circuit in a telephone line, a talking circuit three springs disposed in parallel and in insulated relation intermediately of said base, the central of said three springs adapted for normal contact with the lowermost of said three springs to close said talking circuit, a buzzer circuit, two springs disposed in parallel and in insulated relation at the lower end of said base to normally open the buzzer circuit for signaling in the telephone line and means for actuating said springs to open the ringing circuit, to close the buzzer circuit and to engage the central of said three springs with the uppermost of said three springs to close the circuit through the receiver of the telephone, said means actuated by the raising of the receiver from its normal position.

2. A device as specified comprising a base, three springs mounted in parallel and insulated relation intermediately of said base, the central of said springs extended out-

wardly and adapted for normal engagement with the lowermost of said springs, two springs mounted in parallel and insulated relation at the upper end of said base and adapted for normal engagement at their outer extremities, the upper of said springs extended outwardly, a pair of springs mounted in parallel and insulated relation at the lower end of said base, the lower of said springs at the lower end of said base being extended outwardly, all of said springs being connected to circuits in a telephone line, a sliding rod reciprocally and vertically disposed on said base, projections carried by said sliding rod for engagement with said outwardly extended springs and a dash-pot carried by said base and connected to said sliding rod for controlling the motion of the same.

3. A telephone switch comprising a box, a base detachably disposed in said box, springs mounted in parallel relation upon said base, said springs being disposed in groups and being insulated from one another, elongated portions disposed on one spring in each group, a sliding rod mounted on said base, projections disposed on said sliding rod for engagement with said elongated portions, a cylinder mounted adjacent said box, a piston disposed in said cylinder, a piston rod carried by said piston and connected at its upper extremity to the lower end of said sliding rod, a spring disposed about said cylinder, a flange outwardly extended from the lower end of said cylinder for supporting said spring, a pin disposed through said piston rod for engagement with the upper end of said spring, and a forked lever mounted adjacent said box and pivotally engaged with said sliding rod for the reception of the receiver of a telephone.

4. A telephone system as specified comprising a base, springs mounted on said base adapted for engagement upon the raising of the receiver of the telephone to close a buzzer circuit to the telephone line, springs disposed on said base for normally opening a talking circuit through a telephone and

springs mounted on said base adapted to close the telephone circuit through the receiver.

5. A telephone having a switch for actuating consecutively the closing of a talking circuit, then the closing of a call circuit, the opening of the call circuit simultaneous with the opening of a ringing circuit and the closing of a receiver circuit, and a receiver on the telephone engaged with said switch to actuate the same upon the removal of said receiver.

6. In a telephone the combination of a switch comprising groups of springs, a sliding rod reciprocally disposed adjacent said springs, projections carried by said sliding rod for engagement with said springs to consecutively actuate the same upon the movement of said sliding rod, said springs forming the contacts of circuits in the telephone, means for causing the uniform vibration of said sliding rod, and a receiver detachably connected to said sliding rod for regulating the position of the same.

7. In a telephone the combination of a switch for controlling the circuits of the telephone, a reciprocating sliding rod mounted in juxtaposition to said switch for actuating the same, a piston rod connected to said sliding rod, a cylinder adapted to receive said piston rod, a piston carried on said piston rod for reciprocation in said cylinder, a flange annularly formed on said cylinder at the lower end thereof, a helical spring mounted about said cylinder on said flange, a pin carried by said piston rod for engagement with the upper end of said spring and a lever pivotally connected to said piston rod for supporting a receiver thereon to normally depress the same, said cylinder having apertures formed in the opposite ends thereof for regulating the vibrations of said piston.

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

WENCESLAUS F. MIKOLASEK. [L. s.]

Witnesses:

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J. F. SCHMIDT.