

C. B. MITCHELL.
 TELEPHONE ATTACHMENT.
 APPLICATION FILED FEB. 19, 1909.

941,086.

Patented Nov. 23, 1909.

2 SHEETS—SHEET 1.

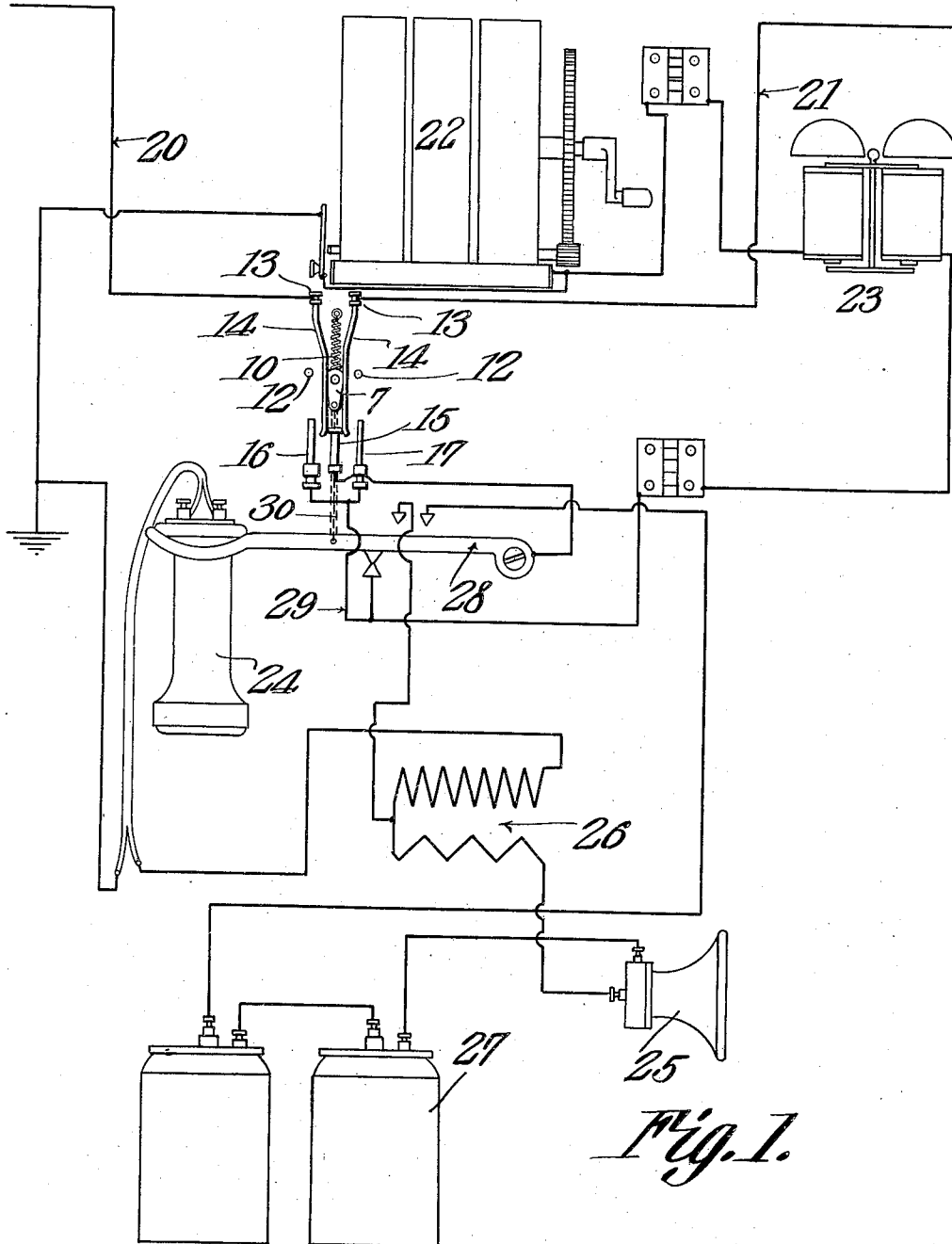


Fig. 1.

Witnesses

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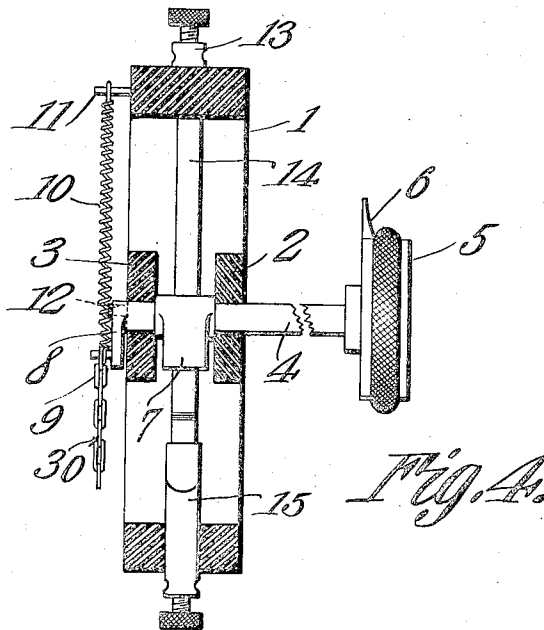
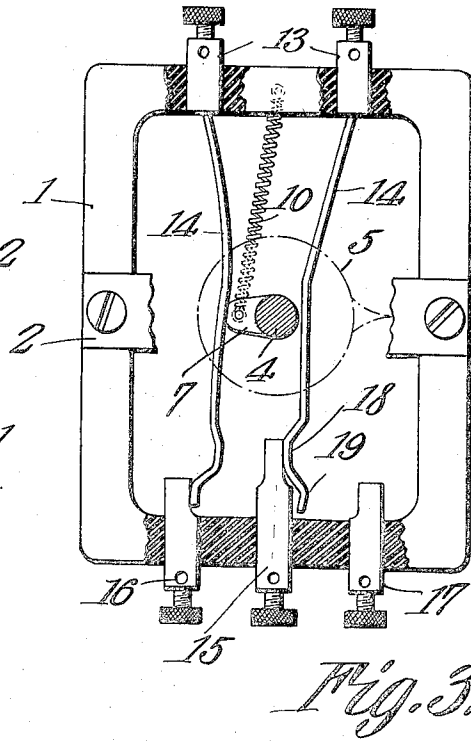
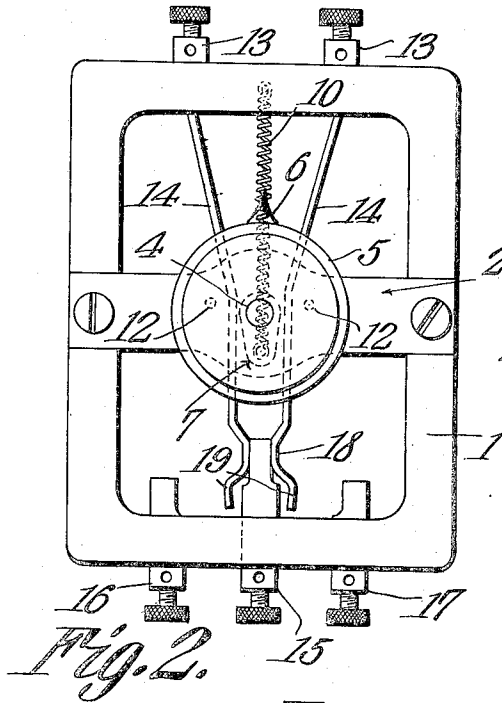
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UNITED STATES PATENT OFFICE.

CHARLES B. MITCHELL, OF FRANKLIN, TEXAS, ASSIGNOR OF ONE-FOURTH TO HAMMET B. HURT AND ONE-FOURTH TO JAMES W. McCRARY, OF FRANKLIN, TEXAS.

TELEPHONE ATTACHMENT.

941,086.

Specification of Letters Patent.

Patented Nov. 23, 1909.

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To all whom it may concern:

Be it known that I, CHARLES B. MITCHELL, a citizen of the United States, residing at Franklin, in the county of Robertson and State of Texas, have invented a new and useful Telephone Attachment, of which the following is a specification.

This invention has reference to improvements in telephone systems and more particularly to multi-party line systems whereby a subscriber is enabled to call up any other subscriber on the line and then hold the line against interference or eavesdropping on the part of other subscribers. In addition to these features the present invention includes a means whereby subscribers in the zone included in a conversation between two subscribers and also other subscribers outside of this zone on either side thereof have the signal circuit intact so that the fact that there may be an active zone between two subscribers or between any subscriber and a central station will not interfere with the sending of signals to such central station or between subscribers outside the active zone or to the subscribers using the telephone within the active zone.

The invention will be best understood from a consideration of the following detail description taken in connection with the accompanying drawings, forming a part of this specification, in which drawings,

Figure 1 is a diagram of a single local station on a multi-party line showing the application of the invention thereto. Fig. 2 is a face view or elevation of the improved attachment designed to be applied to ordinary telephone units whereby the said telephone unit may be modified to carry out the purposes of the present invention. Fig. 3 is a similar view to Fig. 2 except that parts are shown in section and also in a different position than Fig. 2. Fig. 4 is a central vertical section through the attachment with parts shown in elevation.

Referring first to Figs. 2, 3 and 4 there is shown a frame 1 which may or may not be inclosed in a suitable casing or form part of a suitable casing depending upon whether the attachment is to be placed inside the call box of an ordinary telephone unit, or whether it is to be placed exterior thereto. Assuming that the supporting structure 1 is in the form of a rectangular frame such as

illustrated in Figs. 2, 3 and 4 there are provided two cross bars 2—3, spaced apart in the direction of the thickness of the frame 1 and located intermediately between the top and bottom of said frame. Journaled in the bars 2 and 3 at the middle portion thereof is a short shaft 4 extending beyond the cross bar 2 a suitable distance and there provided with a hand wheel 5 which may be in the form of a milled head or may be replaced by a suitable crank if so desired. On the hand wheel 5 there is a pointer or indicator 6.

The shaft 4 between the bars 2 and 3 carries a cam member 7, the purpose of which will hereinafter appear and this shaft at any appropriate point, say beyond the cross bar 3 may carry a crank 8 to the outer end of which is fast a stud 9 and to this stud there is secured one end of a spring 10 the other end of which may be made fast to a stud 11 on the frame 1. Stop pins 12 on the cross bar 3 limit the movement of the shaft 4 by engaging the crank 8 at the two extremes of its rotative movement about the longitudinal axis of the shaft 4.

Fast to the frame 1 are two binding posts 13, or other means for the connection of conductors. From the binding posts there extend to the interior of the frame 1 and between the cross bars 2 and 3 two spring arms or members 14 having their ends closely adjacent to the end of the frame 1 remote from the binding posts 13. At an intermediate point in that end of the frame 1 remote from the binding posts 13 there is secured a post or stud 15 projecting into the frame 1 but at the outer end thereof being formed into a binding post for the reception of a terminal end of a conductor, or being provided with suitable means for the attachment of the conductor. On each side of the stud 15 are other studs 16—17, spaced from the stud 15. The frame 1 is commonly made of insulating material but if made of conducting material then the studs 15, 16 and 17 will be insulated therefrom in any appropriate manner.

The free end of each spring strip 14 is appropriately bent or otherwise shaped as indicated at 18 for engagement with the central stud 15 which at this point is flattened to insure good electrical contact between the stud 15 and the portion 18 of the spring strip 14. The extreme end of each strip 14

may be also bent as indicated at 19 for engagement with the adjacent stud 16 or 17 when moved away from contact with the stud 15. The contacting portion of the stud 16 or 17 is flattened to insure good electrical contact with the end 19 of the corresponding spring member 14.

The arrangement of the parts is such that the spring strips 14 lie on each side of the shaft 4 in the path of the cam member 7 but when the latter is parallel with the members 14 then it is out of engagement with either but when the shaft 4 is rotated the cam member 7 will engage one or the other of the spring strips 14 and force them against their normal tendency away from the stud 15 into engagement with the corresponding stud 16 or 17 as the case may be. The shaft 4 has a total travel of about 180° more or less and this movement is sufficient to carry the spring strips 14 into firm engagement with the respective studs 16 and 17. When the shaft 4 is rocked in one direction it will engage one strip 14 and when rocked in the other direction will engage the other strip 14 so that but one strip 14 may be moved out of contact with the central stud 15 at a time. The shaft 4 is held in position to cause one or the other of the spring strips 14 to engage a stud 16 or 17 by means of the spring 10. The means for holding the shaft with the cam member in the central or neutral position will appear farther on.

Now referring to Fig. 1 the line wires are indicated at 20 and 21 and may be considered as part of a multi-party line. The telephone unit at each station may be of the ordinary construction and as shown in Fig. 1 includes a magneto 22, call bell 23, receiver 24, transmitter 25, induction coil 26, and a battery 27. These parts and their connections need not differ from those in ordinary use and the general circuit connections through the local stations need not be different from those usually employed except as modified by the introduction of the attachment shown in Figs. 2, 3 and 4.

The line wires 20—21, form the two sides of an interrupted conductor and together form one side of the circuit. The terminal ends of these two line conductors 20 and 21 are connected to the binding posts 13 carrying the spring strips 14 and under normal conditions these two strips make contact with the stud 15 which operates as a bridge maintaining the continuity of the line conductor represented by the two members 20 and 21. The stud 15 is connected to the telephone hook shown at 28 and under normal conditions, that is when the receiver is on the hook, the signal circuit is complete from the line wires 20—21 through the stud 15 to the telephone hook and thence through the signal bell 23 and ultimately through the other line wire if one be used or to ground

as the case may be. Branched off from the signal circuit is a conductor 29 leading to both the studs 16 and 17.

The telephone hook 28 is coupled by a chain or other suitable connection 30 to the cam member 7 or to the crank 8 so that when the telephone is on the hook the shaft 4 will be held with the cam member in the neutral position intermediately between the spring strips 14 and the latter will therefore then both engage the stud 15.

Now let it be assumed that a call has been received and the subscriber lifts the receiver 24 from the hook then the spring 10 will cause the rotation of the shaft 4 in one direction or the other until the cam member 7 engages a spring strip 14 and moves the same away from the central stud 15 to the respective stud 16 or 17. If for example it be assumed that the stud 16 is the one engaged with the corresponding spring strip 14 then the circuit may be traced from the conductor 20 through the spring strip 14 to the stud 16 thence by way of the conductor 29 to the bell 23 and ultimately to ground. Under these circumstances the conductor 20 is cut off from the telephone receiver 24 which remains coupled up through the spring strip 14 to the conductor 21 and conversation may be carried on over the conductor 21 to any chosen subscriber on that section of the line. Should any subscriber on the side of the station represented by the conductor 20 wish to call up this station for any purpose the bell is still in circuit through the stud 16 so that signal may be transmitted showing that the subscriber or some subscriber on that side of the line wishes to hold communication. The subscriber at the station being used may thereupon by moving the shaft 4 in the proper direction switch on to the last calling subscriber and then determine whether or not the line will be surrendered. When the telephone is returned to the hook then the cam member 7 is returned to its intermediate neutral position and the spring strip 14 which was in engagement with the stud 16 returns into engagement with the stud 15 and the line 20—21 is again established. When a subscriber receives a call and lifts the receiver 24 from the hook the cam member 7 may move to either position depending upon whether the hook 28 when depressed pulled the cam member to one side or the other of an intermediate position. The subscriber can at once ascertain whether that side of the line is the calling side, and if not by manipulating the hand wheel 5 the other side of the line may be coupled up and conversation carried on in the usual manner.

What is claimed is:—

1. An attachment for telephones comprising two conducting strips adapted to be connected to the two sides of a divided line and

to constitute the terminals thereof, a contact common to and normally bridging said strips and adapted to be electrically connected to the speaking circuit, other contacts individual to the strips and adapted to be both electrically connected to the same side of the signal in the signal circuit, and means for moving either strip from the common contact into engagement with its individual contact.

2. An attachment for telephones comprising two conducting strips adapted to be connected each to the end of a divided line and constituting the terminals thereof, a contact common to said strips and adapted to be connected to a telephone hook, other contacts individual to the strips and adapted to be both connected to the signal circuit, and means for moving either strip from the common contact into engagement with its individual contact comprising a cam member intermediate of said spring strips and means for rotating said cam member.

3. An attachment for telephones comprising two conducting spring strips adapted to be connected to the ends of a divided line to constitute the terminals thereof, a contact common to said strips and adapted to be connected to a telephone hook, other con-

tacts individual to the strips and adapted to be both connected to the signal circuit, means for moving either strip from the common contact into engagement with its individual contact comprising a cam member intermediate of said spring strips and means for rotating said cam member, and a connection from the telephone hook to the means for rotating the cam member.

4. An attachment for telephones comprising a suitable support, spring strips therein fast thereto at one end and free at the other end, a contact stud between and in the path of both strips at their free ends, other contact studs on opposite sides of the first named contact stud and each in the path of one only of the spring strips, and a cam member intermediate of the spring strips and adapted to move either spring strip but not both at once to contact with the studs on either side of the central stud.

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

CHAS. B. MITCHELL.

Witnesses:

BEN C. LOVE,
H. G. YELVERTON.