Sept. 9, 1930. J. G. LEWIS 1,775,567

TELEPHONE OPERATED RADIO AUDIO CONTROL

Filed May 1, 1928

Fig. 2.

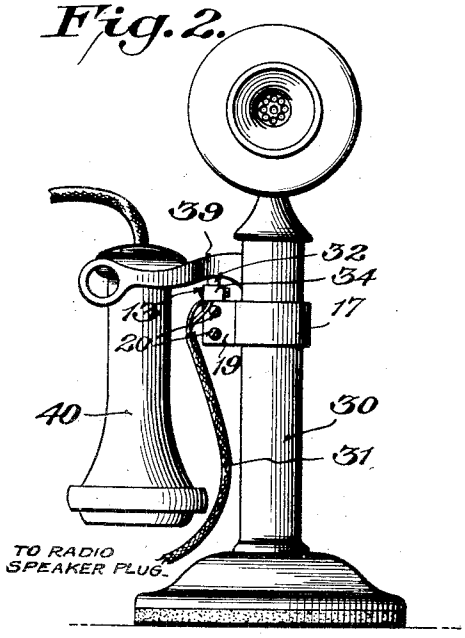



Fig. 6.

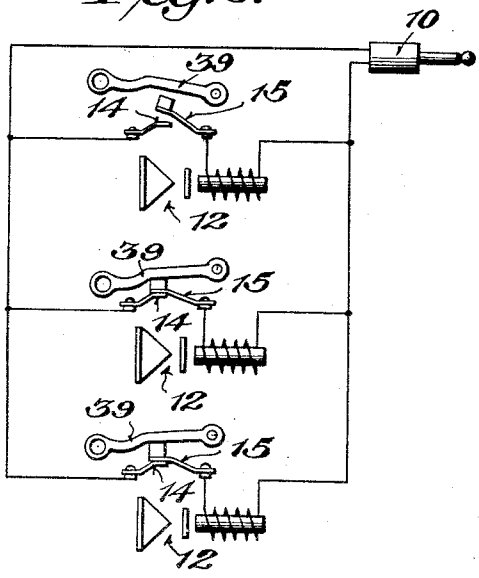



Fig. 4.

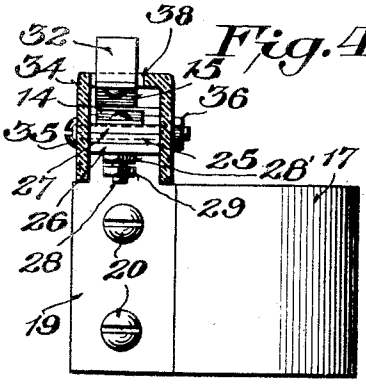



Fig. 3.

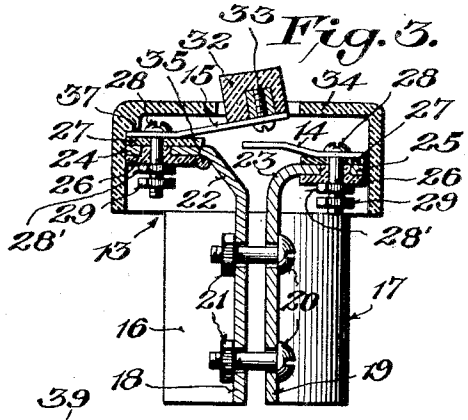



Fig. 5.

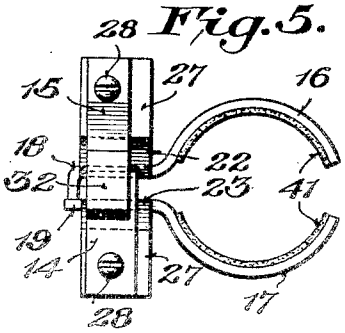
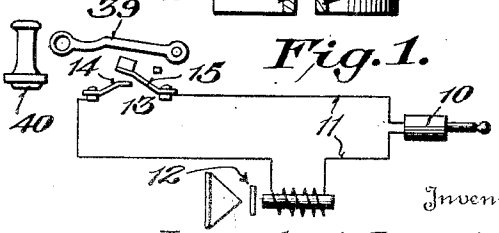



Fig. 1.




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By Andrew T. Dupont his Attorney

Patented Sept. 9, 1930

1,775,567

# UNITED STATES PATENT OFFICE

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## TELEPHONE-OPERATED RADIO AUDIO CONTROL

Application filed May 1, 1928. Serial No. 274,180.

This invention relates to the control of the speaker circuit of a radio set by means external to the radio set and independent therefrom.

A common source of annoyance to radio listeners lies in the fact that frequently the telephone will ring while the set is in operation; or it may be necessary to use the telephone while the radio set is on. Before using the telephone under such circumstances the radio set must be stopped and then started again when the telephone conversation has ceased. This requires going to the radio set to open a switch which will stop reception, then going to the telephone and after the same is used one's return to the radio set in order to resume the reception. If the set is placed quite a distance away from the telephone it becomes evident that an appreciable length of time will elapse during which no reception will be had and that an important announcement or a particularly appreciated program will be missed.

This coupled with the incident inconvenience caused to the listener who has to stop the radio set, use the telephone, and then start the set again makes it desirable that some means be provided whereby the above noted annoyances will be reduced to a minimum if not entirely eliminated.

One object of my invention consists in so connecting the telephone to the radio set that the former will control the operation of the latter.

Another object of my invention consists in stopping reception through the speaker or ear-phones of a radio set the moment a telephone is being used and in resuming reception through such speaker or ear-phones as soon as the telephone is not in use.

A further object of my invention lies in the use of a new and improved switch, which will possess the advantages of simplicity, efficiency of operation and cheapness, for controlling the circuit of a speaker or ear-phone circuit of a radio set.

Still another object of my invention consists in controlling my new and improved switch by means of the receiver hook of the ordinary telephone.

With these and other objects in view my invention consists of certain novel features of construction as hereinafter shown and described and specifically pointed out in the claims.

In the drawings, wherein similar characters of reference indicate corresponding parts in all the views, Fig. 1 is a diagrammatic showing of the speaker circuit of a radio set with my invention embodied therein; Fig. 2 is an elevation showing my improved switch mounted on a telephone stand; Fig. 3 is a vertical section through the switch illustrating the details of its construction; Fig. 4 is an elevation at right angles to Fig. 3 with the switch cover shown in section; Fig. 5 is a top plan view of Fig. 4 with the cover removed; and Fig. 6 shows another adaption of my invention. In the drawings, reference numeral 10 represents a radio speaker plug adapted to fit in the loud speaker jack of a radio set (not shown). Into this plug are inserted wires forming a circuit 11 to the speaker diagrammatically shown at 12. The details of the loud speaker unit being well known and forming no part of the present invention, no description thereof is thought necessary.

In the circuit 11 is inserted a cut out switch 13 primarily composed of spring contacts 14 and 15. Thus, it will be seen that when the speaker plug 10 is placed in the speaker jack of a radio set in which the proper connections are made for operation of the set, the programs for which the set is tuned will be received and heard through the speaker 12 as long as switch 13 is closed. When the speaker circuit 11 is interrupted through switch 13 reception through speaker 12 will cease.

The details of switch 13 are shown in Figs. 3 to 5.

It consists of two metallic clamps, 16 and 17, of cylindrical shape. Each of these clamps is provided with a depending flange, 18 and 19 respectively, in such manner that when the switch is assembled these flanges form parallel walls having cooperating holes therethrough for the passage of bolts 20, 20, provided with nuts 21, 21, for the purpose of securing the clamps together and in place as

will be explained later. The flanges 18, 19, have vertical extensions 22 and 23 respectively, each of which extensions is in turn provided with a horizontally bent portion 24 and 25 serving as supports for the switch contact members. The supports 24, 25, have perforations in which is inserted a lower insulating washer 26 having a flange adapted to bear against the lower face of the supports. Another insulating washer 27 is placed on the upper face of the supports 24, 25. Washers 26, 27, are provided with a vertical opening for the insertion of brass bolts 28 whose function is not only to secure the washers 26, 27 in place but also to retain the flexible contact members 14, 15 in position as shown in Fig. 3. Nuts 28′ are used on the bolts 28 to tighten the parts together and additional nuts 29 are also provided on bolts 28 so that wires may be attached on the bolts and secured thereon between nuts 28′ and 29. These wires form part of the circuit 11 and are carried from the switch 13 on the telephone stand 30 to the speaker plug 10 in a suitable sheathing 31. The movable contact member 15 of the switch is provided at one end with a hard rubber push button 32 held thereon by means of a metallic screw 33. Normally the movable contact 15 remains away from the stationary contact 14 due to its resiliency, but when button 32 is depressed the circuit is closed through the switch from the speaker plug 10 to the left hand screw 28, Fig. 3, contact member 15, screw 33, contact member 14, right hand screw 28 and back to the speaker plug 10.

A hard rubber cover 34 encloses the switch elements and is held in place by means of a screw 35 traversing the cover in the direction of its least dimension and secured below the support 24 as shown in Fig. 3. A nut 36, Fig. 4, is used on the end of bolt 35 for the obvious purpose of keeping the bolt in position. The switch cover 34 is formed with an internal shoulder 37 by means of which it rests upon one of the supports 24, 25 and is kept a proper distance from the switch contacts. An opening 38 is provided through the upper wall of the cover so as to permit the push button 32 to normally protrude therethrough in the manner shown in Figs. 3 and 4.

In order to place switch 13 in operative position, it is first clamped to the upper part of the ordinary telephone stand 30 so that the push button 32 is directly beneath the receiver hook 39. The clamps 18, 19 are bolted securely by means of the bolts and nuts 20, 21 at a height such that when the hook 39 is in its lowest position, that is when the telephone is not in use, it rests upon push button 32 and forces the screw head 33 against the fixed contact 14, thus normally closing the circuit through the switch 13.

The inner surfaces of the clamps 16, 17 are provided with a felt lining 41 to protect the finished surface of the telephone stand as well as to secure a firmer grip for the clamps. The length of bolts 20 is judiciously chosen so that the clamps may be adjusted to any modern type of telephone.

After the switch has been adjusted as described above one of the speaker wires 11 is connected to one terminal of the switch while the other wire leading from the other terminal is connected to the speaker plug of the radio set.

Switch 13 then operates automatically. When the telephone receiver 40 is on the hook 39 the radio switch 13 is closed and the speaker circuit is closed so that the radio operates with full volume. When anyone lifts the telephone receiver to use the telephone the radio audio switch 13 automatically opens due to the fact that pressure being removed from push button 32, contact member 15 springs away from stationary contact member 14 and the radio becomes silent until the receiver is hung up. Hanging the receiver in place closes switch 13 again and the radio resumes operation at normal volume. The inconvenience of turning off the radio before using the telephone is therefore eliminated by means of my invention.

It will also be noted that in the exercise of my invention I do not disturb any part of the telephone equipment and do not use any element thereof as a part of any circuit.

An important feature of my new and improved switch is that all the parts described above are detachable and renewable. After the switch is installed it requires no attention. It is fastened at one side only of the telephone stand and leaves the opposite side wholly open so that it may be used on differently sized telephone stands or even on differently shaped stands.

The control of the speaker circuit by means of my telephone operated switch is not an arbitrary selection among the several circuits employed in modern radio sets. By controlling the speaker circuit it is possible to use several speakers connected to the same radio set and to cut out that speaker, alone, which is in the same room as, or in proximity to, the telephone that is being used, while the other speakers remain in operation.

I have illustrated this feature in Fig. 6 wherein I have shown several speaker circuits in parallel on a common speaker plug 10. The radio set is supposedly located in one room while the speakers 12 are located in different rooms. Each room is provided with a telephone and each telephone has mounted thereon a switch 13 such as described above so that each individual speaker circuit is controlled by a telephone operated switch 13.

When the telephone is used in any one of the rooms the switch 13 on that telephone will open the circuit of its associated speaker

so that radio reception will immediately cease in that room. This however will have no effect upon the other speakers in the other rooms which will continue in operation. When the receiver is hung up reception will be resumed as in the case of a single circuit described above.

If my switch were adapted to the filament or grid circuits of the radio tubes, as this may be done, it will be seen that the radio set itself would stop operation so that the individual speakers would stop throughout when the telephone would be used in any one room. The advantages of selecting the control of the speaker circuit are therefore obvious. Furthermore this circuit is usually outside of the set so that it is more readily accessible for the insertion of my switch.

I wish it to be understood that the term "speaker" has been used herein to designate ear-phones as well as loud speakers.

Having thus described my invention, what I claim is:

1. The combination with a subscriber's telephone outfit of a switch for a radio speaker circuit and means whereby when the receiver is removed from its hook the speaker circuit will be opened, said means consisting of two contact members one of which normally tends to rise upwardly against the telephone hook.

2. In combination with a telephone stand, a radio speaker circuit, a switch in said circuit mounted on the telephone stand, and contact members for said switch one of which normally lies in the path of the telephone hook and is normally depressed thereby to close the circuit.

3. In combination, a plurality of radio speaker circuits in parallel on a common radio plug, a plurality of telephone stands, a switch mounted on each telephone stand controlling each of said circuits, and means for normally closing said switches, said means comprising an element of said telephone stands.

4. In a radio set control, a radio speaker plug, a plurality of speaker circuits arranged in parallel thereon, a telephone stand in association with each speaker circuit, means on each telephone stand for normally closing each speaker circuit when its associated telephone is not in use and means for opening any one, and that one only, of the speaker circuits when its associated telephone is in operation.

5. In a switch, a pair of clamping members adapted to be mounted on a telephone stand, a flange integral with each clamping member, means for fastening said flanges together and in place on the telephone stand, an upwardly projecting portion integral with each one of said flanges and terminating in a flat extension, a binding post in each of said extensions, a stationary contact member mounted on one of said posts and a movable contact member mounted on the other of said posts.

6. In an electric switch, a pair of clamping members, a flange integral with each one of said clamping members, means for fastening said flanges together, an upwardly projecting portion integral with each of said flanges and terminating in a flat extension, a binding post in each of said extensions, a stationary contact member on one of said posts and a movble contact member on the other of said posts, a push button on the latter contact member, a cover extending over the flat extensions and encircling the contact members, an opening in said cover through which the push button protrudes, means for securing the cover in place and means for maintaining it away from said contact members.

7. In a switch device, a pair of clamping members adapted to be mounted on a telephone stand, a flange integral with each clamping member, means for fastening said flanges together and in place on the telephone stand, an upwardly projecting portion integral with each of said flanges and terminating in a flat extension, a binding post on each of said extensions, means for attaching current conducting wires to each of said binding posts, a stationary contact member mounted on one of said posts, and a movable contact member on the other of said posts controlled by the telephone hook.

8. In a circuit supplying energy to a radio speaker, a switch for making and breaking said circuit, means for mounting said switch on a subscriber's telephone outfit, and means for controlling said switch comprising an element of the telephone, said switch being separate from the subscriber's telephone outfit.

9. In a circuit supplying energy to a radio speaker, a switch for making and breaking said circuit, a telephone stand including an ear-piece, means for mounting said switch on the telephone stand, and means controlled by the ear-piece for closing the switch when the ear-piece is not in use and for opening said switch when the ear-piece is in use.

In testimony whereof I affix my signature.

JOSIAH G. LEWIS.