

Sept. 17, 1940.

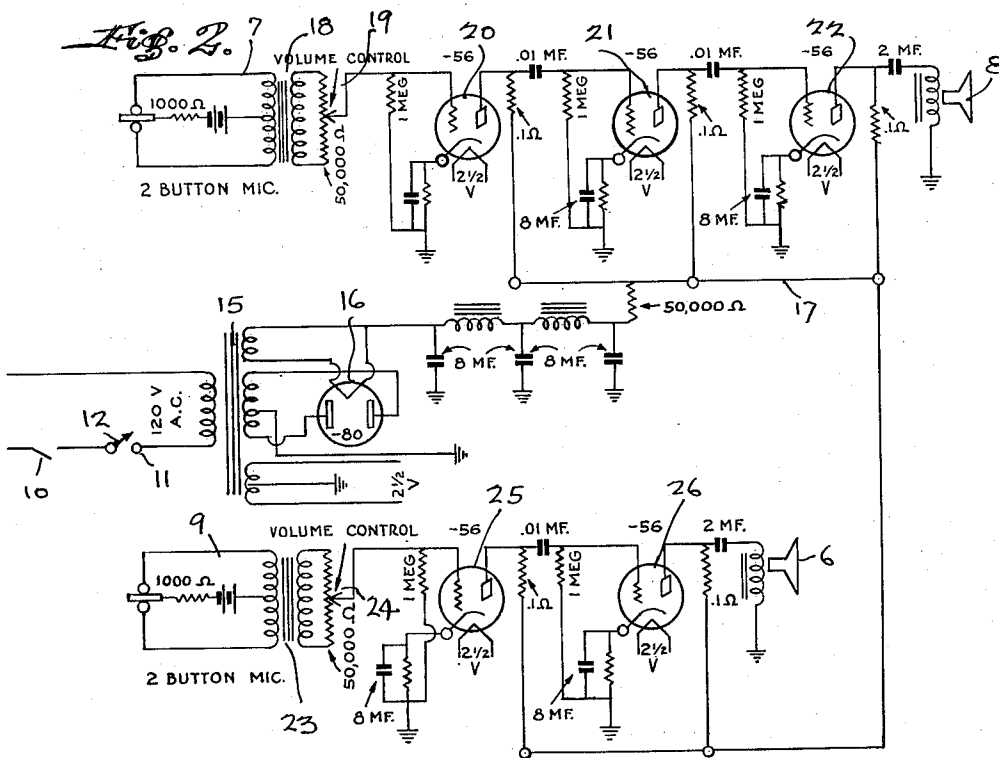
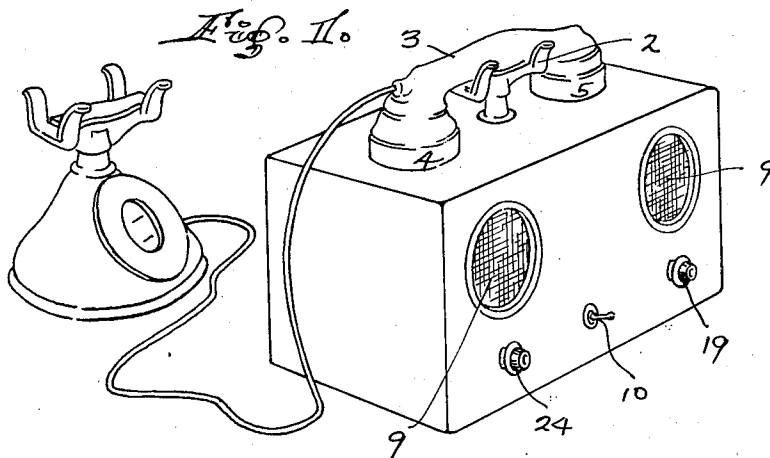
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2,214,992

RECEIVER AND TRANSMITTER FOR TELEPHONE DESK SETS

Filed May 27, 1936

3 Sheets-Sheet 1



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RECEIVER AND TRANSMITTER FOR TELEPHONE DESK SETS

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3 Sheets-Sheet 2

Fig. 3.

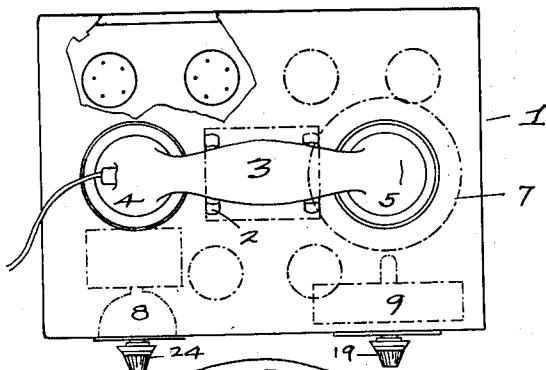


Fig. 4.

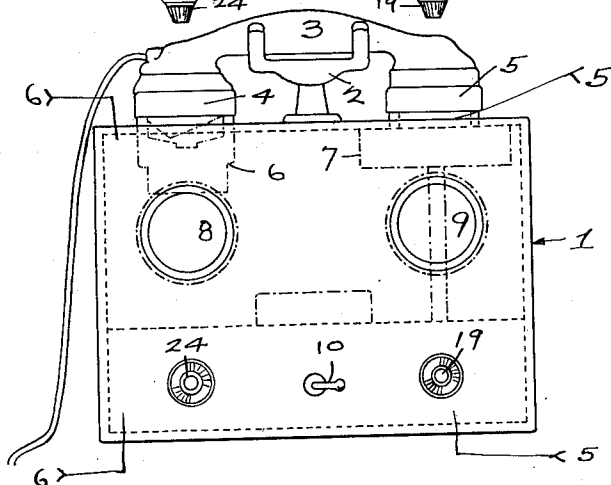


Fig. 5.

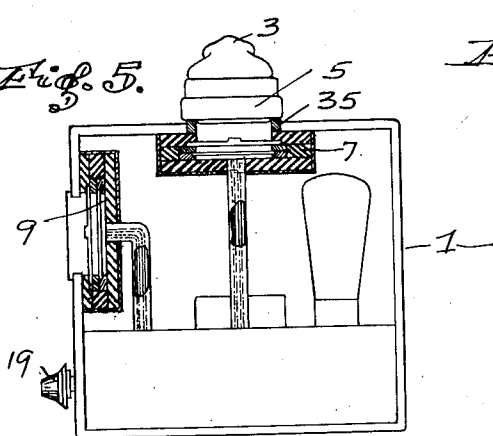
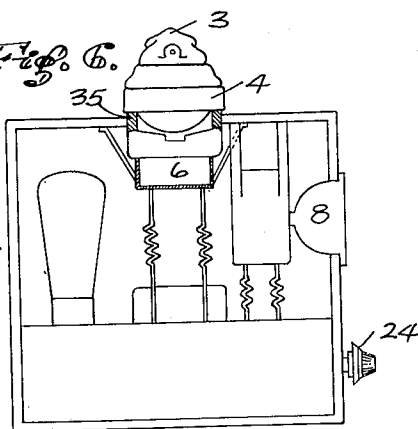


Fig. 6.



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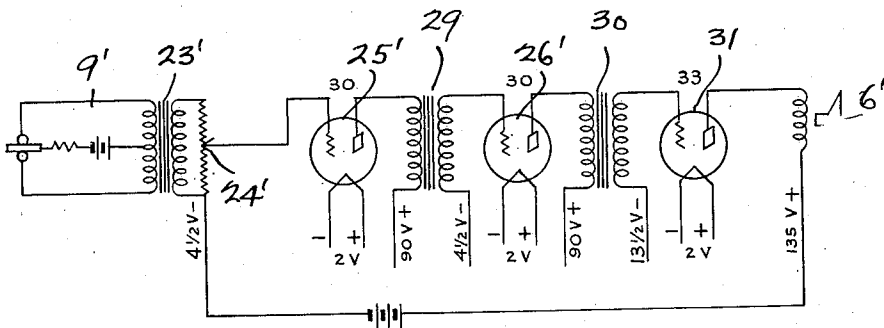
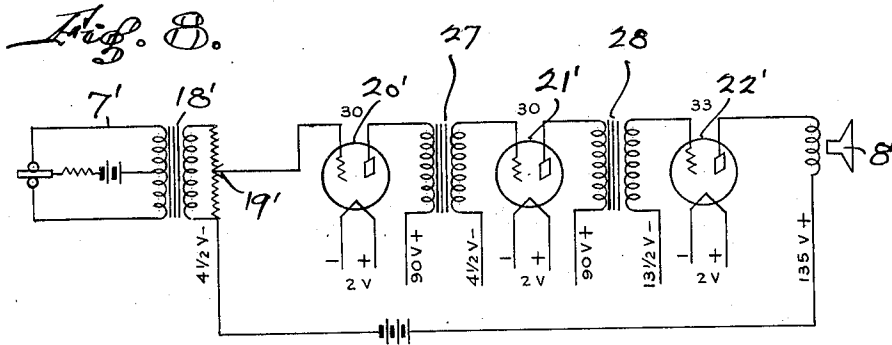
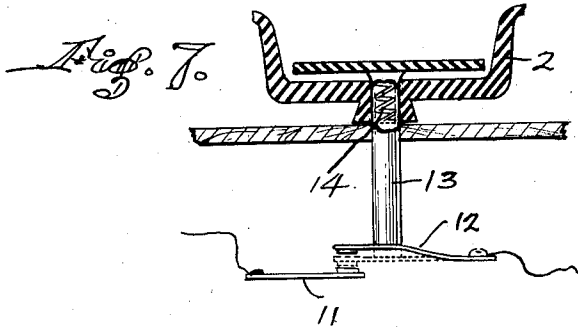
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RECEIVER AND TRANSMITTER FOR TELEPHONE DESK SETS

Filed May 27, 1936

3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

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RECEIVER AND TRANSMITTER FOR
TELEPHONE DESK SETS

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Application May 27, 1936, Serial No. 81,975

4 Claims. (Cl. 179—81)

This invention relates particularly to a sound receiving and transmitting device to be used in conjunction with the mouth piece and ear receiver of a telephone, whereby amplification of the sound being received and sent is accomplished.

An object of the invention is to provide a cabinet of small and compact size containing a pair of tube circuits for sound amplification, one of said circuits having a microphone adjacent the telephone receiver, and a loud speaker connected therewith, while the other circuit is provided with a microphone and a loud speaker adjacent the telephone transmitter, said circuits being rendered operative by placing a combined receiver and transmitter thereon, and inoperative when the receiver-transmitter is removed therefrom.

A further object of the invention is to provide a sound amplifying set to be placed on a desk, and on which a telephone transmitter-receiver may be placed to enable the occupant of the desk to converse over the telephone through the sound amplifying set without having to support the telephone receiver-transmitter in the hand.

A still further object of the invention is to provide a sound amplifying apparatus to be used in conjunction with a telephone receiver-transmitter, that will be superior in point of simplicity, inexpensiveness of construction, positiveness of operation, and facility and convenience in use and general efficiency.

In this specification and the annexed drawings, the invention is illustrated in the form considered to be the best, but it is to be understood that the invention is not limited to such form, because it may be embodied in other forms; and it is also to be understood that in and by the claims following the description, it is desired to cover the invention in whatsoever form it may be embodied.

In the accompanying drawings:

Fig. 1 represents a perspective view of a telephone desk set and a sound amplifying set constructed in accordance with my invention, and showing the telephone receiver-transmitter supported upon my sound amplifying apparatus.

Fig. 2 is a schematic diagram of the circuits used in my sound amplifying apparatus, where alternating current is used.

Fig. 3 is a plan view of my sound amplifying set showing the telephone transmitter-receiver thereon.

Fig. 4 is a front elevation of Fig. 3.

Fig. 5 is an end view partly in section taken on the line 5—5 of Fig. 4.

Fig. 6 is an end view partly in section, taken on the line 6—6 of Fig. 4.

Fig. 7 is a section taken through the switch for making and breaking contact in the sound amplifying circuit when the telephone receiver-transmitter is placed thereon or removed therefrom.

Fig. 8 is a schematic diagram of the sound amplifying circuits where direct current or battery current is used.

The invention to be hereinafter described consists of a relatively small cabinet or box 1, containing a pair of like circuits for the amplification of incoming and outgoing sounds, and having a bracket 2 on the upper side thereof to support a combined telephone receiving and transmitting member generally designated by the numeral 3, which member includes the mouth piece or transmitter 4, and the receiver or ear piece 5.

In operation the member 3 is placed on the bracket 2 so that the transmitter 4 registers with a loud speaker 6, which opens out through the upper side of the box 1, while the receiver 5 registers with a microphone 7, likewise opening out through the upper side of the box 1. Sound which comes through the receiver 5 actuates the microphone 7, which in turn, through an amplifying circuit, amplifies the sound and broadcasts it through the loud speaker 8 in the front of the box 1. A microphone 9 provided on the front of the box is connected through an amplifying circuit with the loud speaker 6, whereby the outgoing sounds are amplified before being broadcast into the telephone transmitter 4.

The amplifying circuits are operated by alternating current, a manually operable switch 10 in the front of the box 1 being provided to make and break connection with the supply of current. A switch is also provided in the current circuit consisting of a stationary contact member 11 and a movable contact member 12, the movable contact member having a plunger 13 thereon which is slidably confined in the bracket 2.

A spring 14 is provided around the plunger 13 to maintain the plunger in an elevated position to cause the circuit through the switch members 11 and 12 to be broken. When the telephone transmitter-receiver element is placed on the bracket 2, it causes the plunger 13 to be moved downwardly and to establish contact between the switch members 11 and 12. Thus whenever the telephone receiver-transmitter is placed on the supporting bracket 2, the sound amplifying circuits are immediately energized, and sound amplification will be accomplished through the set,

both to and from the telephone transmitter-receiver.

The incoming alternating current is connected to one side of a transformer 15, the other side of said transformer 15 having conventional connections to a full wave rectifying tube 16. The rectified current is connected through wires 17 to each pair of amplifying circuits, between the tubes in said circuits which produce the various stage audio amplifications in said circuits.

In Fig. 2 the uppermost circuit consists of a microphone 7 connected to the speech input transformer 18. A volume control 19 works off of the transformer 18 and connects to the grid of the detector tube 20. The output of the detector tube passes into two speech audio amplifiers consisting of the first stage tube 21 and the second stage tube 22, the second stage tube 22 being connected to the loud speaker 8. The other amplifying circuit consists of the microphone 9 connected to the speech input transformer 23. A volume or modulator control 24 works off of said transformer and is in turn connected to the amplifying tubes 25 and 26, the last stated amplifying tube being connected to the loud speaker 6.

Inasmuch as the circuits and the necessary connections for the tubes, the various resistances, condensers, etc., form no part of the present invention, and many forms of amplifying hook-ups might be provided, it is to be understood I do not limit myself specifically to the wiring diagrams shown, and for that reason the circuit diagrams have not been specifically described.

In Fig. 8, a pair of circuits are shown for use in connection with battery current, there being one complete circuit for the amplification of the incoming sound, and another circuit for the amplification of the outgoing sound.

The incoming sound amplifying circuit includes the microphone 7', speech input transmitter 18', volume control 19', detector tube 20', the first stage audio frequency coupling transformer 27, the first stage amplifying tube 21', the second stage audio frequency coupling transformer 28, the second stage amplifying tube 22', and the loud speaker 8'.

In the companion circuit, I have provided the microphone 9', the speech input transformer 23', the volume control 24', detector tube 25', the first stage audio frequency tube 26', the second stage audio frequency coupling transformer 30, the second stage amplifying tube 31 and the loud speaker 6'.

Where either alternating or battery current is used for energizing the circuits, the signal or sound is successively increased in volume after passing through the audio frequency circuits.

An annular resilient collar 35 is provided around the loud speaker 6 and the microphone 7 where the same project through the upper face of the cabinet, to establish a temporary sound-

proof connection with respectively the receiver and the transmitter of the telephone, thus preventing extraneous sounds from interfering with the sounds being transmitted from the telephone apparatus to the sound amplifying apparatus.

Having thus described this invention, what I claim and desire to secure by Letters Patent is:

1. An auxiliary pick up and amplifying means for use with a telephone transmitter and receiver, comprising a portable container, a depressible bracket on said container to support a unitary receiving and transmitting instrument of a telephone hand set, a switch associated with said bracket and closed by the depression thereof upon the placing of said instrument thereon, means automatically opening said switch upon the removal of said instrument from said bracket, a microphone in said container adjacent the receiver of said instrument when the same is placed on said bracket, an amplifier and loud speaker in said container operatively connected to said microphone for amplifying incoming sounds picked up thereby, a second amplifier and loud speaker in said container adjacent to the transmitter of said instrument when the same is placed on said bracket, a second microphone in said container operatively connected to said second amplifier and loud speaker for transmitting outgoing sounds thereto, separate electric circuits for each microphone-amplifier and loud speaker, each of said circuits being energized by the closing of said switch.

2. The structure of claim 1, and means for modulating the volume of sound passing through each of said circuits.

3. An auxiliary pick up and amplifying means for use with a telephone transmitter and receiver, comprising a portable cabinet, means on said cabinet for supporting the receiver and transmitter of a telephone instrument thereon, a normally open switch in said cabinet, said means on said cabinet being operatively connected to said switch for closing the same when said instrument is placed thereon, a microphone in said cabinet adjacent the receiver of said instrument when the same is placed on said means, an amplifier and loud speaker in said cabinet operatively connected to said microphone for amplifying incoming sounds picked up thereby, a second amplifier and loud speaker in said cabinet adjacent to the transmitter of said instrument when the same is placed on said means, a second microphone in said cabinet operatively connected to said second amplifier and loud speaker for transmitting outgoing sounds thereto, separate electric circuits for each microphone-amplifier and loud speaker, each of said circuits being energized by the closing of said switch.

4. The structure of claim 3, and means for modulating the volume of sound passing through each of said circuits.

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