Jan. 10, 1939. E. L. BROWN 2,142,993

RADIO TELEPHONE EQUIPMENT

Filed June 8, 1936 2 Sheets-Sheet 1

FIG_1_

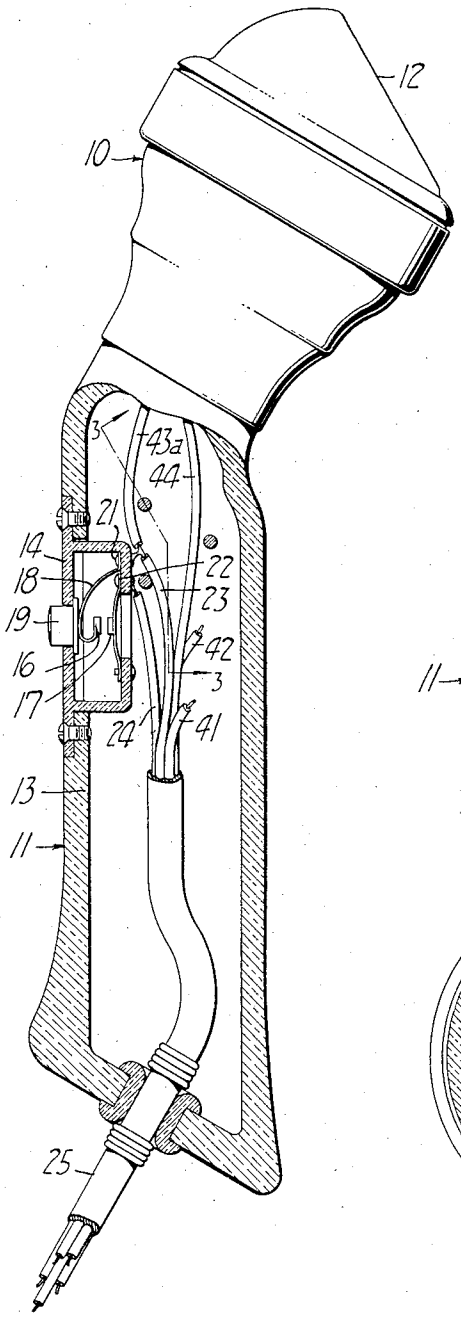


FIG_2_

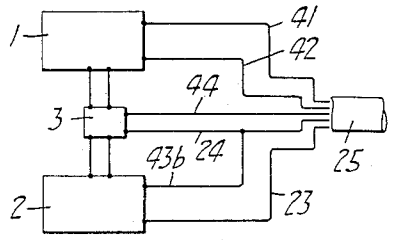


FIG_3_

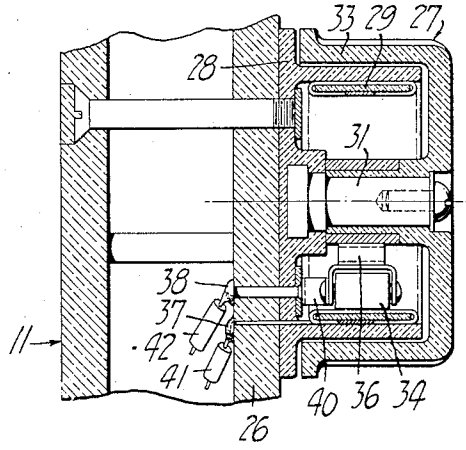
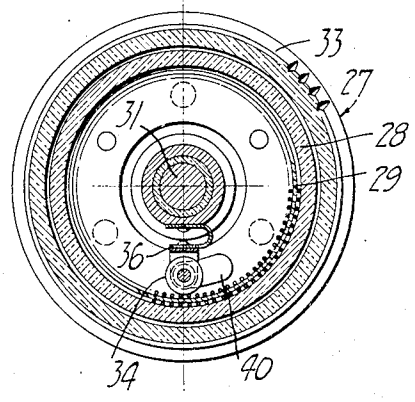


FIG_4_



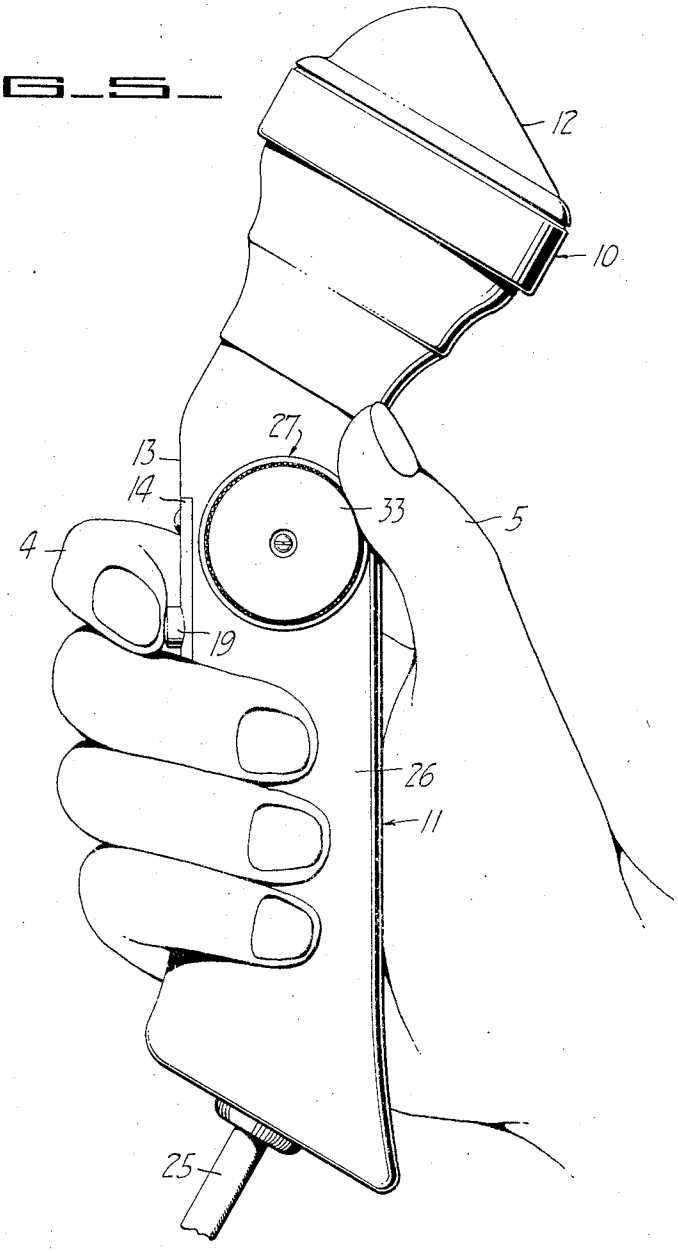
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FIG. 5



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UNITED STATES PATENT OFFICE

2,142,993

RADIO TELEPHONE EQUIPMENT

Elmer L. Brown, San Francisco, Calif., assignor to Edward C. Baxley, San Francisco, Calif.; Grace A. Baxley guardian of said Edward C. Baxley, insane

Application June 8, 1936, Serial No. 84,097

1 Claim. (Cl. 250—13)

This invention relates generally to telephone equipment making use of a telephone transmitter or microphone. It has particular application to radio equipment capable of two-way telephone communication.

In connection with two-way radio telephone communication, such as is employed in police radio systems, each of the mobile units of the system includes radio receiving and sending apparatus, in conjunction with a microphone, and a change over or talk control for alternately making the receiver and transmitter operative. The volume control incorporated with the receiving apparatus of each mobile unit, requires frequent adjustment, due principally to varying distances from the central station, and to variations in the conditions of reception. An inconvenient location for the volume control device, or for the talk control, such as has been used in the past, materially impairs the general efficiency of such a system, and may be the cause of errors in addition to generally slowing up the speed of communication.

It is an object of the present invention to provide a radio telephone unit of the above character, which will make it possible for one hand of the operator to not only support the telephone or microphone, but to also control the apparatus with which the microphone is connected. Thus I provide a handle for the microphone, which also serves as a mounting for the volume control device. The handle also serves as a mounting for a talk control switch, whereby the operator can properly control the radio receiver and transmitter for two-way communication.

Further objects of the invention will appear from the following description in which the preferred embodiment of the invention has been set forth in detail in conjunction with the accompanying drawings.

Referring to the drawings:

Fig. 1 is a side elevational view, partly in cross-section, illustrating a construction incorporating the present invention.

Fig. 2 is a diagrammatic circuit diagram, illustrating connections to radio receiving and transmitting apparatus.

Fig. 3 is a cross-sectional detail taken along the line 3—3 of Fig. 1, and showing the volume control device.

Fig. 4 is a cross-sectional detail taken along the line 4—4 of Fig. 3.

Fig. 5 is a side elevational view showing the apparatus of Fig. 1 in use by an operator.

The construction illustrated in Fig. 1 incorporates a microphone 10, of a type suitable for use with radio telephone transmitters. The detailed construction of such microphones is well understood by those skilled in the art, and need not be described. The microphone is mounted upon one end of a handle 11, which is preferably shaped like the grip of a pistol, to conveniently fit the hand of an operator. The microphone is shown disposed at an angle to the longitudinal axis of the handle 11, so that when the handle is held in a natural position, one can easily speak into the opening 12, of the microphone. The handle is made hollow, and of a suitable material, such as a molded phenolic condensate product.

The rear wall 13 of the handle is cut away, to accommodate a talk control switch 14. While the details of this switch may vary, the representative type illustrated includes a movable contact 16, which cooperates with a stationary electrical contact 17. Movable contact 16 is carried by the spring strip 18, which serves to urge the operating button 19 to projected position. When the button 19 is depressed, the contacts 16 and 17 are closed. The terminals 21 and 22 of switch 14 are connected to the conductors 23 and 24, which form a part of the flexible extension cord 25.

Mounted upon the side wall 26 of the handle 11, there is a volume control device 27, in the form of a variable resistor. The representative type of volume control device illustrated consists of a mounting 28, of insulating material, carrying the resistor element 29. Journalled upon a fixed shaft 31 there is a control knob 33, which can likewise be formed of a phenolic condensate product.

The resistor element 29 is engaged by a roller contact 34, which is connected to the knob 33 by means of spring arm 36. Thus as the knob 33 is rotated, roller 34 varies its point of contact with the resistor element 29. In making electrical connections to this control device, one terminal 37 connects to one end of the resistor element 29. The other terminal 38 connects to a slip ring 39, which is engaged by a contacting brush 40, the brush being in turn carried by the mounting for roller 34. Terminals 38 and 39 are shown connected to the conductors 41 and 42, which also form a part of the flexible cord 25. Conductors 43a and 44 are shown extending from the terminals of the microphone 10. Conductor 43a can be connected to the conductor 23 of flexible cord 25, while conductor 44 can form a part of this cord.

Fig. 2 diagrammatically shows representative connections between the remote end of flexible cord 25, and short wave radio transmitting and receiving equipment, designated by numerals 1

and 2 respectively. A relay switch 3 connects to both the receiver and transmitter, and is controlled by opening and closing of the conductors 24 and 44. Thus upon depressing the operating button 19 of switch 14, conductors 24 and 44 are closed, and the relay switch renders the receiver inoperative, and the transmitter operative for transmission. Conductors 41 and 42 connect to proper electrical means in the receiver 1, and in a manner well known to those skilled in the art, when the resistance interposed across these conductors is varied, as by turning the control knob 33 of the volume control device 27, the volume of signals received is adjusted to any desired level. Conductors 23 and 43*b* connect with the transmitter 2, the latter being in effect an extension of conductor 43*a*. Thus voice frequencies or messages spoken in the microphone are broadcast, when switch 14 is closed.

Fig. 5 affords a better idea of the manner in which the invention is used in practice. The handle 11 has been shown gripped by the hand of an operator. The forefinger 4 rests upon the operating knob 19, for a convenient opening and closing of the switch 14. The thumb 5 is shown resting upon the control knob of the volume control device 27, so that during periods of reception the volume of received signals can be raised to a desired level.

It is evident that with the equipment described above a mobile radio unit can be maintained in uninterrupted two-way communication with a central station, with more or less continuous control of the volume by the operator. Since only one hand of the operator is required for all functions, the operator is free to otherwise be engaged, as for example in the driving of an automobile or motorcycle which is equipped with the apparatus. A similar arrangement can be employed at the central station, or in conjunction with other telephonic apparatus where it is advantageous for an operator to have a portable microphone in conjunction with a remote control.

I claim:

In radio telephone equipment including transmitting and receiving apparatus, a portable telephone transmitter connected to the transmitting apparatus, a handle serving as a mounting for the transmitter and affording a pistol-like grip for one hand of an operator, a talk control switch mounted upon said handle and electrically connected to said apparatus, whereby when said switch is operated the radio transmitter and receiver can be made alternately operable, said switch including an operating member extending from the rear face of the handle, and a volume control device mounted on the handle and electrically connected to the receiving apparatus for varying the intensity of signals received, said device including a shaft extending from one side of the handle near that end of the handle which is attached to the telephone transmitter, and a volume control knob rotatably carried by said shaft.

ELMER L. BROWN.