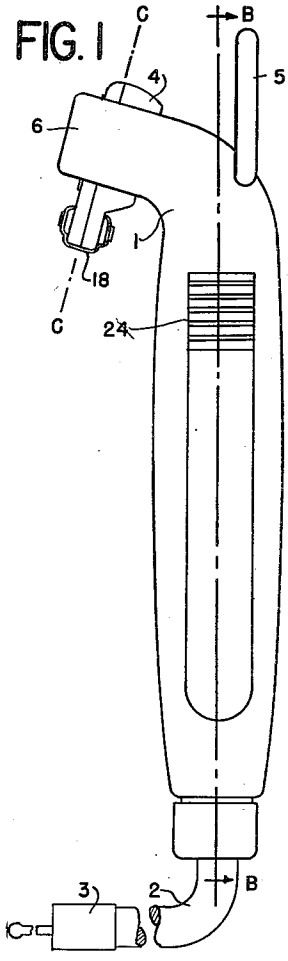
Nov. 12, 1946. H. C. PYE 2,410,899

MICROPHONE HANDLE

Filed May 25, 1944

FIG. 1



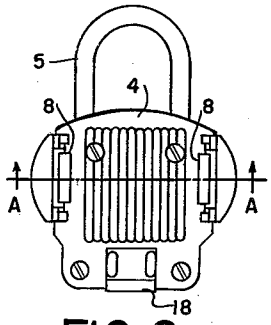


FIG. 2

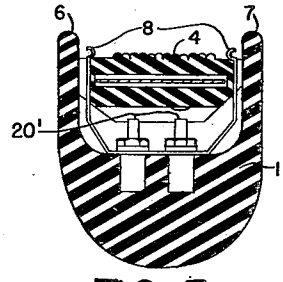


FIG. 3

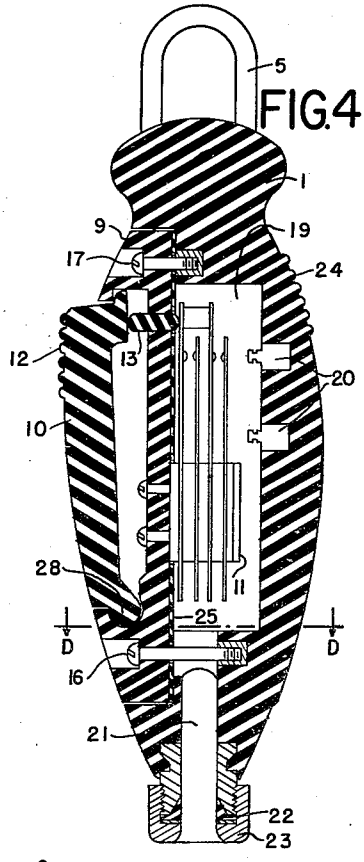


FIG. 4

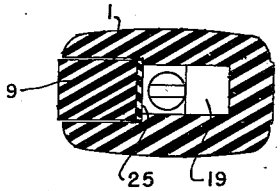


FIG. 6

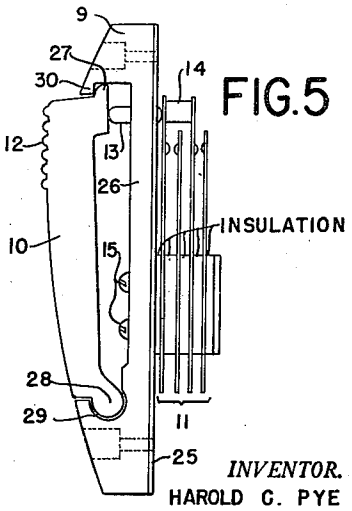


FIG. 5

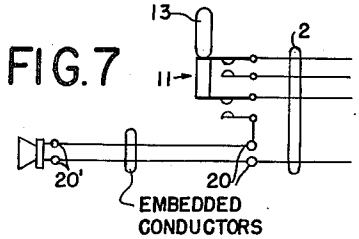


FIG. 7

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MICROPHONE HANDLE

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Application May 25, 1944, Serial No. 537,335

6 Claims. (Cl. 179—146)

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This invention relates to handles or receptacles for mounting microphones and transmitters in general, but is particularly concerned with a handle or grip for a sound cancelling microphone.

An object of the invention is to provide a handle or grip like mounting for a lip or noise cancelling microphone which can be carried in one hand and applied to the lips only during use.

One of the novel features of the invention is the manner of mounting the microphone unit between two fork like projections, from the head of the portable handle, which prevents interference with the anti-noise characteristics of the microphone and at the same time, with the projections pressed lightly against the upper lip, assures that the microphone diaphragm will be maintained in the correct position in relation to the lips of the speaker.

Another feature of the invention is the shape of the outer contour of the grip portion of the handle which causes the handle to center naturally in either hand and results in ease in holding the handle and operating the switch lever by simply increasing or decreasing the hand pressure on the grip portion.

Another object of the invention is to provide a switch in the handle which can be operated by simply increasing the pressure on the switch lever by the hand which carries the handle.

Another object of the invention is to provide a microphone switch in the handle which can be operated by whichever hand is being used to carry the handle and therefore the microphone is easily cut into the circuit when required and cut out when not in use.

Another object of the invention is to provide in the handle a cavity or compartment, for the switch and connecting wires, which is water tight.

The above features and others not specifically mentioned are illustrated in the accompanying drawing comprising Figs. 1 to 7, inclusive.

Fig. 1 is a view of the right side of the handle with a microphone, cord and plug added.

Fig. 2 is a front view of the upper portion of the handle showing the microphone held in position by the metal clips between the fork like projecting portions. This view also shows a metal loop attached to the top end of the handle for storage purposes.

Fig. 3 is a sectional view along the line AA of Fig. 2 showing the position of the microphone in relation to the fork like projecting portions.

Fig. 4 is a sectional view taken along the line BB of Fig. 1 showing the contact spring assembly

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and the actuating lever, a portion of which is ribbed.

Fig. 5 is a view of the contact lever and the contact springs assembled in an especially designed cover member which can be installed in a recessed portion of the handle and fastened by two screws, thus forming a water tight compartment for the spring contacts and the terminals of the cord and microphone circuits.

Fig. 6 is a sectional view along the line DD in Fig. 4 showing comparative sizes of the opening in cavity 19 and the cover member 9.

Fig. 7 is a diagram showing the circuit connecting the elements.

Referring to the drawing, the handle 1 is designed as a portable means for carrying a known type of lip or noise cancelling microphone or transmitter, and is provided with a cord and plug to connect the microphone 4 into another circuit. A novel switch is also provided in the handle to open and close power or other circuits and to switch the microphone into and out of the circuit. The handle is especially designed to fit either the left or right hand and, when in the hand, naturally centers in the proper position for perfect ease in manipulation of the switch lever to open and close the circuits. The upper portion 12 of the switch lever, as well as a portion of the handle 24 opposite the upper portion of the lever, is ribbed to facilitate a firm grip on the handle and lever during the time the switch lever is depressed to close the switch contacts. The molded case 1 is made of Bakelite or other similar material, preferably insulating material, and contains a cavity 19 in which can be mounted one or more sets of switching contacts. The case also contains a pair of terminals 20 in the back of the switch cavity 19 connected with similar terminals 20', located in the upper part or head of the handle, by wires (not shown) embedded in the Bakelite. These latter terminals 20' are connected to the microphone or transmitter by wires as indicated, or the terminals may be equipped with spring contact points which will make contact with the microphone terminals when the latter is held in place by the spring clips 8, Fig. 3.

The cord 2 having a plurality of conductors is connected at one end to the terminals of the contact springs and at the other end to a plug 3 which can be inserted in a jack, or by other means connect the microphone to an external circuit. One method of connecting the elements is shown in Fig. 7. The cord passes through an opening in the lower end of the handle or grip. This hole is provided with a rubber (or rubber substitute)

gasket 22 and the end is protected by a threaded ring 23 which, when screwed down grips the cord between the rubber gasket and the edges of the opening in the Bakelite in such a manner as to form a water tight joint.

Attached to the upper part of the grip is an inverted U shaped metal hook 5 for convenience in storing the handle on a pin or peg, when not in use. This is shown in Figs. 1, 2 and 4.

It will be noted that the upper portion of the head of the handle, is U or fork like in form and the two ends 6 and 7 (Figs. 1, 2 and 3) are the proper length to maintain the microphone or transmitter diaphragm at the correct distance from the mouth of the user when these ends (6 and 7) are held against the upper lip with slight pressure. When in use, the handle is held with its lower end a short distance away from the chin in order to locate the diaphragm of the microphone, which is along the line CC, Fig. 1, at a vertical angle before the lips of the speaker.

The microphone is held in place in the head of the handle between the fork like portions 6 and 7 by a spring clip 8 as shown in Figs. 2 and 3. There is a guard 18 over the openings in the front and back of the transmitter housing by which openings, sound is conveyed to the surfaces of the diaphragm.

Fig. 3 shows the microphone held in position by the spring clip 8 between the fork like portions 6 and 7. The spring clip 8 is held in position by suitable washers and lock nuts on the threaded portions of the knurled studs or terminals 20' which are embedded in the head of the handle and wired or otherwise connected to the terminals of the microphone, and at the same time the spring clips are insulated electrically from said studs.

There is a cavity 19 formed within the handle, in which is mounted the assembly comprising the member 9 supporting the contact springs 11, and the contact lever 10. This arrangement and the opening 21 for the cord with a screw ring 23 and rubber gasket 22 is shown in Fig. 4.

Fig. 5 shows the details of the assembly on member 9 which normally is held in place in the handle 1 by the screws 16 and 17. It will be noted that the set of contact springs 11 is mounted on the inside of wall 26 of member 9, with their free ends opposite the movable end of contact lever 10 and that any movement of lever 10 is communicated to the movable springs of the spring assembly by means of a plunger 13 which passes through the wall 26, the inner side of which is equipped with a rubber (or substitute for rubber) gasket 25. This rubber gasket contributes to the sealing of the cavity or recess 19 in the central portion of the handle 1 when member 9 is inserted in the handle 1 and is clamped in position over the cavity 19 by the screws 16 and 17, as shown in Figs. 4, 5 and 6. One end 28 of contact lever 10 is shaped like a rod or roller and fits into a recess 29 of semi-circular shape in the member 9 to provide the necessary movement of the lever without use of common forms of hinge and without additional parts. The part 28 must be inserted into opening 29 from the side before the switch assembly is mounted in the handle. The other end of lever 10 is ribbed on its outside at 12 near the top, opposite the ribbed portion 24 of the handle 1 on the side opposite lever 10. These ribbed portions facilitate a firm grip to hold lever 10 in its operated position when closing the microphone circuit. On the inside of the top end of lever 10 a projection

27 is provided and in combination with a projection 30 on the member 9 limits the outward movement of lever 10 in respect to the wall of member 9. The set or sets of contact springs 11 are mounted on the wall of member 9 by the screws 1, with the rubber gasket 25 inserted between the contact spring set and the wall 26. The lever 10 is placed with its roller shaped end 28 in the semi-circular recess 29 and the top end with a projection 27 underneath the portion 30 of the member 9, with plunger 13 in the opening between the lever 10 and the set of contact springs behind wall 26. The gasket 25 has a hole which fits tightly over the inner end of plunger 13. The springs exert sufficient pressure on the plunger 13 to hold projection 27 against projection 30 and thus a complete assembly is arranged for inserting into the handle 1 and may be clamped in position by the screws 16 and 17. Thus it will be noted that a water tight compartment has been provided for the spring assembly with an actuating lever on the outside.

The electrical circuit between the incoming conductors of the cord and the microphone or transmitter is shown in Fig. 7. Short lengths of conductors may be used between the spring assembly and the embedded studs 20 in the bottom of the cavity of the handle, also short lengths of conductors may be used between the embedded terminals 20' in the head, and the microphone 4. Another method is to provide the studs 20' with spring clips in such a manner that the connections will be made between the studs and the transmitter terminals by simply placing the transmitter in position between the fork like projections and pressing back under the spring clips.

What is claimed is:

1. A noise cancelling microphone support, including a carrying handle shaped to fit naturally into either the left or right hand of the user having a projecting fork like head for mounting a microphone between two projecting forks, spring clips holding said microphone in position, a water tight cavity within said handle, terminals and a spring contact switch for opening and closing the circuit to said microphone and to the exterior circuits mounted in said cavity, a cover member for said cavity with a rubber gasket between said cavity and said cover to render said cavity water tight when said cover member is held in position, a plunger passing through the rubber gasket and through one wall of said cover member to communicate any movement of said plunger to the contact switch, a hand operated lever attached to the outside of said cover member to actuate said plunger, wires embedded in said handle for connecting the terminals of the said microphone in the fork shaped head to terminals within said water tight compartment, other wires connecting said terminals to the switch springs, a cord having a plurality of conductors to connect said equipment with the external circuits, the top portion of said lever and a portion of the handle of the side opposite from the lever being ribbed to facilitate maintaining the switch in operation by pressure from the hand which holds the carrying handle.

2. A transmitter support, including a carrying handle shaped to fit naturally into the hand, the head of which has two projecting portions for establishing the correct distance between the transmitter diaphragm and the lips of the speaker when said projecting portions are pressed lightly against the upper lip, a cavity within the said handle to accommodate a switch, a cover

member for said cavity with screws for mounting said cover to said handle, a plunger through the wall of said cover member to operate said switch when said plunger is actuated, a hand lever attached to said cover member for operating said plunger, and means for connecting said transmitter to an external circuit.

3. A hand held microphone, including a holding member shaped to fit naturally into the hand and having projecting portions protruding outward to control the position of the microphone diaphragm in respect to the lips, a water tight compartment in said holding member, a switch in said compartment, a cover member for said cavity having on its outside an actuating lever with one end shaped as a roller to fit into the semi-circular opening in the said cover member, a plunger between said lever and said switch to communicate to said switch any movement of said lever member, ribbed portions of the said lever member and on the outside of the handle opposite said lever member, and means for connecting the transmitter to an external circuit.

4. A hand mounting with a cavity therein supporting a sound cancelling microphone, a switch with a plurality of springs in said cavity, a switch lever for actuating said springs, a pair of projections for fixing the position of the microphone diaphragm in relation to the lips, a hook for

conveniently storing the handle when not in use, a cavity between said projections, a pair of terminals and a spring clip in said last cavity, said spring clip removably holding said microphone between said projections and adjacent said terminals.

5. The combination of a transducer, a portable handle, a forked upper end on said handle, a spring means for removably supporting said transducer within said forked end between the tines thereof, a water tight compartment in said handle, switching springs in said compartment, a plunger slidably mounted in the wall of said compartment, and a lever operated when the handle is grasped by a user for moving said plunger to operate said switching springs.

6. In combination, a noise cancelling microphone, a handle for supporting said microphone having a projecting neck with a recess therein and with projections on either side of the recess to space the same from the lips of the user, a spring clip in the recess for removably holding the microphone between the projections and over the recess, said microphone held with a portion thereof projecting out from the neck of the handle so that both sides thereof are exposed to noise vibrations.

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