

April 21, 1942.

W. E. SCHAUER

2,280,304

CLIP STRUCTURE

Filed May 3, 1941

Fig. 1.

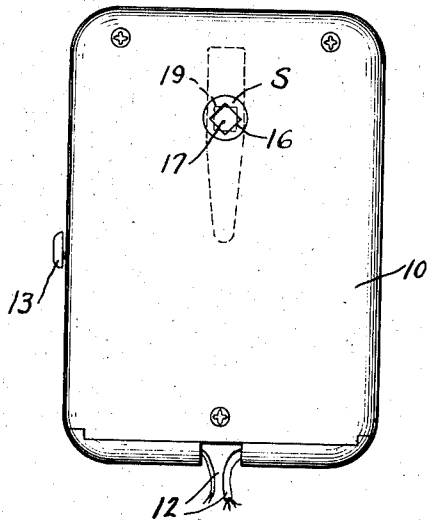


Fig. 2.

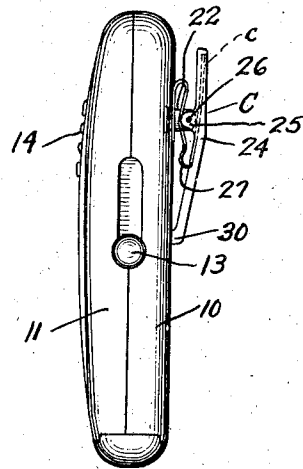


Fig. 3.

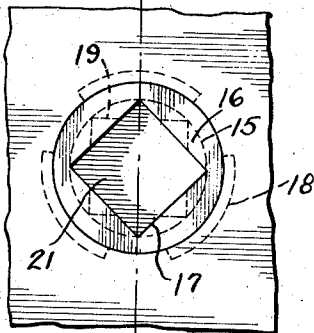


Fig. 4.

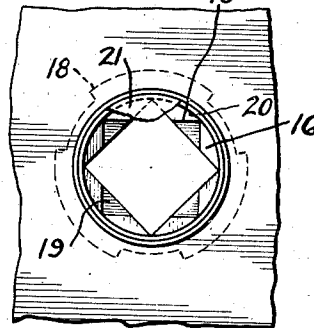


Fig. 5.

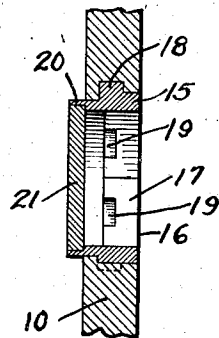


Fig. 6.

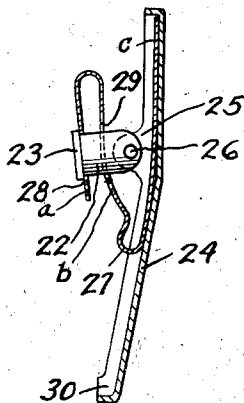
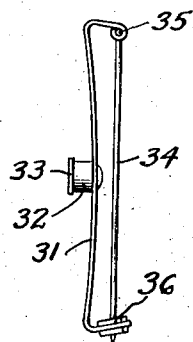


Fig. 7.



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UNITED STATES PATENT OFFICE

2,280,304

CLIP STRUCTURE

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4 Claims. (Cl. 24—3)

My invention relates to clip structure adapted for general use but designed particularly for use on the microphone casing of electrical hearing aid outfits. These microphone casings usually contain thermionic lamps, condensers, coils, and other elements cooperable to amplify the sound received by the microphone for conduction to the ear piece. The microphone casings are usually made as light as possible and of a shape so that they may conveniently be carried in a pocket, when not in use. Sometimes, however, it is desirable to support the casing from some part of the clothing and a convenient clip is desirable which may be attached or detached from the casing.

The important object of my invention is to provide an improved form of clip and receiving means therefor on the casing by means of which it may be attached to the casing and adjusted thereon to various desired positions depending upon the position in which the casing is to be supported.

Another object is to provide an attaching means for the clip in the form of socket structure on the casing and a head or plug element on the clip so that this head or plug may be inserted into the socket against spring resistance and then locked by spring pressure to hold the clip in its various positions of adjustment.

The various features of my invention are incorporated in the accompanying drawing, in which drawing—

Figure 1 is a rear elevation of a microphone casing to which my invention is applied;

Figure 2 is a side view of the casing showing a clip in place thereon;

Figure 3 is an enlarged front view of the socket structure;

Figure 4 is an enlarged rear view of the socket structure;

Figure 5 is a section on plane V—V of Fig. 3;

Figure 6 is an enlarged side elevation, partly in section, of the clip member shown on Fig. 2; and

Figure 7 is a side elevation of a modified form of clip.

The casing shown comprises a rectangular body 10 having a cover 11, conductors 12 leading to a battery pack and ear piece (not shown) extending from the lower end of the casing, a button 13 at one side of the casing being shiftable for cooperation of means for controlling the sound volume delivered to the ear piece. On the front side of the body is a grill 14 for the

entrance of sound waves to be amplified for reception by the ear piece.

The body and cover parts of the casing are preferably of some suitable plastic material, and embedded in the body near one end thereof is the socket structure S for reception of a clip C.

The socket structure comprises an annular wall 15 having in its outer portion a cross wall 16 integral therewith through which wall extends a polygonal passageway 17, the passageway shown being square. Extending from the outer side of the wall 16 are arcuate tongues 18 which project into the molded material of the cover to securely anchor the socket element in place with its outer end flush with the outer side of the casing. The wall 16 is undercut at points midway between the corners of the passageway 17 to form rectangular recesses 19, these recesses outlining the corners of a square of the size of the opening 17 but the recesses being displaced 45° from the corresponding corners of the passageway 17.

At its inner end the wall 15 is recessed to provide the annular shoulder 20, a closure disk 21 being inserted in the recess and against the shoulder so as to close all passageway through the socket structure between the interior of the casing and the exterior thereof.

The clip C shown applied to the casing on Fig. 2 comprises a cylindrical stud 22 terminating in a square head 23 which is substantially of the size of the socket structure passageway 17 so as to pass therethrough. This stud fulcrums the clip lever 24 which, as shown, is of U-shape cross-section and has ears 25 extending therefrom for receiving a fulcrum pin 26 extending through the outer end of the stud 22. An S-shaped spring 27 has in its outer and intermediate portions a and b respectively the registering openings 28 and 29 for receiving the stud 22 between its head 23 and the fulcrum ears 25 on the clip lever, while the outer end c of the spring extends across the rounded outer end of the stud and against the inside of the outer end of the clip lever. When the clip is to be applied to the casing, the head 23 of the clip stud is inserted through the passageway 17 of the socket structure, the end a of the spring then engaging against the outer side of the casing. Pressure is now exerted against the stud until its head reaches the space below the wall 16 and then the clip is rotated 45° to bring the corners of the stud head into register with the undercut recesses 19, and then when pressure on the clip is released, the spring will shift the

stud outwardly with the corners of its head in the recesses 19, the clip being then locked against rotational movement from its set position. The outer end c of the spring pressing against the clip lever will hold the clamping end 30 of the lever against the casing. If it is desired to attach the casing to some part of the clothing, as for example the outer wall of a pocket, the clip can be opened by pressure against the outer end thereof for reception of the pocket material between the casing and the clamping end 30 of the clip. With the socket structure shown, the clip may be set into service position to project its clamping end downwardly, or upwardly, or to the left or right relative to the casing. It is evident that if the socket structure passageway and the clip stud head were of other polygonal shape such as hexagonal or octagonal, the corresponding number of service positions for the clip would be provided.

Different types of clips or fasteners may be used but all embodying the head on the stud for cooperation with the socket structure on the device to be supported. On Fig. 7 a pin type of clip is shown. The clip comprises the bar 31 from which extends the stud 32 with the head 33 for insertion into the socket structure. A pin 34 may be rigidly secured to one end of the bar or, as shown at 35, may be hinged to one end of the bar and suitable safety catch means 36 provided for the pin end at the other end of the bar. The bar 31 is preferably of springy metal and normally bent as shown so that when the clip is pushed with its head into the socket structure S, the ends of the bar will engage against the face of the casing to be supported and the bar will be flexed and its spring reaction will then hold the clip in place after turning thereof to a desired set position.

I thus provide simple and efficient means for detachably applying a clip structure to a device to be supported and for setting the clip structure in any desired position. I do not however desire to be limited to the exact construction, arrangement and operation shown and described as changes and modifications may be made without departing from the scope of the invention.

I claim as follows:

1. A supporting clip structure for the microphone casing of a hearing aid outfit, comprising an equilateral passageway through a wall of said casing, a clip element comprising a clip bar and a supporting stud therefor terminating in an equilateral head of substantially the same size as said passageway whereby when said head is inserted through said passageway and then turned a distance its points will project behind said wall beyond said passageway sides, said wall having recesses in its rear side intermediate the corners of said passageway for receiving the cor-

ners of said head after turning thereof, and spring means on said clip engageable between the clip bar and said casing wall for holding the corners of said head in said recesses to thereby positively lock said clip element against turning from its adjusted position.

2. A clip structure for an object to be supported comprising a passageway through the wall of the object, and a clip element comprising a supporting stud terminating at its inner end in a head insertable through said object passageway and having parts adapted after insertion thereof through said passageway for projecting behind the passageway surrounding walls to function as detents, a clip lever fulcrumed on the outer end of said stud, an S-shaped spring having passageways through its inner and intermediate portions receiving said stud between its head and the fulcrum connection of said lever with said stud and having its outer end projecting across the outer end of said stud and against the inner side of the outer end of said lever, said spring after insertion of said head through said passageway and turning thereof exerting outward pressure to hold said head in detent engagement with the back of said wall to thereby hold the clip element in adjusted position and the outer end of said spring then functioning to swing said lever for clamping engagement against a support inserted between the object and the lever end.

3. A clip comprising a stud, a clip lever fulcrumed intermediate its ends on the outer end of said stud, a head on the inner end of said stud adapted for interlocking engagement with a socket structure on an object to be secured for holding said lever in desired position relative to the object, and a spring on said clip functioning to maintain said interlock and also functioning to yieldably urge said lever against a support between the object and the lever for securing the object to the support.

4. A supporting clip structure for the microphone casing of a hearing aid outfit, comprising a square passageway through a wall of said casing, a clip element comprising a clip bar and a supporting stud therefor terminating in a square head of substantially the same size as said passageway whereby when said head is inserted through said passageway and then turned a distance its points will project behind said wall beyond said passageway sides, said wall having recesses in its rear side intermediate the corners of said passageway for receiving the corners of said head after turning thereof, and spring means between said clip and casing wall for holding the corners of said head in said recesses whereby said clip will be positively locked in any one of four positions against turning.

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