Sept. 29, 1970 J. N. SIMPSON ET AL 3,530,509

SUSPENSION FOR NOISE SUPPRESSING EAR CUPS

Filed May 15, 1968

Fig.1.

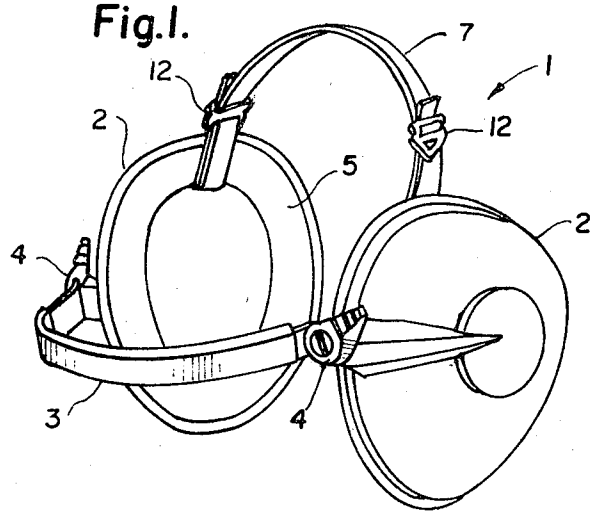


Fig.2.

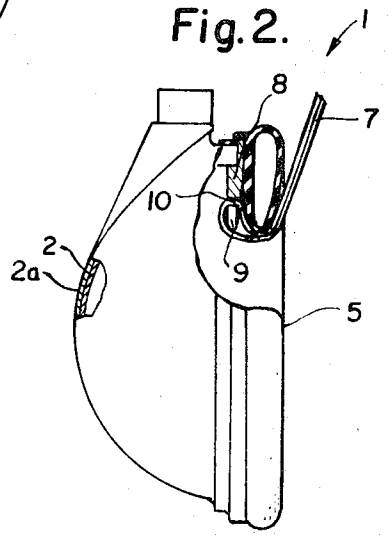


Fig.3.

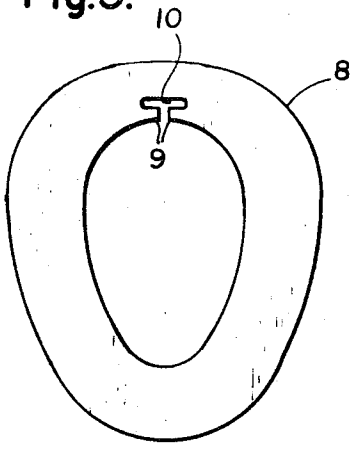
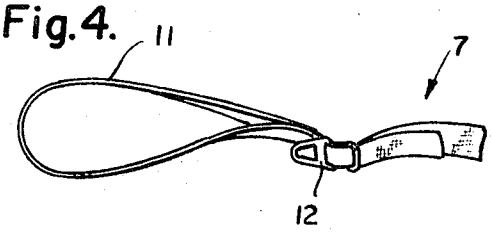


Fig.4.



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SUSPENSION FOR NOISE SUPPRESSING EAR CUPS

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U.S. Cl. 2—209 3 Claims

ABSTRACT OF THE DISCLOSURE

A suspension for noise suppressing ear cups or muffs in which T-slots are provided in the base plates of the ear cups, through which slots the end loops of a headband are fastened to provide a firm, adjustable support for the ear cups. The outer surfaces of the ear cups are preferably coated with a highly polished metallic coating to reflect away heat from the sun or other radian energy as encountered in industry.

This invention relates to improvements in a suspension for a pair of noise suppressing ear cups or ear muffs. More particularly, it relates to a means for anchoring the end loops of a headband to enable the headband to be easily attached to or detached from the base plates of the ear cups.

An outstanding disadvantage of nape type suspensions heretofore provided for supporting noise suppressing ear cups has been the difficulty in keeping the ear cups in place on the wearer's head and tightly sealed about his ears sufficiently so as to effectively suppress industrial noises and the like.

An object of the present invention is to provide a novel nape type suspension and anchoring means for suspending, in a detachable manner, a pair of ear cups for suppressing noises.

A further object of the invention is to provide a unique slot design in the base plates of the ear cups which enable easy insertion and attachment, as well as easy withdrawal and detachment, of the end loops of an adjustable headband which fits either across the top of the head or about the nape of the neck or beneath the chin of the wearer.

Other objects and advantages will become more apparent from a study of the following description, taken with the accompanying drawing wherein:

FIG. 1 is a perspective view of a pair of noise suppressing ear cups having a suspension embodying the present invention;

FIG. 2 is a side view of one of the cups shown partly broken away and in cross-section;

FIG. 3 is a plan view of one of the ear cups showing the slotted base plate thereof; and,

FIG. 4 is a fragmentary, perspective view of an end portion of the headband 7.

Referirng more particularly to FIG. 1 of the drawing, numeral 1 generally denotes a noise suppressing ear cup or ear muff assembly comprising a pair of ear cups 2 of rigid material, such as plastic or metal, which ear cups are provided with oval ring shaped base plates 8 which are preferably slightly tapered in the direction of the opening therethrough, as shown more clearly in FIG. 2, having an angle of about 6 to 9°. Supported on the base plates 8 is a tubular ring for cushion 5 of flexible material, such as rubber or plastic material filled with a fluid, such as a liquid or semi-solid pliable or flowable material, such as a grease, or with foam.

An important feature of the present invention resides in the manner that base plate 8 is slotted for providing an anchor for the end loops 11 of the flexible strap or headband 7. A T-slot is provided comprising a horizontal slot portion 10 and a vertical slot portion 9, into the latter of which the folded end portion 11 of the headband 7 is inserted and then opened in the manner shown in FIG. 2 so that a portion of the end loop 11 enters slot portion 10 and exits immediately below slot portion 9, contacting the inner edge opening of base plate 8, as shown.

Thus it will be seen that each of the end loops 11 of the headband 7 may be easily and quickly anchored to its corresponding base plate or removed therefrom when it is necessary to replace the headband or perhaps the cups. The length of the headband is adjusted by buckles 12.

Rigidly secured to the side edges of the respective ear cups 2 is a telephone headrest type of band comprising a flexible but somewhat rigid tube 3 of arcuate shape into which a strip portion is adapted to adjustably slide, in a well known manner to change the effective arcuate length, and terminating in adjustably rotatable adjusting means 4 for adjusting the clamping pressure of the ear cups as shown in more detail in U.S. Pat. No. 3,457,565. The tube 3 is in a plane substantially at right angles to that of headband 7 and serves as a nape strap in the assembly shown in FIG. 1. However, it should be noted that a modification of the assembly of FIG. 1 may be made simply by employing the tube 3 as the head strap which goes about the top of the head and employing the flexible head strap 7 as a nape strap. In this event, of course, the ear cups 2 would be rotated 90° from the position shown, whereby the adjusting means 4 would be located at the top ends of the cups as presently viewed in FIG. 1.

The outer surfaces of ear cups 2 are preferably coated with a highly polished, mirror-like metallic coating 2a, such as an aluminized or silver coating which may be sprayed onto the cups and thus reflect away radian energy and thereby prevent overheating of the head strap 7, ring 8 and the interior parts of the cup 2.

Thus it will be seen that we have provided an efficient suspension for noise suppressing ear cups or muffs embodying a flexible head strap which is also useful as a nape strap or chin strap and which is easily and quickly anchored to the base plates of the ear cups by inserting the looped ends thereof through T-shaped slots in the base plates which communicate with the openings of the oval base plate rings; furthermore, we have provided noise suppressing ear cups or muffs which are securely held in place in a manner so that the ear cups and their sealing cushions are held firmly about the ears of the wearer and held securely as well as being comfortable by reflecting away the heat otherwise absorbed.

While we have illustrated and described a single specific embodiment of our invention, it will be understood that this is by way of illustration only, and that various changes and modifications may be made within the contemplation of our invention and within the scope of the following claims.

We claim:

1. A headband suspension for suppressing noise comprising a pair of rigid plastic ear cups, each including a ring-like base plate supported on the mouth portion of said cup, a T-slot formed in each base plate formed so that the vertical portion of the T communicates directly with the interior opening of said ring-like base plate, and a headband including end loops inserted in said T slots so that one band portion of each end loop is disposed within the horizontal portion of the T slot and another band portion is disposed immediately below the vertical portion of the T slot engaging an edge portion of the interior opening of the ring-like base plate.

2. A headband assembly as recited in claim 1 including a telephone head set type band in a plane substantially at right angles to that of said headband and having ends ad-

justably secured to the side of said cups so as to fit about the nape of the wearer's neck.

3. A susepnsion as recited in claim 1 including a heat reflective metallic coating on the outer surface of said cups for reflecting away radiant energy and for maintaining the interior of the cups relatively cool and comfortable to wear.

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