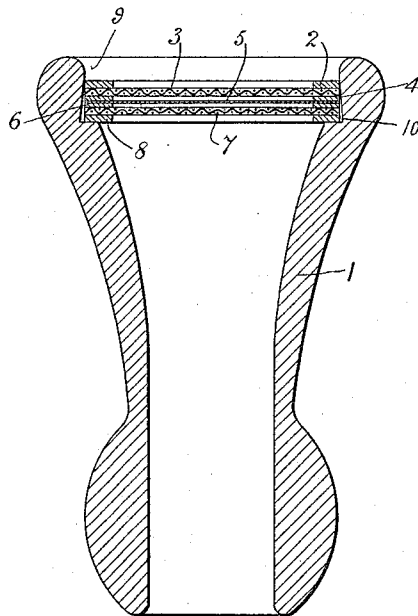


A. MALLOCK.
EAR PROTECTOR.
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1,148,849.

Patented Aug. 3, 1915.



Witnesses.
E. G. Marshall.
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UNITED STATES PATENT OFFICE

ARNULPH MALLOCK, OF LONDON, ENGLAND.

EAR-PROTECTOR.

1,148,849.

Specification of Letters Patent.

Patented Aug. 3, 1915.

Application filed February 12, 1915. Serial No. 7,893.

To all whom it may concern:

Be it known that I, ARNULPH MALLOCK, a subject of His Majesty the King of Great Britain and Ireland, residing at London, England, have invented a certain new and useful Improvement in Ear-Protectors, of which the following is a specification.

This invention relates to appliances which are intended to protect the ear from acoustic shocks, such as occasioned by explosions, and in which one or more vibratory membranes of gold-beaters' skin, or other suitable thin material, are arranged between stop plates of wire gauze and clamped in position by suitable means, thus forming a diaphragm barrier which allows of the transmission of ordinary vibrations while stopping such as are excessive.

In practice it has been found that the component parts of the diaphragm being small and of fragile material are very easily damaged in assembling when handled by the ordinary workmen. According to this invention the several component parts of the diaphragm are formed as one unit, so that it can be readily handled and inserted in the body or holder of the ear protector.

The drawing shows a section of an ear protector constructed according to this invention.

1 is the body or holder of the ear protector into one end of which has been inserted the diaphragm composed of the following elements:—celluloid guard ring 2, wire gauze disk 3, thin celluloid separating ring 4, membrane 5, thin celluloid separating ring 6, wire gauze disk 7, celluloid guard ring 8, which before insertion into the holder have been superimposed and secured together by a celluloid solvent, such as acetone, in a press thus forming a unit.

The spacing of the disks 3 and 7 is designed to allow the membrane 5 to respond to the variations of air pressure due to conversation or other ordinary sounds without touching the disks while in responding to pressure variations largely in excess of

these, the vibrations of the membrane are arrested by the disks whereby the possible variation of air pressure within the ear cavity is limited and consequently the tympanum of the ear is protected against excessive variations of pressure.

The press employed is so constructed that the pressure exerted to secure the parts together does not expand them as the side of the unit is supported and thus it is preserved strictly to gage in its diameter, with the result that it is quite simple to insert them into the chamber or cavity 9 of the holder while to effectively retain the unit in the cavity 9 the latter has its side wall expanded toward the rear of the opening as shown at 10 by a slight undercutting so that when pressure is exerted on the unit to force it into place it is at once securely held without any other retaining devices.

What I claim is:—

1. An ear protector having a diaphragm composed of elements including a membrane, devices on either side for limiting the movement of the membrane, and separating devices, such membrane, limiting devices, and separating devices being secured together so that they may be handled as a unit.

2. An ear protector having a compound diaphragm formed as a unit consisting of a membrane a separating ring on each side of same, a wire gauze disk on the outside of each separating ring and a guard ring on the outside of each disk all the parts being cemented together.

3. An ear protector comprising a chambered holder, the chamber having its sides undercut at the rear, and a compound diaphragm formed as a unit, in such chamber.

In witness whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ARNULPH MALLOCK.

Witnesses:

ALLEN PARRY JONES,
EDWARD TRUMP FOSTER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."