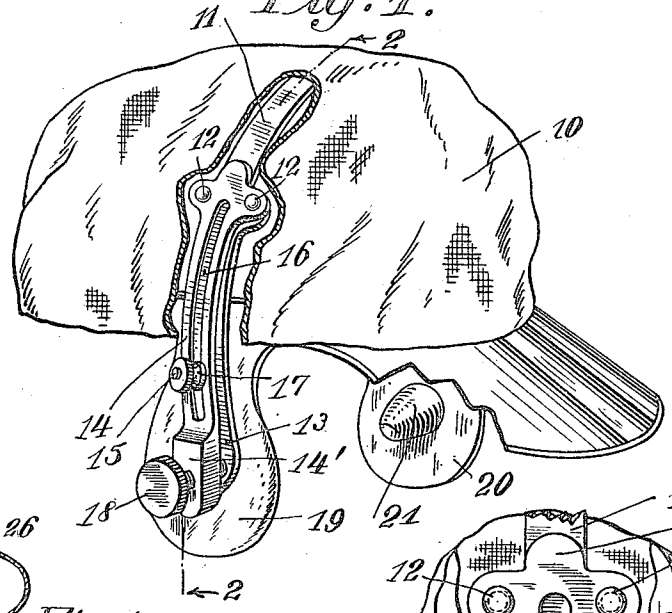
M. FEHER.

EAR PROTECTING DEVICE.

APPLICATION FILED FEB. 7, 1917.

1,225,422. Patented May 8, 1917.

Fig. 1.



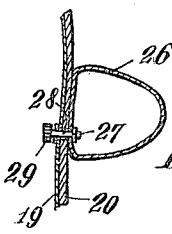


Fig. 4.

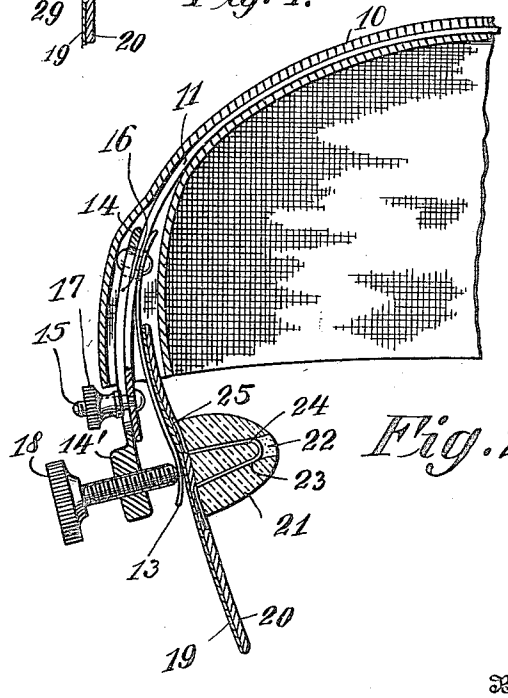


Fig. 2.

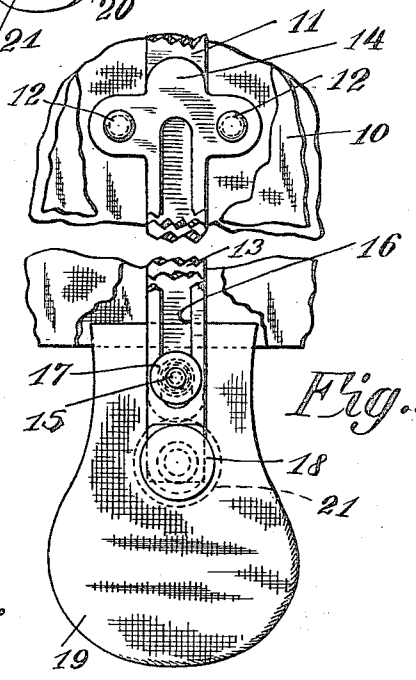


Fig. 3.

Inventor

Michael Feher.

By his Attorney

Alexander Jones

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

MICHAEL FEHER, OF ALLIANCE, OHIO.

EAR-PROTECTING DEVICE.

1,225,422. Specification of Letters Patent. Patented May 8, 1917.

Application filed February 7, 1917. Serial No. 147,143.

To all whom it may concern:

Be it known that I, MICHAEL FEHER, a subject of the King of Hungary, residing at Alliance, in the county of Stark and State of Ohio, have invented new and useful Improvements in Ear-Protecting Devices, of which the following is a specification.

This invention relates to ear protecting devices, and the main object of the same is the provision of a device for protecting the organs of hearing against explosive sounds and concussions, the invention being intended for use particularly by blacksmiths, boiler-makers, steel-workers, artillerymen and others engaged in occupations so noisy that the hearing is likely to be injuriously affected.

Another object of the invention is the provision of a device which is adjustable in order to compensate for the relative differences in the sizes of the heads, and which is provided with sound stops capable of adjustment in order to conform with the size and character of the outer ear canals.

With the foregoing and other objects, which will become apparent as the description proceeds, the invention consists in the novel construction, arrangement and combination of parts, hereinafter described and shown in the accompanying drawings, forming a material part of this specification, and in which:—

Figure 1 is a perspective view, partly broken away, of a cap, illustrating the device applied thereto.

Fig. 2 is a transverse sectional view, taken approximately on the line 2—2 of Fig. 1.

Fig. 3 is a plan view of parts of the device, partly broken away, illustrating in particular the means employed for effecting lengthwise adjustment, and

Fig. 4 is a view in perspective, illustrating a modified form of the sound stops.

In the accompanying drawings, I illustrate my improved ear protector applied to a cap 10, although, obviously, it may be applied with equal advantage to any other type or character of head apparel.

As a suitable support for the various elements to be hereinafter explained, I prefer to employ a band 11 which is preferably made of spring metal and which is curved or fashioned to conform approximately to the configuration of the head of an individual. Slidable together upon this band at a suitable point above its terminals and connected at their flattened upper ends by the rivets 12 are the auxiliary elements 13 and 14. The element 13 is slidable upon the inner side of the band 11 and consists of a flat spring longitudinally deformed, while the element 14 is slidable upon the outer side of said band, and is formed with a longitudinal slot 16 and with an enlarged end 14′ having a threaded transverse eye. Secured to the inner side of spring 13 is an ear-shaped pad or flap 19 which is made of leather or other suitable comparatively rigid material. To the inner side of 19 is attached a padding 20, made in the same configuration, but of soft material suitable for engaging the exterior of the ear.

With its center secured to the flap 19, is a cone-like plug or sound stop 21 which projects inwardly as shown in Figs. 1 and 2. This sound stop is made of rubber relatively flexible, and is provided at its point or apex with an opening 22 which communicates with two oppositely disposed openings 23 of reduced size. These openings 23 are spaced apart and extend entirely through the rubber. Seated within the openings 22 and 23 is a stirrup-like spring 24, the ends whereof are slidable relatively within the flap member 20. This spring 24 tends normally to enlarge the periphery of the sound stop 21.

Threaded in the enlarged end 14′ of the auxiliary element 14 is a thumb screw 18, the position of which is such that the end thereof engages the spring 13 approximately opposite the center or axis of the sound stop 21. By the inturning of this screw, the spring 13 is extended inwardly, advancing the sound stop 21 proportionately. On the other hand, when the thumb screw 18 is outturned, the spring 13 retracts to its normal position withdrawing the said sound stop accordingly.

In Fig. 4, I illustrate a modified form of a sound stop 26. This sound stop is hollow and inflatable. It is secured to the flap members 19 and 20, opposite the end of the thumb screw 18 as before, although its attachment thereto is made in such manner as to make it air-tight. When this form of sound stop is employed the flaps 19 and 20 are provided with a hole 27, in which is secured an air valve or coupling 28 in communication with the interior of the stop 26

whereby to inflate the same. The outer end of coupling 28 is closed by the usual cap 29.

As best shown in Figs. 2 and 3, a threaded pin 15 projecting through the slot 16, is riveted to the band 11 adjacent its end. A friction nut 17 is applied to this pin whereby to maintain the elements 13 and 14 upon the band 11 at the elevation necessary to bring the sound stop in suitable engagement with the auditory canal of the ear.

From the foregoing description, taken in connection with the accompanying drawings, the operation of my improved ear protector will be obvious. When the form of sound stop 21 is employed, the spring actuated rubber may be compressed between the thumb and finger until partially entered in the outer auditory canal of the ear. Upon releasing the stop 21 by the fingers, it will again assume its expanded position, filling up the auditory canal. Then by the proper manipulation of the screw 18, the sound stop may be further projected into the auditory canal and the engagement made as sound tight as a condition of comfort seems desirable. When the inflated form of my sound stop is employed, inflation may be effected partially before the entrance is effected. A second party may complete the inflation, or the party wearing the ear-protector may accomplish the same by applying a flexible tube to the coupling 28.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. In an ear-protecting device, adjustably supported elements, one of which is resilient, an ear-engaging flap carried by the resilient element, a sound stop provided on said flap and designed to engage within the auditory canal of the ear, and means combined with said sound stop for expanding and contracting it peripherically.

2. In an ear-protecting device, suitably supported elements connected at one end and movable conjunctively, one being rigid and one being resilient, an ear-engageable flap carried by the resilient member, a sound stop provided on said flap and designed to engage the auditory canal of the ear, means combined with said sound stop for expanding and contracting it peripherically and means carried by the rigid element for limitedly advancing the resilient element therefrom.

3. The combination of an arcuate head engaging element, connected rigid and resilient elements limitedly slidable conjunctively thereon, a cone-like sound stop supported by the resilient element, spring means within the sound stop for expanding it peripherically, and means carried by the rigid element for limitedly advancing the resilient element therefrom.

4. In an ear-protecting device, the combination with a supported element, of a rigid and a resilient element connected together and slidable limitedly on the supported element, a relatively flexible cone-like sound stop supported by the resilient element, spring means combined with the sound stop for expanding it peripherically, and means carried by the rigid element for limitedly advancing the resilient element therefrom.

In testimony whereof I have signed my name to this specification.

MICHAEL FEHER.

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