E. C. GUNNARSON.

DIVER'S TELEPHONE MUFFLER.

APPLICATION FILED OCT. 30, 1916.

1,253,485. Patented Jan. 15, 1918.

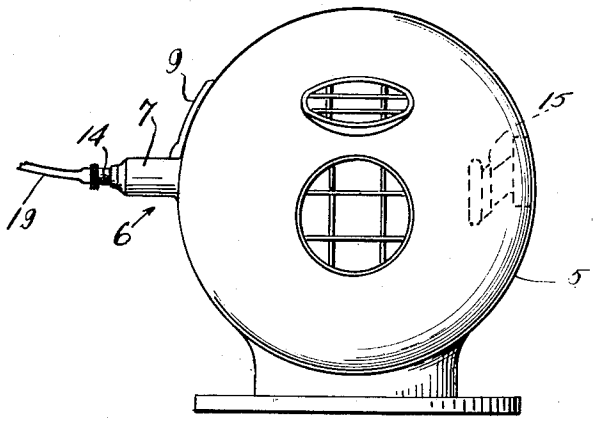


FIG. 1.

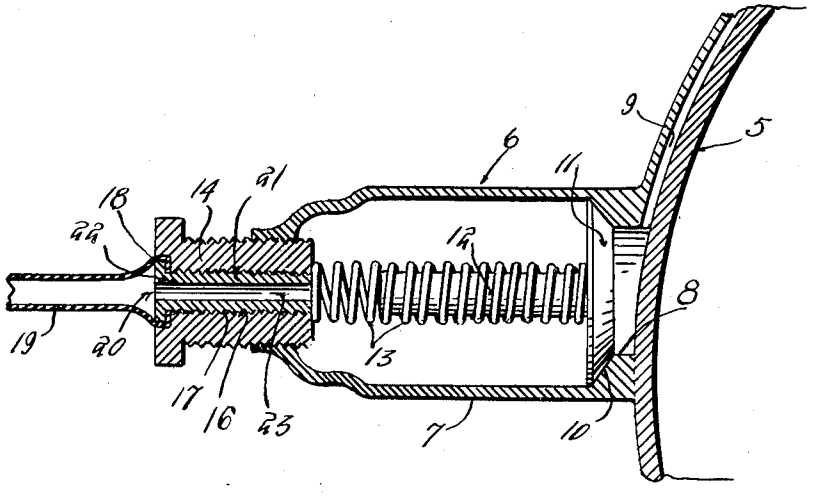


FIG. 2.

Witnesses.
J. C. Simpson.
C. C. Chandler.

Inventor
E. C. Gunnarson.

By Chandler & Chandler

Attorneys.

UNITED STATES PATENT OFFICE.

ENOCH CONRAD GUNNARSON, OF BROOKLYN, NEW YORK.

DIVER'S TELEPHONE-MUFFLER.

1,253,485. Specification of Letters Patent. Patented Jan. 15, 1918.

Application filed October 30, 1916. Serial No. 128,564.

To all whom it may concern:

Be it known that I, ENOCH C. GUNNARSON, a citizen of the United States, residing at 267 Van Brunt St., Brooklyn, in the county of Kings, State of New York, have invented certain new and useful Improvements in Divers' Telephone-Mufflers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to exhaust valves designed particularly to be used in connection with divers' helmets and like submarine appliances for exhausting therefrom the vitiated air.

An object of the present invention is to simplify and at the same time improve the construction of valves of this type so that they may be manufactured at a relatively low cost and yet operate with increased efficiency.

With the above and other objects of similar nature in view, the invention consists in the construction, combination and arrangement of parts set forth in and falling within the scope of the appended claim.

In the drawing:

Figure 1 is a side elevation of a diver's helmet with the invention associated therewith, and

Fig. 2 is an enlarged sectional view taken longitudinally through the valve.

Referring now more particularly to the accompanying drawing, there is shown a diver's helmet 5, on which my improved exhaust valve is mounted, said valve being designated generally at 6. Specifically the valve 6 consists of a substantially cylindrical casing 7, the bore at the inner end of which is reduced as at 8 and communicates with the exhaust passage 9 leading from the interior of the helmet. This reduction of the bore of the casing results in the provision of a tapered seat 10 with which is normally engaged a tapered valve head 11 said valve being centrally provided with a stem 12 encircled by a coiled spring 13.

The outer end of the casing 7 is reduced and internally threaded for the reception of an adjusting nut 14 which nut engages the adjacent end of the spring 13 and is adapted to vary the tension thereof in a manner that is obvious. It is to be understood that the above is the ordinary construction of exhaust valve and forms no part of my invention. However at present in valves of this type it is customary to provide in the wall of the casing 7 a plurality of pin holes through which the vitiated air is discharged after it passes from the helmet 5 through the valve above described.

In the present construction these holes have been eliminated for the reason that the air as it issues therethrough sets up a hissing or bubbling sound which greatly interferes with the hearing of the diver and renders it difficult to receive messages transmitted through the ear phone 15 commonly employed in apparatus of this nature.

It is to obviate as much as possible this defect that I have changed the manner in which the air is exhausted from the helmet. In order to effect this improvement I have provided in this adjusting nut 14 a central passage 16 which communicates with the interior of the casing 7 and is threaded as indicated at 17. There is further provided in the head of the nut 14 and surrounding this passage a counter-sunk portion 18 the purpose of which will later appear.

For receiving the air from the casing 7 and conveying the same to the atmosphere, there is provided a length of flexible tubing 19, and in order to connect this tubing to the adjusting nut 14 there is employed a nipple 20 including a threaded shank 21 externally threaded to removably engage the threads 17 and provided with a flanged head 22 of a diameter less than the diameter of the counter-sunk portion 18.

Thus in connecting the tube with the nut 14 the same is engaged about the flanged head of the nipple 20 and the latter screwed into the nut as clearly illustrated, the tubing being compressed between said head and the walls of the counter-sunk portion and thus securely held against detachment.

For establishing communication between the casing 7 and tubing 19, the nipple 20 is centrally bored longitudinally as indicated at 23, the exhausted air passing through said bore and outwardly through the tube as is apparent. It is understood that by reason of the flexibility of the tube 19, the vibration of the valve and the noise of the escaping air will be practically eliminated thereby enabling the diver to hear more clearly the messages transmitted through the phone 15.

Thus not only does the nut 14 serve as the means by which the tension of the spring 13 may be conveniently adjusted, but it further-

more serves as the means by which the escape of vitiated air from the casing 7 is effected.

What is claimed is:

The combination with a diver's helmet including a spring urged exhaust valve and its casing, of a nut adjustably engaged in the casing for regulating the tension under which the valve will operate, said nut having a central, threaded passage communicating with the interior of the casing and being counter-bored at its outer end, an externally threaded nipple engaged in said threaded bore and having an outwardly flanged end seated normally in said counter-bored portion of the nut, and a flexible exhaust pipe fitted over said flange end of the nipple and clampingly held between said flange and the walls of said counter-bored portion.

In testimony whereof, I affix my signature, in the presence of two witnesses.

ENOCH CONRAD GUNNARSON.

Witnesses:

WILLIAM H. BOURNE,

PETER R. CUMMINGS.