June 22, 1937. J. B. DYM 2,084,897

PROTECTIVE GOGGLE

Filed Dec. 17, 1935

Fig. 1.

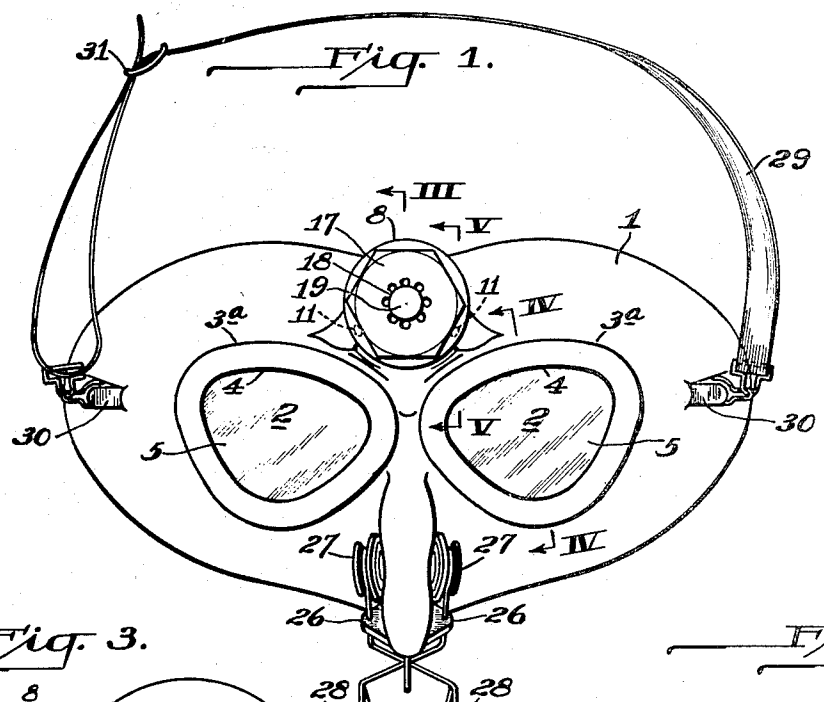


Fig. 3.

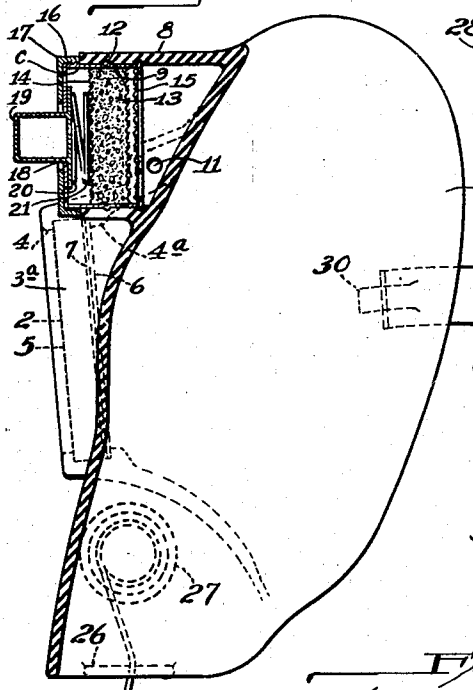


Fig. 5.

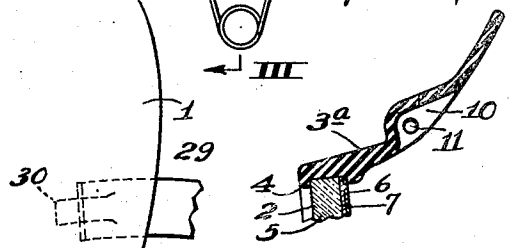


Fig. 4.

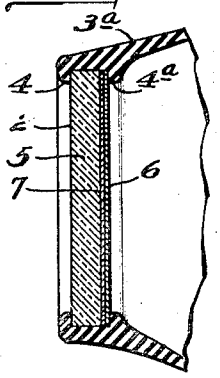


Fig. 2.

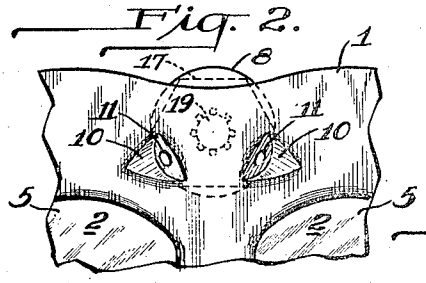


Fig. 7.

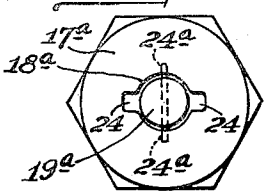
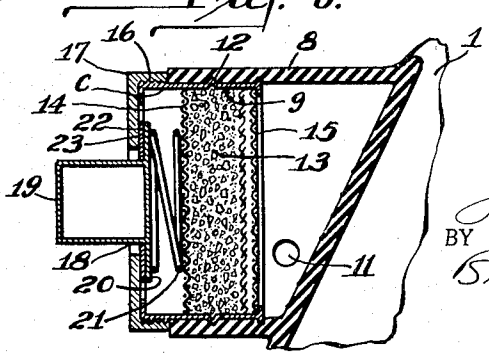


Fig. 6.



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PROTECTIVE GOGGLE

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4 Claims. (Cl. 2—14)

This invention relates to goggles for use in protecting the eyes in atmospheres injurious thereto, and a major object of the invention is to provide a protective goggle of the type referred to which is of simple construction, light, inexpensive, efficiently protects the eyes against injurious atmospheres, and is provided with means for establishing atmospheric pressure within the goggle while excluding injurious atmospheres.

The invention may be described with reference to the accompanying drawing in which Fig. 1 is a front elevational view of the preferred embodiment of the invention; Fig. 2 a fragmentary rear elevational view of the goggle; Fig. 3 a cross-sectional view taken on line III—III, Fig. 1; Fig. 4 a cross-sectional view through one of the eye-pieces, taken on line IV—IV, Fig. 1, and enlarged for clarity in illustrating constructional details; Fig. 5 a cross-sectional view taken on line V—V, Fig. 1; Fig. 6 an enlarged view of a portion of Fig. 3; and Fig. 7 a view of a portion of Fig. 1 illustrating modified constructional details.

The protective goggle provided by this invention comprises a face-piece of conventional or desired goggle form and construction which is adapted to make air-tight fit with the face of the wearer. The face-piece is provided with a passage between the exterior atmosphere and the interior of the goggle, and with means interposed in the said passageway for eliminating injurious or undesirable constituents of the exterior atmosphere when it passes through the passageway into the goggle. Although the passageway may be continuously open for continuously maintaining atmospheric pressure within the goggle, it is preferred to provide means normally closing the passageway and which may be actuated at intermittent intervals to permit the establishment of atmospheric pressure within the goggle.

Having reference to the embodiment shown in the drawing, the goggle comprises a face-piece 1 of conventional form, to overlie and surround the eyes. The face-piece is constructed from flexible material, such as rubber, adapted to yieldingly engage the face of the wearer and make an air-tight fit therewith. The face-piece is provided with a pair of eye-pieces 2 disposed in grooves 3 formed in the outer ends of forwardly projecting portions 3a of the face-piece, which may be seen best in Figs. 3 and 4. The eye-pieces are retained in position by inwardly projecting flanges 4 and 4a integral with portions 3a. In the preferred embodiment of the invention the eye-pieces are formed of a relatively thick sheet of glass 5, Fig. 4, to the inner surface of which there is applied a thin layer 6 of mica or the like material adapted to minimize or avoid fogging of the eye-piece when the goggle is worn. The mica disc 6 is preferably adhesively connected to glass plate 5, for instance by a thin layer 7 of gelatin or the like.

A major feature of the invention resides in the provision of means for establishing atmospheric pressure within the face-piece while the goggle is being worn. To this end there is disposed above and centrally between the eye-pieces a forwardly projecting tubular portion 8 adapted to receive a canister C containing material for removing injurious constituents from air passed therethrough. The interior surface of the face-piece above the eye-pieces and rearwardly of projection 8 is forwardly offset to provide a pair of depressions 10, Figs. 2 and 5, each of which is connected with tubular portion 8 by a port 11. That is, a port 11 leads from each side of portion 8 to the adjacent depression 10. Tubular member 8 thus establishes communication between the exterior atmosphere and the interior of the face-piece, and blocking of ports 11 through contact of the interior of the face-piece with the face of the wearer is avoided by situating the ports within offsets 10.

Canister C is resiliently retained in tubular portion 8 for removing injurious constituents of the external atmosphere as it passes into the face-piece. The canister may take various forms. That shown comprises a tubular casing 9 of such diameter as to be tightly gripped by the wall of tubular projection 8. To insure against accidental dislodgment of the canister, casing 9 is suitably provided with outwardly projecting ribs 12. A charge of air-purifying material 13 is held in the canister between end screens 14 and 15. Material 13 is selected according to the deleterious constituent present in the atmosphere. For instance, where the goggle is to be worn in battery rooms of submarines equipped with Edison storage cells soda lime may be used.

The resilient engagement of the exterior of the canister by the wall of tubular member 8 necessitates passage of air through the canister so that all of the air entering the face-piece must pass through the purifying material 13. With a canister mounted in this manner there is continuous establishment of atmospheric pressure within the goggle. For many purposes, however, it is unnecessary to have the passage open continuously and it is really preferable to close the passageway and canister against access of the external atmosphere to conserve the air-purifying material, by means adapted to permit intermittent passage of

air through the canister at intervals as need be to establish the atmospheric pressure therein.

As shown in Figs. 3 and 6, the forward end of the canister is exteriorly threaded at 16 to receive a cap member 17 provided with cooperating threads. The cap is provided with a central aperture 18 through which there projects the stem 19 of a valve member 20 adapted to seat against the inner surface of cap 17 to prevent ingress of the external atmosphere. Valve 20 is normally urged into contact with cap 17 by a coil spring 21 mounted between screen 14 and valve 20. To insure tightness of the valve when closed, its outer face is provided with a gasket 22. A gasket 23 may also be positioned between cap 17 and the end of the canister.

In this embodiment of the invention it will be observed that spring 21 normally biases the valve to close aperture 18 and thus prevent access of air to the canister, but when it is desired to establish atmospheric pressure within the goggle the valve may be depressed by manually pressing stem 19 inwardly thus permitting air to flow through the canister and into the face-piece, the injurious constituent in the atmosphere being removed by material 13 in the canister.

If atmospheric pressure is to be continuously established in the embodiment just described it is necessary to continuously depress valve 20. In some instances it may be desirable to provide a valve which may be either normally closed or locked into open position. Such an embodiment is illustrated in the modification shown in Fig. 7. As there shown cap 17*a* is provided with a pair of diametrically opposed slots 24 radiating from aperture 18*a*, and stem 19*a* of the valve is provided with a pair of outwardly projecting diametrically opposed pins 24*a*. In this form the valve will normally be closed, as in the preceding embodiment, or it may be opened against spring pressure, or again it may be locked in open position by rotating stem 19*a* to bring the pins 24*a* into register with the openings 24 in the cap, then depressing the valve and turning it slightly whereby the pins 24*a* are retained by the inner face of the cap.

In some instances it may be desirable to provide the goggle with means for closing the nasal passages. As illustrated in Fig. 1, the lower portion of the face-piece is shaped to overlie the nose and is provided with a wire spring nose-clip 25 whose arms pass through laterally projecting lugs 26 that receive and hold the nose-clip to the goggle. The nose-clamping members 27 of the clip are retracted when the goggle is applied to the face by squeezing the sides 28 of the clip together, and after the goggle is in place release of the pressure permits the members 27 to engage the sides of the face-piece and press against the nostrils.

For fastening the goggle upon the head it is provided with a strap member 29 whose ends are connected to lugs 30 integral with the sides of the face-piece. The strap member may be provided if desired with means 31 for adjusting its length.

According to the provisions of the patent statutes, I have explained the principle and construction of my invention, and have illustrated and described what I now consider to represent its best embodiment. However, I desire to have it understood that, within the scope of the appended claims, the invention may be practiced otherwise than as specifically illustrated and described.

I claim:

1. A protective goggle for use in atmospheres containing an injurious constituent comprising the combination of a goggle face-piece of flexible material adapted yieldingly to engage the face about the eyes to make and maintain an air-tight fit therewith, a passage through the face-piece, means associated with said passage for removing said constituent from atmosphere flowing through said passage, and a closure member associated with said passage normally excluding the external atmosphere and movably mounted for establishing communication between the atmosphere and the interior of the face-piece at desired intervals to thereby establish atmospheric pressure in the face-piece without access of said injurious constituent.

2. A protective goggle for use in atmospheres containing an injurious constituent comprising the combination of a goggle face-piece of flexible material adapted yieldingly to engage the face about the eyes to make and maintain an air-tight fit therewith, a passage through the face-piece, a canister removably associated with said passage and provided with purifying material for removing said constituent from atmosphere flowing through said passage, and a spring-biased closure member associated with the outer end of said passage for normally excluding the external atmosphere and to establish connection between the atmosphere and the interior of the face-piece when opened to thereby establish atmospheric pressure in the face-piece without access of said injurious constituent.

3. A protective goggle for use in atmospheres containing an injurious constituent comprising the combination of a goggle face-piece of flexible material adapted yieldingly to engage the face about the eyes to make and maintain an air-tight fit therewith and provided with a pair of eye-pieces, a passage through the face-piece disposed above and between said eye-pieces, means associated with said passage for removing said constituent from air flowing through said passage, a valve member movably associated with the outer end of said passage, and a spring acting on said valve to normally close it and exclude atmosphere from the passage, the valve when opened establishing communication between the atmosphere and the interior of the face-piece to thereby establish atmospheric pressure in the face-piece without access of said injurious constituent.

4. A protective goggle for use in atmospheres containing an injurious constituent comprising the combination of a goggle face-piece of flexible material adapted yieldingly to engage the face about the eyes to make and maintain an air-tight fit therewith and provided with a pair of eye-pieces and with a tubular member projecting forwardly above and between said eye-pieces, the wall of said member having a bore connecting it with the interior of the face-piece, a canister containing atmosphere-purifying material removably disposed in said tubular member, a closure member associated with the outer end of said canister, a valve movably associated with said closure, and spring means acting on said valve to normally exclude air from said canister, opening of said valve establishing communication between the atmosphere and the interior of the face-piece and thereby establishing atmospheric pressure in the face-piece without access of said injurious constituent.

JOSEPH B. DYM.