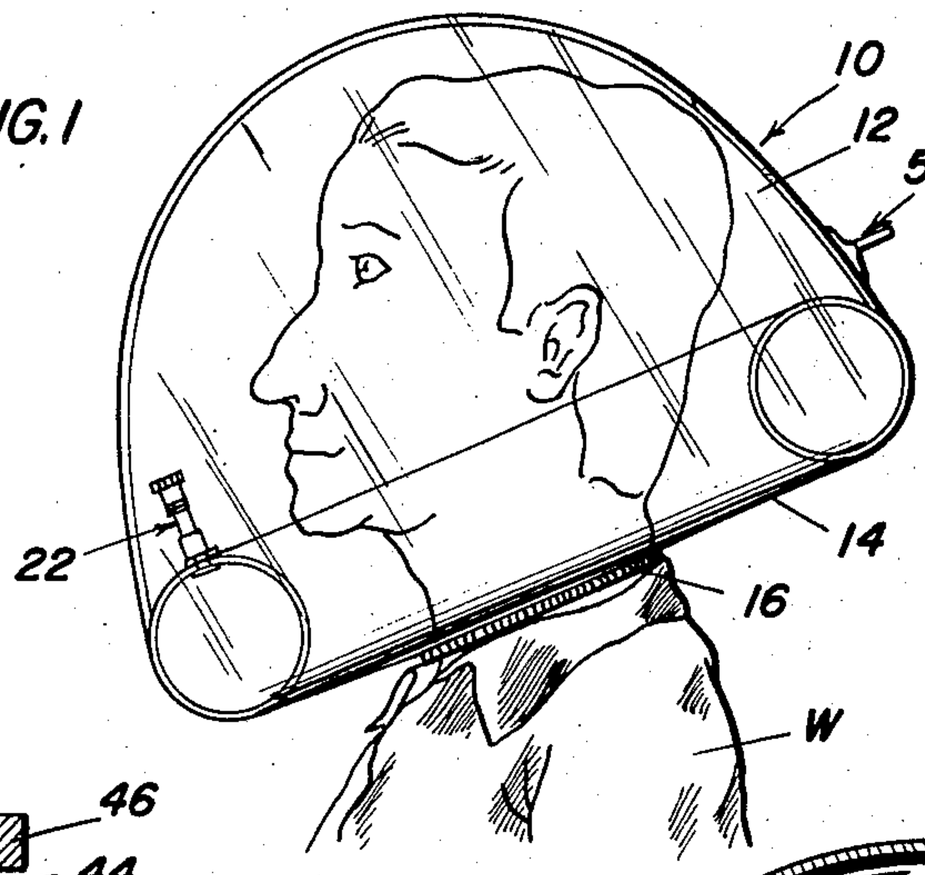
Sept. 2, 1958 P. SCHAEFER 2,850,011

RESPIRATORY HELMENT

Filed Sept. 25, 1956

FIG. 1



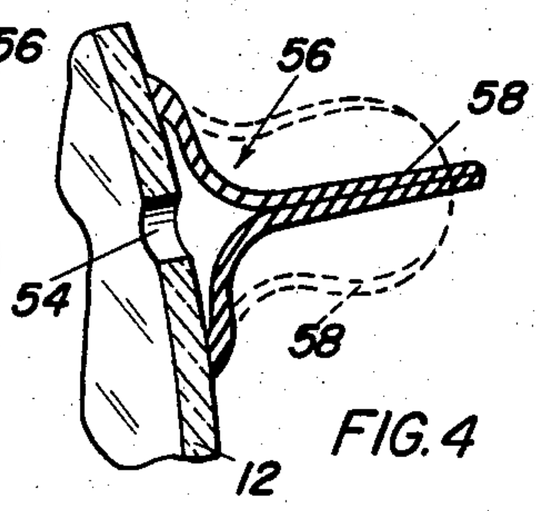


FIG. 4

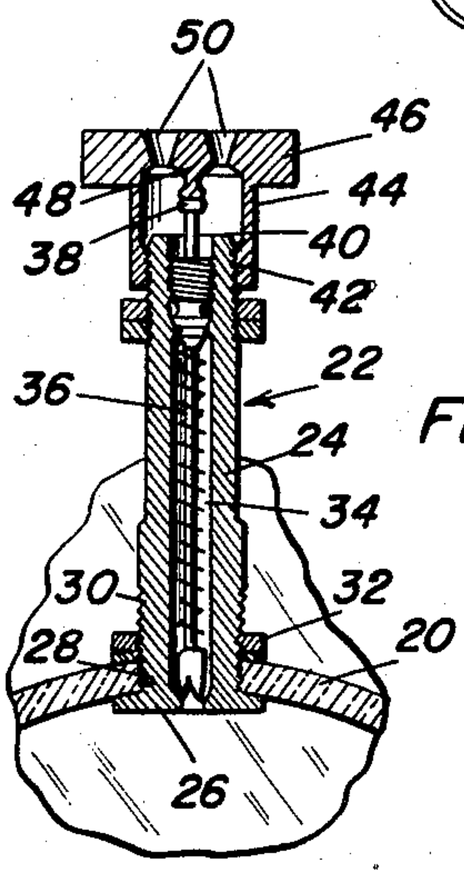


FIG. 5

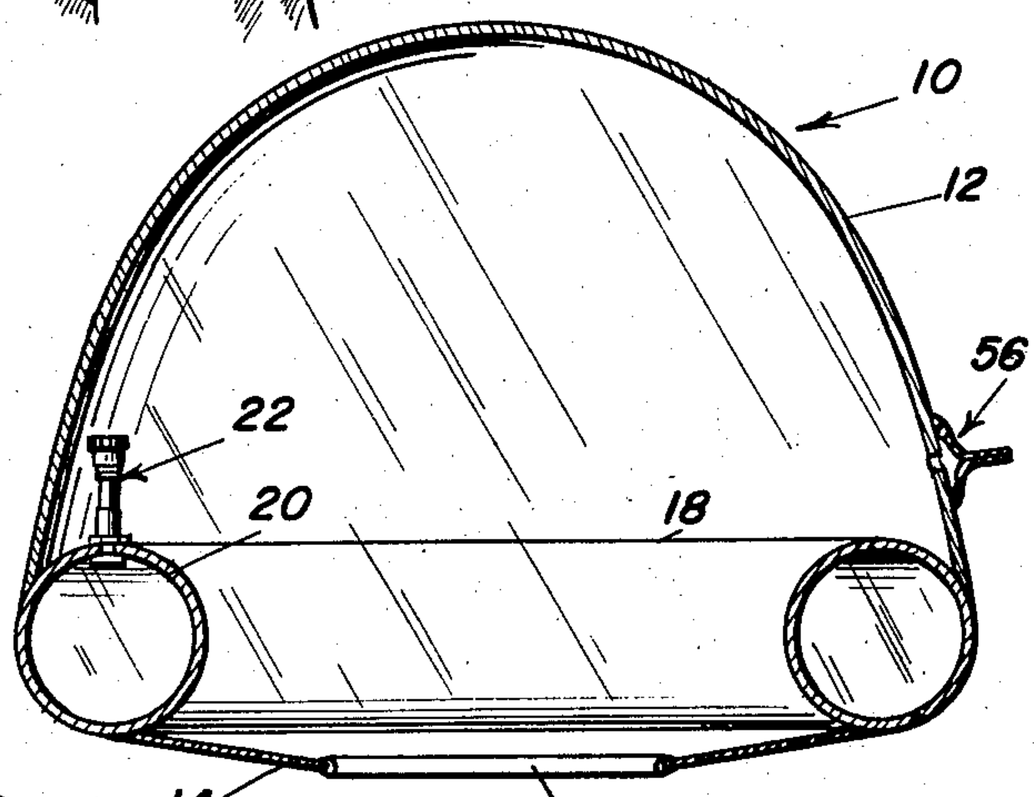


FIG. 2

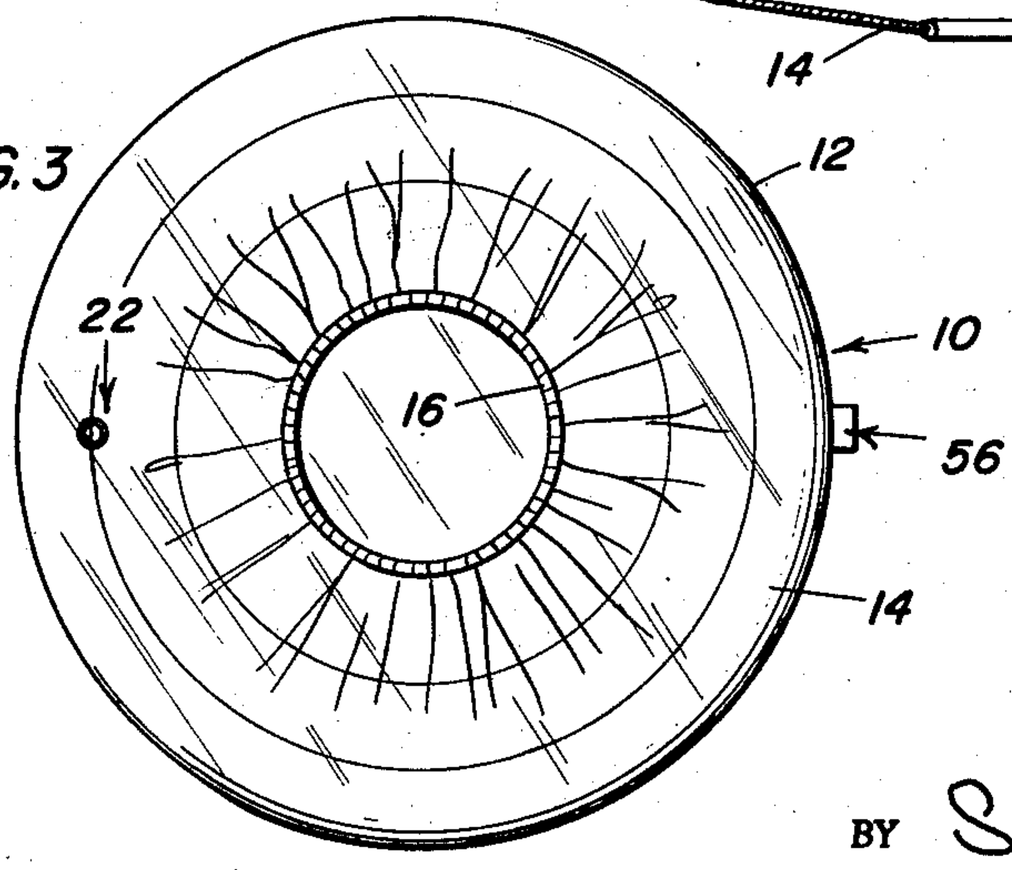


FIG. 3

Peter Schoefer
INVENTOR

BY Samuel Mearkreeba

ATTORNEY

United States Patent Office

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RESPIRATORY HELMET

Peter Schaefer, Scarborough, Ontario, Canada

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2 Claims. (Cl. 128—142)

This invention relates generally to respiratory equipment and is more particularly concerned with a novel respiratory helmet which is readily positionable on a user's head, affording maximum vision therethrough, the interior thereof sealingly engaging a user's neck, the respiratory helmet readily affording means whereby a user has an opportunity to leave a smoke or gas filled house during fires, for example, and also providing means for protecting one's respiratory system during an atomic warfare attack.

A primary object of invention is to provide a novel respiratory helmet including a dome-shaped cap including a lower transverse wall incorporating a central expansible apertured portion facilitating the entrance of a user's head therethrough wherein the user is afforded maximum visibility through the helmet, the helmet incorporating an integral storage tank containing a pressurized breathing mixture, valve means extending between the storage tank and the interior of the cap for controlling the flow of the breathing mixture into the cap, and one-way valve means extending through the wall of the cap, permitting exhaust air to be expelled from the interior of the cap to the exterior thereof during the process of breathing by a user of the helmet.

A further object of invention is conformance with that set forth is to provide a respiratory helmet of the character involved which is readily and economically manufactured, easily used, and highly satisfactory, safe and acceptable for the purpose intended.

These together with other objects and advantages which will subsequently become apparent reside in details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawing forming a part thereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a side elevational view of a user's head showing the novel respiratory helmet disposed thereon;

Figure 2 is a vertical sectional view taken through the novel respiratory helmet;

Figure 3 is a bottom plan view of the novel respiratory helmet;

Figure 4 is an enlarged view of a portion of Figure 2, showing the details of the one-way exhaust valve of the respiratory helmet; and

Figure 5 is a vertical sectional view taken through the control valve of the respiratory helmet utilized for controlling the amount of a pressurized breathing mixture discharged into the interior of the helmet.

Referring to the drawing in detail, a wearer of the novel respiratory helmet is indicated generally as W, the respiratory helmet being indicated generally at **10**.

The respiratory helmet comprises a dome-shaped cap **12** constructed from any suitable transparent plastic, for example, and incorporates an integral transverse and lower wall **14** including a central expansible aperture portion **16** sealingly engaging a user's neck and permitting the entrance and exit of his head therethrough.

Integrally formed with the cap **12** in circumposed relationship about the inner periphery thereof is a torus-shaped hollow pressure storage tank **18** for containing oxygen or other suitable breathing mixture, the tank **18** having extending through the wall portion **20** thereof a suitable control valve assembly indicated generally at **22**.

The control valve **22** incorporates a tubular stem portion **24**, see Figure 5, including a lower annular flange

26, the tubular stem **24** extending through a suitable aperture portion **28** in the wall **20** of the storage tank **18**, the tubular stem **24** including a threaded portion **30** on the outer periphery thereof for receiving thereon a circumposed washer and sealing gasket **32**. The washer and sealing gasket **32** clampingly engage one side of the wall **20** of the storage tank, the opposite portion thereof being engaged by the annular flange **26**. The tubular stem **24** incorporates a longitudinally extending bore portion **34** having longitudinally disposed therein a conventional standard valve assembly indicated generally at **36** such as a "stem valve" found in inner tubes, for example. The stem valve **36** includes an actuating portion **38** extending above the upper end **40** thereof, and the outer periphery of the tubular stem **24** is threaded adjacent its upper end as indicated in **42**, receiving thereon a tubular sleeve portion **44** of an actuating cap **46**, said cap **46** including an integral longitudinally extending abutment stem **48** engageable with portion **38** of the valve assembly. The actuating cap **46** incorporates through the upper end thereof aperture portions **50** permitting the pressurized breathing mixture contained in storage tank **18** to be emitted into the cap **12**. Rotation of the actuating cap **46** will accordingly control the amount of breathing mixture to be discharged into the cap to be available for the person using the respiratory helmet.

Located in a suitable position on the cap **12**, at the rear thereof, for example, is a transverse aperture **54**, see Figure 4 for example, which opens to the exterior of the cap **12**, and suitably secured in circumposed relationship on the exterior of the cap **12** surrounding the aperture **54** is a one-way valve assembly indicated generally at **56** which may comprise a conventional flutter valve indicated at **58**, and which will be disposed in the dotted line position shown in Figure 4 permitting the exhaust of stale air as the wearer breathes.

Thus there has been disclosed a novel respiratory helmet which is readily and economically manufactured, easily used, and fully conforming with the objects of invention heretofore set forth.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. A respiratory helmet comprising a transparent cap for disposition in circumposed relationship about a wearer's head, said cap including a lower integral transverse wall having an expansible apertured portion extending therethrough for receiving the wearer's head therethrough and sealingly engaging his neck, a storage tank in said cap for containing a pressurized breathing mixture, valve means interposed between the interior of the storage tank and the interior of said cap for controlling the flow of breathing mixture into said cap, and a one-way exhaust valve in the cap permitting contaminated air to be expelled from the interior of said cap as a user breathes therein.

2. In a respiratory helmet as set forth in claim 1 wherein said storage tank comprises an annular, torus-shaped tube integral with the cap and disposed about the lower inner periphery thereof adjacent the inner surface of the transverse wall.

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