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H. F. DANICO

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TWO COMPONENT VENTILATOR

Filed April 10, 1967

Fig. 1.

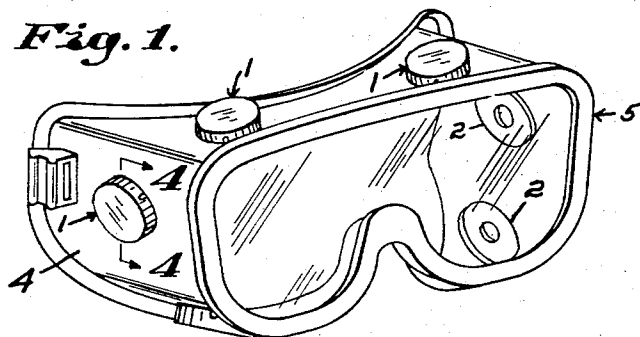


Fig. 2.

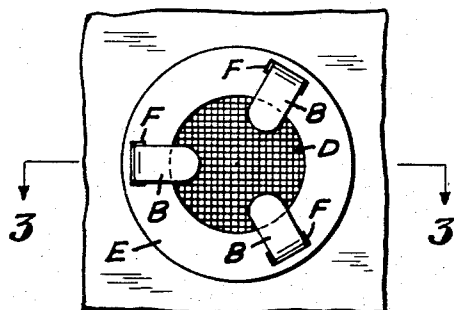


Fig. 3.

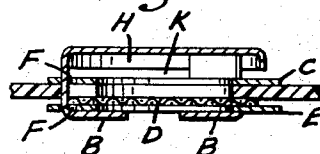


Fig. 4.

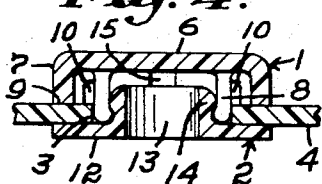


Fig. 5.

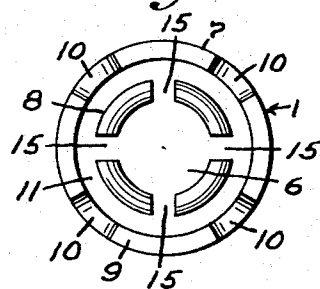
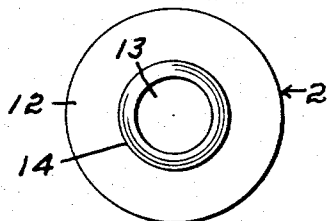


Fig. 6.



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3,418,658

TWO COMPONENT VENTILATOR

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8 Claims. (Cl. 2—14)

ABSTRACT OF THE DISCLOSURE

A two component ventilating device having snap fastener elements for telescopic snap engagement through an opening in a support, for example, the shield of a pair of goggles. The component mounted at the outer surface of the support has an imperforate base and a side wall which is apertured to permit fresh air to flow through the components to the inner side of the support. The snap fastener elements are disposed opposite the apertures in the side wall and act as a baffle directing the air flow and a barrier to the passage of potentially harmful solid and fluid substances through the components.

Background of the invention

The invention relates generally to the field of devices for ventilating personal protection equipment, particularly that worn tightly against the face and over the eyes, e.g. goggles. The ventilating of such equipment is desirable for the general comfort of the wearer, but more importantly to retard fogging of the lenses which, of course, substantially reduces one's vision. In the past venting was accomplished by simply preforming or punching a plurality of through openings in the shield or frame of the goggles. More recently devices of the type shown in FIGURES 2 and 3 of the accompanying drawings have been utilized. The device depicted therein is of sheet metal construction and includes four separate parts, to wit, an external sheet metal cap A having a plurality of integral, bendable prongs B, an external washer C, a wire mesh screen D, and an internal washer E. Each of the washers C and E has a plurality of prong receiving slots F. The device is assembled to the shield adjacent a through opening G therein by passing the prongs B through slots F in the external washer, through notches communicating with opening G in the shield, through slots F in the internal washer E, against which the screen D is placed, and thereafter bending the free ends of the prongs B inwardly over the washer E to draw the parts tightly together. The cap A has a turned-down lip H and the upper ends of the prongs B have lateral shoulders which overlie the external washer C so that the lip H is spaced from the washer C and a gap K for the receipt of fresh air is provided.

While simply preforming or punching holes in the shield is obviously the most economical way of providing the requisite ventilation, safety is sacrificed in that potentially harmful substances such as noxious chemicals splashed on the shield or solid particles such as metal chips or slivers can readily pass through the openings where, for example, the wearer is working around a molten chemical bath or in a laboratory or cutting with an acetylene torch to name but a few environmental situations where safety is of paramount importance.

The prior art device described in detail above recognizes the need for a barrier at the openings in the shield and the cap A and screen B have proven effective in prohibiting solid particles of any appreciable size from passing through the openings in the shield. However, the device has demonstrated relative ineffectiveness in pre-

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venting noxious fluids splashed on the shield from reaching the interior of the goggles in that the gap K and screen D will readily admit a liquid substance. In addition, the four-piece construction gives rise to substantially high fabrication and assembly costs.

As will become evident from a reading of the detailed description which follows hereinafter, my invention overcomes the prior art deficiencies set forth above in a simple, inexpensive and highly efficient manner.

Summary of the invention

Novelty is seen to reside in the two component ventilating device, which components are snap-fastened together through an opening in the goggles shield, wherein the components cooperate to provide an access conduit for the flow of fresh air to the interior of the goggles and at the same time provide an effective barrier to the passage of potentially harmful solid or fluid substances through the opening in the shield. The specific structural features of the novel device will be clearly understood by having reference to the following detailed description in conjunction with a viewing of the accompanying drawing.

Brief description of the drawing

FIG. 1 is a perspective view of a pair of goggles embodying a plurality of ventilating devices according to the invention;

FIG. 2 is a bottom plan view of the above described prior art device;

FIG. 3 is a section taken on line 3—3 of FIG. 2;

FIG. 4 is a section taken on line 4—4 of FIG. 1;

FIG. 5 is a bottom plan view of the external component of the invention; and

FIG. 6 is a top plan view of the internal component of the invention.

Description of the preferred embodiment

A ventilating device according to the invention includes an external component 1 and an internal component 2 which are fastened together through a preformed opening 3 in the shield 4 of a pair of goggles 5. The components 1 and 2 are of molded plastic construction, for example, the high density ethylene resin marketed by Phillips Petroleum Company under the trade name "Marlex" which is tough, durable, lightweight, non-allergenic, withstands temperature extremes (—180° F. to 250° F.) and is resistant to chemicals, oils, greases, rot and corrosion.

The external component 1 includes an imperforate base 6, an integral, peripheral side wall 7 extending generally normal to the base 6 and an integral segmented, snap fastener socket 8 extending from the interior of the base in the same direction as the side wall 7. The side wall 7 circumscribes the socket 8 in spaced relationship thereto and has a free edge 9 and a plurality of through slots 10 formed therein each of which has an open end adjacent the free edge 9. One of the segments of the socket 8, each of which has an axial length greater than the height of the wall 7, is located opposite each of the slots 10, the width of each segment being substantially greater than the width of the slots. Thus, a chamber 11 is formed between the segments of the socket 8 and the side wall 7.

The internal component 2 includes a flat base 12 having a central aperture 13 and a hollow, male snap fastener post 14 which is circumferentially continuous extending from the central portion of the base 12 in registration with the aperture 13. The axial length of the post 14 is less than the length of the segmented socket 8.

The contouring of the socket 8 and post 14 to provide the desired interference for telescopic snap engagement

of the post within the socket will be well understood by those skilled in the fastener art. It is sufficient to point out here that when the parts are engaged, the ends of the socket segments remote from the base 6 tightly grip the neck of the post 14 adjacent the base 12 and the components are securely fastened against accidental disengagement.

FIGURES 1 and 4 depict the ventilating device installed on the shield of a pair of goggles 5 which are of one-piece, molded, clear plastic construction. However, the invention can be used equally effectively where, for example, the shield is rubber and the lens glass or in any other acceptable combination of shield and lens materials. The reader will, of course, appreciate that the goggles are secured over the eyes of a wearer by a headband (not shown) which draws the contoured rear rim tightly against the forehead, cheeks and nose. The openings 3 in the shield have a diameter slightly less than the outside diameter of the socket 8. The edges of the openings 3 are pressed tightly against the socket segments as shown in FIGURE 4 and the base 12 of the internal member 2 and the edge 9 of the side wall 7 are drawn tightly against the inner and outer surfaces of the shield 4, respectively. Thus, the path for the flow of fresh air to the interior of the goggles is through the slots 10, the chamber 11, the gaps 15 between the socket segments, the hollow post 14 and the aperture 13.

The reader will further appreciate that the imperforate base 6 and the side wall 7 of the external component 1 provide an effective barrier to the passage of solid and/or fluid substances to the inner component of the goggles. However, even if solids or fluids should fly or splash directly into one of the slots 10, the segments of the socket 8 and the continuous wall of the post 14 provide a secondary barrier so to speak whereby the substance is either directed out of the slot through which it entered or along the chamber 11 and out one of the adjacent slots or it becomes trapped in the chamber. In any event it is virtually impossible for a solid particle to pass through the ventilator and strike the face or eye of the wearer with any force and the fluid splash could build up to a point where it would flow over the wall of the post 14 only in an extreme situation.

The foregoing description of the invention has been directed at its application as a ventilator for protective goggles solely for purposes of illustration. It should be clearly understood that I envision the invention being used for other types of personal protection equipment and in other assemblies wherein a ventilator of this type would have application. Therefore, the description should not be interpreted in a limiting sense in that the scope of the invention is best defined by the following claims.

I claim:

1. A ventilating device comprising external and internal components, each of the components having integral, hollow fastener elements adapted to be telescopically snapped together through a preformed opening in a support, the external component having an imperforate base and an integral, peripheral side wall extending from the base in spaced, circumscribing relationship to its snap fastener element, the side wall having a free edge remote from the base which bears tightly against the external surface of the support adjacent the opening therein when the components are engaged, the side wall having at least one through opening formed therein to permit fresh air to flow through the components, the snap fastener element of one of the components being segments, said segments having an axial length not less than the height of said side wall, the width of each segment being not less than the width of the opening in said side wall and being disposed

opposite the opening in said wall, said segments cooperating with the snap fastener element of the other component, to provide a baffle directing the air flow and a barrier inhibiting the passage of potentially harmful substances through the components.

2. A ventilating device according to claim 1 wherein the side wall of the external component has a plurality of through openings and its snap fastener element is an axially segmented, female socket, each of the segments having a length greater than the height of the wall and each being disposed opposite one of the openings.

3. A ventilating device according to claim 2 wherein the internal component includes an apertured base which bears tightly against the internal surface of the support opposite the free edge of the wall of the external component and a male post axially aligned with the aperture in the base which snaps into the female socket, the post having a length less than the socket segments, whereby the openings in the side wall, the space between the side wall and the socket segments, the gaps between the socket segments, the hollow post and the apertured base provide a path for the flow of air through the components.

4. A ventilating device according to claim 1 wherein the components are of molded plastic construction.

5. A ventilating device according to claim 1 wherein the male post is circumferentially continuous.

6. A ventilating device according to claim 1 wherein the opening in the wall of the external component is a slot having an open end adjacent the free edge of the wall.

7. A ventilating device according to claim 2 wherein the width of each segment of the socket is appreciably greater than the width of the openings in the side wall.

8. In a pair of goggles, a ventilating device seated in a preformed opening in the shield, said device including internal and external components embodying hollow fastener elements in snapped telescopic engagement through the opening, the external component having an imperforate, integral side wall extending from said base in spaced, circumscribing relation to its snap fastener element, the wall having a free edge which is tightly pressed against the external surface of the shield and at least one opening formed therethrough to permit the flow of fresh air through the hollow fastener members to the interior of the goggles, said internal component having a perforate base which is tightly pressed against the internal surface of the shield opposite the free edge of the wall of the external component, one of the fastener elements having segments of a length not less than the height of said wall and a width not less than the width of the opening in said wall and being disposed opposite said opening, said internal component having a snap fastener element cooperating with said segments of the external component, said segments providing a baffle directing the air flow and a barrier to the passage of the potentially harmful substances through the components to the interior of the goggles.

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