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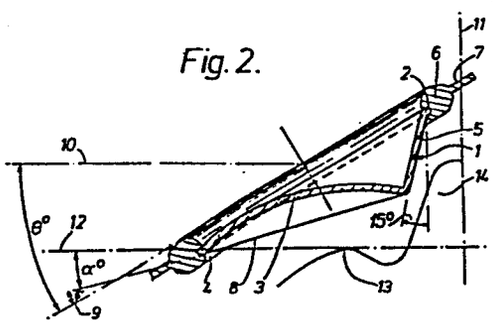
(54) Respirator eyepiece.

(57) An eyepiece (1) for a respirator is a one-piece moulding of plastics material. It has a planar rim (2) and a concave-convex portion (3) which touches the rim at one position and is joined to it elsewhere by a continuous skirt (5), the boundary of the concave-convex portion (3) being in a plane set at an angle (β) to that of the rim (2). In use the eyepiece (1) is set in a face-mask (7) of a respirator with the concave side of the portion (3) presented to the eye of the wearer and the position most remote from the median plane of the face-mask (7).

Fig. 2.



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RESPIRATOR EYEPEICE

The design of eyepieces for respirators presents certain problems in view of the fact that the preferred shape of the respirator conforms generally to the shape of the face with the greatest forward projection on the centre line and generally inclined planes passing rearwards to each side. If eyepieces are set flat into those inclined planes the wearer will have difficulties with distortion in whichever direction he looks and one answer in the past has been to set the eyepieces in projections out of the face mask so that they are essentially entirely in planes normal to the centre line. This, however, involves formation of those projections deliberately in the face mask and removes the eyepieces further from the eye thereby restricting lateral vision.

The solution proposed by the present invention is to provide an eyepiece in or for a respirator which can be mounted in a face mask of a respirator where it extends at an inclination to the median plane of the head of the wearer, by having a planar edge of a rim (hereinafter 'bezel') to the eyepiece so that it may be readily and easily clamped into the face mask but by forming a concave/convex surface of constant thickness of which one boundary touches the bezel and of which the plane containing its perimeter is set at an angle to the plane

containing the bezel, the perimeter of the concave/convex portion being joined to the bezel otherwise than where it touches the bezel by a continuous skirt of the same material as forms the bezel and lens. The offset of the lens is such as to compensate at least partly for the natural slope of the face mask, and the concavity of the lens presented to the eye gives a maximum amount of distortion-free lateral angle of vision.

A particular embodiment of the invention will be described with reference to the accompanying drawings wherein:-

Fig. 1 is a face view of the eyepiece; and

Fig. 2 is a section on the line II-II of Fig. 1, which is in a horizontal plane through the eyepiece positioned in the face mask of the respirator and showing its relationship to the eye and nose of the wearer.

As seen in Fig. 1, the eyepiece 1 is formed from a one-piece moulding of a transparent plastics material having a planar bezel 2 of circular annular shape and constant narrow width, a concave/convex lens portion with a circular planar perimeter 3 offset from the plane of the bezel but touching it in the region 4, and a crescent shaped frusto conical skirt 5 joining the bezel to the remainder of the perimeter of the lens. The eyepieces for the two sides of the respirator will be identical and symmetrical

but will be set oppositely into respective apertures in the face mask as will now become apparent from the description in Fig. 2.

This shows the left-hand eyepiece 1 clamped into a bead 6 around an aperture in the face mask 7 of a respirator. The concave/convex lens part 3 which is of constant thickness and therefore neither magnifies nor diminishes has its periphery contained in a plane 8 which is offset relative to the plane containing the bezel 2. This latter plane, 9 in Fig. 2, forms an angle θ to the vertical plane 10 which is normal to the median plane 11 of the wearer's head and this angle θ may conveniently be 30° thus permitting "natural" and substantially flat formation of the face mask of the respirator. Plane 8 is offset from a plane 9 parallel to the plane of the rim 2 by an angle β and this is conveniently about 15°. It can be seen that a wide degree of comparatively distortion-free vision is afforded to the eye 13 of the wearer, a desirable distance 15 between rear surface of the lens 3 and the cornea of the eye being 15mm. Also the crescent shape skirt can be seen in Fig. 2 to conform generally to but be spaced from the side of the nose 14 of the wearer.

Claims.

1. A transparent respirator eyepiece which has a planar rim (2) characterized in that it includes within the rim a concave-convex portion (3) of constant thickness which has a perimeter which at one side (4) touches the rim and lies in a plane (12) which is set at an angle (α) to the plane (9) of the rim (2) and which except where it touches the rim is joined to the rim by a continuous skirt (5).

2. A respirator eyepiece according to claim 1 which is a one-piece moulding (1) of transparent plastics material.

3. A respirator eyepiece according to claim 1 or claim 2 wherein the angle (α) between the said planes is about 15^{0}.

4. A respirator incorporating an eyepiece according to claim 1, claim 2 or claim 3 with its rim secured into a planar-bounded eye orifice in a face-mask (7) of the respirator, with the concave surface of the concave-convex portion on the side nearer to the eye (13) of the wearer in use and the position (4) where the said portion touches the rim being arranged remote from the median plane (11)

of the face-mask.

5. A respirator according to claim 4 wherein the boundary of the eye orifice of the face-mask is set at an angle (θ) of about 30^0 to the normal to the median plane (11).

Fig. 1.

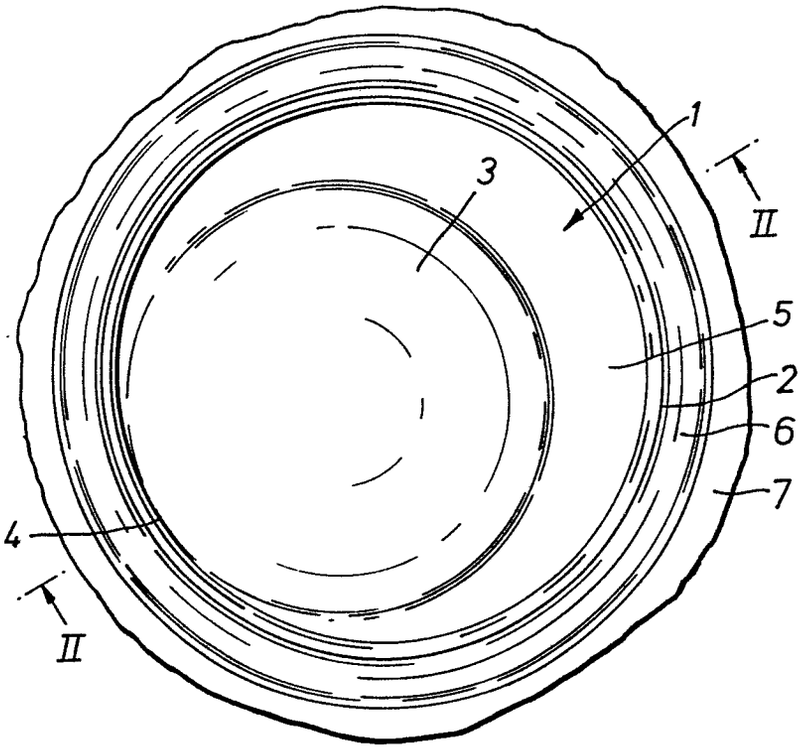
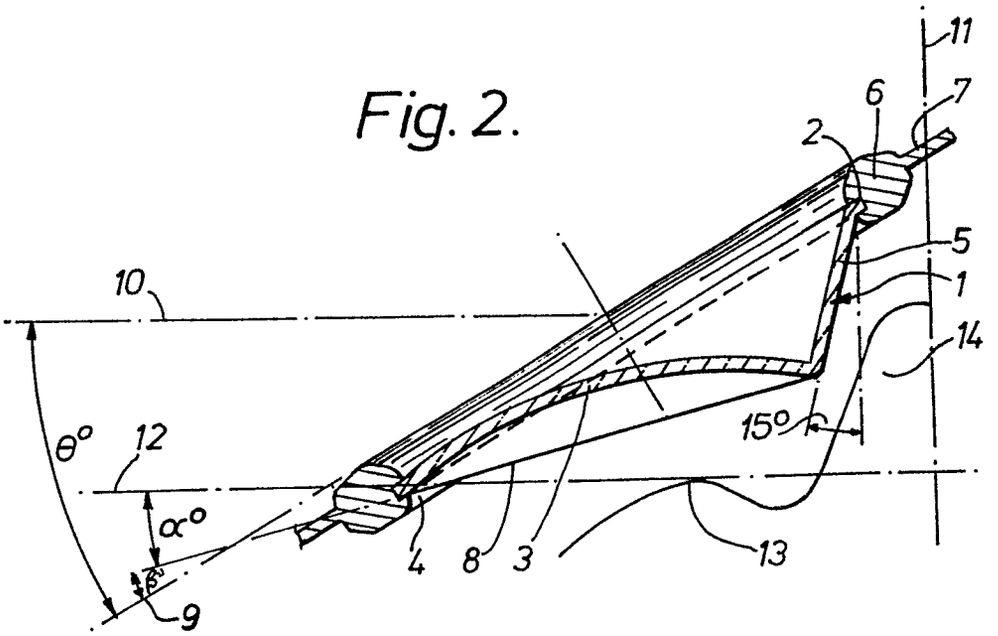


Fig. 2.



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EUROPEAN SEARCH REPORT

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. ³)
X,A	CH-A- 365 948 (STATO AG) * Page 2, lines 12-23, 32-51; figure 4 *	1,2,4	A 62 B 18/08
A	DE-C- 472 597 (DRÄGERWERK)		
A	DE-B-1 164 832 (DRÄGERWERK)		
A	CH-A- 194 890 (R. & E. HUBER)		
A	FR-A- 860 872 (M. TROUSLARD)		

TECHNICAL FIELDS SEARCHED (Int. Cl. ³)

A 62 B 18/00

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
BERLIN	17-11-1983	KANAL P K

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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