United States Patent

Cotabish

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[54] **FRESH AIR RESPIRATOR**

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[52] **U.S. Cl.** **128/145**

[51] **Int. Cl.** **A61m 16/00**

[58] **Field of Search** 128/140, 146.7, 142.6, 141, 128/145, 145.5, 185

[56] **References Cited**

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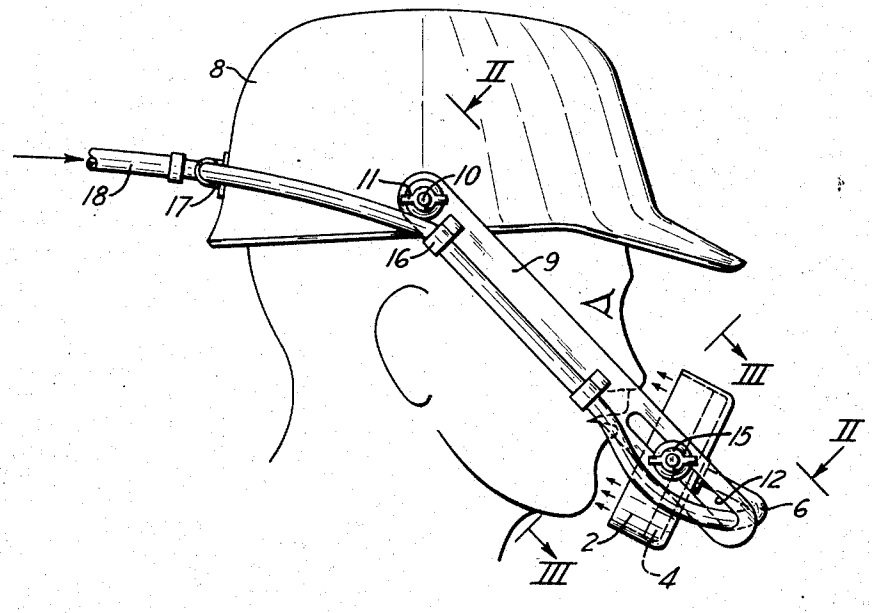
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[57] **ABSTRACT**

A cup contains a porous member that is spaced from its bottom wall to form an air chamber behind the porous member. The cup has an opening communicating with the chamber and there is means for supporting the cup in front of a person's nose and mouth with the porous member facing them. A stream of air is conducted to the cup opening to maintain the chamber full of air under pressure so that air will diffuse through the porous member and issue therefrom to provide fresh air around the nose and mouth.

4 Claims, 3 Drawing Figures



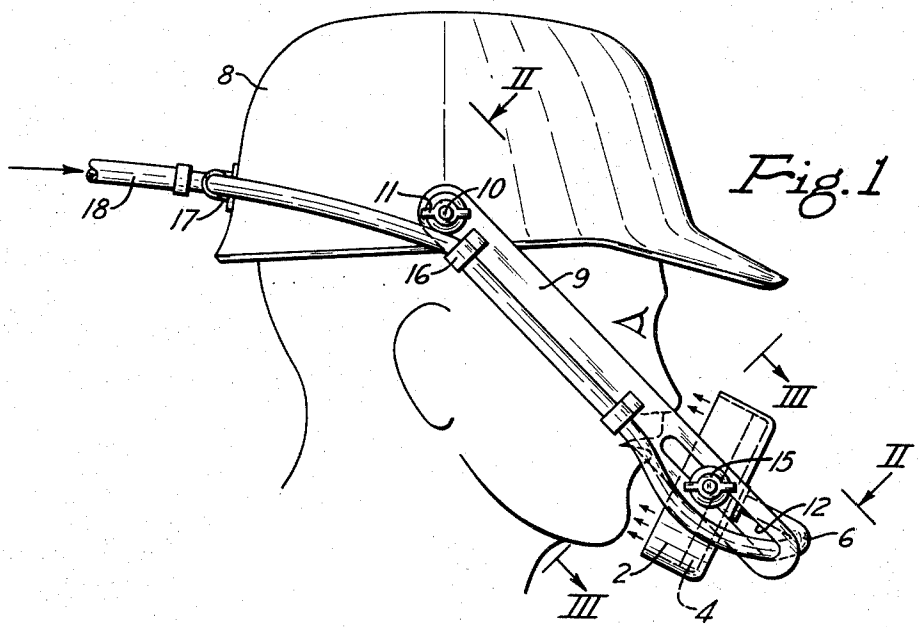


Fig. 1

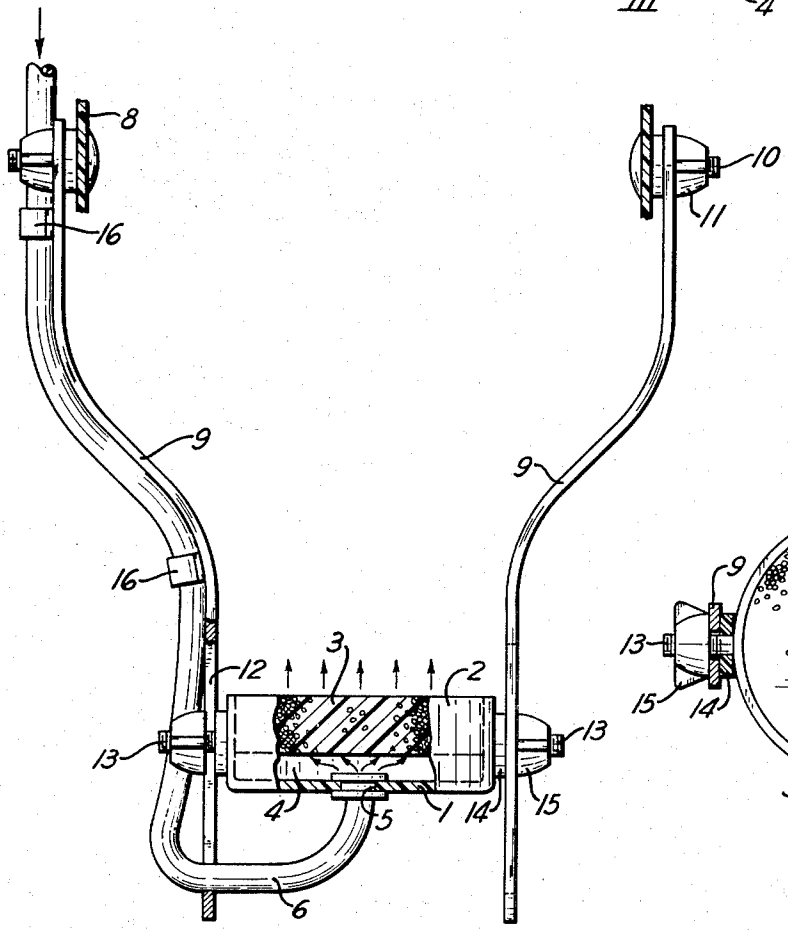
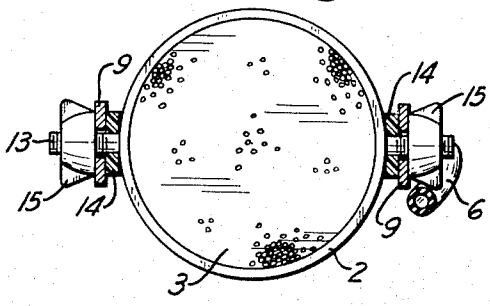


Fig. 2

Fig. 3



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FRESH AIR RESPIRATOR

When a person is working in a dusty or smoky atmosphere he sometimes is equipped with a device that blows a curtain of clean air across his face in order to keep him from breathing the contaminated air. However, it often is found that the air curtain has an aspirating effect that entrains the surrounding dust or smoke and actually draws it in toward the nose and mouth so that it is inhaled in spite of the air curtain.

It is among the objects of this invention to provide a respirator which is simple in construction and operation, which is fully adjustable, and which bathes a person's nose and mouth area in fresh air without entraining surrounding dust or other contaminants.

The preferred embodiment of the invention is illustrated in the accompanying drawings, in which

FIG. 1 is a side view of a respirator in operative position;

FIG. 2 is an enlarged view, partly in section, taken on the line II—II of FIG. 1; and

FIG. 3 is an enlarged view taken on the line III—III of FIG. 1.

Referring to the drawings, a shallow cup of any suitable material has a bottom wall 1 and an upstanding side wall 2. Inside the cup there is a porous member 3 that preferably is a porous block fitting tightly against the side wall of the cup. Various materials may be used, one of the best being an open cell foamed plastic which is light and inexpensive. The porous member does not fill the cup but, as shown in FIG. 2, is spaced from the bottom wall to form an air chamber 4 behind or below the porous member. To supply this chamber with air, a wall of the cup, preferably the bottom wall, is provided with an opening 5 that is connected with a flexible hose 6 leading from a suitable source of air under pressure. The air will maintain the chamber in the cup full of air under pressure, and that air will diffuse through the porous member and issue from it in a multiplicity of tiny streams having low velocity.

Since the air issuing from the porous member is to be directed against the nose and mouth of a person, provision is made for supporting the cup in a position suitable for that purpose. Preferably, the supporting means is fastened to headgear, such as a miner's helmet 8 or the like. The support may be a single arm, although two arms 9 are better. The arms are fastened by screws 10 and thumb nuts 11 to the opposite sides of the helmet. From that point the arms extend forward and downward across the cheek and then inward in front of the chin. The parallel lower end portions of these arms are provided with longitudinal slots 12 or, what amounts to the same thing, a plurality of longitudinally spaced openings. To fasten the cup to the arms, opposite sides of the cup are provided with aligned trunnions 13 that are screw threaded. These trunnions extend through the slots in the arms. Spacers 14 may be mounted on the trunnions between the cup and the arms, and thumb nuts 15 are screwed onto the outer

ends of the trunnions to clamp the cup and arms tightly together. By loosening the nuts, the cup can be tilted and also adjusted lengthwise of the arms to locate it in the best position for the user. The air supply hose can be connected to one of the arms by suitable clips 16 and extend around to a fitting 17 on the back of the helmet to which another hose 18 is detachably connected that extends back to the air pressure source.

It will be seen that the cup is fully adjustable; up and down, forward and backward, and tilting, so the user can place it in a position where the air issuing from the porous member will completely cover his nose and mouth. Since the cup is close to the face and the issuing air is diffused and has low velocity, it does not have an aspirating or entraining effect that would pull in surrounding dust or smoke for the user to inhale.

According to the provisions of the patent statutes, I have explained the principle 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 fresh air respirator comprising a cup having a bottom wall surrounded by a side wall, the side of the cup opposite said bottom wall being open, a porous member mounted in the cup and spaced from its bottom wall to form an air chamber behind said member, a wall of the cup being provided with an opening communicating with said chamber, arm means connectable to a headgear for supporting the cup spaced in front of a person's nose and mouth with the exposed side of the porous member facing them and open to the atmosphere, and means for continually delivering a stream of air to said cup opening to maintain said chamber full of air under pressure, whereby air will diffuse through the porous member and issue therefrom directly into the atmosphere.

2. A respirator according to claim 1, in which said block is an open cell foamed plastic.

3. A respirator according to claim 1, in which said supporting means includes an arm provided at one end with a longitudinal slot, means at the opposite end of the arm for connecting it to headgear, and means extending through said slot connecting one side of the cup to the arm, said last-mentioned means being adjustable along the slot and rotatable therein.

4. A respirator according to claim 1, in which said supporting means include a pair of laterally spaced inclined arms provided at their lower ends with longitudinal slots, means at the upper ends of the arms for connecting them to headgear, trunnions projecting from opposite sides of the cup through said slots, said trunnions being rotatable in the slots and slidable lengthwise thereof, and nuts screwed on the outer ends of the trunnions and against said arms to lock the cup in a desired position relative to the arms.

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