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OXYGEN MASK

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FIG. 1

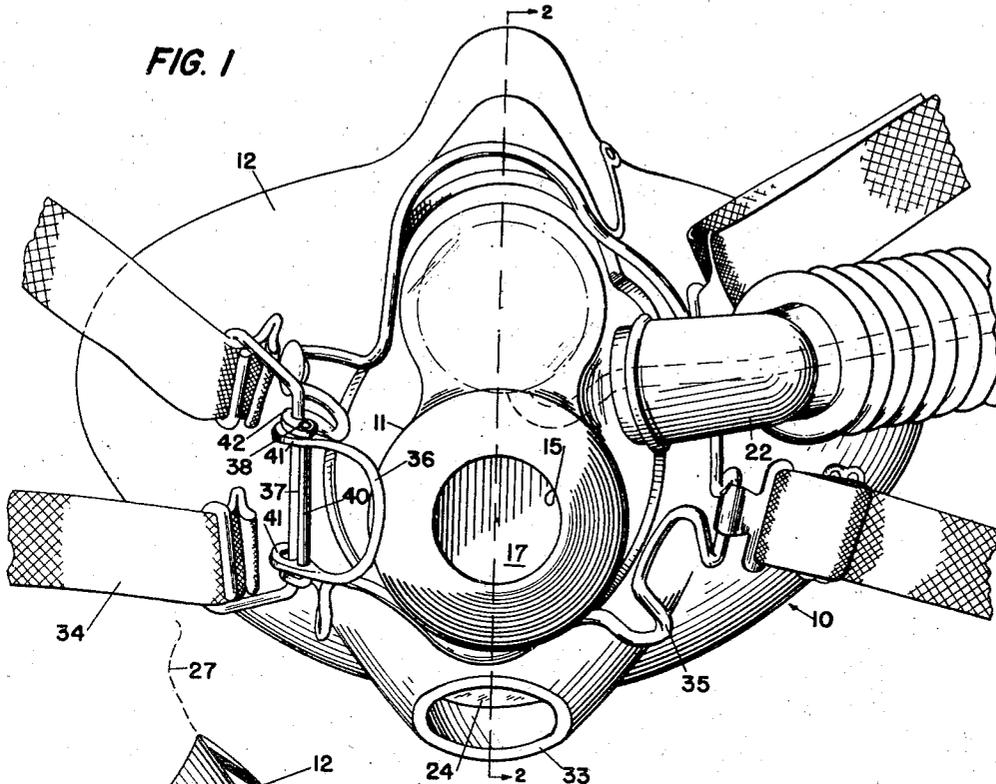
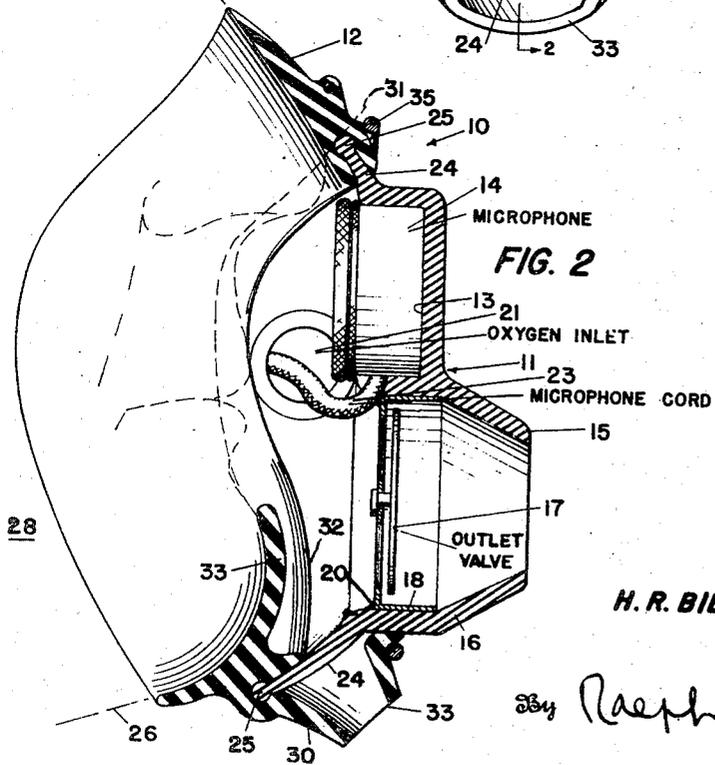


FIG. 2



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OXYGEN MASK

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3 Claims. (Cl. 128—142)

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This invention relates to an oxygen mask and has for an object to provide an improved oxygen mask particularly intended for use by aviators, a principal feature being that the mask is made in two basic parts including a center universal piece made of plastic material and a separable rubber attachment which affords fit to the face.

A further object of this invention is to provide a two-piece oxygen mask wherein a center-piece includes an expiratory valve easily accessible to the gloved finger of the wearer in case of freezing or jamming, together with a side oxygen entry port as well as a compartment for holding a microphone whose cord extends through the oxygen entry port and a separable face-fitting rubber attachment for holding the mask in proper position by means of a quick connect-disconnect mechanism.

Still a further object of this invention is to provide a two-piece oxygen mask and microphone holder including a separable face-fitting attachment which may be molded in several sizes to fit different wearers, and wherein the oxygen port and valve holder may be securely attached thereto by a bead and socket joint along their meeting edges. In the average oxygen mask made of a single molded piece, usually of rubber, it is the portions that contact the face and the holding mechanism that usually wear out fairly quickly, while the portions holding the valves, ports, and microphone are not so affected.

It is an object of this invention to separate the wearable portion from the more durable portion and to provide easily detachable units so that the relatively inexpensive wearable portion may be discarded and replaced, while the more expensive durable portion may be retained and attached to a new wearable portion, thus decreasing the upkeep cost.

Still a further object of this invention is to provide a two-piece oxygen mask made of a face-fitting and sealing portion of the usual flexible rubber and a center portion including the oxygen ports and microphone holder of a more durable permanent material, and a cooperating means on both portions for quickly and easily uniting or separating the two as may be needed.

With the foregoing and other objects in view, this invention consists in the construction, combination and arrangement of parts hereinafter described and illustrated in the drawings, in which:

Fig. 1 is a front elevational view of the mask in the position in which it would be used; and

Fig. 2 is a sectional view on line 2—2 of Fig. 1,

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There is shown at 10 the oxygen mask of this invention consisting of two parts, a centerpiece 11 and a face-fitting and sealing piece 12. The centerpiece 11 includes a compartment 13 for holding a microphone 14 and a conical outlet port 15 leading from a cylindrical port 16 in which is mounted an outlet valve 17 by means of its cylindrical flange 18 seated between the conical port 15 and a cylindrical shoulder 20. The center portion 11 also includes an oxygen inlet port 21 extending through the one side and connecting to an oxygen tube 22. Extending through the center of the oxygen inlet port 21 is a microphone cord 23 connected to the microphone 14. Extending rearwardly from the edge of the centerpiece 11 is a suitably shaped flange 24, ending in an enlarged bead-shaped edge 25.

The face-fitting and sealing piece 12 is shaped as shown to fit under the chin 26, over the nose 27, and about the cheeks 28 of the wearer. These extending portions will be made in various sizes so as to afford a closer fit to various size faces. The center of the face-fitting piece 12 is open to receive the centerpiece 11 and has a molded recess 30 extending inwardly around the center opening and terminating in an inner bead-shaped recess 31 complementary to the shape of the flange 24 and bead-shaped edge 25 of the centerpiece 11. Due to the flexibility of the form-fitting piece 12, the recess 30 and innerball-shaped recess 31 may be stretched to fit over the centerpiece flange 24 and beaded edge 25 making a perfect sealing joint therebetween. While the recesses 30 and 31 may be formed adjacent the edge of the center opening towards the top of the mask, they will preferably be formed in a ridge 32 towards the bottom of the flange, the ridge 32 extending from a chin-fitting extension 33 merging into the cheek-fitting portions of the face-fitting piece 12.

It will be observed also, particularly from Fig. 2, that the flange 24 of the centerpiece 11 extends across a conical downwardly extending port 33 provided in the face-fitting piece 12 just below the expiratory conical port 15. In order to mount the mask about the head or helmet of the wearer, straps 34 are provided, connected to a quick connect-disconnect mechanism consisting of a wire frame 35 extending about the joint between the center and face-fitting pieces and provided with a wire buckle 36 hinging about a U-shaped wire 37, the buckle 36 being hinged at 38 to a pivot bar 40 on the wire frame 35, the buckle 36 being provided with cammed toes 41 which when the buckle 36 is in the position shown in Fig. 1 cause the wire U 37 to seat in the recess 42 of the wire

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frame 35 behind the pivot 36; but when the buckle 36 is pulled out to about 180° rotation, the toes 41 cam the wire U 37 from out the recess 42 to disconnect the mask 10 from the face.

In the operation, the centerpiece 11 is attached to the face-fitting piece 12 by inserting the comparatively rigid centerpiece flange 24 and bead-shaped edge 25 into the comparatively flexible recess 30 and bead-shaped recess 31 of the face-fitting piece 12. When thus fitted together, the entire mask 10 is removable and attachable by manipulating the buckle 36 as though it were a one-piece mask. Should condensate from the breath tend to freeze on outlet valve 17, the valve 17 may be manipulated by the gloved finger through the conical port 15 to free it from any ice. Any condensation formed will tend to collect in the reservoir formed below the expiratory port 15 by the flange 24 extending over the port 33. Should the amount of condensation become too great, it could be drained through port 33 by flexing the port 33 until its recess 30 is so distorted as to provide a connection from the reservoir.

The centerpiece 11 may be made of a transparent plastic material more or less rigid and long wearing, while the face-fitting portion 12 must necessarily be of a softer, flexible plastic or rubber and hence subject to wear and somewhat rapid deterioration. When it has so deteriorated and no longer provides a proper fit to the face, this face-fitting piece 12 may be discarded and replaced by a new face-fitting piece attached to the same centerpiece. A further advantage is that the centerpiece may be of a single size, while the face fitting piece 12 may be made in various sizes making a closer fit for the particular individual who is to wear the mask 10.

Other modifications and changes in the number and arrangement of the parts may be made by those skilled in the art without departing from the nature of this invention, within the scope of what is hereinafter claimed.

The invention described herein may be manufactured and used by or for the Government of the United States of America for governmental purposes without the payment of any royalties thereon or therefor.

What is claimed is:

1. A two-piece oxygen mask comprising a separable port-carrying centerpiece and a face-fitting piece and means for joining said pieces into a single mask, said means including an extending flange on one piece and a cooperating, complementary shaped recess in the other piece, said flange having a bead-shaped edge, said recess having a complementary bead-shaped portion, an expiratory passage located adjacent the bottom of said centerpiece and an outlet valve set back entirely into said expiratory passage, said expiratory passage being sufficiently open to

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permit easy access to said outlet valve, said centerpiece also including an oxygen inlet port located to the side thereof at least slightly above said outlet valve, said centerpiece also including a microphone supporting compartment above said valve.

2. A two-piece oxygen mask comprising a separable port-carrying centerpiece and a face-fitting piece and means for joining said pieces into a single mask, said means including an extending flange on one piece and a cooperating, complementary shaped recess on the other piece, an expiratory port located adjacent the bottom of said centerpiece and an outlet valve mounted in said expiratory port, said expiratory port forming a forward protrusion, said centerpiece also including an oxygen inlet port located to the side thereof at least slightly above said outlet valve, said centerpiece also including a microphone supporting compartment above said valve, said centerpiece being of a comparatively durable rigid material, said face-fitting piece being of a comparatively soft, flexible material, and means for attaching said mask to a wearer, including a wire frame extending over said mask about the joint between said centerpiece and said face-fitting piece and engaging the lower part of the mask below said protrusion.

3. In a mask of the character described, a relatively soft pliable piece designed to fit portions of the face and having a continuous recess around the edge, a harder piece having laterally offset valve and microphone sockets arranged in superposed relationship, said harder piece having a rim shaped to fit detachably into said recess, and said soft piece having at its bottom a downwardly extending flexible spout that can be deformed to create an opening to atmosphere through the joint between said rim and said recess.

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