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S. O. OSTERBERG
MASK FOR APPLYING GASES

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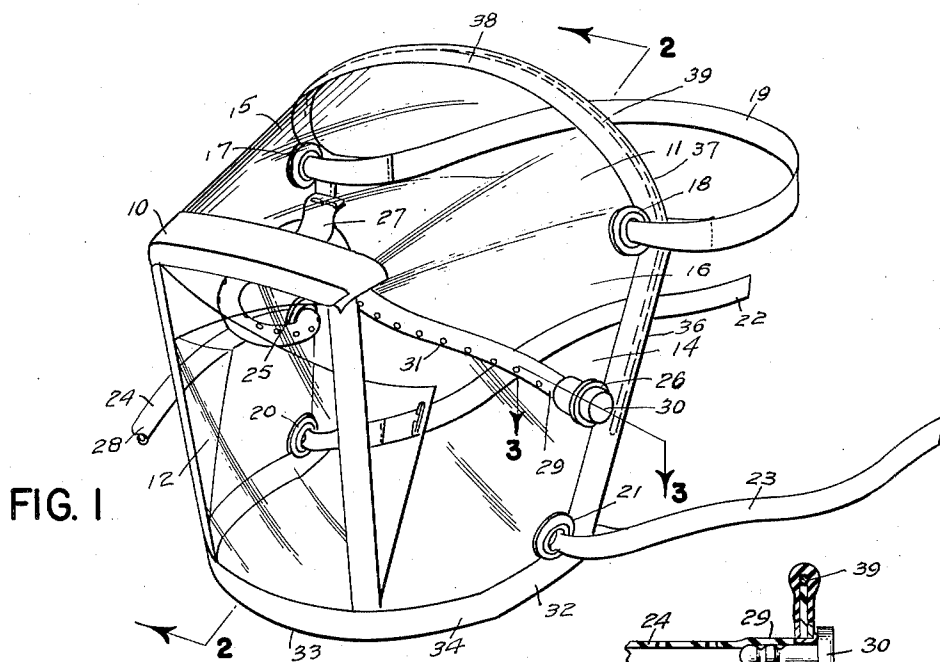


FIG. 1

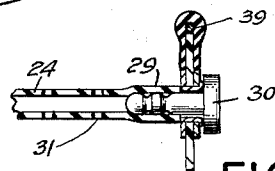


FIG. 3

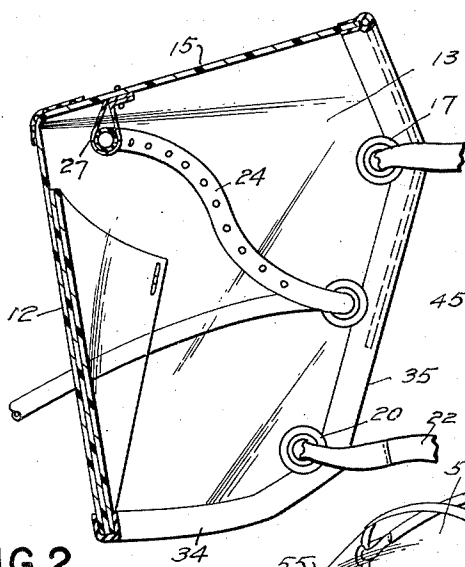


FIG. 2

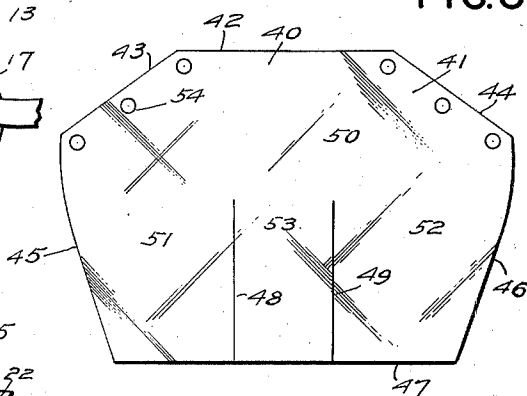


FIG. 4

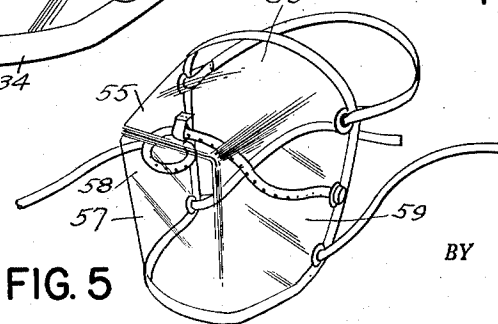


FIG. 5

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MASK FOR APPLYING GASES

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4 Claims. (Cl. 128—142)

The present invention relates to medical apparatus and has particular reference to a face mask for supplying oxygen and other medicinal gases and vapors directly to a person's respiratory system.

The principal object of the invention is to provide a very light weight face mask which allows the wearer to inhale oxygen or medicinal gases and vapors and to exhale the products of respiration without discomfort or labor.

An additional object of the invention is to provide a surgical face mask which is readily adjusted to fit the wearer's face.

A further object of the invention is to provide a transparent surgical mask which does not cloud or obscure the wearer's vision.

Another object of the invention is to provide a surgical mask which covers the face from the forehead to the chin and is open to the atmosphere at the bottom.

A further object of the invention is to provide a surgical face mask which can be easily and comfortably worn by small children.

An additional object of the invention is to provide a surgical face mask which is packed for shipping in a flat disassembled form and is easily assembled.

With the above objects and other advantageous features in view, the invention consists of a novel arrangement of parts more fully disclosed in the detailed description following, in conjunction with the accompanying drawings, and more specifically defined in the claims appended thereto.

In the drawings,

Fig. 1 is an enlarged perspective view of my novel surgical face mask;

Fig. 2 is a vertical section on the line 2—2 of Fig. 1;

Fig. 3 is a detail section on the line 3—3 of Fig. 1;

Fig. 4 is a plan view of a shaped blank for my novel surgical face mask; and

Fig. 5 is a perspective view of a modified construction of my novel surgical face mask.

It has been found desirable to provide a surgical face mask of very light transparent material for supplying oxygen and other medicinal vapors or gases with which the wearer may inhale without labor and discomfort and without impairing free exhalation of his products of respiration. To this end I take a blank of light transparent flexible material, preferably of a Celluloid or plastic composition, and I fold and bend it into a generally conical shaped face mask having a front, two sides and a top and open at the bottom.

The sides are provided with a head band at their upper ends and chin bands at their lower ends, and have passages through which a gas or vapor supply tube extends, the tube having a number of outflow diffusion openings for supplying the oxygen or other gas or vapor from an outside source to the interior of the mask, and being preferably suspended from a looped flap depending from the top of the mask.

Referring to the drawings, the novel face mask 10 is

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made of light, transparent material 11 such as Celluloid or other plastic which is inert to the oxygen or the medicinal gas or vapor to be inhaled. The mask has a front panel 12, side panels 13, 14, and a rounded or arched top 15, providing a recess or chamber 16 for receiving a human face and the forward portion of the head, the side panels having upper rear grommets 17, 18 through which a head band 19, preferably of elastic tape or the like extends, and lower rear grommets 20, 21 to which chin tapes 22, 23 are secured, for tying together as a chin strap.

A flexible gas supply tube 24 extends across the recess or chamber 16 through aligned grommets 25, 26 at intermediate rear portions of the side panels 13, 14, the tube being centrally supported in raised position by a looped flap 27 depending from the top 15. The tube 24 is preferably made of rubber or plastic, and has one end 28 attached to a source of gas or vapor supply, the other outer end 29 being closed by a plug 30, see Fig. 3, and the portion of the tube within the recess or chamber has a number of outflow diffusion perforations or passages 31, whereby the oxygen or other gas or vapor diffuses into and fills the chamber or recess for inhaling by the wearer.

The bottom edges 32, 33 of the side and front panels have a tape trimming 34, and the rear edges 35, 36 and 37 of the side panels and the top have a foam rubber or soft-felt trimming 38 which prevents irritation of the face of the wearer, the trimming 38 including a pliable slightly resilient stiffening metal wire 39 for holding the rear edges in close, leak-proof contact with the face when the mask is worn.

The mask is preferably shaped from a blank 40, see Fig. 4, having an upper truncated portion 41 with a top edge 42, and two inclined upper edges 43, 44, slightly curved and inwardly inclined side edges 45, 46, a bottom edge 47 and two vertical spaced slits 48, 49 extending substantially half way upwardly from the bottom edge towards the top edge 42 in spaced relation to the side edges, whereby an upper portion 50 and two spaced lower side portions 51, 52 with an intermediate lower central portion 53 is provided, the upper portion 50 having three spaced openings 54 adjacent each inclined upper edge, as illustrated.

In assembling the mask the lower side portions 51, 52 are extended towards each other until crossed, thus shaping the upper portion 50 into the mask top and sides, and are stapled to the mask sides; the intermediate lower central portion 53 is then bent downwardly over the crossed lower side portions, and the edges and top of the portion 53 is taped to the top and sides to lock the parts together. The trimmings 34 and 38 are now applied, grommets 17, 18, 20, 21 and 25, 26 being respectively secured to the openings 54. The head band 19 is now secured to the grommets 17, 18, the chin tapes 22, 23 are secured to the grommets 20, 21, and the tube 24 is passed through the grommets 25, 26 and through the looped flap 27, which is stapled to the inner surface of the top 15, the outer end 29 of the tube being closed by the plug 30.

The above described mask is thus of simple construction and assembly, whereby the blanks may be shipped for assembly by a distributor or by the user, or may be assembled and then shipped. The light weight and the transparency of the front, sides and top permit use of the mask without objection by children, and the open bottom ensures free inhaling and exhaling.

If desired, the novel mask may be made in one piece, of transparent molded Celluloid or plastic, as indicated at 55 in Fig. 5, the shape of the mask being similar to that of mask 10 of Fig. 1, with a top 56, a front panel 57, and sides 58, 59, the one-piece mask being equipped with head band, chin straps, edge trimmings, and gas supply

tube in the same manner and of the same type as the assembled mask 10.

Although I have disclosed a specific constructional feature of my invention, it is obvious that changes in the size, shape and arrangement of the parts may be made without departing from the spirit and the scope of the invention as defined in the appended claims.

I claim:

1. A surgical face mask made of light transparent material having a front, a top and sides, said front, top and sides providing a recess for receiving a human face and the forward portion of a head with said front in spaced relation to the human face, whereby a passageway to the outside is provided, said sides each having grommets intermediate the top and bottom edges and adjacent the rear edge, said grommets being aligned, a head band secured to the sides and extending from the rear of the top of one of said sides to the rear of the top of the other side, a chin strap secured to the sides and extending from the rear of the bottom of one of said sides of the rear of the bottom of the other side, a loop tab depending from said top and extending into the recess, and a flexible tube extending through said aligned grommets and the loop tab, said tube having diffusion perforations along its length within the recess.

2. A surgical face mask made of light transparent flexible material having a front, a top and sides, said front, top and sides providing a recess for receiving a human face and the forward portion of a head, a felt trimming along the rear edges of the top and sides, a pliable resilient wire adjacent the edges of the top and sides and enclosed within said felt trimming for providing a snug fit for the mask as worn on the head and face, a tape trimming along the bottom edges of the sides and front, said sides each having adjacent their rear edges an upper, a middle, and a lower grommet, a head band having its ends respectively secured to the upper grommets, a chin strap having its ends respectively secured to the lower grommets, a folded loop secured to said top and extending into the recess,

and a flexible tube extending through said middle grommets and loop, said tube having diffusion perforations along its length within the recess.

3. A surgical face mask made of light transparent flexible material having a front, a top and sides, said front, top and sides providing a recess for receiving a human face and the forward portion of a head, a felt trimming along the rear edges of the top and sides, a pliable resilient wire adjacent the edges of the top and sides and enclosed within said felt trimming for providing a snug fit for the mask as worn on the head and face, a tape trimming along the bottom edges of the sides and front, said sides each having adjacent their rear edges an upper, a middle, and a lower grommet, a head band having its ends respectively secured to the upper grommets, a chin strap having its ends respectively secured to the lower grommets, a folded loop secured to said top and extending into the recess, and a flexible tube extending through said middle grommets and loop, said tube having diffusion perforations along its length within the recess, one end of said tube being outside the mask and adjacent one of the sides said one end having a closure plug.

4. A blank of transparent material for forming a surgical face mask, having a top edge, two inclined upper edges, slightly curved and inwardly inclined side edges, and a bottom edge, the blank having spaced slits extending upwardly from the bottom edge in spaced relation to the side edges, whereby a truncated upper portion and two lower spaced side portions with an intermediate central portion is provided, said upper portion having three spaced openings adjacent each inclined upper edge.

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