Dec. 1, 1936. F. G. MANSON 2,062,325

FACE MASK

Original Filed June 2, 1932 2 Sheets-Sheet 1

FIG. 1

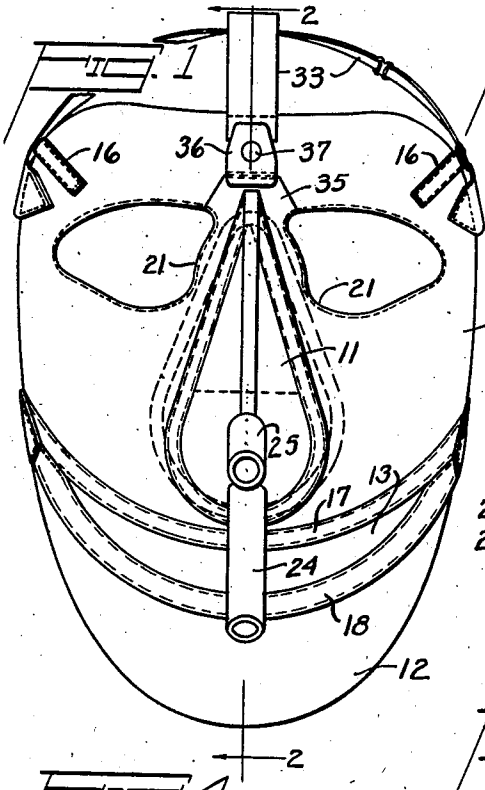


FIG. 2

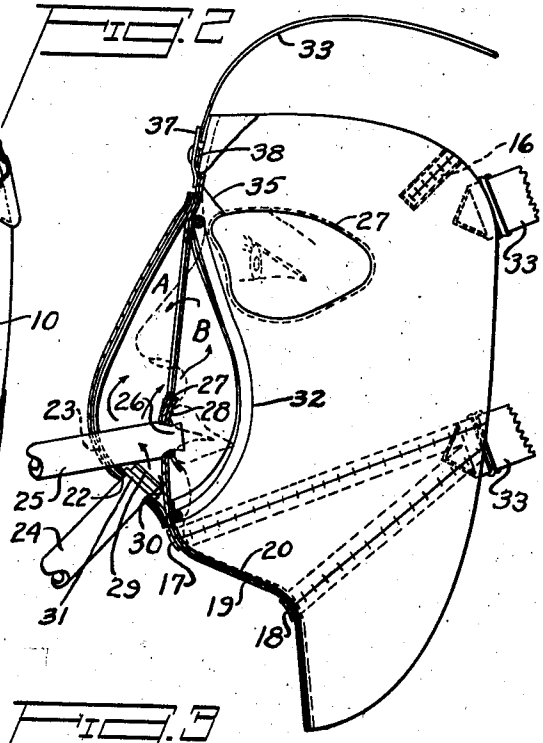


FIG. 3

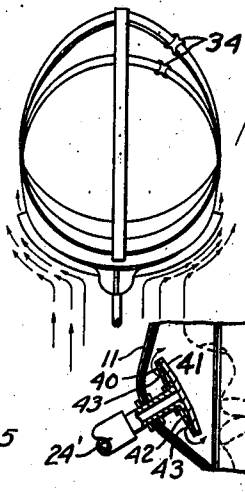


FIG. 4

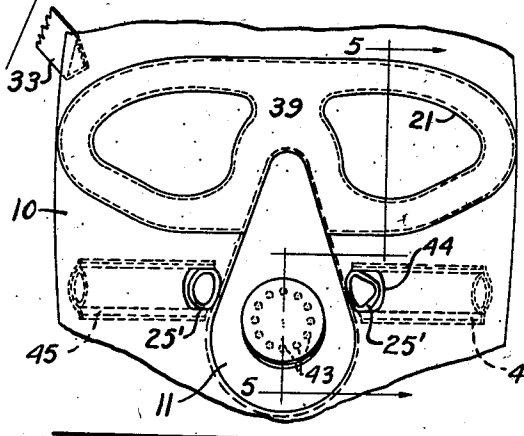


FIG. 5

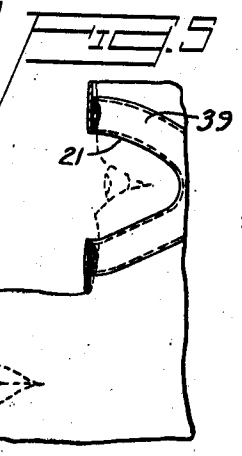
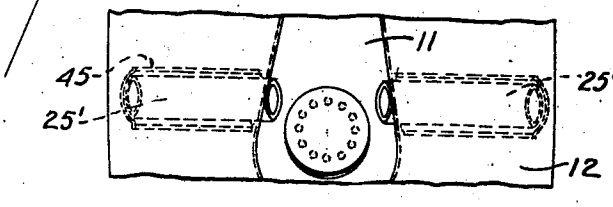


FIG. 6

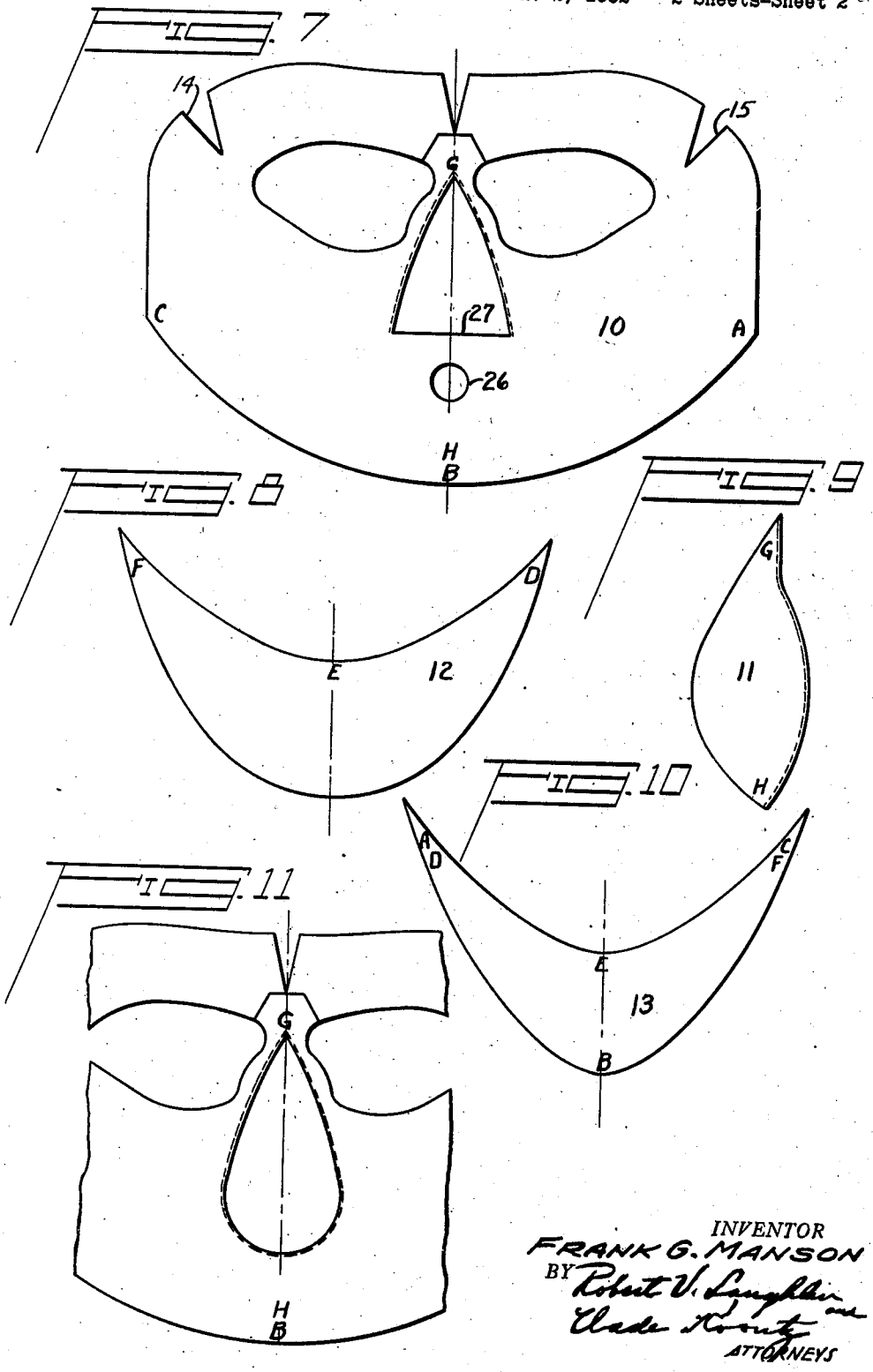


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Dec. 1, 1936. F. G. MANSON 2,062,325

FACE MASK

Original Filed June 2, 1932 2 Sheets-Sheet 2



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Patented Dec. 1, 1936 2,062,325

UNITED STATES PATENT OFFICE

2,062,325

FACE MASK

Frank G. Manson, Dayton, Ohio

Original application June 2, 1932, Serial No. 614,985. Divided and this application August 12, 1935, Serial No. 35,719

4 Claims. (Cl. 128—141)

(Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)

The present invention relates generally to improvements in face masks and more particularly to face protecting masks for aviators. The present invention is a division of my copending application Serial No. 614,985, filed June 2, 1932, wherein I have disclosed a novel face protecting mask adapted to snugly fit the face of the wearer and protect the face from the elements while flying at high altitudes.

An object of the present invention is to provide in a mask of this character means for supplying gas to the wearer which is so constructed and arranged that the gases upon entering the mask are deflected laterally and distributed more generally throughout the entire mask. In so doing direct contact of the entering gases with the face of the wearer is substantially prevented, providing for greater comfort and ease in breathing to the wearer.

A further object of the present invention is to provide in a mask of this character means for discharging the exhaled gases by the aid of one or more suitably disposed tubes so positioned on the mask that a partial suction pressure will be effected adjacent the discharge ends thereof and a more rapid exhausting of the exhaled gases from the interior of the mask will therefore be effected.

Heretofore in face masks of this general character considerable difficulty has been experienced in preventing the fogging of the goggles worn by the aviator by reason of the fact that the exhaled or other gases in exhausting through the eye openings of the face mask would be condensed on striking the relatively cold surfaces of the lenses of the goggles and thus impair to a great extent the visibility afforded the wearer.

A further object of the present invention, therefore, is to provide in a mask of this character an arrangement whereby the exhaled gases are prevented from reaching and exhausting through the eye openings, which is accomplished by confining the exhaled gases in the area generally surrounding the discharge outlets of the mask.

The present invention also has for an object the providing of a face mask which shall be of warm and durable material and which shall contribute to the maximum comfort of the wearer. To this end the helmet is formed of pliable leather with an inner lining of warm soft material, such as chamois or the like, and of such snug fit as to prevent the entrance of cold air around the edges.

These and other objects of the invention will be more apparent from the following detailed description of the preferred embodiment illustrated in the accompanying drawings, in which:

Fig. 1 is a front elevation of a preferred embodiment of the mask;

Fig. 2 is a sectional view taken on the line 2—2 of Fig. 1;

Fig. 3 is a top plan view of the modified mask shown in Figs. 4 and 5;

Fig. 4 is a front elevation of a modified form of mask;

Fig. 5 is a sectional view taken on the line 5—5 of Fig. 4;

Fig. 6 is a detail view of a still further modification showing the arrangement of the outlet passages; and

Figs. 7 to 11 inclusive illustrate the various patterns employed in forming the mask.

Referring more particularly to the drawings, wherein corresponding parts are indicated by like numerals throughout the various views thereof, the mask in the preferred embodiment of my invention herein illustrated comprises generally a face body portion 10, a nose portion 11, throat portion 12 and chin portion 13, the edges of the respective portions being adapted to be sewed together by means of furrier stitches with the corresponding edges of each portion matched together in the manner designated in Figs. 7 to 10 inclusively by means of the reference letters A to H, thus forming a unitary structure. The face body portion 10 is formed with spaced darts 14 and 15 at its upper edge, as shown in Fig. 7, which are adapted to be stitched together and thereafter reinforced by suitable reinforcing strips 16, which may be sewed to the face portion 10, as shown in Fig. 1. In a similar manner the adjacent edges of the face portion 10 and chin portion 13 and throat portion 12 are provided with reinforcing strips 17 and 18, as shown in Figs. 1 and 2. Goggle openings 21 are also formed in the face body portion 10. The face mask is laminated, that is, it is formed of an outer layer 19 of soft pliable leather and an inner lining 20 of warm soft material such as chamois.

As will be noted by referring to Fig. 2, the nose portion 11 is provided with apertures 22 and 23 respectively, within which are adapted to be received the air inlet tube 24 and exhaust tube 25 respectively. The exhaust tube 25 is of sufficient length to extend through an opening 26 provided in the lower portion 27 of the face body portion. A cup-shaped disk 28 of resilient material, such as rubber or the like, is mounted at the inner

end of said exhaust tube, which is adapted to conform to and closely contact with the lips of the wearer.

The inlet tube 24 is closed at its inner end, as shown at 29, and is provided with a laterally extending opening 30 for discharging oxygen into the nose portion of the mask. It will be noted by referring to Fig. 2 that the lower portion 27 of the face body portion forms a baffle for deflecting the incoming gases upwardly in the manner indicated by the arrows so that direct contact of the entering gases with the face of the wearer is substantially prevented. This arrangement also permits the entering gases to warm up to a certain extent before being inhaled. A flanged portion 31 is provided on the inner end of the inlet air tube 24 adapted to bear against the inner surface of the nose portion to retain the inlet tube properly positioned.

As will be noted by referring to Fig. 2, a padded roll of chamois 32 is disposed on the inside of the mask adapted for making intimate contact with that portion of the wearer's face generally surrounding the nose and mouth so that the entering gases are confined in the areas designated by letters A and B. In so doing the exhaled or entering gases are prevented from reaching and exhausting through the eye openings 21 and fogging of the goggles will therefore be substantially prevented.

In order to fasten the mask in position and maintain the same in close contact with the face, the sides of the face body portion are provided with a plurality of bands 33 of elastic material having the usual adjusting devices 34 for lengthening or shortening the bands. These bands also serve the purpose of maintaining the padded roll 32 in intimate contact with the face of the wearer to prevent leakage of air from areas A and B into the areas generally surrounding the eye openings. The portion 35 intermediate of the eye openings 21 is slit and is provided with a tab 36 having a female glove button fastener 37 secured at its free end adapted to cooperate with the male fastener 38 fastened on the upper face body portion. This arrangement permits the wearer to readily put on or remove his goggles without requiring removal of the face mask in so doing.

Figs. 3 to 5 inclusive illustrate a modification of the invention illustrated in Figs. 1 and 2. In this instance the eye openings 21 are provided with a padded section generally indicated by the numeral 39, which completely surrounds the eye opening, said section being so arranged as to make intimate contact with the face of the wearer about the eyes, as is indicated in Fig. 5. In so doing the exhaled or entering gases are prevented from reaching and exhausting through the eye openings to fog the goggles. The air inlet tube 24' in this modification is provided at its inner end with a plurality of flexible rubber disks 40 and 41 cemented together at their peripheral edges to form a chamber 42 for receiving gases. The disk 40, as will be noted by referring to Fig. 5, is provided with a plurality of openings 43, through which the entering gases are discharged laterally into the face mask.

In this modification the exhaust tubes 25' for exhausting the exhaled air from the interior of the mask are laterally disposed on the face body portion 11 of the mask. As will be noted by referring to Fig. 4, openings 44 are provided on the face portion of the mask adjacent the nose portion 11 within which the inner ends of the exhaust tubes 25' are received, the outer portion of the exhaust tube being secured to the face body portion by means of retaining strips 45 of durable material such as leather. The outer ends of the exhaust tube 25' are extended substantially to the peripheral edges of the face body portion as shown in Figs. 3 and 4. By means of this arrangement air currents flowing past the face of the wearer, as shown in Fig. 3, tend to forcibly withdraw the exhaled gases from the exhaust tubes.

Fig. 6 illustrates a further modification of the construction shown in Fig. 4. In this instance the exhaust tubes 25' have their inner ends disposed in the nose portion 11 of the mask at a point adjacent the junction of the nose portion and face body portion 12.

In reduction to practice, I have found that the form of my invention, illustrated in the accompanying drawings and referred to in the above description as the preferred embodiment, is the most efficient and practical; yet realizing that the conditions concurrent with the adoption of my mask will necessarily vary, I desire to emphasize the fact that various minor changes in details of construction, proportion and arrangement of parts may be restorted to when required without sacrificing any of the advantages of my invention, as defined in the appended claims. What I claim as new and desire to secure by Letters Patent is:

1. A face mask comprising, a body portion constructed of a plurality of sections of flexible material shaped to snugly conform to and intimately contact the wearer's face when in assembled relation, said body portion being provided with eye openings and a frontal opening adjacent thereto for accommodating the nose and mouth of the wearer, a nose piece secured at its marginal edges to the periphery of said frontal opening to form a breathing chamber separate and apart from the interior of said body portion, means for supplying gases to said chamber, means associated with said chamber for exhaling said gases, and an inner padded section of yieldable material completely surrounding the eye openings and adapted to snugly fit against the face to prevent said gases from flowing into said eye openings.

2. A face mask comprising, a body portion constructed of a plurality of sections of flexible material shaped to snugly conform to and intimately contact the wearer's face when in assembled relation, said body portion being provided with eye openings and a frontal opening adjacent thereto for accommodating the nose and mouth of the wearer, a nose piece secured at its marginal edges to the periphery of said frontal opening to form a breathing chamber separate and apart from the interior of said body portion, means for supplying gases to said breathing chamber, means associated with said chamber for exhaling said gases, and an inner padded section of yieldable material completely surrounding the eye openings and adapted to snugly fit against the face to prevent gases from entering into said eye openings, said gas exhaling means comprising a pair of laterally disposed tubular members mounted exteriorly of the body portion of said mask, each member having a free air passage extending therethrough which communicates at its inner end with said breathing chamber, the outer ends of said tubular members being positioned adjacent the side edges of said mask body portion.

3. A face mask comprising, a body portion constructed of a plurality of sections of flexible ma-

terial shaped to snugly conform to and intimately contact the wearer's face when in assembled relation, said body portion being provided with eye openings and a frontal opening adjacent thereto for accommodating the nose and mouth of the wearer, a nose piece secured at its marginal edges to the periphery of said frontal opening to form a breathing chamber separate and apart from the interior of said body portion, means for supplying gases to said chamber, means associated with said chamber for exhaling said gases, and an inner padded section of yieldable material completely surrounding the eye openings and adapted to snugly fit against the face to prevent gases from entering into said eye openings, said gas exhaling means comprising a pair of laterally disposed tubular members mounted exteriorly of the body portion of said mask, each member having a free air passage extending therethrough, the inner ends of said members terminating in said breathing chamber, the opposite ends of said members being disposed at points adjacent the peripheral edges of said body portion in a manner such as to effect a pressure drop at the outlet end thereof and facilitate the exhausting of said exhaled gases through said members.

4. A face mask comprising, a body portion constructed of a plurality of sections of flexible material shaped to snugly conform to and intimately contact the wearer's face when in assembled relation, said body portion being provided with eye openings and a frontal opening adjacent thereto for accommodating the nose and mouth of the wearer, a nose piece secured at its marginal edges to the periphery of said frontal opening to form a breathing chamber separate and apart from the interior of said body portion, means for supplying gases to said breathing chamber, means associated with said chamber for exhaling said gases, and an inner padded section of yieldable material completely surrounding the eye openings and adapted to snugly fit against the face to prevent gases from entering into said eye openings, said gas supply means comprising a pair of flexible discs secured together at their peripheral edges to form therebetween a receiving chamber for the entering gases, one of said discs being provided with a plurality of air openings, said openings being so disposed with respect to said gas-receiving chamber such that said gases, upon passing through said openings, are deflected away from the face and into said breathing chamber.

FRANK G. MANSON.