

Jan. 9, 1951

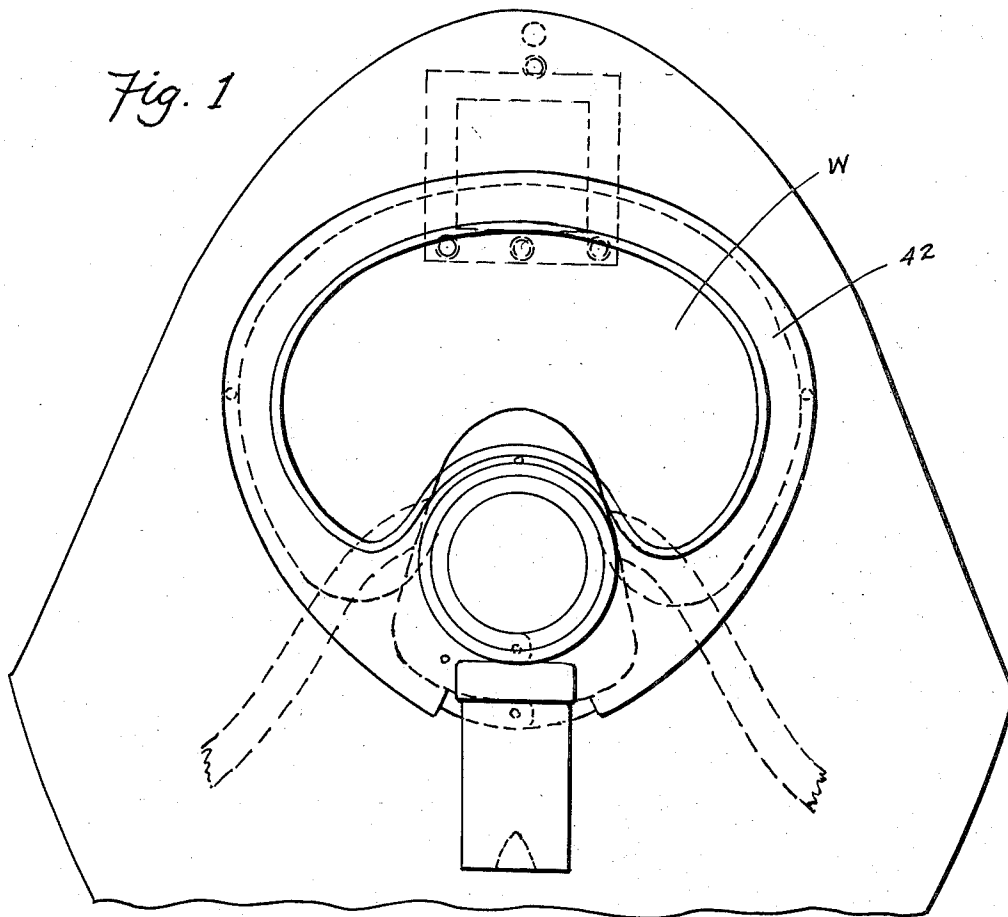
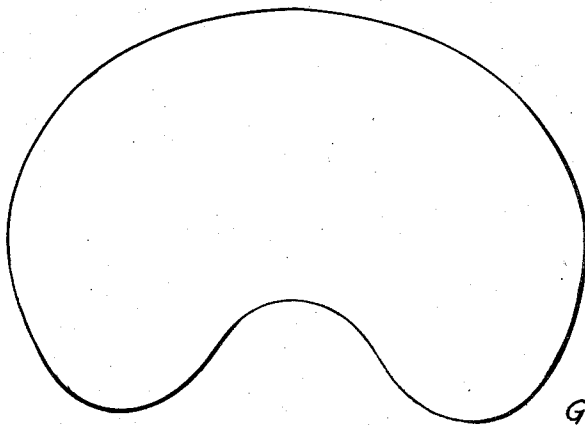
G. A. GEMUNDEN

2,537,265

FACE MASK

Filed May 20, 1946

3 Sheets-Sheet 1



INVENTOR.
George A Gemunden
BY

Arthur W Hawley ATTORNEY.

Jan. 9, 1951

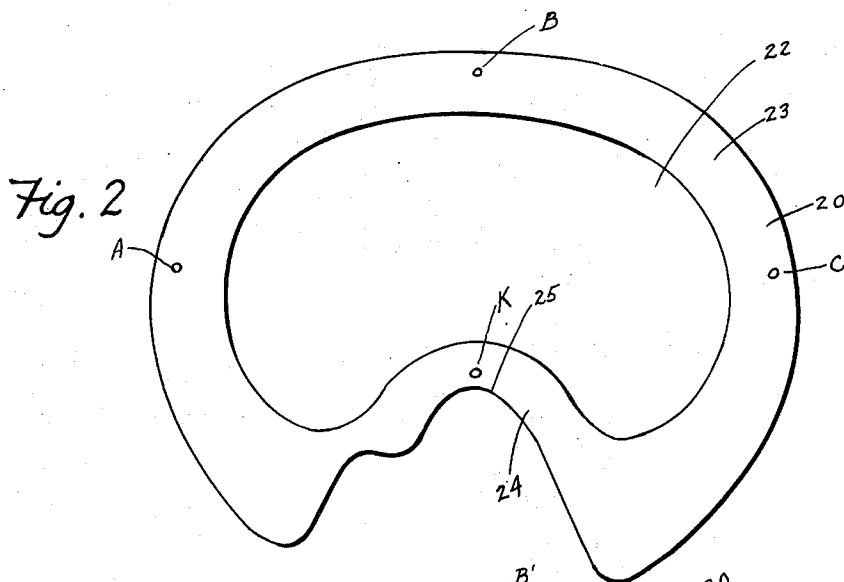
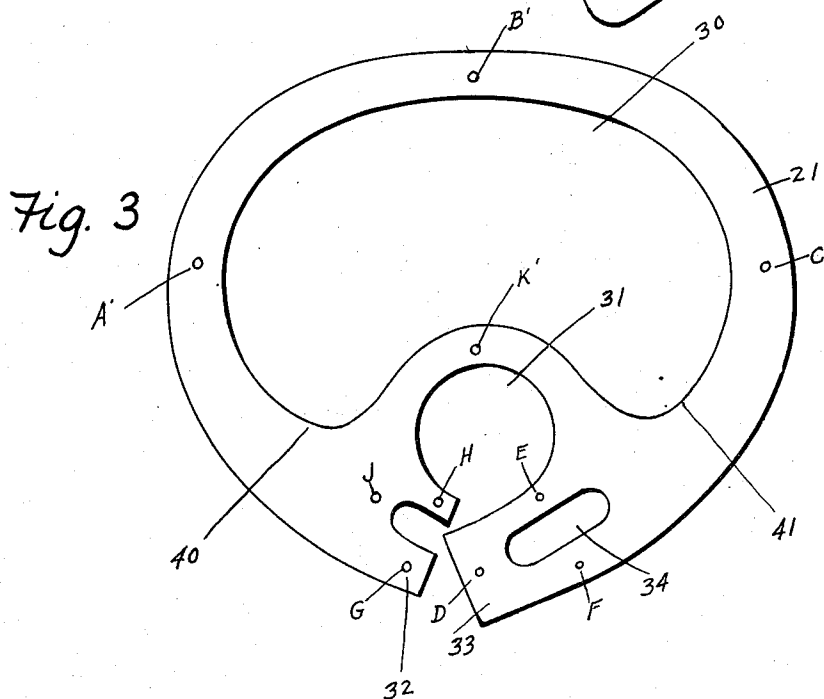
G. A. GEMUNDEN

2,537,265

FACE MASK

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3 Sheets-Sheet 2



INVENTOR.

George A. Gemunden
BY

BY

R. L. Stanley ATTY.

Jan. 9, 1951

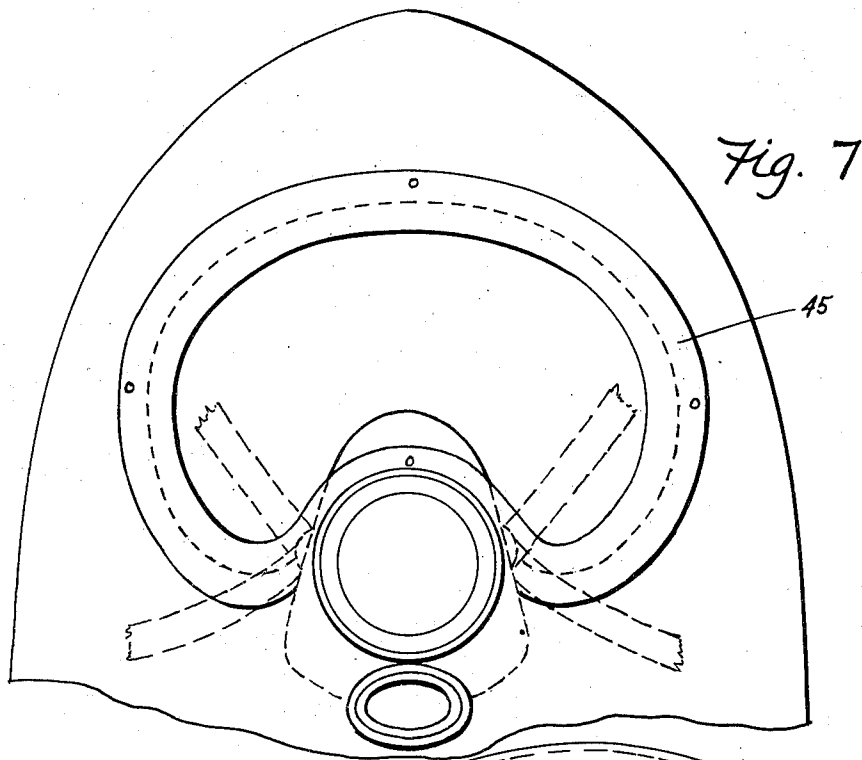
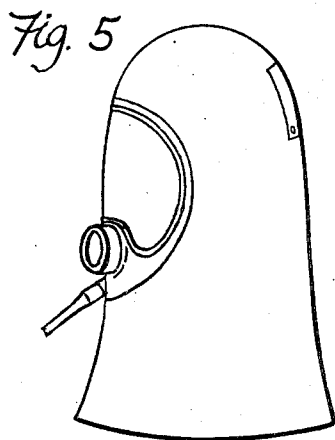
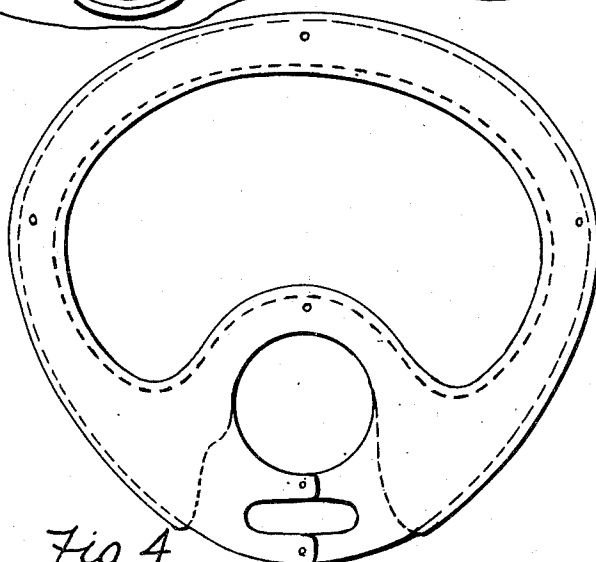
G. A. GEMUNDEN

2,537,265

FACE MASK

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3 Sheets-Sheet 3



INVENTOR.
George A. Gemunden
BY
Luther W. Hawley
ATTY.

UNITED STATES PATENT OFFICE

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FACE MASK

George A. Gemunden, Philadelphia, Pa.

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2 Claims. (Cl. 128—141)

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This invention relates to protective face or head covers, such as masks, hoods, helmets, etc.

The invention relates more particularly to the window and window assembly in masks, hoods, etc. and has for its salient object to provide a window mounting and window so constructed and arranged that the window can be easily and quickly removed and replaced without requiring the removal or loosening of any fastening means.

Another object of the invention is to provide a window and window assembly so constructed and arranged as to afford the wearer of the mask maximum vision and particularly "down" vision.

Further objects of the invention will appear from the following specification taken in connection with the drawings which form a part of this application, and in which

Fig. 1 is a front elevation of a mask constructed in accordance with the invention;

Fig. 2 is a plan view of the inner blank used in making up the frame for the mask;

Fig. 3 is a plan view of the outer blank;

Fig. 4 is a plan view of the blanks shown in Figs. 2 and 3 in assembled relation with the window mounted therebetween;

Fig. 5 is an end elevation of the blank assembly and window;

Fig. 6 is a plan view of the window; and

Fig. 7 is a sectional elevation of a modified form of mask framed with a rubber covering for the edges of the blanks.

The mask about to be described may be used in conjunction with a respirator with or without a hood for protection to the eyes and face or may be used to protect the eyes and face but without the use of a respirator in conjunction therewith.

The mask consists primarily of a frame which comprises a pair of inner and outer blanks 20 and 21, shown in Figs. 2 and 3. These blanks may be formed of any desired sheet material, but are preferably formed of flexible, flat sheets of fiber or other suitable composition. However, the blanks may be formed of metal sheets.

The blank 20, as shown in Fig. 2, consists of a flat sheet of material having a vision opening 22 bounded by a flat band or marginal portion 23. The marginal portion 23 has a substantially V-shaped opening 24 at the bottom thereof, the crest 25 of the V being formed to accommodate a respirator.

The blank 21 has a vision opening 30 conforming substantially in shape to the vision opening 22 in the blank 20, but the opening 30 is slightly larger than the opening 22 so that when the blanks are assembled and secured together the inner edge of the marginal portion 23 or the boundary of the opening 22 extends inwardly beyond the boundary of the opening 30. In other words, at the vision opening the inner periphery

of the blank 20 overlaps the inner periphery of the blank 21.

The blank 21 has formed therein an opening 31 to accommodate a respirator and oppositely facing tabs 32 and 33. The tab 33 has an opening 34.

When the blanks are assembled the marginal portions are preferably secured by rivets, as shown in Fig. 4. Blank 20 has formed therein perforations A, B and C and blank 21 has corresponding perforations A', B' and C'. The tab 33 has perforations D, E and F and tab 32 has corresponding perforations G, H and J. In assembling the blanks the upper marginal portions of the blanks are preferably secured together first as, for instance, by rivets which pass through the perforations A, A', B, B' and C, C'. The assembled blanks are then bowed and the tabs 32 and 33 are overlapped to bring the openings E and F into alignment with the openings H and G. Rivets are thereafter secured through these openings. The tab 33 is further secured to the portion of the tab 32 disposed therebeneath by a rivet which is passed through the opening D and opening J in the tab 32. A further rivet is passed through openings K and K' in blanks 20 and 21 respectively.

It should be understood that the blanks 20 and 21 which form the frame or body member of the mask may, if desired, be secured together in any other suitable manner, as by stitching, but attention is directed to the fact that the securing means for connecting the blank marginal portions together are sufficiently near the outer peripheries of the blanks to leave between the portions of the blanks bordering on the vision openings a space wide enough to receive the peripheral or marginal portions of the window mounted therein.

When the blanks are formed of flexible, sheet material, such as fiber, the marginal portion or periphery of the window can be easily inserted therein. However, when these blanks are formed of metal, a spacer should be inserted to provide a free channel for receiving the outer edge of the window.

After the tabs 32 and 33 have been overlapped and secured together and the two blanks have been assembled and secured, it will be noted that an opening is provided for the reception of a respirator housing and an opening is formed below this respirator opening for the reception of the exhaler attachment. If no respirator is to be used, both openings may be eliminated, or this portion of the blank may be filled in.

After the blanks have been assembled and secured together, a window W is inserted in the space between the marginal portions of the blanks bordering the vision openings. The window is formed of any suitable transparent, flexi-

ble, sheet material. It will be noted that the window openings have downwardly extending projections or lobes 40 and 41, these lobes or projections extending downwardly on opposite sides of the nose opening in the blank or after the respirator and nose piece have been assembled as shown, for instance, in Fig. 1 the lobes extend downwardly at the sides of the nose piece. This is important since the wearer is thereby provided with a wide lateral vision and the "down" vision is not obstructed by the respirator.

The window shown in plan in Fig. 6 corresponds in shape to the contour of the vision openings 22 and 30 but the window is slightly larger than these openings so that when the window is assembled between the inner marginal portions of the blanks the outer edge of the window will be disposed beneath the inner periphery of the blank 21 and closer to the vision openings than the securing means which is used to secure the blanks together. This is clearly shown by the dotted line 42 in Fig. 1.

The window W is mounted in the frame by bowing the window to conform to the contour of the frame and inserting the upper edge of the window beneath the inner periphery or the edge of the vision opening 30 of the blank 21 and forcing this upper edge of the window upwardly until the lower edge clears the inwardly and upwardly extending lower peripheral portion of the opening 30. Thereupon the lower part of the window may be pressed in and then the window can be moved downwardly, thus disposing the peripheral portions thereof between the inner marginal portions of the blanks.

If desired, one of the rivets or staples, such as the rivet passed through the openings A and A', may be removed, and the window can then be inserted at the side of the frame with the upper edge of the window pushed as far upwardly as possible in the channel between the blanks until the recessed lower edge of the window can be moved around the portion of the frame surrounding the nose opening. Thereafter the window can be moved downwardly to properly position it in the channel.

The respirator used with the mask may be of any standard construction and the details of construction of the respirator form no part of the present invention and have not been illustrated. It will be understood without further explanation that the nose piece of the respirator will be suitably mounted on the inside of the mask frame so that the nose opening of the nose piece will be aligned with the nose opening at the bottom of the mask frame and, furthermore, that the mouth opening 34 of the mask frame will be suitably aligned with the mouth opening of the nose piece.

The mask may be used with or without a hood, as desired, and the hood may be formed of canvas or, when the wearer is working with acids, caustics, or any other deteriorating substances, the hood may be formed of rubber. In this case the outer edge of the frame member 21 will be preferably protected by a rubber covering.

In Fig. 7 the mask is used with a rubber hood 45 and the rubber material extends around the outer blank to protect the material of the blank from acids, chemicals or other deteriorating substances.

From the foregoing specification it will be clear

that the window and window assembly are so relatively constructed that the window may be easily and readily removed and replaced without loosening or removing any securing means and that the window can be easily forced into the channel between the frame member or blanks under tension or can be inserted at one end or side if desired.

Moreover, it is evident that the window and window mounting will provide a wide vision and also permit the wearer to look downwardly or obtain a "down" vision at the sides of the nose piece and respirator.

Although one specific embodiment of the invention has been particularly shown and described it will be understood that the invention is capable of modification and that changes in the construction and in the arrangement of the various cooperating parts may be made without departing from the spirit or scope of the invention, as expressed in the following claims.

What I claim is:

1. In a face mask, a frame comprising a pair of substantially flat, ring-shaped flexible blanks, means for securing said blanks together at their outer peripheries, said blanks when secured together having an opening for a respirator and having a vision opening extending transversely across the frame and downwardly at the sides of the said opening, the inner edge of one blank at the vision opening extending inwardly beyond the inner edge of the other blank, and a window disposed between the marginal portions of the blanks at the vision opening and having its periphery disposed nearer the opening than the secured peripheral portions of the blanks said window being held in position by the marginal portions of the blanks.

2. In a face mask, a frame comprising a pair of substantially flat, ring-shaped blanks formed of flexible, relatively hard, sheet material, means for securing said blanks together at their outer peripheries, said blanks when secured together being bowed in transverse section to conform to the curvature of the face and having an opening for a respirator and having a vision opening extending transversely across the frame and downwardly at the sides of the nose opening, the inner edge of one blank at the vision opening extending inwardly beyond the inner edge of the other blank, and a window disposed between the marginal portions of the blanks at the vision opening and having its periphery disposed nearer the opening than the secured peripheral portions of the blanks said window being held in position by the marginal portions of the blanks.

GEORGE A. GEMUNDEN.

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