Aug. 28, 1962 R. MALCOM, JR 3,050,736

PROTECTIVE FACE SHIELD AND HOOD

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Fig. 1.

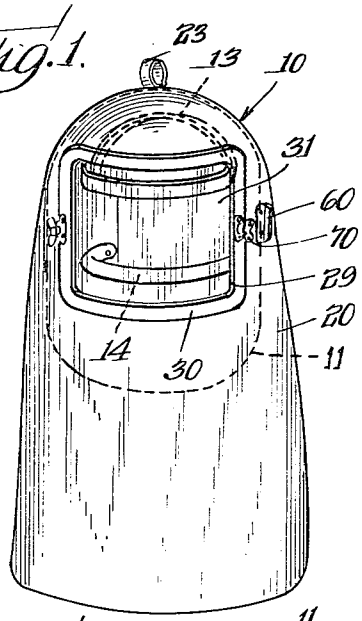


Fig. 2.

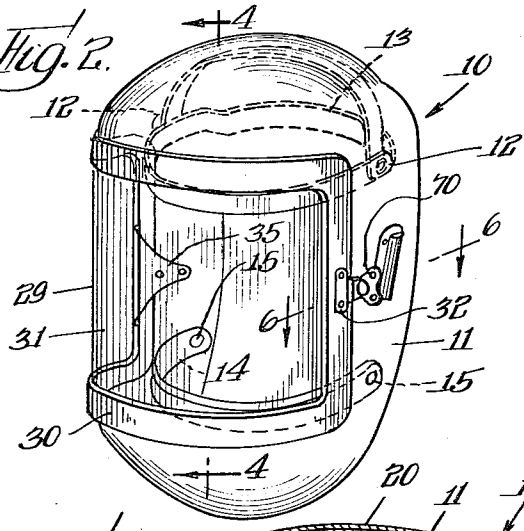


Fig. 4.

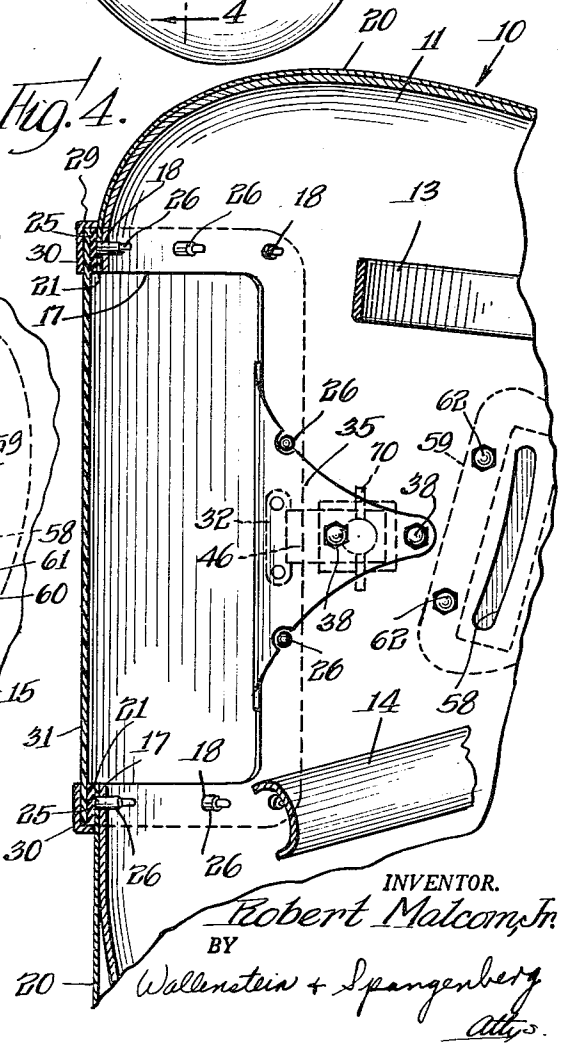


Fig. 3.

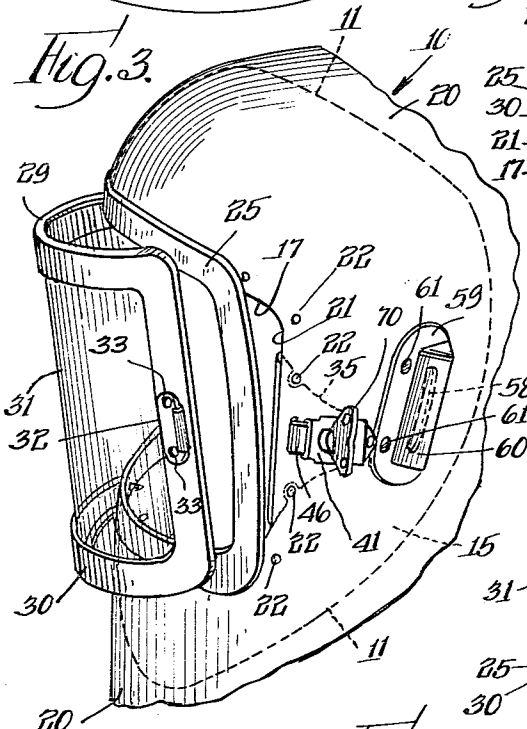
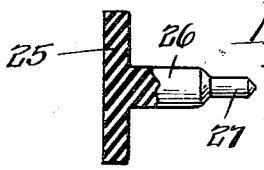


Fig. 5.



INVENTOR.
Robert Malcom, Jr.
BY
Wallenstein + Spangenberg
Attys.

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Fig. 6.

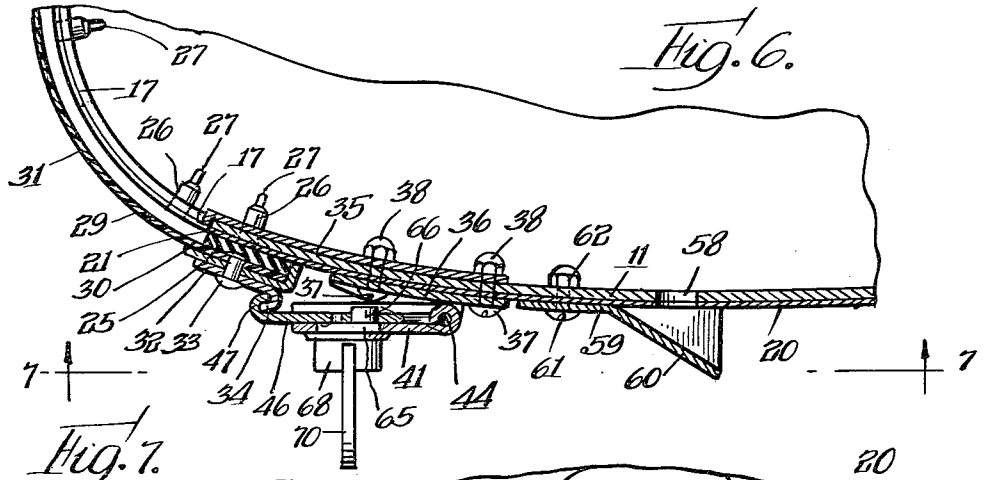


Fig. 7.

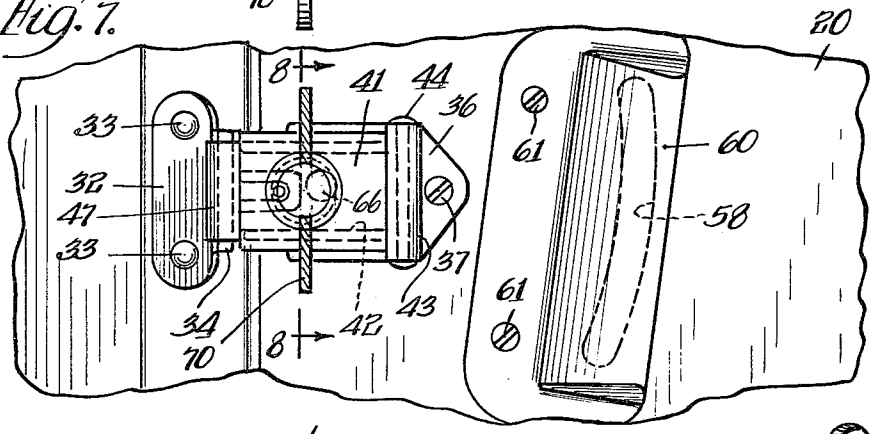


Fig. 8.

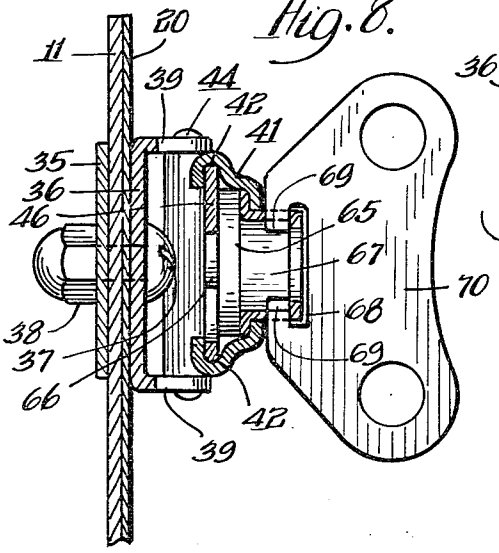
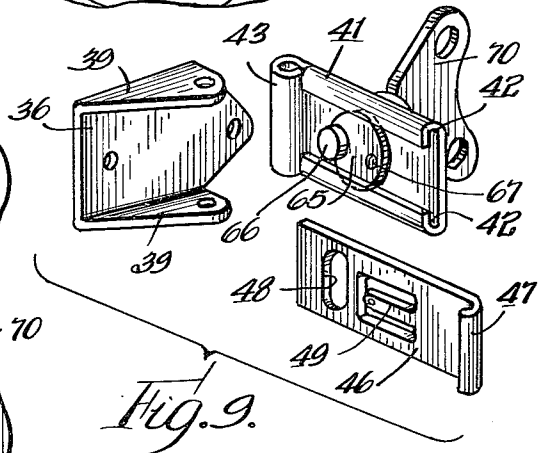


Fig. 9.



INVENTOR.
Robert Malcom, Jr.
BY
Wallenstein & Spangenberg
Attys.

United States Patent Office

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PROTECTIVE FACE SHIELD AND HOOD

Robert Malcom, Jr., Chicago, Ill., assignor to Chicago Eye Shield Company, Chicago, Ill., a corporation of Illinois

Filed Oct. 13, 1959, Ser. No. 846,171

8 Claims. (Cl. 2—9)

The principal object of this invention is to provide an improved face shield and hood, wherein a helmet shaped foundation member, which is carried by the head of the wearer, is provided with a front sight opening, wherein a window assembly is removably secured, clamped and sealed to the foundation member over the front opening therein, and wherein, in the case of a hood, the hood is also removably secured, clamped and sealed to the foundation member around the opening therein by the window assembly.

Further objects of this invention reside in the details of construction of the face shield and hood and in the cooperative relationships between the component parts thereof.

Other objects and advantages of this invention will become apparent to those skilled in the art upon reference to the accompanying specification, claims and drawings in which:

FIG. 1 is a front elevational view of the protective hood of this invention.

FIG. 2 is a front perspective view of the face shield of this invention with the hood removed.

FIG. 3 is a front perspective view of the face shield and hood of this invention with the window assembly and gasket partly removed therefrom.

FIG. 4 is a vertical sectional view taken substantially along the line 4—4 of FIG. 2.

FIG. 5 is a vertical sectional view through the sealing gasket and one of its fingers.

FIG. 6 is a horizontal sectional view taken substantially along the line 6—6 of FIG. 2.

FIG. 7 is a partial side elevational view taken substantially along the line 7—7 of FIG. 6.

FIG. 8 is a vertical sectional view taken substantially along the line 8—8 of FIG. 7.

FIG. 9 is an exploded perspective view of one of the clamping means.

The protective face shield and hood of this invention is generally designated at 10. It includes a helmet shaped foundation member 11 which is relatively rigid and which may be formed of any suitable material such as synthetic plastic, Fiberglas or the like. The foundation member 11 is suitably pivotally secured as at 12 to a suitable head gear or the like 13, such as the adjustable head piece shown and described in my co-pending application Ser. No. 778,968, filed December 8, 1958. A chin support 14 is pivotally secured to the inside of the foundation member 11 as indicated at 15.

The foundation member 11 is provided with a front sight opening 17 and marginally arranged around this opening are a plurality of holes 18. A flexible hood 20, which may be formed of any suitable material such as synthetic plastic sheeting or fabric coated or impregnated with a suitable synthetic plastic, overlies the foundation member 11 and is adapted to extend at least over the head and shoulders of the wearer. The hood 20 is provided with a front sight opening 21 and with a plurality of marginally arranged holes 22 which are commensurate with the opening 17 and holes 18 of the foundation member 11. The top of the hood 20 may be provided with a suitable loop 23 which may be suitably secured through the hood 20 to the foundation member by means of a screw and nut or the like.

A removable resilient rubber-like gasket 25 is located

on the outside of the hood and foundation member around the openings 17 and 21 therein, and preferably, this gasket is formed from resiliently compressible and expansible rubber or the like. The gasket 25 is integrally provided with a plurality or rearwardly extending resilient rubber-like fingers 26 which are provided with small extensions 27 to removably secure to the gasket 25 and the hood 20 in place upon the foundation member 11. The small ends 27 of the fingers 26 are inserted through the holes 22 and 18 in the hood and foundation members. These small extensions 27 are then pulled and, as a result, the fingers 26 are stretched and reduced in cross section so that they may be pulled into the holes. After the fingers 26 are thus received in the holes, the small extensions 27 are released whereupon the fingers 26 resiliently expand to frictionally engage the holes 18 in the foundation member for removably securing the gasket and hood in place. To remove the gasket 25 and hood 20 from the foundation member 11, all that is necessary is to pull upon the gasket 25 for pulling the fingers 26 from the holes. There is thus provided an extremely simple and fool proof means for removably securing the gasket and the hood to the foundation member about the front sight opening thereof.

A window assembly 29 is removably secured over the sight openings 17 and 21 in the foundation member 11 and the hood 20. This window assembly includes a rigid frame member 30 formed from aluminum or the like and received within this frame member 30 is a transparent window 31 which may be formed of one or more bendable sheets of transparent synthetic plastic material. The frame member 30 overlies the gasket 25 and operates to clamp the transparent window 31 against the gasket 25. Towards this end, a pair of members 32 provided with a pair of hooks 34 and formed of aluminum or the like, are suitably secured to the outside of the frame member 30 by means of rivets 33 or the like.

A pair of reinforcing members 35, formed of aluminum or the like, are arranged on the inside of the foundation member adjacent the sight opening 17 and a pair of brackets 36, formed of aluminum or the like, are arranged on the outside of the hood 20 and foundation member 11, the reinforcing members and brackets being suitably removably secured in place by screws 37 and nuts 38, the screws 37 extending through suitable holes in the brackets 36, hood 20, foundation member 11 and reinforcing members 35. When the screws and nuts are tightened, the holes are effectively sealed. The brackets 36 are each provided with a pair of flanges 39 having pivot holes formed therein. A guide member 41, formed of aluminum or the like and having guide channels 42 and a trunnion 43 is pivotally secured to each bracket 36 by means of a pivot pin 44 extending through the pivot holes in the bracket flanges 39 and the trunnion 43 of the guide member 41.

A slidable member 46, formed of aluminum or the like, is slidably mounted in the guide tracks 42 of each guide member 41 and each slidable member 46 is provided at one end of a hook 47 which is adapted to engage the hook 34 carried by the frame member of the window assembly. Each slidable member 46 is provided with a transverse slot 48 and with a resilient tongue 49 having a bump thereon. Rotatably mounted in the guide member 41 is a disc 65 which is provided with an eccentric pin 66 which is received in the slot 48 of the sliding member 46. The disc is also provided with a recess 67 which is adapted to be engaged by the bump on the spring arm 49 when the disc is rotated to the position shown in FIG. 9. The disc 65 is provided with a center extension 67 which carries a cap 68 also journaled for rotation with the disc 65. A pair of fingers 69 on a key 70 extends through slots in the cap 68 into grooves in the extension 67 for pivotally mounting the key 70 on the ex-

tension 67 and for rotating the extension 67 and hence, the disc 65 when the key is rotated.

When the window assembly is placed over the gasket 35 and the sliding members 46 are extended by manipulation of the keys 70, the clamping hooks 47 on the sliding members 46 may be pivoted over the hooks 34 on the window assembly. The keys 70 are then rotated through substantially 180 degrees whereupon the pins 66 operating in the slots 48 retract the sliding members 46 to engage the hooks 47 with the hooks 34 for clamping the window assembly in place. When this occurs, the resilient gasket 25 and hood 20 are compressed between the transparent window 31 and the foundation member 11 to seal positively, the openings 21 and 17 of the hood and foundation member.

Normally, an air hose, not shown, is utilized for supplying air to the interior of the hood 20 but, in those instances where no such air supply is provided, provision is made for ventilating the interior of the hood. Toward this end, the foundation member and hood are provided with a pair of ventilating slots 58 and these are normally covered by a baffle 60 formed on a member 59 which is suitably secured to the hood 20 and foundation member 11 by screws 61 and nuts 62, the baffle 60 protecting the ventilating slots 58.

Thus, in the protective face shield and hood of this invention, the transparent window may be readily replaced by manipulating the clamping hooks to remove the window assembly. After the transparent window is replaced in the frame member, the window assembly is readily removably secured to the foundation member by manipulating the clamping hooks and when this is done, the sight openings in the foundation member and the hood are effectively sealed by the resilient gasket 25. Likewise, in the event of damage to the hood, the hood may be readily replaced and all that is necessary to do this is to remove the window assembly, the readily removable gasket 25, the clamping hook brackets 36 and the baffle members 59 in the event that they are utilized. When the hood is replaced and the various parts reassembled, the hood is firmly attached to the foundation member and sealed against leakage. Of course, the hood may be dispensed with and the remaining structure provides a simple helmet shaped protective face shield wherein the transparent sight window may be readily replaced.

While for purposes of illustration, one form of this invention has been disclosed, other forms thereof may become apparent to those skilled in the art upon reference to this disclosure and, therefore, this invention is to be limited only by the scope of the appended claims.

I claim as my invention:

1. A protective face shield comprising a helmet shaped foundation member having means for supporting the same on the head of the wearer and having an opening in the front thereof and a plurality of holes around the opening, a removable resilient rubber-like gasket located on the outside of the foundation member around the opening therein and having a plurality of integral rearwardly extending resilient rubber-like fingers frictionally received in the holes in the foundation member for removably securing the gasket in place on the foundation member, a removable window assembly including a frame member coextensive with the gasket and a transparent window removably received within the frame member and engaging the gasket and enclosing the opening in the foundation member, and separable clamping means carried by the foundation member and the frame member for removably securing the window assembly in place upon the foundation member and compressing the gasket between the transparent window and the foundation member to seal the opening in the foundation member.

2. A protective hood comprising a helmet shaped foundation member having means for supporting the same on the head of the wearer and having an opening in the front thereof and a plurality of holes around the opening, a removable flexible hood overlying the foundation member and extending over at least the head and shoulders of the wearer and having an opening in the front thereof and a plurality of holes around the opening commensurate with the opening and holes in the foundation member, a removable resilient rubber-like gasket located on the outside of the hood around the opening therein and having a plurality of integral resilient rubber-like fingers extending rearwardly through the holes in the hood and frictionally received in the holes in the foundation member for removably securing the hood and the gasket in place on the foundation member, a removable window assembly including a frame member coextensive with the gasket and a transparent window removably received within the frame member and engaging the gasket and enclosing the opening in the hood and the foundation member, and separable clamping means carried by the foundation member and the frame member for removably securing the window assembly in place upon the foundation member and compressing the gasket and hood between the transparent window and the foundation member to seal the opening in the hood and the foundation member.

3. A protective face shield comprising a helmet shaped foundation member having means for supporting the same on the head of the wearer and having an opening in the front thereof and a plurality of holes around the opening, a removable resilient rubber-like gasket located on the outside of the foundation member around the opening therein and having a plurality of integral rearwardly extending resilient rubber-like fingers frictionally received in the holes in the foundation member for removably securing the gasket in place on the foundation member, a removable window assembly including a frame member coextensive with the gasket and a transparent window removably received within the frame member and engaging the gasket and enclosing the opening in the foundation member, a pair of hooks carried by the frame member of the window assembly, a pair of movable clamping hooks carried by the foundation member and engaging the other pair of hooks for removably securing the window assembly in place upon the foundation member and compressing the gasket between the transparent window and the foundation member to seal the opening in the foundation member.

4. A protective face shield comprising a helmet shaped foundation member having means for supporting the same on the head of the wearer and having an opening on the front thereof, a removable resilient rubber-like gasket located on the outside of the foundation member around the opening therein, means for removably securing the gasket in place on the foundation member, a removable window assembly including a frame member coextensive with the gasket and a transparent window removably received within the frame member and engaging the gasket and enclosing the opening in the foundation member, a pair of hooks carried by the frame member of the window assembly, a pair of movable clamping hooks carried by the foundation member and engaging the other pair of hooks for removably securing the window assembly in place upon the foundation member and compressing the gasket between the transparent window and the foundation member to seal the opening in the foundation member.

5. A protective face shield comprising a helmet shaped foundation member having means for supporting the same on the head of the wearer and having an opening in the front thereof, a removable resilient rubber-like gasket located on the outside of the foundation member around the opening therein, means for removably securing the gasket in place on the foundation member, a removable window assembly including a frame member coextensive with the gasket and a transparent window removably received within the frame member and engaging the gasket and enclosing the opening in the foundation member, and

separable clamping means carried by the foundation member and the frame member for removably securing the window assembly in place upon the foundation member and compressing the gasket between the transparent window and the foundation member to seal the opening in the foundation member.

6. A protective face shield comprising a helmet shaped foundation member having means for supporting the same on the head of the wearer and having an opening in the front thereof, a removable resilient rubber-like gasket located on the outside of the foundation member around the opening therein, a removable window assembly including a frame member coextensive with the gasket and a transparent window removably received within the frame member and engaging the gasket and enclosing the opening in the foundation member, a pair of hooks carried by the frame member of the window assembly, a pair of guides carried by the foundation member, a pair of clamping hooks slidably mounted in the pair of guides, and a pair of eccentrics carried by the pair of guides for sliding the pair of clamping hooks for engaging the other pair of hooks for removably securing the window assembly in place upon the foundation member and compressing the gasket between the transparent window and the foundation member to seal the opening in the foundation member.

7. A protective face shield comprising a helmet shaped foundation member having means for supporting the same on the head of the wearer and having an opening in the front thereof, a removable resilient rubber-like gasket located on the outside of the foundation member around the opening therein, a removable window assembly including a frame member coextensive with the gasket and a transparent window removably received within the frame member and engaging the gasket and enclosing the opening in the foundation member, and separable clamping means carried by the foundation member and

the frame member for removably securing the window assembly in place upon the foundation member and compressing the gasket between the transparent window and the foundation member to seal the opening in the foundation member.

8. A protective hood comprising a helmet shaped foundation member having means for supporting the same on the head of the wearer and having an opening in the front thereof, a removable flexible hood overlying the foundation member and extending over at least the head and shoulders of the wearer and having an opening in the front thereof commensurate with the opening in the foundation member, a removable resilient rubber-like gasket located on the outside of the hood around the opening therein, a removable window assembly including a frame member coextensive with the gasket and a transparent window removably received within the frame member and engaging the gasket and enclosing the opening in the hood and the foundation member, and separable clamping means carried by the foundation member and the frame member for removably securing the window assembly in place upon the foundation member and compressing the gasket and hood between the transparent window and the foundation member to seal the opening in the hood and the foundation member.

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