Jan. 17, 1967 H. J. MORGAN 3,298,031

SAFETY FACE MASK

Filed May 15, 1964 2 Sheets-Sheet 1

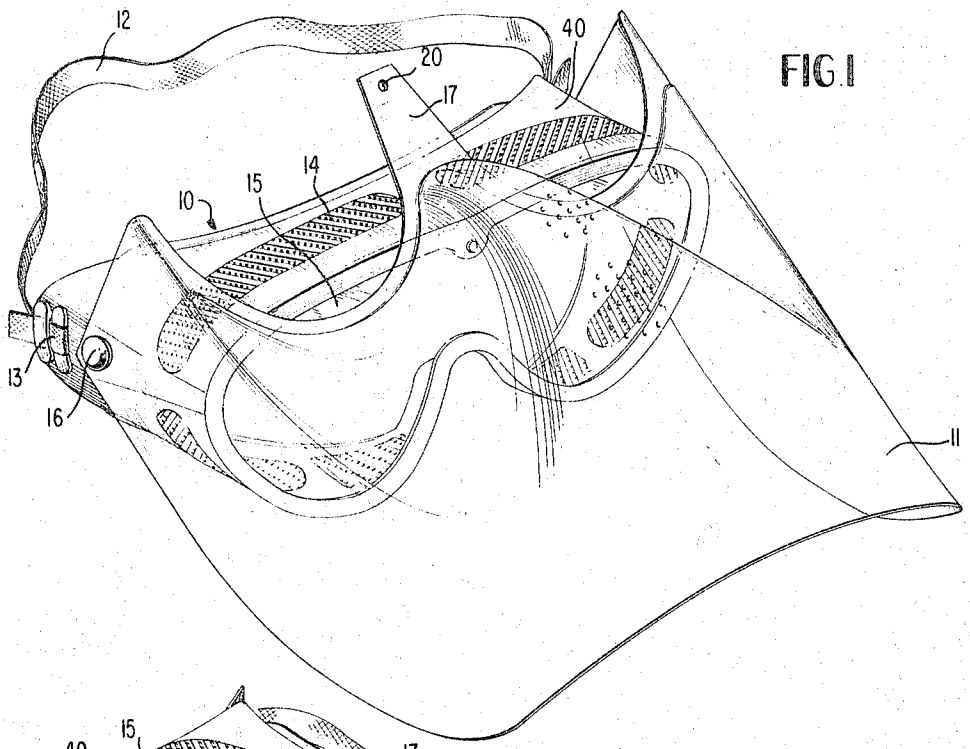

FIG. 1

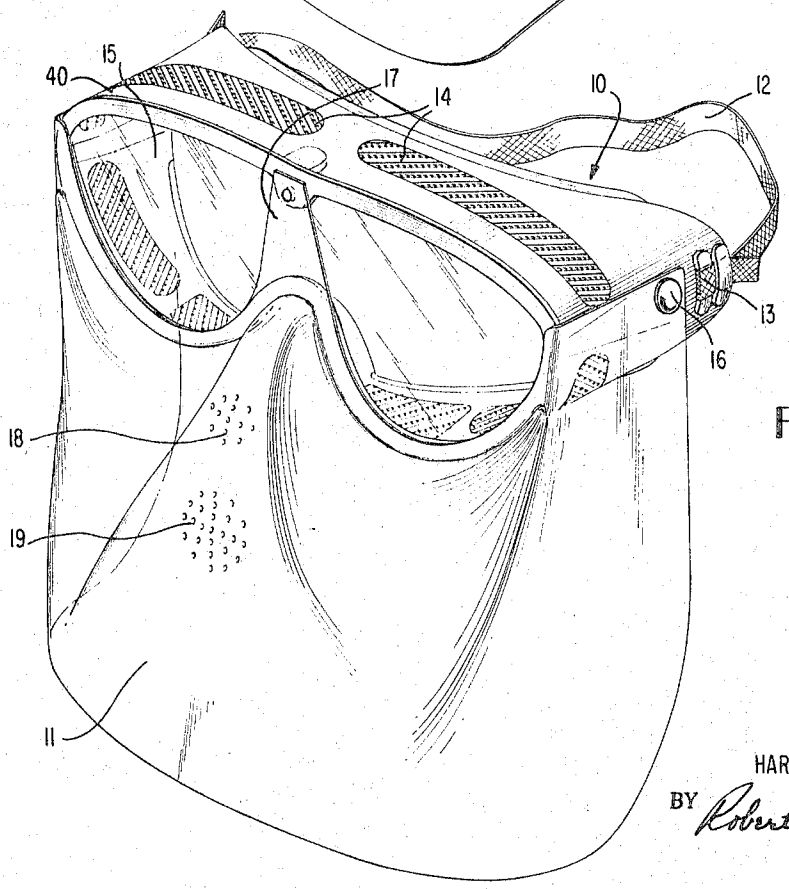

FIG. 2

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FIG. 3

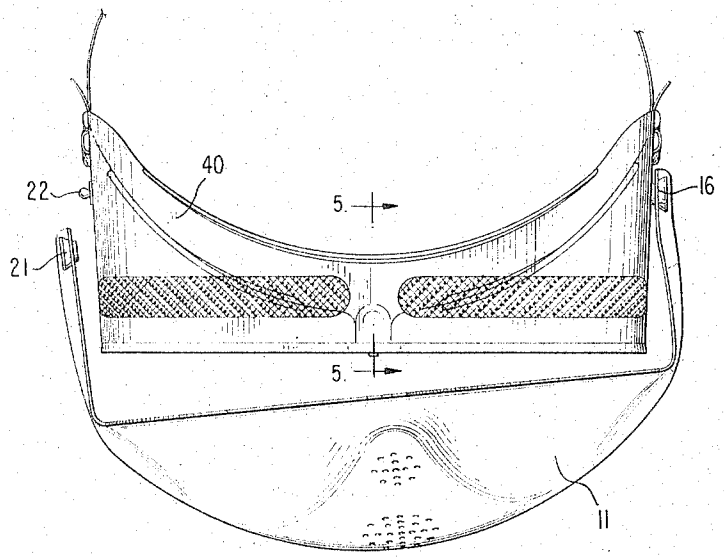
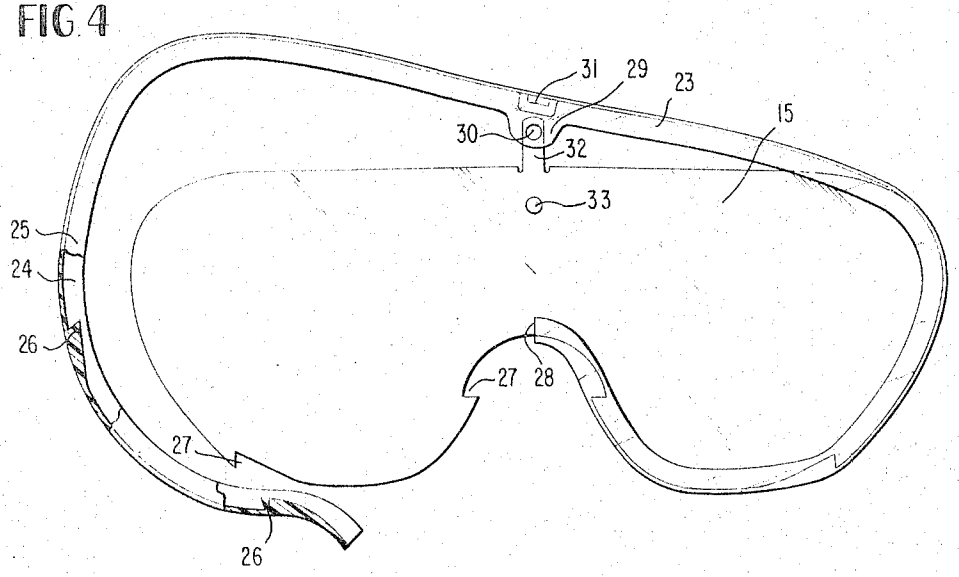


FIG. 4



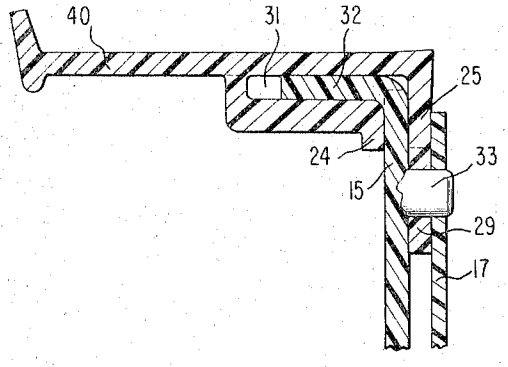


FIG. 5

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SAFETY FACE MASK

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9 Claims. (Cl. 2—9)

This invention relates to protective face gear in general, and more particularly to separably connected dual face protectors individually covering the upper part and the lower part of the face of the wearer.

A primary object of this invention is to provide a face protector having an eye protecting portion and a lower detachable face protecting portion.

Another object of this invention is to provide a dual purpose transparent face protector of light weight construction in which an upper eye shielding portion may be employed without the use of a lower face shielding portion.

Another object of this invention is to provide a face protector having an eye protecting portion and a lower detachable face protecting portion pivotally attached to the eye protecting portion.

Another object of this invention is to provide a dual component protective face mask in which a lens portion directly shielding the eyes may be removed and replaced.

With the foregoing and other objects in view, the invention resides in the following specification and appended claims, certain embodiments and details in construction of which are illustrated in the accompanying drawings, in which:

FIGURE 1 is a perspective view of a face protector of this invention in which the lower face protecting portion is raised;

FIGURE 2 is a perspective view of a face protector of this invention in which the lower protecting portion is illustrated in the full face protective position;

FIGURE 3 is a top elevation of the face protector of this invention illustrating the detachable feature of the lower face protecting portion from the eye shielding portion;

FIGURE 4 is a front view of the eye protecting portion of the face protector of this invention illustrating the manner in which the transparent lens of the eye protecting portion may be removed from the periphery of its supporting member; and

FIGURE 5 is a cross-sectional view taken along line 5—5 of FIGURE 3 illustrating connecting means interrelating an eye protecting lens, a supporting member of the eye portion of a face protector, and the lower face protecting portion of a face protector within the contemplation of this invention.

Referring now more particularly to the drawings, there is illustrated in FIGURES 1 and 2 the general characteristics of the dual face protector within the contemplation of the present invention. The dual portions of the face protector consist generally of an eye protecting portion **10**, and a lower face protecting portion **11**.

Eye portion **10** is provided with a support member **40** which defines a generally elliptical visual area which is covered by a generally eye-glass shaped transparent lens **15**. Preferably, support member **40** is formed from a relatively soft flexible transparent plastic material which has an inherent resiliency enabling it to maintain its general shape. Support member **40** is also preferably provided with an elastic headband **12** secured to member **40** at **13** by any suitable means. In addition to holding the overall face protector in position, headband **12** is also provided to enable member **40** to be held in close contact with the forehead and cheekbones of the wearer

as member **40** rests on the wearer's nose. Member **40** is also provided with any suitable perforated grating **14** which allows adequate air circulation into and out of the space defined by eye portion **10** and the face of the wearer. Lower portion **11** of the face protector is illustrated as pivotally attached to the upper eye protecting portion **10** by suitable attachment means **16**, such as a snap fastener. When it is desirable for the lower portion **11** to be in full face operative position, as illustrated in FIGURE 2, such that it protects the nose, mouth, chin and cheeks of the wearer, the upper edge of lower portion **11** generally follows the contour defined by the lower peripheral edge of eye portion **10**.

Preferably, to enhance breathing circulation and reduce lens fogging, when lower portion **11** is in the position illustrated in FIGURE 2, protective portion **11** may be provided with a plurality of holes **18** and **19** through which inhaled and exhaled air communicates with the nose and mouth of the wearer. The upper edge of portion **11** may also be provided with a centrally located extension **17** which is provided with an aperture **20** through which attachment may be made with suitable means on the upper peripheral edge of supporting member **40** for transparent lens **15** or with suitable means on lens **15** itself. In order to adequately protect the lower portion of the face, holes **18** and **19** in lower portion **11** are generally not substantially large. Consequently, in a hot or humid climate, it may be desirable to temporarily displace portion **11** from close proximity with the face to facilitate breathing during periods in which the lower portion **11** is not needed immediately but will be needed subsequently for protective purposes. Thus, during such periods it would be time consuming and cumbersome to remove completely the lower portion **11** from the upper portion **10**; therefore, a pivotal attachment at **16** may be desirable. In the event that the wearer desires to pivot portion **11**, aperture **20** on extension **17** may be easily removed from the connecting means on member **40** or lens **15** and the entire lower portion **11** can be pivoted upwardly about connecting means **16** into the position as illustrated in FIGURE 1. Thus, the wearer may temporarily remove lower portion **11** from its full face protective position without completely detaching portion **11** from the upper eye portion **10**.

In FIGURE 3 lower portion **11** is illustrated as partially detached from connecting means **16** and upper portion **10**. Connecting means **16** is preferably a snap fastener provided with a male-type connector **21** suitably secured to lower portion **11** and a female-type connector **22** suitably secured to the upper eye protecting portion **10**.

Lower portion **11** and transparent lens **15** of the face protector are preferably formed from a plastic material molded into a hardened state which is capable of withstanding rough treatment and high temperatures. In the event that lens protecting portion **15** becomes scratched, warped, or rendered nonusable in any way, the lens may be removed and easily replaced as illustrated in FIGURE 4. Although transparent lens **15** is illustrated as a material which is clear, it is recognized that the clear lens may be replaced by a darkened or colored lens enabling the face protector to be employed by a welder. An inner periphery **23** of the flexible support member **40**, defining the visual area of portion **10**, is provided with short, parallel spaced inwardly extending flanges **24** and **25**, defining a grooved path allowing the insertion of lens **15** therein. Within the groove thus formed are pointed protrusions **26** which allow a tight fit with corresponding cut-out portions **27** on lens **15**. When lens **15** is inserted in the groove, protrusions **26** and cut-out portions **27** form oppositely disposed interlocking portions and ridges **24** and **25** overlap the peripheral edge of lens **15**. Periphery **23** of support member **40** may be disconnected,

or cut at 28 where member 40 bridges the nose of a wearer. Centrally, disposed along the top part of periphery 23 and depending from outer extending flange 25 is a relatively small member 29 provided with a hole 30. A slot 31 is molded from material of member 40 above and behind inner extending flange 24. Centrally disposed on the upper peripheral edge of lens 15 is a relatively short extension 32 which is provided to communicate with slot 31. Also, centrally disposed on lens 15 and close to the upper peripheral edge of the lens is a hard outwardly protruding knob 33. As the lens is inserted in the groove formed by flanges 24 and 25, extension 32 is inserted in slot 31, and hole 30 in depending portion 29 fits over knob 33 on lens 15 to provide a connection with lens 15. Thus, with lens 15 properly inserted in upper protective portion 10 and with lower protective portion in full face protective position, the relative positions of the interconnecting members of all the parts are illustrated in FIGURE 5. Knob 33 on lens 15 extends through hole 30 in depending member 29 on the periphery of support member 40 and may further extend through hole 20 on the upper extending portion 17 of lower protective portion 11. Extension 32 on lens 15 is bent to allow insertion into slot 31.

It is obvious that this invention might be varied, particularly as to materials employed, without detracting from the basic features of the invention. Modifications may therefore readily occur to those skilled in the art and I therefore intend my invention to be limited only to a liberal interpretation of the appended claims.

What is desired to be secured as United States Letters Patent is:

1. A protective face shield comprising an eye protecting portion and a lower face protecting portion, said eye protecting portion having a flexible plastic face-contacting component and a hard plastic lens component, said flexible component being adapted to bridge the nose of the wearer and to communicate tightly with all portions of the face forming the eye cavities in the head of the wearer, first means removable securing said lens component to said flexible component and said lens component being spaced from the eyes and face of the wearer by said flexible component, at least one outwardly protruding knob member centrally located near the upper edge of the lens component, and the upper edge of said lower face protecting portion following substantially the entire contour of the lower peripheral edge of said lens component except that an extended portion of the upper edge of said lower face protecting portion is provided with at least one passage allowing the insertion therethrough of said knob member of said lens component, to thereby index the lower portion relative to the eye portion, said lower face protecting portion being formed of a hard plastic material and second means removably and pivotally securing said face protecting portion to said eye protecting portion and spaced from the face of the wearer.

2. The invention according to claim 1 wherein said said first means includes separable channel means on said flexible component and wherein said lens component is removably received within said separable channel means so secure it to said flexible component, said separable channel means overlying the peripheral edge of said lens component.

3. The invention according to claim 2 wherein said separable channel means is provided with at least one depending portion having at least one passage allowing the insertion therethrough of said one outwardly protruding knob member of said lens component.

4. The invention according to claim 3 wherein said lens component is provided with a tab member centrally disposed on and extending from the upper peripheral edge of the lens component and said flexible component is provided with a molded slot means which permits said tab member to be positioned interjacently.

5. A protective face shield comprising an eye protecting portion and a lower face protecting portion, means removably and pivotally securing said face protecting portion to said eye protecting portion, said eye protecting portion having a flexible plastic face contacting component and a hard plastic lens, said face contacting component being a unitary member formed with an inwardly-opening peripheral groove at the front portion thereof removably receiving and retaining the edge of said lens, said unitary member having opposite edges abutting each other at the part of said component which is adapted to be received on the bridge of a wearer's nose, and said component and said lens having cooperative means thereon removably holding said component in a position encompassing and holding said lens in said groove.

6. The invention according to claim 5 wherein said cooperative holding means includes slots formed in the edge of said lens defining shoulders thereon facing against the direction of the force provided by the inherent resiliency of said unitary member and projections formed within said grooves of said member defining shoulders arranged for cooperative engagement with said shoulders on said lens, whereby said unitary member is removably locked in position holding said lens.

7. The invention according to claim 6 wherein said slots in said lens are formed adjacent the portion of said lens which is adapted to be located over the bridge of a wearer's nose, and wherein said cooperating projections are formed adjacent said opposite edges of said unitary member, whereby the abutment of said opposite edges, in conjunction with the holding effect of said slots and projections, holds the parts of said unitary member adjacent said opposite edges in predetermined positions on said lens.

8. The invention according to claim 5 wherein said holding means includes cooperating formations on said lens and said component at the top center portion thereof positioning and holding said components and said lens in predetermined relative positions.

9. The invention according to claim 8 wherein said positioning and holding means includes means defining a slot extending rearwardly from and communicating with said peripheral groove on said unitary member and a tab projecting from the edge of said lens and projecting into said slot.

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