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3,147,487

CONVERSION SHIELD FOR MASK WINDOW

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2 Sheets-Sheet 1

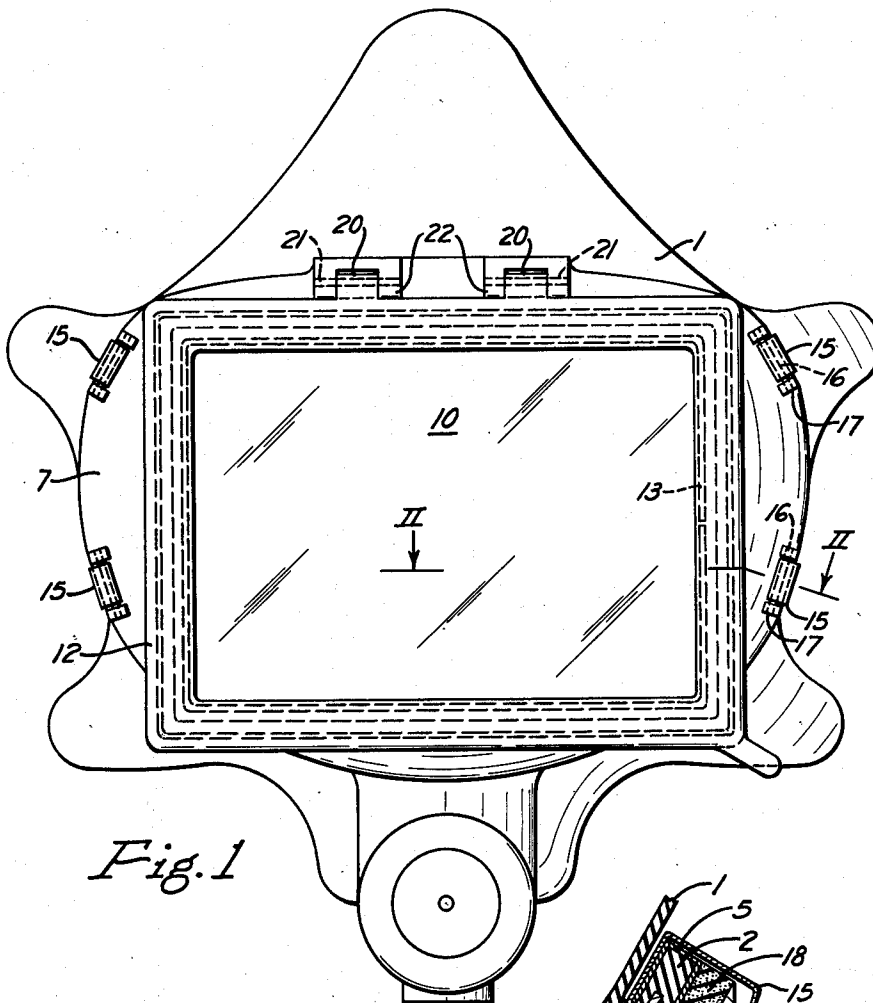


Fig. 1

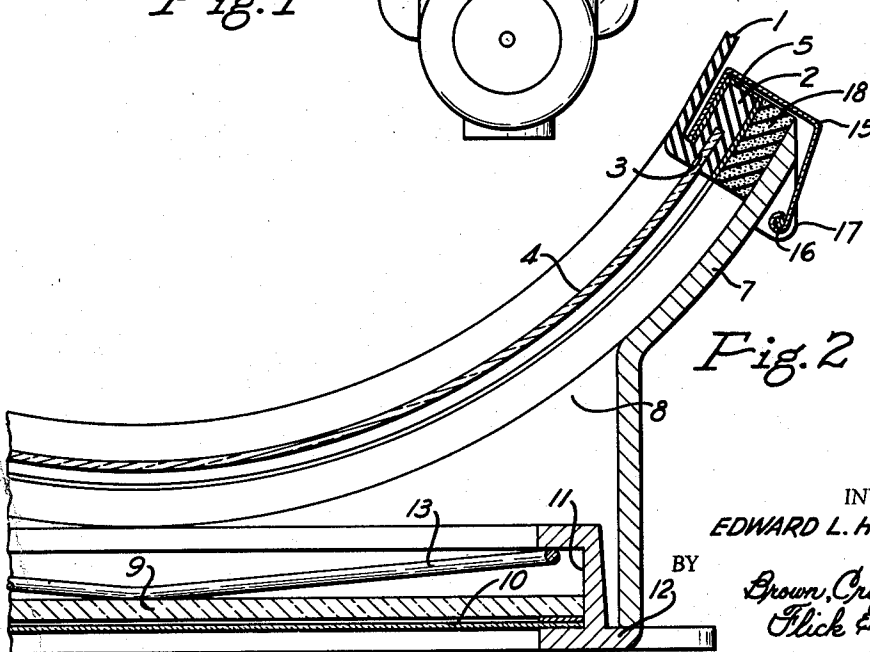


Fig. 2

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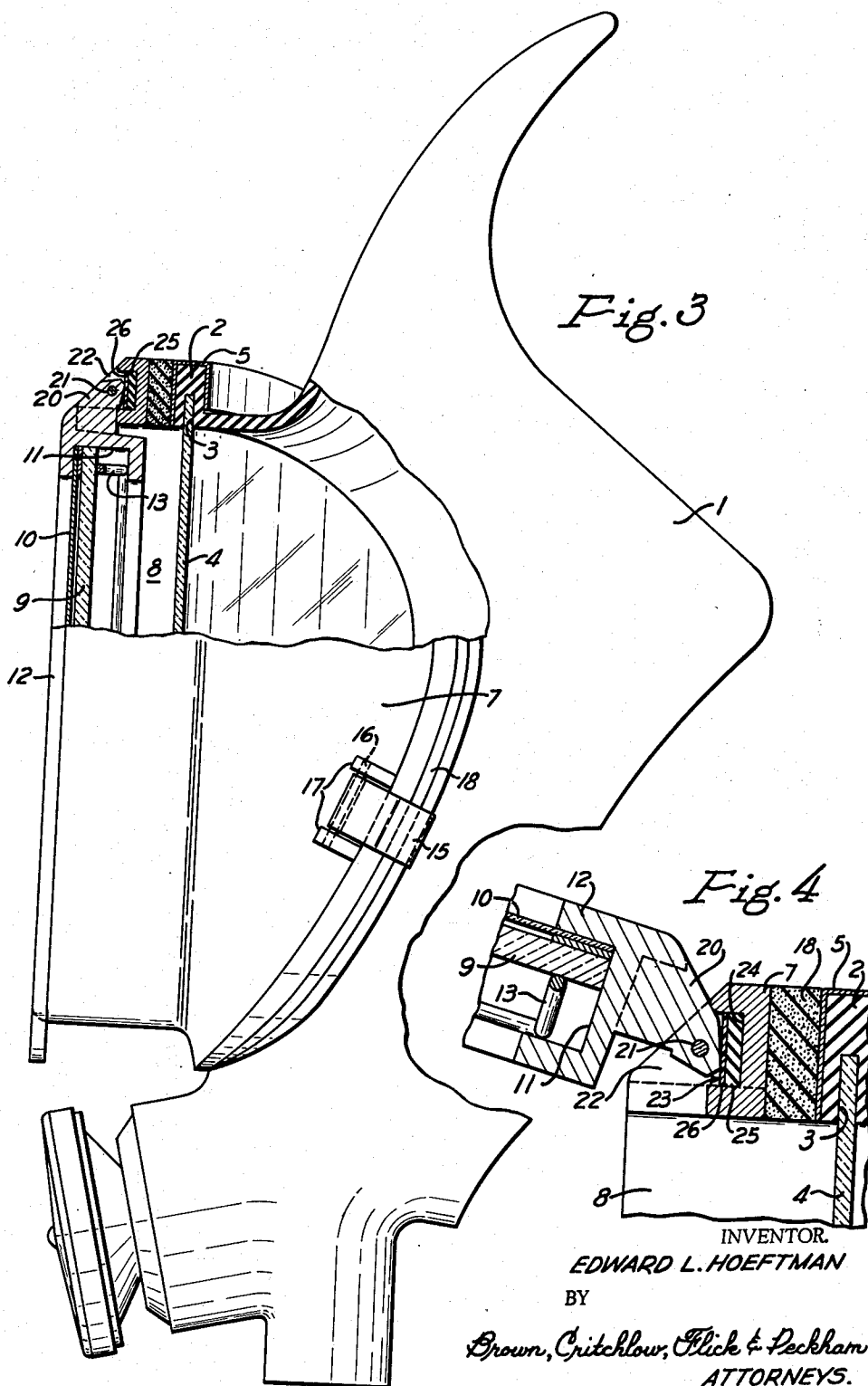
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CONVERSION SHIELD FOR MASK WINDOW
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1 Claim. (Cl. 2—8)

This invention relates to breathing masks, and more particularly to means for converting them into welding masks of abrasive masks.

The mask shown in Patent 2,956,474 is provided with a large window surrounded by a bead, in which the edge of the window is sealed. The patented mask is intended for protection in noxious atmospheres. There are times when the wearer or owner of such a mask may wish to do some welding or abrasive cleaning with a loose grit. In such cases he must acquire an additional mask for welding or abrasive use, either for use alone or for application over his gas mask, depending on whether or not he is to work in fresh air. This not only adds to his expense, but where one complete mask or shield must be used over another mask an awkward situation is created.

It is among the objects of this invention to provide a simple and inexpensive device for application at will to a breathing mask in order to shield the window of the latter from intense light or abrasives so that the mask can readily be converted into a welder's mask or an abrasive mask.

In accordance with this invention, a face plate is shaped to fit the front of a breathing mask that is provided with a window surrounded by a bead. The face plate is provided with a central opening in front of the window. Extending across this opening is a protective screen, which can be a colored glass for screening out intense light rays or a wire screen or cover glass for protecting the mask window from abrasive particles. The screen is connected to the face plate, preferably through a special hinge. Attached to the face plate are supporting means, such as hinged clips, for detachably connecting the plate to the bead around the mask window so that the shield is supported and carried by the mask.

The preferred embodiment of the invention is illustrated in the accompanying drawings, in which

FIG. 1 is a front view of a breathing mask provided with my conversion shield;

FIG. 2 is an enlarged fragmentary horizontal section taken on the line II—II of FIG. 1;

FIG. 3 is a side view of the mask and shield with parts broken away in vertical section; and

FIG. 4 is an enlarged fragmentary vertical section through one of the hinges, showing the protective screen raised out of the line of vision.

Referring to the drawings, the front of a gas mask 1 or the like is provided with a large opening surrounded by an integral bead 2. The inside of the bead is provided with a groove 3, in which the edge of a glass window 4 is mounted. Preferably, the window is curved transversely for better lateral vision. To seal the edge of the window in the bead, the opposite sides of the latter are compressed against the window by any suitable means, such as a metal clamping channel 5 fitting around the bead.

It is a feature of this invention that this mask can be converted into a welder's mask. This is done by a conversion shield for the mask window to protect the window and reduce the intensity of the light from a welding torch. The body of the shield is a face plate 7 that is shaped to fit the front of the mask around its window. The plate is provided with a large central opening 8 in front of the window. The wall of the opening is rectangular and extends forward into a flat upright plane. A protective screen extends across the front part of opening 8. When

2

the shield is to be used for welding, the screen includes a dark colored glass plate 9, in front of which there may be a thin cover glass 10 to protect it. These plates are mounted in the internal channel 11 of a rectangular frame 12 that engages the front of the face plate opening wall and extends back into that opening. The two pieces of glass may be pressed forward against the front of the frame channel in a well known way by a bent wire 13 compressed between the back of the channel and the back of the colored glass. The screen frame is supported from the top of the face plate by means of hinges so that the frame can be swung up out of the line of vision whenever desired.

In accordance with this invention, the face plate can be quickly and easily attached to the mask by means of U-shape clips 15, the outer ends of which are connected by hinge pins 16 to forward projections 17 on the plate. Preferably, there are at least two clips at each end of the face plate. The rear ends of the clips are adapted to be swung back behind the mask bead to clamp the face plate in place. To form a secure connection and to seal the space between the face plate and mask bead 2, it is best to attach a resilient cushion ring 18 to the marginal area of the back of the face plate in a position to engage the front of the mask bead. This cushion ring is thick enough to require it to be compressed somewhat for the clips to be swung into engagement with the bead, and therefore the ring will hold the clips tightly in place.

Preferably, there are two laterally spaced hinges supporting frame 12, each of which includes a lug 20 extending upwardly from the frame and supported at its upper end by a hinge pin 21 having ends mounted in a pair of lugs 22 projecting forward from the front of the face piece above opening 8. Another feature of this invention is that a block 23, which contains resilient material, is compressed between the back of each frame lug and the face plate behind it, as shown in FIGS. 3 and 4. Preferably, the block is disposed in a socket 24 formed in the plate between its lugs 22. The block is most suitably made from a thick pad 25 of rubber or similar resilient material, the front surface of which is covered by a flat relatively stiff spacer 26 cut from a thin strip of nylon or other hard surface material. This spacer is pressed forward against the back of the lug by the resilient pad, which is always under compression. The pressure is great enough to hold the screen frame firmly against the face plate.

When the user swings the frame up to its upper position as shown in FIG. 4, the resilient blocks will continue to press against its lugs 20, which are so shaped that they will have to compress the blocks still more in order for the frame to swing down to its lower position again. The pressure of the blocks against the lugs is great enough to hold the frame in its upper position until it is swung down manually. The shape of the frame lugs required for holding the frame in either of its two positions is produced by extending their free ends, which are located between the lug areas that are engaged by the resilient blocks in the two positions of the frame, a greater distance than those areas away from hinge pins 21. Consequently, in order for the frame to be swung from either position to the other, the projecting free ends of the lugs must compress the blocks more than they otherwise are compressed. The resistance of the blocks to such further compression is what holds the frame in either position to which it has been swung. Spacers 26 serve two purposes. They help distribute the pressure of the frame lugs more uniformly over the rubber pads, and they form smooth hard surfaces for the ends of the lugs to slide against as the screen frame is swung up or down. Otherwise, there would be the danger of the lugs sinking into the pads and pushing them up or down in sockets 24.

3

If it is desired to protect the mask window from the grit used in abrasive cleaning, a conversion shield can be used in which a clear glass plate is substituted for colored glass 9, and cover glass 10 is replaced by a wire screen.

It will be seen that with this invention a simple, lightweight, small and inexpensive shield can be quickly and easily attached to a gas mask or the like to adapt it for use as a welder's mask or a mask for use in abrasive cleaning.

I claim:

The combination with a mask provided with a transversely curved window having convex edges at opposite sides of the mask, the mask also being provided with an integral bead surrounding the window and grooved to receive its edge, of a conversion shield comprising a face plate fitting the front of the mask around said window and provided with a central opening, a protective screen extending across said opening, means connecting the screen with said plate, clips hinged to the ends of the

4

face plate and having free ends hooked behind the mask bead, and a resilient cushion ring secured to the marginal area of the back of the face plate and engaging the front of said bead, said ring being compressed between the plate and bead to thereby hold said clips tightly against the back of the bead, and said clips being manually swingable away from said bead to release said shield from the mask.

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