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L. E. SNODGRASS

2,180,216

MASK

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FIG. 1.

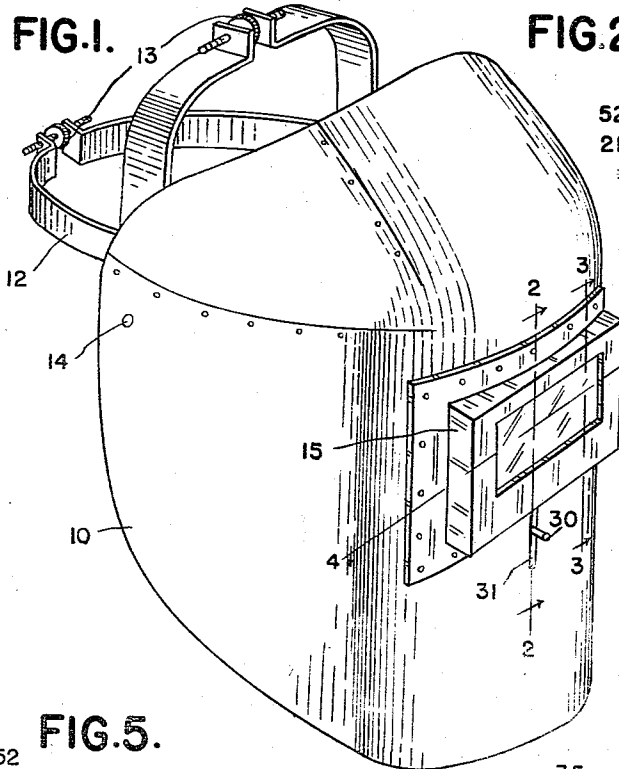


FIG. 2.

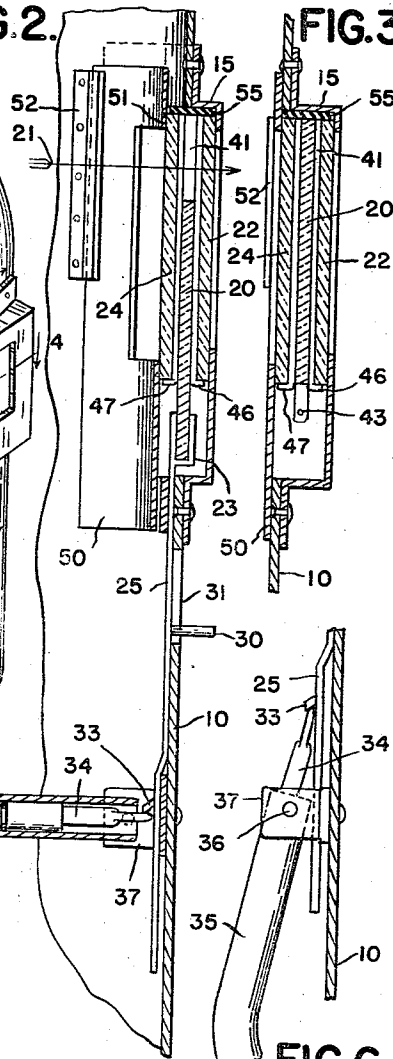


FIG. 3.

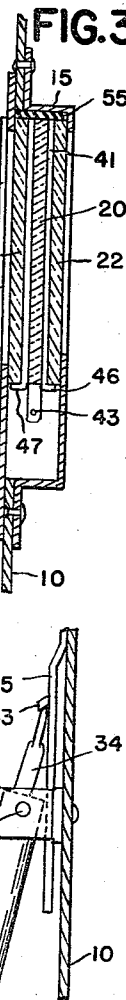


FIG. 5.

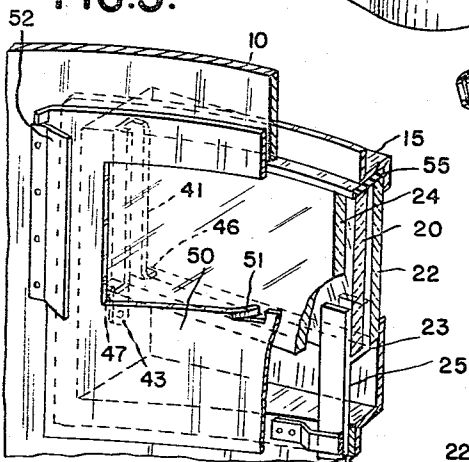


FIG. 4.

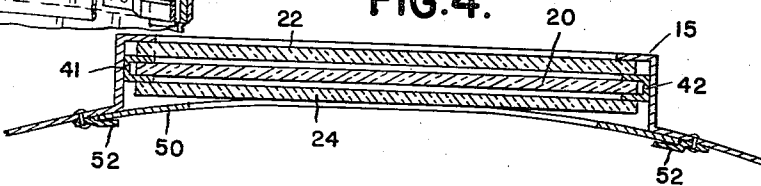


FIG. 6.

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2,180,216

MASK

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2 Claims. (Cl. 2-8)

This invention relates to protective masks for persons who must work facing dangerously brilliant or actinic light or other radiations or propagated matter from which the eyes require shielding.

At the present time, welders and others requiring such protection of the eyes and face, commonly utilize a swingable mask carried upon the head by a pivotal mounting which allows the mask, when not needed, to be swung back out of the way. The mask is commonly formed of a light, strong material such as thin, hard fibre, provided with a window of glass of a character which is resistant to transmission of actinic light, or other radiations to be impeded. Particularly in the performance of welding operations, however, the workman, in order to adjust his work, frequently requires full and clear vision, which is impossible with the shielding glass before his eyes. This necessitates frequently tilting the mask back on its pivotal mounting, which is not only troublesome and time-consuming in itself, but occupies one hand of the workman and requires him to put down other tools or materials. The present invention aims to provide an improved mask of the character indicated, having a transparent shielding panel movable with relation to the remainder of the mask, into and out of effective shielding position, and operable in a novel and convenient manner, without movement of the entire mask, and without requiring use of the operator's hands at a time which would be inconvenient.

A related object is the provision of such a mask construction having a movable limitedly transparent shielding panel biased to move to its operative shielding position in the line of vision of the wearer, selectively movable out of such position, and provided with holding means acting as a latch to hold such panel out of the operative shielding position, such holding means being releasable by movement of a portion of the operator's head and without requiring use of the operator's hands.

Additional objects include provision of such a mask of light, simple and economical character, the movable shielding panel of which is protected yet readily replaceable.

Still another object is to provide a slidable shield panel mechanism of the indicated character which is adapted to be incorporated in welding masks as now commonly constructed.

Other objects and advantages will be apparent from the following description, wherein reference is made to the accompanying drawing

illustrating a preferred embodiment of my invention, and wherein similar reference numerals designate similar parts throughout the several views.

In the drawing:

Figure 1 is a perspective view of a mask provided with the apparatus of the invention.

Figures 2, 3, and 4 are sectional views taken substantially on the lines 2-2, 3-3 and 4-4 respectively of Figure 1, and looking in the direction of the arrows.

Figure 5 is a fragmentary perspective view of the interior of the mask, showing the mounting and retaining means for the shielding and protective panels; and

Figure 6 is a fragmentary vertical sectional view showing in side elevation the chin-operated actuating means for the shield panel in the lowered position it occupies when such panel is elevated to shielding position.

Referring now to the drawing: Reference character 10 designates the body of the mask proper, which is indicated as of a shape and construction commonly employed, although such details will be understood to be matters of choice with which the invention is not essentially concerned. Straps 12 are provided by which the mask may be supported upon the user's head in position to shield his face. Preferably the mask is so pivotally attached to the head straps, as upon pivot pins 14, that it may be swung back over or behind the head of the wearer, to completely free his vision from the obstructing presence of the mask.

The window opening in the front of the mask through which the operator watches his work is bounded by a frame 15 which may be formed of sheet metal and adapted to house a glass panel as 20 which although transparent, is darkened or otherwise rendered resistant to actinic light (or to the other radiations desired to be impeded), to a desired degree and in accordance with the working conditions, as will readily be understood by those skilled in the art. Such panel may also be protected against mechanical injury by additional panes 22, 24 of clear transparent glass or the like, arranged in front of and behind the same.

The window frame or housing 15 is of sufficient height to allow downward sliding of the panel 20 out of shielding position, permitting the operator to look through the space thus provided above it, as along the line of vision indicated by the arrow 21 on Figure 2. The shield panel is attached to a vertically sliding

supporting strap 25, the top of which is bifurcated to embrace and frictionally hold its bottom central portion, as indicated at 23. The transparent protecting panes 22, 24 are sufficiently spaced to allow not only free sliding of the shield panel 20, but also projection of the upper end portions of the shield-carrying slide 25 therebetween.

A finger piece 30 attached to the slide 25 projects freely through a vertical slot 31 in the face of the mask. By means of such finger piece the slide and also the shield panel may be moved up or down at will.

Additional operating means for the sliding shield panel is provided inside the mask, in such manner as to be engageable by the operator's chin and to provide for throwing the shield panel from the open to the shielding position by such engagement. A lug 33 projects from the inner face of the slide 25 in appropriate position for this purpose and is engageable by a sliding and rockable actuating thrust element 34 carried by a springing lever 35 pivoted in a bracket 37 fastened to the inner face of the mask. The lever 35 is shown as tubular, to house the thrust element 34 therewithin. A spring 38 urges the thrust element outwardly against the lug 33 and slide. The tubular lever 35 projects inwardly from the mask substantially perpendicularly when the shield panel is lowered as shown in Figure 2, at which time it may incline slightly upwardly from its trunnion-type pivot means 36 to give an over-center action, although this is not essential, as spring 38 then acts to hold the lever raised and the slide 25 lowered, forcing the latter toward and binding it against the mask body. The force of the spring is without lifting effect upon the shield panel until the lever 35 is pushed down, as by the chin of the operator, beyond a predetermined point (the wedging angle), whereafter the spring, acting through thrust element 34 and lug 33, lifts the shield panel to the elevated operative position in which it is shown in Figures 3 and 5, the lever dropping to the position of Figure 6.

The shield panel travels in channelled guides 41, 42 arranged in appropriate position in the window frame 15 upon opposite sides. The guide channels are attached to the frame only at their lower ends, such attachment being by pivot pins 43 which allow them, and the panel held thereby, to swing inwardly. This is of course only possible when the retaining means is freed and the glass separated from the frictional grip of the upper end of the slide, but permits removal and replacement of the shield panel. At their lower ends the side webs of the channels are turned outwardly, toward the front and back of the compartment defined by the window frame, to form lugs 46, 47. These support the clear glass protecting panes 22, 24. The inner wall of the window frame enclosure is formed by a removable retaining plate 50 of spring metal, which is held bowed and under tension by channel pieces 52 secured to the mask body. By bowing the plate outwardly sufficiently, it may readily be removed and replaced. The proper resilient pressure against the inner pane 24 may be in-

sured by spring fingers 51 cut in the edge of the retaining spring plate, whose action will be seen to urge both protecting panes and the interposed channels 41, 42 against the front of the window frame. Spring retaining plate 50 is of course provided with an opening (undesignated) aligned with the panels.

A soft rubber buffer 55 may be provided at the top of the window frame to act as a cushion against which the shield panel 20 may strike when lifted by the spring, safeguarding the panel against injury.

All of the parts are held under tension by plate 50 and spring 38, preventing annoying rattles. Suitable adjusting means may be provided whereby the position of the mask and its component parts may be changed to fit the individual wearer. Turnbuckle type adjusting devices are indicated at 13 as incorporated in the head straps 12, although it will be understood that such mechanisms and/or other suitable adjusting devices may be provided.

The operation of the device will, it is believed, be readily apparent, but may be briefly summarized as follows: After completion of a welding step or operation, the operator, who may then conveniently free one hand or finger, pulls the shield panel downwardly by means of the finger piece 30, throwing the chin lever 35 outward to the position of Figure 2. After adjusting his work, or when ready to recommence welding, he may use both hands to prepare himself, and actually have both hands in position for welding, whereafter before proceeding and at the last moment he merely drops his chin to engage the lever and throw the shield panel upwardly into protecting position.

While it will be apparent that the illustrated embodiment of my invention herein disclosed is well calculated to adequately fulfill the objects and advantages primarily stated, it is to be understood that the invention is susceptible to variation, modification and change within the spirit and scope of the subjoined claims.

What I claim is:

1. A shielding mask having a body portion, a shield element carried by the body portion and movable vertically therein to shielding and non-shielding positions, actuating means whereby said shield element may be moved by a wearer of the mask, including a lever pivoted on and extending inwardly from the body in position for engagement with and movement by the chin of a wearer of the mask, and a spring-urged thrust member slidably carried by said lever and reacting against said slide in a direction longitudinal with respect to the lever, whereby said thrust member tends to hold the slide against movement when the lever is substantially perpendicular to the slide, and tends to move said slide when the lever is more nearly parallel thereto.

2. Means as set forth in claim 1 in which said lever is of tubular form, and said thrust member is slidable therein, and spring means also housed in said lever and reacting upon said thrust member.

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