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WELDER'S HELMET

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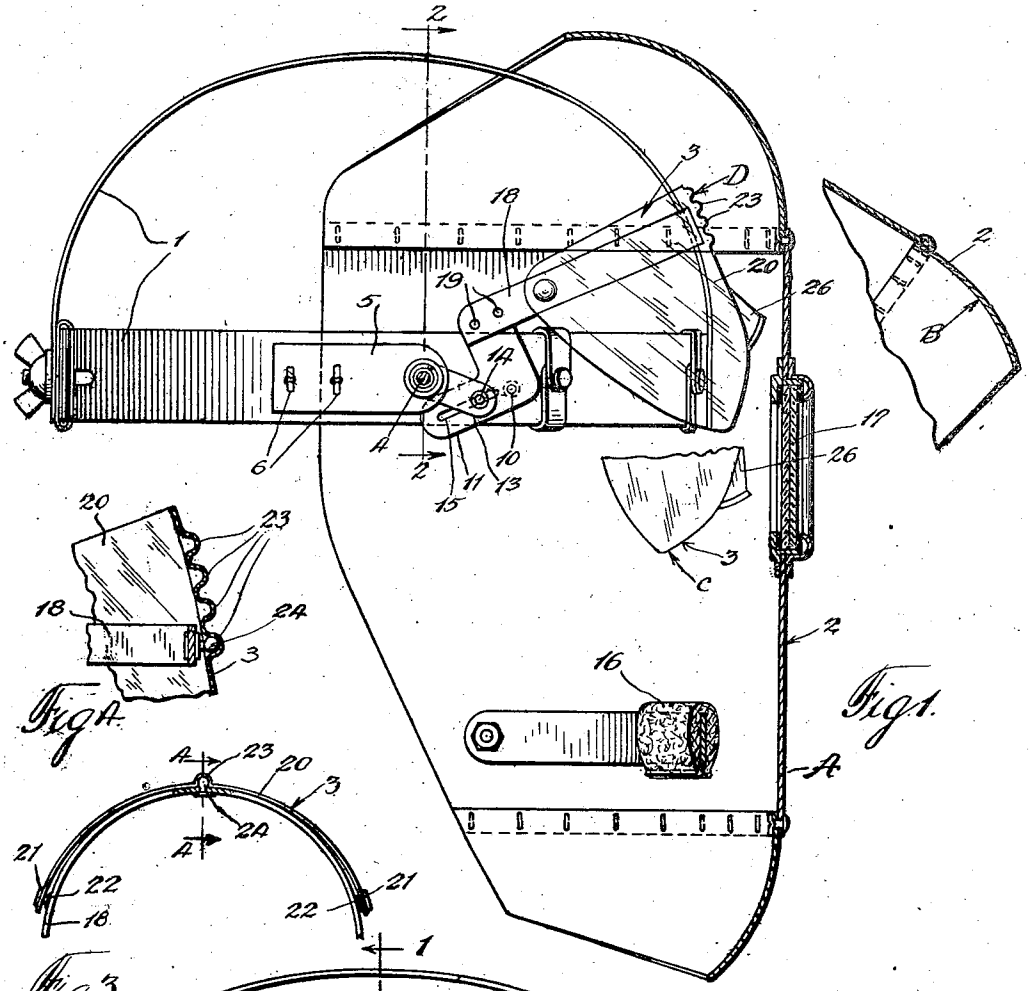


Fig. 1.

Fig. 4.

Fig. 3.

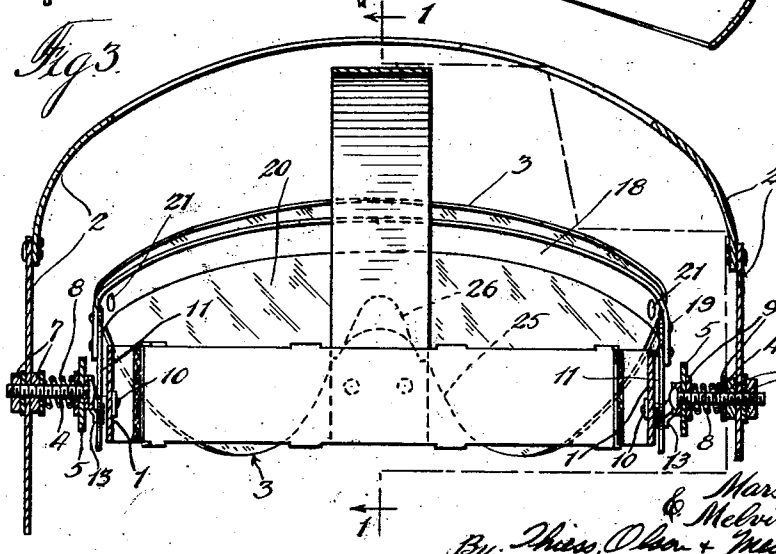


Fig. 2.

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WELDERS' HELMET

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3 Claims. (Cl. 2—8)

1

Our invention relates to welders' helmets.

In operations involving welding, and in similar operations, it is at times important to protect the face and eyes. At times protection of the eyes only is required, while at other times it is necessary that the entire face be protected. In welding, the change of conditions from those requiring complete face protection to those requiring eye protection only may occur frequently and at short intervals and for comparatively brief periods. As one hand of the operator is generally occupied in holding a torch or other implement, it is desirable that means be provided whereby the change from complete face shielding to eye shielding only, and vice versa, may be accomplished quickly and conveniently by the use of one hand only.

One of the objects of our invention is to provide a welder's helmet in which this change may be accomplished easily and quickly by the use of one hand only.

A further object of our invention is to provide a welder's helmet having a face mask and an auxiliary eye shield in which the movement of the face mask from shielding position to nonshielding position will automatically cause the eye shield to move from nonshielding to eye shielding position.

A further object of our invention is to provide an improved adjustable eye shield for use in a welder's mask.

Further objects and advantages of the invention will be apparent from the description and claims.

In the drawing, in which an embodiment of our invention is shown,

Figure 1 is a side view of a welder's helmet, part elevational and part sectional, the section being substantially on the line 1—1 of Fig. 2;

Fig. 2 is a vertical sectional view, substantially on the line 2—2 of Fig. 1;

Fig. 3 is a detail plan view on a smaller scale showing the mounting for the eye shield; and

Fig. 4 is a vertical sectional view substantially on the line 4—4 of Fig. 3.

The construction shown in the drawing comprises a headband or harness 1, a face mask 2 pivotally carried thereby and movable from face shielding position A to a position B above the face, an eye shield 3 pivotally carried by said band and movable from eye shielding position C to a position D above the eyes, and transmission between said mask 2 and eye shield 3 whereby, when the harness is in place on the head, motion of the mask from shielding position A to

2

nonshielding position B above the face will move the eye shield from nonshielding position D to shielding position C, and whereby motion of the mask from non-shielding position B to shielding position A will move the eye shield from shielding position C to nonshielding position D above the eyes. The mask may, in general, be of the construction disclosed in the patent to Anderson No. 2,270,028.

The mask 2 is pivotally mounted on the headband 1 by means of a pair of pivot bolts or screws 4, nonrotatably secured to the mask and rotatable in bearing brackets or straps 5 secured to opposite sides of the headband by means of fasteners 6. Each pivot bolt 4 is rigidly secured to the mask by means of a pair of nuts 7, one on each side of the sheet material used in the mask, the outer nut being tightened up to grip and clamp the sheet material of the mask between the two nuts.

In order to provide a frictional engagement for holding the mask and headband in adjusted position, a coil compression spring 8 is provided acting between a pair of washers 9, one of which bears against the nut 7 and the other of which bears against the mounting strap or bracket 5.

The eye shield 3 is pivotally secured to the headband 1 by means of a pair of rivets 10 extending through a pair of pivoted L-shaped rock arms 11 on which the eye shield 3 is mounted.

The construction by means of which lifting of the mask causes lowering of the eye shield, and vice versa, comprises a pair of brackets or arms 13 rigidly secured to the pivot bolts 4, respectively, each provided with a crank pin or follower 14 which operates in a slot 15 on the L-shaped rock arm which carries the eye shield 3. In considering the effect of raising and lowering the mask on the movement of the eye shield, it should be noted that the pivot bolts 4 are fixed with respect to the mask 2 and that the crank arms 13 and crank pins 14 rock with the mask 2 and pivot bolts 4. From this, it follows that the rocking movement of the crank pins 14 which slide in the slots 15 will cause a rocking action of the L-shaped rock arms 11 which carry the eye shield in such a way that when the mask 2 is raised the eye shield 3 will be lowered, and that when the mask 2 is lowered the eye shield 3 will be raised. The crank arms 11 and 13, crank pins 14, and slots 15 are so proportioned and designed that when the mask is pulled down so that the chin strap or rest 16 rests on the chin, the eye shield 3 will be raised above the eyes and away from the sight openings 17 in the mask

itself and so that when the mask is raised to position B, so as not to be in front of the face, the eye shield will be lowered to a position C in front of the eyes to protect the eyes of the wearer. The operation of raising and lowering the mask and lowering and raising the eye shield can be accomplished by gripping the lower portion of the mask with one hand only and moving it to the desired position, leaving the other hand free.

The pivot pins 4 which carry the crank arms 13 may be firmly secured in any desired position of rotary adjustment with respect to the mask 2 by loosening the nuts 7, adjusting the pins 4 rotarily with respect to the mask and again tightening up the nuts. This enables the crank pin 14 to be set in any position desired with respect to the mask 2 to change the range of movement of the eye shield 3 with respect to the range of movement of the mask 2.

The eye shield comprises a semicircular band or strap 18 of flexible material, riveted at 19 to the L-shaped rock arms 11, and a somewhat crescent shaped shield 20 of flexible transparent material detachably secured to the semicircular strap.

In order to adjust the shield for different wearers or for different situations, means are provided for securing the transparent shield 20 in different positions of adjustment on the semicircular band. For this purpose, as shown in Figs. 3 and 4, one or both ends of the shield are provided with snap fastener pockets or eyes 21, similar to glove fasteners, for engagement with cooperating snap fastener buttons 22 on the semicircular band 18. The central portion of the transparent shield is provided with a plurality of eyes or depressions 23, any one of which may be brought into engagement with a cooperating button 24 secured to the central portion of the band 18. To change the adjustment, one of the eyes 21 is disengaged, the eye 23 on the transparent shield is disengaged from the button 24 on the strap and a different pocket 23 is brought into registration and engaged with the button on the strap, and the glove fastener eye 21 is again snapped into engagement with the cooperating button 22 on the semicircular strap. The lower central portion of the eye shield 3 may be cut away, as indicated at 25 in Fig. 2, and may have a raised portion 26, as shown in Fig. 1, to provide clearance for the nose of the wearer when the shield is brought down into shielding position.

As described above, the crank pin 14 may be set in any desired position with respect to the mask 2 to change the range of movement of the eye shield 3 with respect to the range of movement of the mask 2. The individual wearer can adjust the helmet by loosening up the nuts 7, placing the helmet on the head in the most comfortable position, raising the mask 2 over the head and drawing down the eye shield 3 in front of the eyes, and then tightening up the nuts 7 on both sides of the mask, thus automatically locating the mask and eye shield in their proper relative position. If, thereafter, any minor adjustments are needed, this can be accomplished by adjusting the eye shield 3 by means of the

button 24 and the series of eyes 23 on the eye shield.

Further modifications will be apparent to those skilled in the art and it is desired, therefore, that the invention be limited only by the scope of the appended claims.

Having thus described our invention, what we claim and desire to secure by Letters Patent is:

1. A head protector comprising a headband, a face mask pivotally carried thereby and movable from face shielding position to a position above the face, an eye shield pivotally carried by said headband and movable from eye shielding position to a position above the eyes, transmission means between said mask and eye shield whereby motion of the mask to nonshielding position moves the eye shield to shielding position and whereby motion of the mask to shielding position moves the eye shield to nonshielding position, said transmission comprising a first crank arm movable with the face mask and a second crank arm actuated by said first crank arm and movable with the eye shield, and means for securing said first crank arm in a plurality of different positions of rotary adjustment with respect to said mask, said crank arms having a sliding pin-and-slot connection with each other.

2. A head protector comprising a headband, a face mask pivotally carried thereby and movable from face shielding position to a position above the face, an eye shield pivotally carried by said headband and movable from eye shielding position to a position above the eyes, transmission means between said mask and eye shield whereby motion of the mask to nonshielding position moves the eye shield to shielding position and whereby motion of the mask to shielding position moves the eye shield to nonshielding position, said transmission comprising a first crank arm movable with the face mask and a second crank arm actuated by said first crank arm and movable with the eye shield, and means for securing said first crank arm in a plurality of different positions of rotary adjustment with respect to said mask, said crank arms having a sliding cam and follower connection with each other.

3. A head protector comprising a headband, a face mask pivotally carried thereby and movable from face shielding position to a position above the face, an eye shield pivotally carried by said headband and movable from eye shielding position to a position above the eyes, transmission means between said mask and eye shield whereby motion of the mask to nonshielding position moves the eye shield to shielding position and whereby motion of the mask to shielding position moves the eye shield to nonshielding position, said transmission comprising a first crank arm movable with the face mask and a second crank arm actuated by said first crank arm and movable with the eye shield, and means for securing said first crank arm in a plurality of different positions of rotary adjustment about an axis fixed with respect to said mask.

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