

June 30, 1970

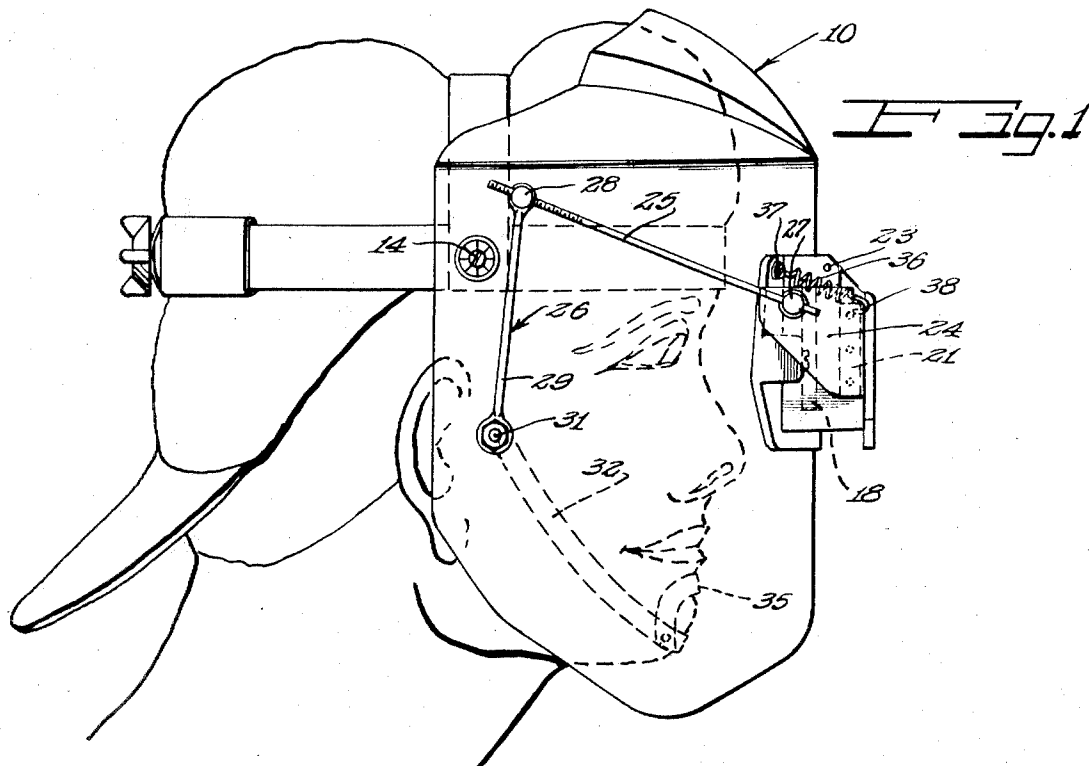
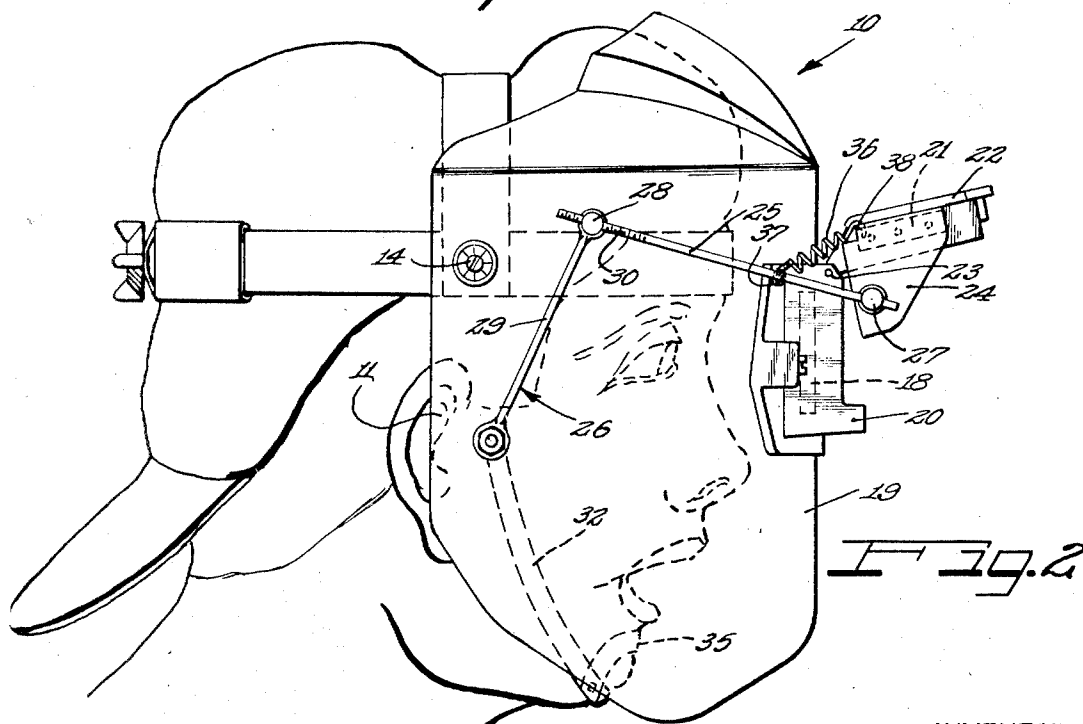
W. R. HODGE ET AL

3,517,392

CHIN OPERATED SHIELD FOR WELDER'S MASK

Filed Oct. 17, 1968

3 Sheets-Sheet 1



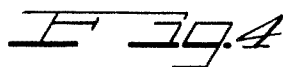
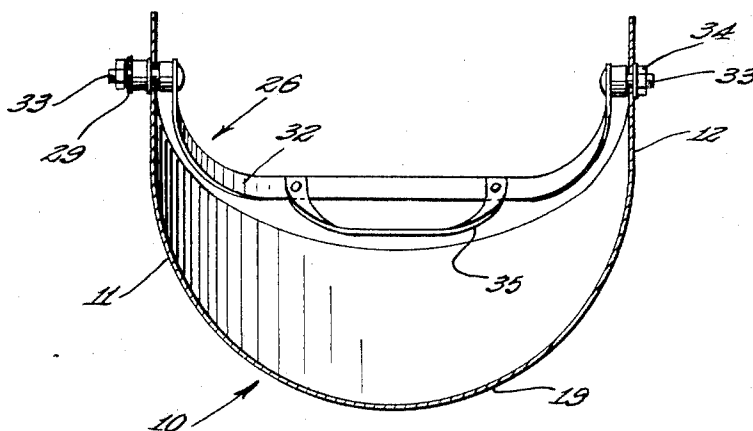
INVENTORS

William R. Hodge
Robert R. Hodge

BY *Hill, Sherman, Meno, Chase & Simpson* ATTORNEYS

3,517,392

3 Sheets-Sheet 2



William R. Hodge
Robert R. Hodge

BY *Tell, Sherman, Messer, Chas. Simpson* ATTORNEYS

June 30, 1970

W. R. HODGE ET AL

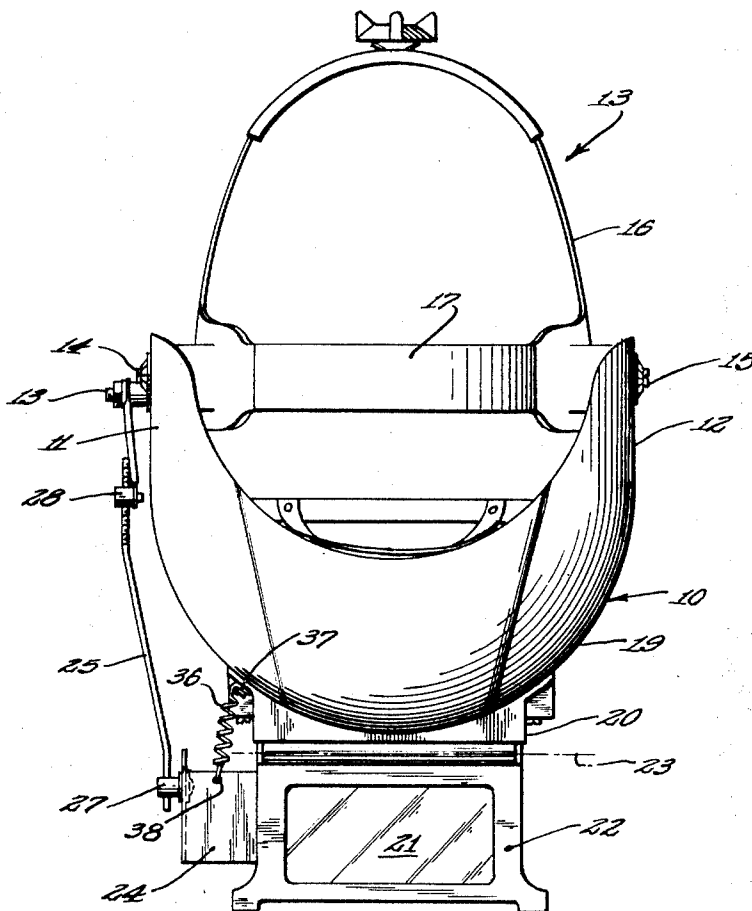
3,517,392

CHIN OPERATED SHIELD FOR WELDER'S MASK

Filed Oct. 17, 1968

3 Sheets-Sheet 3

F 39.5



INVENTORS

William R. Hodge
Robert R. Hodge

BY *Will. Sherman, Meric, Chad & Simpson* ATTORNEYS

1

3,517,392

CHIN OPERATED SHIELD FOR WELDER'S MASK
William R. Hodge, 6620 Calumet Ave., and Robert R.
Hodge, 1447 175th St., both of Hammond, Ind.
61929

Filed Oct. 17, 1968, Ser. No. 768,365
Int. Cl. A61f 9/06

U.S. Cl. 2—8

10 Claims

ABSTRACT OF THE DISCLOSURE

A welder's mask having a window shield operated by the welder's chin. A chin strap lies within the mask and forms part of a lever having a pivot extending through the side of the mask. The lever also has an arm that lies outside the mask and is connected by a link to the window shield. The welder moves the shield away from the window by opening his mouth and returns the shield to the window by closing his mouth.

BACKGROUND OF THE INVENTION

This invention relates to a welder's mask. More specifically, the invention relates to a welder's mask having a shield for the window in the mask.

Welders' masks are known which have a window for viewing the parts to be welded in advance of the welding operation and a movable shield or screen to be placed over the window for screening out harmful light rays produced by the welding operation. The welder has normally had to use one hand to move the shield for covering and uncovering the window. Such an arrangement is inconvenient, because the operator frequently needs both hands to carry out the welding operation.

An object of the present invention is to provide a welder's mask with a window shield that can be moved independently of the welder's hands.

A further object of the present invention is to provide a welder's mask with a window shield that can be operated by the welder's chin.

Other and further important objects of this invention will become apparent from the attached drawings and the detailed description following the brief description of the drawings.

SUMMARY OF THE INVENTION

The present welder's mask comprises a shield for a window in the mask, a U-shaped chin strap located inside the mask, an arm located outside the mask and attached to the chin strap by a pivot portion passing through the side of the mask, and a link connecting the arm with the shield. The chin strap acts through the arm and the link to move the shield between its covering and uncovering positions with respect to the window. An over-center spring yieldingly retains the shield in its covering and uncovering positions.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an elevational view of the welder's mask of the present invention with the window shield thereof in covering position, the mask being fastened on the welder's head;

FIG. 2 is an elevational view similar to FIG. 1, but showing the window shield in open position;

2

FIG. 3 is a front view of the welder's mask with the shield in uncovering position;

FIG. 4 is a sectional view taken on line IV—IV of FIG. 3; and

FIG. 5 is a plan view of the welder's mask with the shield in uncovering position.

DESCRIPTION OF THE PREFERRED EMBODIMENT

As shown in FIGS. 1, 2, and 5, a welder's mask 10 has opposite sides 11 and 12, to which a head support 13 is connected at pivots 14 and 15. The head support 13 comprises an adjustable band 14 extending about the welder's head above his eyes and a strap 15 extending over the welder's head and connected to opposite sides of the band 14 adjacent the pivots 14 and 15. The pivots 14 and 15 between the mask 10 and the head support 13 are located in the upper regions of the sides 11 and 12 of the mask.

As shown in FIGS. 2, 3, and 5, a clear window 18 is mounted in a frame 20 secured to a front portion 19 of the mask 10. The window 18 is formed of a clear material such as glass or plastic. A shield or screen 21 is mounted in a frame 22 which is pivotally connected to the frame 20 adjacent the upper side of the window 18 on a horizontal pivot axis indicated at 23. The shield 21 is formed of tinted glass or other material that will screen out harmful light rays of the welding arc, but will pass sufficient light for the welder to view the welding operation.

As shown in FIGS. 1 and 2, the shield 21 is moved by means of a bracket 24, a link 25, and a lever 26 engaged by the chin of the welder, between the covering position of FIG. 1, in which the shield covers the window 18 and the uncovering position of FIGS. 2 and 3, in which the shield is away from the window. As shown in FIG. 3, the bracket 24 is secured to one end of the shield frame 22, and the link 25 has a pivotal connection 27 with a region of the bracket 24 spaced from and beyond said one end thereof. As shown in FIGS. 1 and 2, the link 25 has an adjustable pivotal connection 28 with an upper arm 29 of the lever 26. The length of the portion of the link 25 between the pivotal connections 27 and 28 is adjustable by virtue of a threaded connection between a threaded portion 30 on the end of the link 25 and a nut-like portion on the upper end of the arm 20 of the lever 25. The arm 20 is exterior to the mask 10 and is secured to a pivot portion 31 of the lever 26, which portion, as shown in FIGS. 3 and 4, is mounted in and extends through the side 11 of the mask 10. As shown in FIGS. 1 and 2, the pivot portion 31 is below the pivot connection 14 between the head support 13 and the mask 10 and is at about the level of the hinge of the lower jaw of the welder.

The lever 26 has a lower arm 32 which is internal to the face mask 10 and is secured to the pivot portion 31. As shown in FIGS. 3 and 4, the lower arm 32, which serves as a chin strap, is in the form of a U, the upper end of one leg of the U being secured to the pivot portion 31 of the lever 26. The upper end of the other leg of the U is secured to a pivot portion 33 which extends through the side 12 of the mask 10 and is mounted therein in alignment with the pivot portion 31. The nut 34 threaded on the pivot portion 33 holds it in the side 12 of the mask 10. The lever 26 is adapted to pivot about

3

an axis extending through and along its pivot portions 31 and 33. The ends of a U-shaped piece 35 are secured to the base of the U of the lower arm 32, so that a loop is formed on the upper side of the base of the U of the arm 32, which loop is engageable with the chin of the welder, as shown in FIGS. 1 and 2.

As shown in FIGS. 1 and 2, an over-center spring 36 has one end connected at 37 to the window frame 20 and the other end connected at 38 to the bracket 24 secured to the shield frame 22. The regions 37 and 38 are so positioned with respect to the pivot axis 23 for the shield frame 22 on the window frame 20 that the spring 36 lies below the pivot axis 23 in the covering position of the shield 21 shown in FIG. 1 and lies above the pivot axis 23 in the uncovering position of FIG. 2. Thus the over-center spring 36 yieldingly maintains the shield 21 both in the covering position and in the uncovering position.

In contrast with the over-center spring 36, the link 25 always stays on the same side of the pivot 23 for the shield frame 22 on the window frame 20. Thus as seen in FIGS. 1 and 2, the link 25 appears below the pivot 23 both in the covering position of FIG. 1 and the uncovering position of FIG. 2. The result is that the link 25 never gets into an over-center position, and the lever 26 is always effective in shifting the shield 22, regardless of its position.

Before the welding operation, the welder views the parts to be welded through the clear window 18 alone, the shield 21 being in the raised or uncovering position of FIG. 2. The welder brings the shield to this position by opening his mouth wide as shown in FIG. 2, thus lowering his lower jaw with respect to the rest of his head. The welder's lower jaw or chin moves downwardly against the base of the U-shaped arm 32 of the lever 26, causing the upper arm 29 to move clockwise as viewed in FIGS. 1 and 2. Such movement acts through the link 25 to move the frame 22 and shield 21 counterclockwise as viewed in FIGS. 1 and 2. When the welding itself is to take place, the welder shuts his mouth, thus moving his lower jaw and chin upwardly against the piece 35 secured to the lower arm 32. The result is that the lower arm 32 of the lever 26 is moved upwardly and counterclockwise and the upper arm 29, to the left and counterclockwise. The link 25 moves to the left from the position of FIG. 2 to that of FIG. 1, and as a result, the frame 22 and shield 21 move clockwise about the pivot 23. The shield 22 is now in front of the window 18, and the welding operation may take place without injury to the welder's eyes. When the welding operation is over, the welder may move the shield 22 away from the window 18 to the position of FIG. 1, by opening his mouth. The downward movement of the chin acts through the lever 26, the link 25, and the bracket 24 to move the shield 22.

It will be understood that the illustrated embodiment of the invention has been used for illustrative purposes only and that the various modifications and variations of the present invention may be affected without a departure in the spirit and the scope of the novel concept thereof.

We claim as our invention:

1. A face mask comprising: a body for covering the face of the wearer, said body having a window of clear material, a shield on the outside of said body pivotally connected thereto for selective covering and uncovering of said window, means actuated by the chin of the wearer inside said body, a shield actuating means outside said body, and a common pivot support for said chin actuated means and said shield actuating means carried by said body and connecting said means for co-movement whereby the shield may be shifted under control of the chin of the wearer without requiring an open passage through said body.

2. The mask of claim 1 wherein the body is shaped to

4

extend around the front and side of the wearer's face and the common pivot is carried by a side portion of the body.

3. An assembly comprising

- (a) a mask having a window,
- (b) a shield for the window connected with the mask for pivoting about an axis extending along and adjacent to the upper side of the window,
- (c) a lever having an intermediate pivot portion extending through one side of the mask, an upper arm extending from the pivot portion outside the mask, and a lower arm extending from the pivot portion inside the mask and being engageable with the operator's chin, and
- (d) a link connecting the cover and the upper arm of the lever.

4. An assembly according to claim 3, the lower arm of the lever being a chin strap in the form of a U, the upper end of one leg of the U being secured to the pivot portion of the lever, the upper end of the other leg of the U being pivotally connected in alignment with the pivot portion to the side of the mask opposite that through which the pivot portion extends.

5. An assembly according to claim 4, comprising a bent member having its ends attached to spaced regions of the base of the U for forming therewith a loop engageable with the operator's chin, and means engageable with an operator's head for locating the mask in front of his face and the window in the mask at eye level.

6. An assembly according to claim 5, the upper arm of the lever extending generally upwardly from the pivot portion thereof downwardly and forwardly from the pivot portion in the covering position of the shield.

7. An assembly comprising

- (a) a welder's face mask having a window,
- (b) a support therefor comprising a band adapted to extend around an operator's head and a strap connecting opposite regions of the band and adapted to extend over the top of the welder's head,
- (c) means connecting the support to the interior of the sides of the mask near the top,
- (d) a shield for screening out harmful light produced by welding to prevent such light from passing through the window to the welder's eyes, the shield being pivotally connected to the masks for movement between open and closed positions about an axis extending along the upper side of the window,
- (e) an over-center spring connected to the shield and the mask for yieldingly retaining the mask in the covering position and in the uncovering position,
- (f) a lever having an intermediate pivot portion extending through one side of the mask below the connection of the support with the mask at about the level of the pivot of the operator's lower jaw, an upper arm extending exteriorly of the mask from the pivot portion, and a lower arm in the form of a chin strap extending from the pivot portion interiorly of the mask,
- (g) a bracket attached to and extending from the shield, and
- (h) a link connecting the upper arm of the lever with a region of the bracket so spaced from and positioned with respect to the pivot axis of the shield during movement of the shield between covering and uncovering positions,

whereby the welder's chin alone may move the shield not only from covering position to uncovering position but also from uncovering position to covering position.

8. An assembly according to claim 7, the lower arm having a transversely extending loop engageable with the welder's jaw.

9. An assembly according to claim 7, the lower arm of the lever extending downwardly and forwardly from the pivot portion, thence transversely of the mask toward the side thereof opposite that through which the pivot portion

5
extends, and thence rearwardly and upwardly to a pivot connection with the mask aligned with the said pivot portion of the lever and located in said opposite side of the mask.
10. An assembly according to claim 9, the portion of the lower arm of the lever presenting a loop engageable with the welder's jaw.

		6	
1,793,286	2/1931	Johnston	2—8
1,800,623	4/1931	Greene	2—8
2,352,007	6/1944	Rickert	2—8
3,339,207	9/1967	Perry	2—8
FOREIGN PATENTS			
537,469	11/1931	Germany.	

References Cited		
UNITED STATES PATENTS		10
1,777,454	10/1930 Shirmer	2—8

JAMES R. BOLER, Primary Examiner