

March 4, 1947.

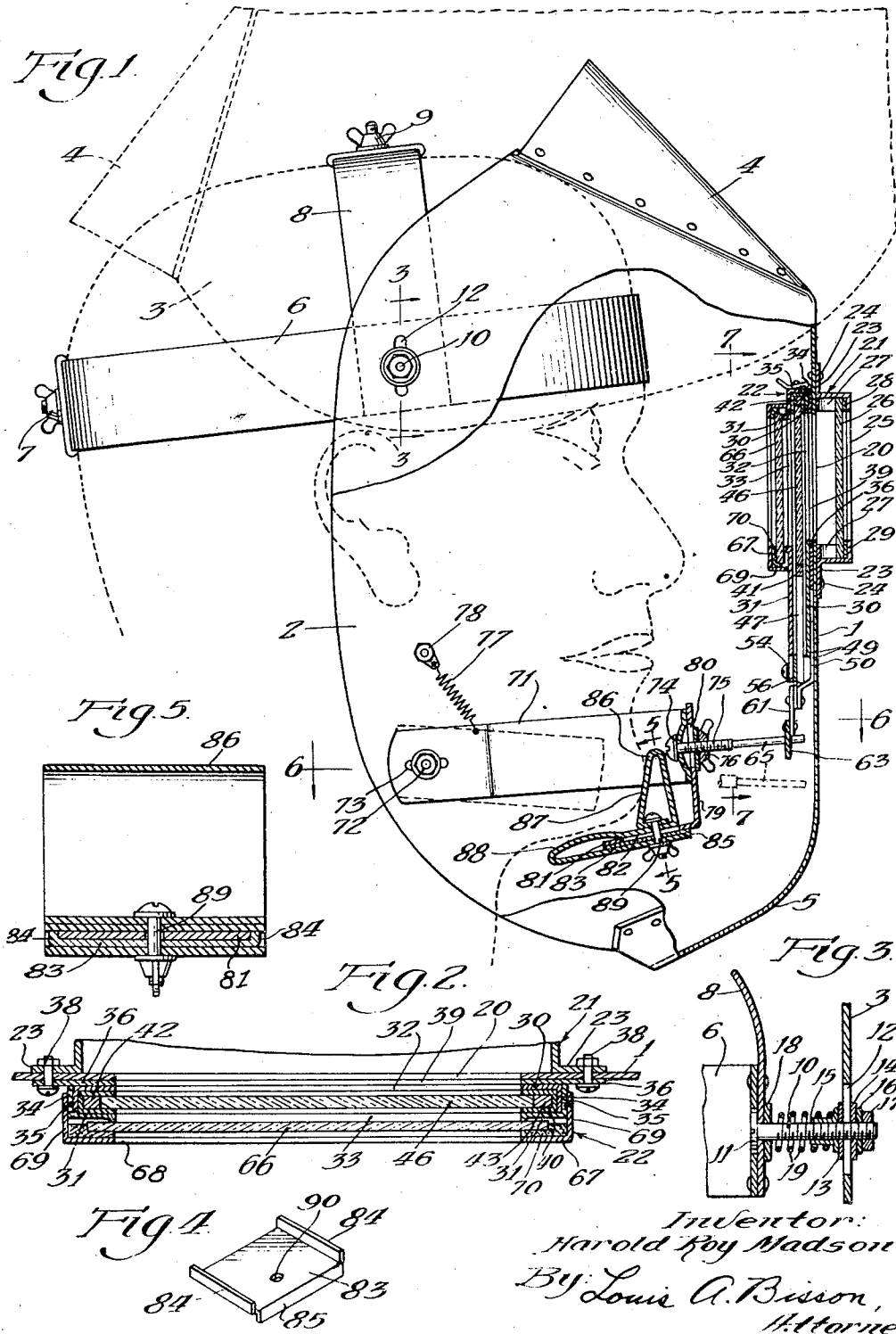
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WELDER'S HELMET

Filed Jan. 1, 1944

2 Sheets-Sheet 1



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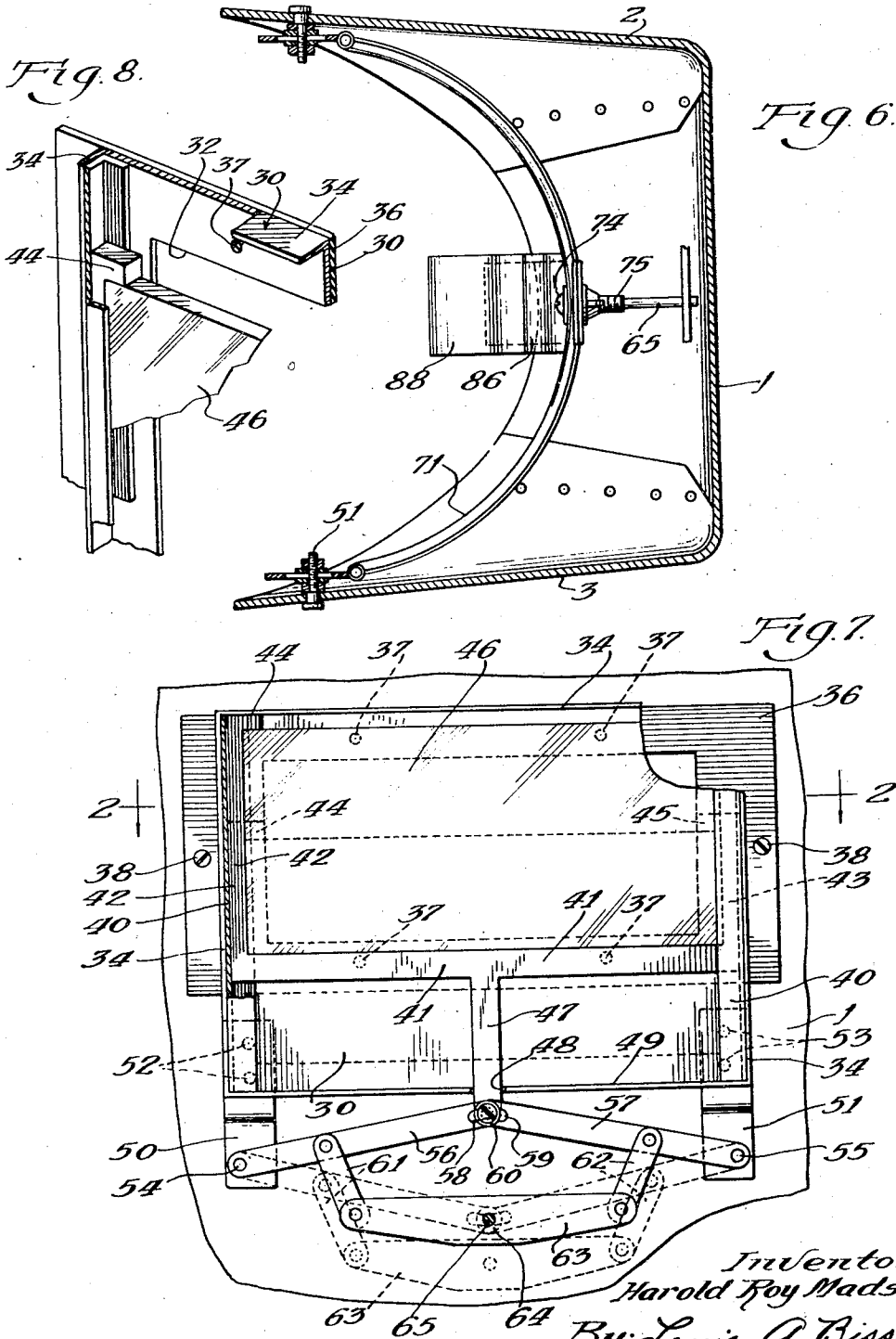
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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

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WELDER'S HELMET

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Application January 1, 1944, Serial No. 516,656

12 Claims. (Cl. 2-8)

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The present invention relates to a welder's helmet having a swingable shield pivotally connected to and supported by a head harness fitting the head of the operator, and carrying a light-filtering lens, and also having means for opening and closing such lens by a movement of the operator's chin.

Among the objects of the invention is to provide a novel chin operated lens actuator which is normally located beneath the chin with a small clearance for allowing a given small amount of free and natural movement of the chin without effecting any movement of the novel actuator, yet being sufficiently proximate to the chin to be moved by the chin upon greater movements of the chin, whereby any desired opening of the lens will be accordingly effected to afford the operator with a free and unintercepted view of the work between welding operations, at which time both of the hands of the operator are free for handling the work as desired. Such actuator also comprises novel means for adjustably supporting the actuator with reference to the chin for the operative relations referred to above.

Another object of the invention is to provide novel means which abuts against the chin for holding the shield and the lens means carried by the shield in such position in front of the operator's face that the lines of collimation of the operator's eyes will normally extend through the upper portion of the lens or through the upper portion of the lens aperture when the lens has been moved down into an open position. This novel chin abutting means also includes means for adjusting the abutting means with reference to the lens means to effect the above referred to relations.

A further object of the invention is the provision of a novel means for effecting a movement of the lens proportionately greater than that of the chin operated means when moved by the chin. This novel means comprises a lever arrangement, which may be of pantographic character, operated by a bow shaped lever which is pivotally connected to the sides of the shield and rearwardly of the operator's chin, and with an intermediate portion of the bow lever extending transversely and forwardly of the operator's chin. The chin operated lens actuator referred to above may also be connected to such intermediate portion of the bow lever. From this intermediate portion of the bow lever forwardly extends a lens actuating element thus forming a leg of the bow lever. It is connected to the lever arrangement for moving the lens means. The point of appli-

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cation of the chin with the chin engaging actuator is intermediate of the pivots or fulcra of the lever and the point of linkage with the lens means, whereby a given small movement of the chin operated lens actuator will be a fraction of the movement of the lens, thus requiring but a small movement of the chin for a larger movement of the lens effected by a simple lever movement and accordingly avoiding the complex and complicated lever systems heretofore found necessary, besides also eliminating the heretofore required large and extreme movements of the chin. By the present novel lens actuating means the operator is able to have better control of the extent of aperture opening above the lens, does not need to move his chin to as great an extent as heretofore, and avoids the tendency to fatigue of the jaw muscles.

The invention also comprehends novel connecting means between the lens means and the actuating device for the lens, and also novel means for compensating for manufacturing variances. When making devices of the character disclosed, on a production basis, it is practically impossible to obtain uniformity of structure and relationship of the various elements of the construction. In the illustrative embodiment of the present invention the bow lever is connected to the sides of the shield by slot and pin means whereby the bow lever may be adjustably mounted to bring the lens actuating element secured to the intermediate portion of the bow lever into mid position relative to the lens means. At such position the just referred to actuating element is connected to a cross bar or balancing link pivotally connected to the lever arrangement for giving an enlarged movement of the lens means. Such link has an aperture of greater size than the end portion of the actuating element extending through such aperture to allow a certain amount of play in compensation for the manufacturing variances referred to above.

Another feature of the invention is the provision of a novel lens means, and particularly the holder or carrier therefor. The holder is open at the top so that the line of view will be past the upper edge of the lens itself when in partly opened position, hence avoiding the heretofore frame bar at the top of the lens which bar confused the operator and often times gave rise to leakage of light by way of a crack below such bar and between it and the upper edge of the lens. By omitting such bar the required movement of the chin to lower the lens and its frame is reduced at least to the extent of the width

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of such bar if it were used. The operator, by the present invention, is able to obtain all the necessary view above the upper edge of the lens he desires by a slight movement of the chin and, hence, a similar movement of the lens. It is not necessary to make the lens open so much as in the case when a bar is present because the view is obtained immediately over the upper edge of the lens without any confusion that would arise if a bar were there to cut off the view.

The lens also is designed to overlap along all its edges the surrounding frame sides to prevent leakage of light as might otherwise occur between an edge of the lens and the frame part at such edge. Also, the channels in which the lens and its carrier side have means to so space the lens whereby as the lens is moved past the lower cross bar of the frame the lens surface will not contact with such bar and be marred or otherwise injured, as by scratching or the like.

Another novel feature is the provision of means whereby the actuator, when the lens is in closed position, is normally inclined a few degrees upwardly above the horizontal plane of the axis of the actuator lever, and is capable of being swung downwardly past such horizontal plane and a few degrees below it. In that way the component forward and rearward movement is reduced to a minimum.

Other objects, capabilities, advantages, features and the like are comprehended by the invention as will later appear and as are inherently possessed by the invention.

This is a continuation-in-part of my copending application Serial No. 410,751, filed September 13, 1941, and Patent No. 2,339,280 dated January 18, 1944.

Referring to the drawings:

Fig. 1 is a part side elevational and part sectional view of a device embodying the invention;

Fig. 2 is a fragmentary sectional view taken in a horizontal plane represented by line 2-2 in Fig. 7 of the drawings;

Fig. 3 is a fragmentary sectional view taken in a plane represented by line 3-3 in Fig. 1 of the drawings;

Fig. 4 is a perspective view of a detail;

Fig. 5 is a sectional view taken in a plane represented by line 5-5 in Fig. 1 of the drawings;

Fig. 6 is a horizontal sectional view taken in a plane represented by line 6-6 in Fig. 1 of the drawings;

Fig. 7 is a part elevational and part sectional, with parts broken away, taken in a plane represented by line 7-7 in Fig. 1 of the drawings; and

Fig. 8 is a fragmentary perspective view of the device.

Referring more in detail to the drawings, the embodiment selected to illustrate the invention is shown with a shield normally located about the front portion of the operator's head to protect it during the welding operation.

The shield comprises a front wall 1 which covers the operator's face, side walls 2 and 3 for extending along the sides of the operator's head, a top portion 4 for covering the forehead and an underlying portion 5 for extending about the chin of the operator.

The shield is pivotally connected to and supported by a head harness, the latter comprising a head band 6 having its ends adjustably connected at the rear of the head by suitable clamping means 7. Over the top of the head is a crown

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strip 8 having its lower ends suitably secured or fixed, as by rivets or the like, to the side portions of the head band 6, and having its upper ends adjustably connected by suitable clamping means 9.

The sides 2 and 3 of the guard are laterally spaced from the sides of the head band 6, and are connected to the head band 6 by friction pivot means, such as is shown in detail in Fig. 3.

Each friction pivot means comprises a stem 10 having a head 11 for bearing against the inner side of the head harness as at the juncture of the head band 6 and the crown strip 8. The other end of the stem 10 extends through a slot 12 provided in the side walls 2 and 3 (Figs. 1 and 3). The slotted portion of each side wall, such as side wall 3, is clamped between discs 13 and 14, the disc 13 being pressed by a flanged nut 15 screwed on the threaded portion of the stem 10, and the disc 14 being pressed by a washer 16 in turn pressed by a nut 17 threaded to the end portion of the stem 10. Against the juncture of the head band 6 and the crown strip 8 contacts a washer 18 pressed by a spring 19 interposed between said washer 18 and the flange of the nut 15.

By adjusting the nut 15 on the stem 10 the spring 19 is compressed as desired to impose the desired friction between the head harness and the washer 18. By adjusting the nut 17 the clamping of the side wall 3 between the discs 13 and 14 is effected as desired. The contacting surfaces between the crown strip 8 and the washer 18 on one side thereof and the head 11 on the other side thereof act as a friction means to retain the angular relation of the shield and the head harness.

By way of illustration, whenever it is desired to move the shield from in front of the face of the operator, it may be swung upwardly, as to the dotted line position shown in Fig. 1. The friction in the above described pivot means will be sufficient to hold the shield in such elevated position, and to prevent it from falling or idling down, yet will permit a forced downward swing of the shield by the operator's hand when it is desired to bring the shield again opposite the operator's face.

The front wall 1 has an aperture or opening 20 and a window structure with a movable light-filter lens. This structure comprises outer and inner window frames 21 and 22 in registry with the opening 20, the frame 21 having a flange 23 secured to the marginal or border portion of the front 1 about the aperture or opening 20, by suitable securing means, such as rivets 24. The outer frame 21 has an opening or aperture 25 which is closed by a transparency 26 of any suitable material, such as glass, mica, transparent compositions, or the like, held in place by suitable resilient elements 27, such as rubber, springs, or the like. A suitable gasket 28 may be interposed between the transparency 26 and the flange 29.

The inner window frame 22 comprises a pair of telescopically engaged frame components 30 and 31 provided with openings or apertures 32 and 33 in register with the openings 20 and 25, the telescopic engagement being by way of slidable and overlapping resilient flanges 34 and 35 having any suitable means, such as registering projections and depressions for holding the components together. The component 30 is secured to a gasket 36, which may be of fiber or any other suitable material, by any suitable securing elements, such as rivets 37 or the like, the gasket 36

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being in turn secured to the front wall 1 by any suitable securing elements, such as bolts 38 (see Figs. 2 and 7) or the like. The gasket 26 has an opening 39 registering with the openings.

Between the flanges 34 and 35 at the ends of the openings 32 and 33 are disposed upright channel pieces 40 and 40 for slidably guiding a lens or light-filter holder or carrier frame comprising a lower cross bar 41, vertical side bars 42 and 43, and upper stubs 44 and 45 for overhanging the upper corners of the lens of light-filter 46 fitting within the frame members 41, 42, 43, 44 and 45 (see Fig. 7). The frame member 41 has a depending leg or stem 47 which is slidable through suitable holes 48 in the lower flanges 49 of the components 30 and 31, the components 30 and 31 being elongated downwardly below the openings 32 and 33 to provide space for the downward movement of the lens 46 and its carrier.

From the ends of the inner window 22, as the component 30, depend legs 50 and 51 secured at their upper ends, as by rivets 52 and 53 to the component 30, the lower ends of these legs carrying pivot elements or pins 54 and 55 for pivotally supporting levers 56 and 57 extending toward the leg 47 and having slots 58 and 59 for receiving a pivot pin 60 provided in or carried by the lower end of the leg 47. Intermediately the ends of the levers 56 and 57 are pivotally connected links 61 and 62 in turn pivotally connected to the ends of a cross bar 63. This bar 63 has a central hole 64 through which extends a chin operated pin 65 for moving the cross bar 63 down and, hence, the lens or light filter 46. A given movement of the pin 65 will be multiplied through the levers 56 and 57 so that a small movement of the operator's chin will cause a great movement of the lens 46.

At the rear of the frame part of component 31 is located another transparency 66 in a frame 67 having an aperture or opening 68 in registry with the openings 33, 32, 39, 20 and 25 referred to above. This frame 67 has resilient flanges 69 at its ends to telescopically slide over the sides or flanges 35 of the rear component 31, and to be releasably held therewith by suitable means, such as registering projections and depressions. A packing or gasket 70 may be interposed between the frame part 67 and the border of the transparency 66, the latter border being pressed against the border of the component 31.

The device is designed so that when the operator is in normal position looking horizontally through the window and lens the lines of vision will be through the upper portion thereof, that is, where the lens first opens so that the operator may see through upon the first opening of the lens even though such opening be but slight.

So that the window may be at the proper vertical height relative to the particular position of the operator's eyes, the vertical slots 12 provided in the side walls 2 and 3 of the shield afford a means for vertical adjustment of the shield to bring the upper edges of the openings in the window and of the lens assembly about in line with the eyes, preferably slightly above the lines of collimation of the eyes. Such adjustment is made (see Fig. 3) by loosening the nuts 17 (at both sides of the device) and raising or lowering the shield, within the limits of the length of the slots 12, to the desired position, and then tightening the nuts.

In manufacture, the shield may not be uniform or symmetrical, as for example, the head harness might be sitting correctly on the operator's head

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but the shield may not be vertical and hence the two eyes of the operator may not look along a plane parallel to the upper edge of the apertures or openings of the window device. Hence, the adjustment of the shield may need to be made only in respect to the slot 12 at one side of the operator's head to bring the lines of collimation of the eyes into the plane parallel to the upper edges of the apertures, particularly the lens aperture, of the device.

Extending about the front and sides of the lower portion of the operator's head, as the lower jaw, is located a bow-shaped lever 71 pivoted at its ends by way of pivot means 72 secured to the side walls 2 and 3 of the shield and extending through slots 73 provided in the bow lever. At the forward and mid portion of the bow lever 71 is provided an aperture through which extends the rod or pin 65 having a head 74 engaged with the rear side of the lever and a threaded shank 75 carrying a thumb nut 76 for clamping the rod 65 to the lever 71. The forward end portion of the rod 65 is smooth and extends through the aperture 64 of the cross bar 63. The aperture 64 is of amply greater diameter than that of the portion of the rod 65 extending through such aperture. This allows for any tolerable inaccuracy of movement of the pin or rod 65. Moreover, inasmuch as the cross bar 63 is suspended from pendant links 61 and 62 any component side movement the rod or pin 65 may have will not affect the down movement of the lens 46. Hence, there is no possibility of the lens carrier becoming jammed in its race.

When assembling the device the rod or pin 65 may not be centrally below the center of the lens and its carrier, but may be laterally to one side or the other. To shift the rod 65 to central position the pivot means 72 at the ends of the bow lever 71 may be moved rearwardly or forwardly depending upon in which lateral direction the rod 65 is to be shifted, and then the pivot means are tightened.

Springs 77 (see Fig. 1) are connected to the lever 71 and to the side walls 2 and 3 as by screws 78 or the like, to raise the lever 71 after it has been moved down and released.

To the forward and mid portion of the bow lever 71 is secured an angle shaped bracket having a vertical leg 79 provided with a slot 80 through which the rod 65 extends. This leg part 79 is clamped between the mid portion of the lever 71 and the thumb nut 76. It may be vertically adjusted within the limits of the slot 80. From the lower end of the leg 79 extends rearwardly and downwardly the other leg 81 of the bracket, which leg 81 also has a slot 82 for an adjustment later described. The leg 81 sits in a saddle piece 83 (see Fig. 4) and may slide relatively thereto between the side flanges 84, the piece having a depending end flange 85 for abutting an end portion of a chin engaged and operated member later described.

On the bracket leg 81 is adjustably secured a chin member comprising an upwardly extending lobe 86 having an inclined face 87 which abuts the forward portion of the operator's chin when the guard is in upright position as shown in Fig. 1, and a lower rearwardly extending and inclined lobe 88 normally slightly spaced below the chin of the operator, and depressible by the chin when lowered, by opening of the mouth, for that purpose.

The chin member above described is connected to the bracket leg 81 by a suitable bolt and thumb

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nut means 89 extending through the slot 82 of the leg 81 and also through a hole 90 (see Fig. 4) provided in the saddle piece 83. The adjustment is made so that when the lobe wall 87 contacts or abuts against the operator's chin the shield wall 1 is in such position relative to the operator's face that the lines of collimation of the operator's eyes will be through the upper part of the lens 46 and the lens aperture as above described. In other words, the chin part lobe 87—86 acts as an abutment or limit stop, when the shield is swung downwardly from the dotted line to the full line positions shown in Fig. 1 whereby such lobe contacts the chin.

The space between the operator's chin and the lobe 88 beneath it provides for a certain amount of clearance for the normal and natural movements of the chin, as when swallowing, or chewing gum or tobacco, etc., wherein there is very little perceptible movement of the chin. But when the mouth is opened further although but for a slight way the chin will then engage the lobe 88 and depress it and accordingly cause a downward swing of the lever 71 with the rod 65, and a similar but greater downward movement of the lens 46. A given movement of the chin, by reason of the novel lever system used in this invention, will cause a greater movement of the lens according to the ratio of leverage of the lever system.

By way of illustration, assuming that the links 61 and 62 are at one-third the distance from the fulcras 54 and 55 to the pivot pin 60 of the levers 56 and 57, the movement of the pin 60 and, hence, the lens 46 will be three times as great as the movement of the rod 65, and assuming that the chin acts at about the middle of the lever arm of the bow lever 71 whereby the movement of the rod 65 is twice that of the operator's chin, it will be apparent, then, that the movement of the lens 46 will be six times that of the chin, or, in other words, the operator needs only to move his chin one-sixth the distance of movement of the lens 46.

The opening thus produced above the upper edge of the lens 46 will be effected quickly and upon a small movement of the chin, and will be as wide or deep as the operator desires, depending upon the degree of chin movement he makes. Usually, it is not necessary to effect wide openings of the lens aperture but only small openings for the purpose of affording, quickly, the particular clear and unfiltered view that might be desired between welding steps of the process of welding.

It will be noted that the width and height of the lens 46 are greater than the width and height of the apertures 32 and 33 so that when the lens 46 is in closed position its margins overlap the frame borders of the apertures referred to and there is no leakage of light past the edge or edges of the lens 46.

The upper bar of the lens carrier is cut away so that the line of vision can be had directly over and past the upper edge of the lens 46 when it is opened, even slightly. That avoids confusion that would occur with an opaque bar at the upper edge of the lens 46. Also, it reduces the amount of chin movement that would be necessary to move the lens open to the extent to clear the bar at the upper edge of the lens.

While I have herein described and upon the drawings shown an illustrative embodiment of the invention it is to be understood that the invention is not limited thereto but comprehends other constructions, details, arrangements of

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parts, features, or the like, without departing from the spirit of the invention.

Having thus disclosed the invention, I claim:

1. In a welder's helmet comprising a head harness, a shield carried by the harness and having a window structure with a movable lens means in the front wall of the shield, and a chin operated lever pivotally connected to the shield and to the movable lens means for opening and closing the lens means; a lever arrangement in the connection from the chin operated lever and the lens means, comprising a lens operating lever pivotally connected to the window structure and to the movable lens means, and a connecting member between said lens operating lever and said chin operated lever for moving the lens means with a proportionately greater movement than the movement of the chin operated lever, said connecting member being adjustably fixed to said chin operated lever.

2. In a welder's helmet comprising a head harness, a shield carried by the harness and having a window structure with a movable lens means in the front wall of the shield, and a chin operated lever pivotally connected to the shield and to the movable lens means for opening and closing the lens means; a lever arrangement in the connection from the chin operated lever and the lens means, comprising a lens operating lever fulcrumed to said window structure and pivotally connected to the movable lens means, and a connecting link pivotally connected to an intermediate point of said lens operating lever and pivotally connected to said chin operated lever for moving the lens means with a proportionately greater movement than the movement of the chin operated lever.

3. In a welder's helmet comprising a head harness, a shield carried by the harness and having a window structure with a movable lens means in the front wall of the shield, and a chin operated lever pivotally connected to the shield and to the movable lens means for opening and closing the lens means; a lever arrangement in the connection from the chin operated lever and the lens means, comprising a leg depending from said movable lens means, a leg depending from said window structure, a lens operating lever pivotally connected to said legs, and a connecting member between said lens operating lever and said chin operated lever for moving the lens means with a proportionately greater movement than the movement of the chin operated lever.

4. In a welder's helmet comprising a head harness, a shield carried by the harness and having a window structure with a movable lens means in the front wall of the shield, and a chin operated lever pivotally connected to the shield and to the movable lens means for opening and closing the lens means; a lever arrangement in the connection from the chin operated lever and the lens means, comprising a pair of lens operating levers pivotally connected to said lens means at a medial point thereof and also pivotally connected to said window structure at spaced points thereof, a connecting member connected to said lens operating levers and to said chin operated lever for moving the lens means with a proportionately greater movement than the movement of the chin operated lever.

5. In a welder's helmet comprising a head harness, a shield carried by the harness and having a window structure with a movable lens means in the front wall of the shield and a chin operated lever pivotally connected to the shield

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and to the movable lens means for opening and closing the lens means; a lever arrangement in the connection from the chin operated lever and the lens means, comprising a pair of lens operating levers pivotally connected to said lens means at a medial point thereof and also pivotally connected to said window structure at spaced points thereof, connecting links connected to said lens operating levers, a cross member pivotally connected to said connecting links and to said chin operated lever for moving the lens means with a proportionately greater movement than the movement of the chin operated lever.

6. In a welder's helmet comprising a head harness, a shield carried by the harness and having a window structure with a movable lens means in the front wall of the shield, and a chin operated lever pivotally connected to the shield and to the movable lens means for opening and closing the lens means; a lever arrangement in the connection from the chin operated lever and the lens means, comprising a leg depending from said movable lens means, spaced legs depending from said window structure, a pair of lens operating levers pivotally connected to said leg depending from said movable lens means and to said spaced legs, means for connecting said lens operating levers to said chin operated lever for moving the lens means with a proportionately greater movement than the movement of the chin operated lever.

7. In a welder's helmet comprising a head harness, a shield carried by the harness and having a window structure with a movable lens means in the front wall of the shield, and a chin operated lever pivotally connected to the shield and to the movable lens means for opening and closing the lens means; a lever arrangement in the connection from the chin operated lever and the lens means, comprising a leg depending from said movable lens means, spaced legs depending from said window structure, a pair of lens operating levers pivotally connected to said leg depending from said movable lens means and to said spaced legs, links pivotally connected to said lens operating levers, and means for connecting said links to said chin operated lever for moving the lens means with a proportionately greater movement than the movement of the chin operated lever.

8. In a welder's helmet comprising a head harness, a shield carried by the harness and having a window structure with a movable lens means in the front wall of the shield, and a chin operated lever pivotally connected to the shield and to the movable lens means for opening and closing the lens means; a lever arrangement in the connection from the chin operated lever and the lens means, comprising a leg depending from said movable lens means, spaced legs depending from said window structure, a pair of lens operating levers pivotally connected to said leg depending from said movable lens means and to said spaced legs, links pivotally connected to said lens operating levers, a cross bar pivotally connected to said links, and said cross bar being connected to said chin operated lever for moving the lens means with a proportionately greater movement than the movement of the chin operated lever.

9. In a welder's helmet comprising a head harness, a shield carried by the harness and having a window structure with a movable lens means in the front wall of the shield, and a chin operated lever pivotally connected to the shield and to the movable lens means for opening and closing

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ing the lens means; a lever arrangement in the connection from the chin operated lever and the lens means, comprising a lens operating lever pivotally connected to the window structure and to the movable lens means, and a connecting member between said lens operating lever and said chin operated lever for moving the lens means with a proportionately greater movement than the movement of the chin operated lever, said chin operated lever comprising a chin piece having an upwardly extending part for contacting the front of the operator's chin and a rearwardly extending portion located for contact by the lower side of the operator's chin, a bracket carried by the chin operated lever for supporting the chin piece, and means for adjustably connecting the chin piece to said bracket.

10. In a welder's helmet comprising a head harness, a shield carried by the harness and having a window structure with a movable lens means in the front wall of the shield, and a chin operated lever pivotally connected to the shield and to the movable lens means for opening and closing the lens means; a lever arrangement in the connection from the chin operated lever and the lens means, said chin operated lever comprising a chin piece having an upwardly extending part for contacting the front of the operator's chin and a rearwardly extending portion located for contact by the lower side of the operator's chin, a bracket carried by the chin operated lever for supporting the chin piece, and means for adjustably connecting the chin piece to said bracket, said latter means comprising a saddle piece between said chin piece and said bracket and having means for adjustably connecting the saddle piece to said bracket and having means for connecting the saddle piece to said chin piece, said saddle piece having side flanges extending along the sides of the bracket to guide the same when adjusting the relation of the chin piece and the bracket.

11. In a welder's helmet comprising a head harness, a shield carried by the harness and having a window structure with a movable lens means in the front wall of the shield, and a chin operated lever pivotally connected to the shield and to the movable lens means for opening and closing the lens means; a lever arrangement in the connection from the chin operated lever and the lens means, comprising a lens operating lever pivotally connected to the window structure and to the movable lens means, and a connecting member between said lens operating lever and said chin operated lever for moving the lens means with a proportionately greater movement than the movement of the chin operated lever, said chin operated lever comprising a chin piece having an upwardly extending part for contacting the front of the operator's chin and a rearwardly extending portion located for contact by the lower side of the operator's chin, a bracket carried by the chin operated lever for supporting the chin piece, and means for adjustably connecting the chin piece to said bracket, and means for adjustably connecting the bracket to said chin operated lever.

12. In a welder's helmet comprising a head harness, a shield carried by the harness and having a window structure with a movable lens means in the front wall of the shield, and a chin operated lever pivotally connected to the shield and to the movable lens means for opening and closing the lens means; a lever arrangement in the connection from the chin operated lever and

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the lens means, said chin operated lever comprising a chin piece having an upwardly extending part for contacting the front of the operator's chin and a rearwardly extending portion located for contact by the lower side of the operator's chin, a bracket carried by the chin operated lever for supporting the chin piece, and means for adjustably connecting the chin piece to said bracket, said latter means comprising a saddle piece between said chin piece and said bracket and having means for adjustably connecting the saddle piece to said bracket and having means for connecting the saddle piece to said chin piece, said saddle piece having side flanges extending along the sides of the bracket to guide the same when adjusting the relation of the chin piece and the bracket, and means for adjustably

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connecting the bracket to said chin operated lever.

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