

Nov. 27, 1945.

L. A. SEVERY

2,390,006

WELDER'S HELMET

Filed June 8, 1942

2 Sheets-Sheet 1

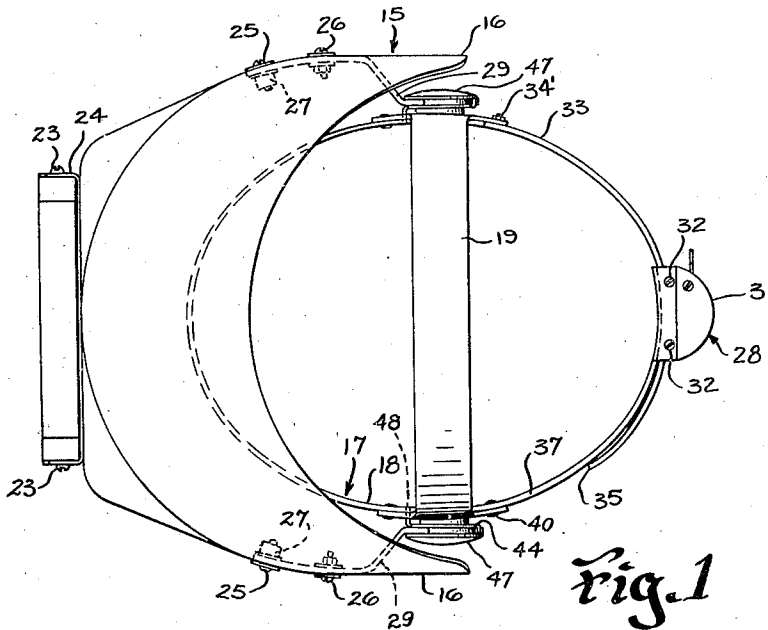


Fig. 1

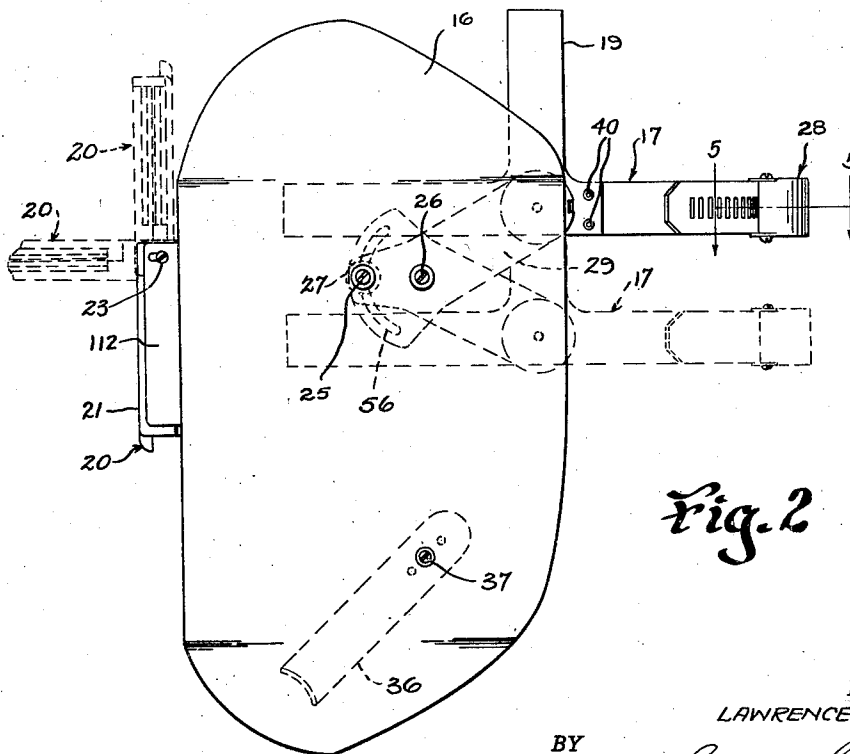


Fig. 2

INVENTOR
LAWRENCE A. SEVERY

BY

Louis A. Severy
ATTORNEY

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2 Sheets-Sheet 2

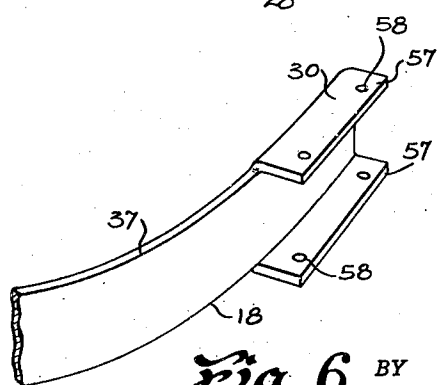
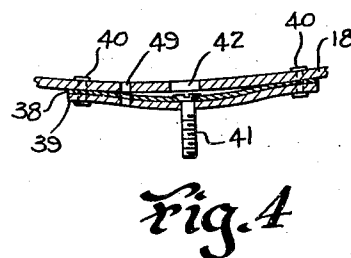
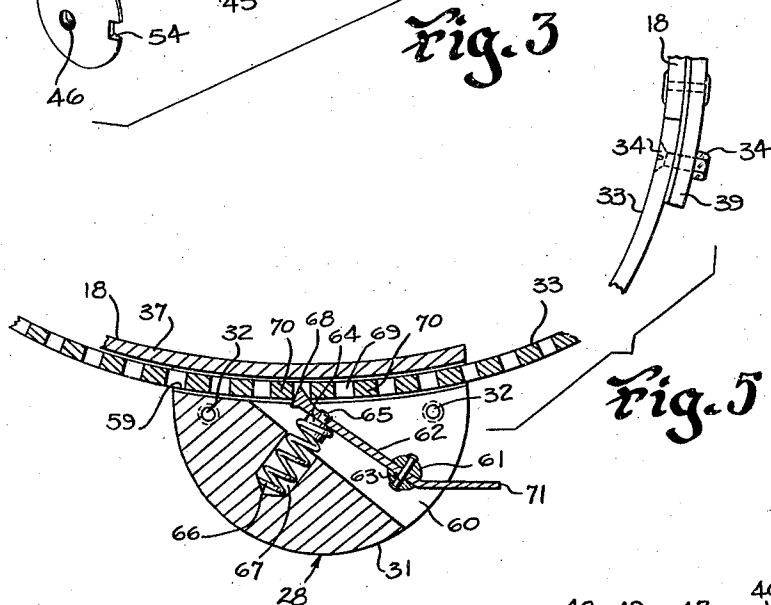
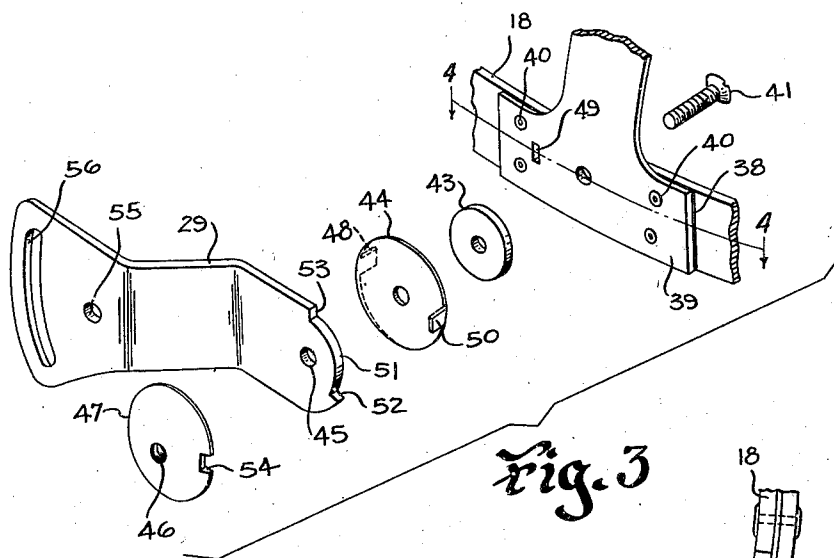


Fig. 6 BY

INVENTOR
LAWRENCE A. SEVERY

Lawrence A. Severy
ATTORNEY

UNITED STATES PATENT OFFICE

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WELDER'S HELMET

Lawrence A. Severy, Southbridge, Mass., assignor
to American Optical Company, Southbridge,
Mass., a voluntary association of Massachusetts

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2 Claims. (Cl. 2—8)

This invention pertains to welder's helmets and more particularly to a welder's helmet having a novel headgear.

It is an object of the invention to provide a welder's helmet with a quick acting headband adjusting means for adjusting and releasing the adjustment by a novel latching arrangement

It is a further object of the invention to provide a welder's helmet with novel means for obtaining a suitable relative alignment of the headgear with the lens cells to obtain the desired visual alignment when in use on the head of a wearer.

A further object is to provide a novel headband adjustment means which will permit, by ratchet action, the headband to be adjusted to size by a simple squeezing of the parts together and which will also permit the headband to be readily expanded by a simple latch mechanism.

A further object of the invention is to provide a headband adjustment for a welder's helmet with a rack and latch arrangement to facilitate adjustment and adjustment release.

A further object of the invention is to provide a novel adjustment means for aligning the headband in relation to the lens cell.

A further object of the invention is to provide novel means of a headband size adjuster so that there will be a rack and latch arrangement to permit a sliding effect in one direction with a latch to permit expansion of the headband.

A further object of the invention is to provide an adjustable headband with one portion thereof having a series of spaced locking members in the nature of a rack, and a latch engagement means for engaging the locking members so that there will be a sliding action of the ends of the headband in one direction with a locking of the headband when tending to move in the other direction, but with a resilient latch member to release the rack-like member to permit expansion of the headband.

Other and further objects may be and may become apparent to one skilled in the art from a perusal of the drawings and specifications herein, and it is to be understood that the present disclosure is by way of illustration only, as equivalent parts may be employed within the spirit of the subjoined claims.

Referring to the drawings:

Fig. 1 is a top view of the welder's helmet.

Fig. 2 is a side view of Fig. 1 showing the relative elevational movement of the headband in relation to the helmet and with the front lens cell in various positions.

Fig. 3 is an exploded perspective view of the

means for securing the headband in pivotal relation with the adjustable headband bracket.

Fig. 4 is a sectional view taken along line 4—4 of Fig. 3 with a connecting screw inserted.

Fig. 5 is a sectional view taken along line 5—5 of Fig. 2 showing the headband adjustment means with the latch in relation to the rack.

Fig. 6 is a partial perspective view of one end of the headband which is securable to the block of the headband size adjuster.

Referring to the drawings and more particularly to Figs. 1 and 2, a welder's helmet or shield 15 has a body portion 16 preferably of hard pressed fiber which is adapted to protect the face of an individual. A headgear 17 has a headband portion 18 and a head strap 19. The front lens cell 20 has a front cover 21, which front cell is pivoted by means of screws 23 to the front cell holder 24. The view in Fig. 2 shows the adjustable headband bracket, with the screws 25 and 26, with screw 26 being the fulcrum or pivot point for the adjustable headband bracket while screw 25 receives the knurled nut 27 which is used for securing the adjustable headband bracket in position after it has been adjusted.

The headband size adjuster 28 is shown for attaching the two rear portions of the headband together.

Referring to Figs. 1 and 2, the adjustable headband bracket 29 is pivotally secured by means of screw 26 to the side portions of the body 16 while screw 25 has a nut 27 thereon, which nut may be loosened to swivel the headband bracket, and thereafter tightened to secure same in desired angular position.

The headgear 17 is shown partly in solid lines in Fig. 2 in an elevated position in relation to the body 16, and the headgear is also shown dotted in a lowered position. It will therefore be seen that the headgear 17 may be raised or lowered so that when in position of use on the face of a wearer, the lens cells of the helmet may be relatively raised or lowered to adjust the line of sight for the particular individual wearing the helmet. The headband flanges 57 are secured to the size adjuster holder block 31 by means of screws 32. A rack portion 33 of the headband 18 is attached by means of screws 34 to form a rigid connection with the remainder of the headband. The rack portion 33 is curved inwardly so that when it slides through the size adjuster, the free end 35 touches the headband portion 37 so that it is not spaced therefrom thereby avoiding the free end of the headband from sticking outwardly. However, this curvature permits a slight spacing in from

the end 35 of the portion 33 from the opposite portion 37 of the headband, but the free end 35 of the portion 33 actually touches the surface of the opposite headband portion 37.

A chin strap 36 is pivotally connected by screws 37 to the body of the helmet so that the chin strap may be swung about its pivot to suit the needs of the individual wearing the helmet.

In Fig. 2, the front lens cell 20 is shown dotted, raised to a horizontal position, and also to a position wherein it is swung fully upward to a perpendicular position about the screws 23.

It will be seen in Fig. 2 that the body 16 may have relative motion with the headband, so that the body may be swung upwardly off of the face of the wearer. The view in Fig. 2 shows relative movement of the headband with the body 16 of the helmet, so that the elevational position of the body 16 may be varied in relation to the headband to provide suitable line of sight for a particular individual wearing the helmet.

The means of securing the headgear 17 to the bracket 29 is shown in the exploded view in Fig. 3 which may be considered in conjunction with Fig. 4. The headband 18 has a metallic strip 38 which fits between the headband and the widened end 39 of the head strap 19. The head strap portion 39 and the metallic spring 38 are secured to the headband on opposite sides thereof by means of rivets 40. It will be seen that the metallic strip and headband portion 39 are curved away from the headband 18 to afford a spring action when the parts shown in Fig. 3 are secured together. In assembling the parts, a screw 41 fits through the opening 42 (Fig. 4) so that it does not protrude within the headband. The shank of the screw 41 is inserted through the holes in the rubber washer 43, the metallic friction plate 44, the hole 45 of bracket 29, and the threaded portion 46 of the nut 47. The lug 48 on the friction plate 44 extends through the hole 49 (Fig. 4) into the headband to prevent rotation thereof. The opposing lug 50, on friction plate 44 rides about the surface 51 so that it may engage the shoulders 52 or 53 and extend into the slot 54 in the nut 47 which locks nut 47. When the screw 41 passes through the aforesaid holes of the various members shown in Fig. 3, the rubber friction washer 43 and the metallic spring 38 are drawn sufficiently tight by the screw 41 to hold the body of the helmet in any desired position when the headband is properly secured on the head of the wearer. The hole 55 receives the screw 26 (Fig. 1) which attaches the bracket 29 onto the side of the body 16. The slot 56 receives the screw 25 (Fig. 2) to permit the body 16 of the helmet to be rocked up and down when the headgear is secured on the head of an individual. It will therefore be seen that the freedom of relative movement between the bracket 29 and the headband 18 will permit rotational movement of the headgear 17. The pivotal movement of the bracket 29 in relation to the body 16 provides for the relative positions of the headgear 17 as shown in Fig. 2 for aligning the lens cells for proper wearing position in relation to the headgear 17.

In Figs. 5 and 6, it will be seen that the headband portion 37 forms a channel between the flanges 57. The size adjuster holder block 31 is inserted between the flanges 57 and is secured thereto by screws 32 which are passed through the holes 58 into the holder block 31. The shoulder 59 is spaced from the headband proper to enable the rack portion 33 to freely slide between shoulder 59 of the holder block 31, and the por-

tion 37 of the headband 18. The block 31 has a slot 60 therein and has aligned openings extending in a direction transversely of the slot in which a slotted pin 61 is pivotally mounted so as to pass through the holder block 31 and extend transversely of the slot 60. A latch 62 is inserted in the slot of the pin 61 and is secured thereto by means of the pin 63. The width of the latch is slightly smaller than the width of the slot 60, but it is not sufficiently narrow to permit the slotted pin 61 to move sidewise an amount sufficient to permit it to become dislodged from the aligned pivot openings in the holder block 31. A spring guide 64 is connected to the latch 62 by means of a pin 65. A spring 66 fits over the end of the spring guide 64 with the other end of the spring fitting into a hole 67. The latch tip 68 is so shaped that when the rack member 33 is moved to the left, the latch 62 will be urged against the action of the spring 66 until the latch tip 68 is urged into the next slot such as 69. The left side of the latch tip 68 will engage the next rack tooth such as 70 and hold the rack member 33 from being withdrawn from the size adjuster block 31. When it is desirable to release the latch 62, a pressure toward the headband on the finger portion 71 of the latch 62 will raise the portion 68 out of the slot 69 so that the rack portion 33 may be freed and withdrawn from the size adjuster 28. The rack portion 33 is detachably secured to the strap end 39 by screws 34 and nuts 34', as shown in Figs. 1 and 5. There are two screws 34 spaced one above the other which may be removed so that the rack portion 33 may be detached and be replaced by a new rack portion if damaged.

The angle of the left side of the latch tip 68 is such that it will definitely prevent the tooth 70 from passing the latch tip 68 when the latch 62 is in the position as shown in Fig. 5, but it is such a sharp angle that it will not cause a binding when the latch 62 is manipulated by the finger portion 71 against the action of the spring 66.

The adjustable headband bracket 29 is pivotal as described above to provide relative elevation between the headband and the helmet body so that the helmet body may be raised or lowered to bring the horizontal center of the lens cell on the same plane with the eyes so that the center of the lens cell is aligned with the eyes of the particular wearer. This is accomplished by loosening the screws 25 on the respective sides of the shield to permit the brackets 29 to be pivoted about the screws 26. The slotted ends 56 which straddle the screws 25 shift their related positions with respect to the screws 25 whereby the main headband 17 may be raised or lowered as illustrated in Fig. 2. The amount of adjustment is determined by the line of sight of the wearer and is such as to move the lens cell in proper position before the eyes. When this position is located, the respective screws 25 are tightened thereby retaining the brackets 29 in adjusted position.

The soft rubber friction washer 43 acts as a spring to keep the proper tension between the headband and the adjustable headband bracket 29. The friction washer 44 with tabs 48 and 50 thereon is to provide frictional contact between the headband and the headband bracket 29, with the tabs on the washer being adapted to prevent rotation of the nut 47 with respect to the screw 41 so that a substantially constant friction is maintained by adjustment of the screw after the screw is once properly adjusted. The friction washer

remains stationary in relation to the screw while the headband rotates with respect to the bracket 29 which is the tilting adjustment means for bringing the lens cell of the helmet body in alignment with the eyes of the individual wearing the helmet when the helmet is in position of use before the face. Once the bracket is adjusted for an individual so that the line of sight of the individual is aligned with the lens cell, it may remain fixed. However, when the helmet is not in use, it may be swung up over the head and held in said position by the frictional connection between the headband and the adjustable headband bracket.

It will be seen from the above that the welder's helmet has means for producing the various factors set forth in the objects.

Having described my invention, I claim:

1. A welder's helmet of the class described comprising a face protecting portion, a headband supporting structure pivotally connected to said face protecting portion, said supporting structure embodying a band-like member having overlapping end portions, one of said end portions having an uninterrupted inner surface for engaging the head and having flange-like members extending outwardly of the side thereof opposed to said inner surface and in substantially parallel relation with each other, a block secured between said flange-like members, with the base of the block spaced from the outer surface of said end portion an amount sufficient to produce a slideway for receiving the opposed end portion of the band-like member and with said block extending outwardly of said outer surface an amount sufficient to produce hand engagement means, said block having a slot therein, and a spring-pressed latch pivotally supported by said block and lying within said slot with one end thereof extending into the slideway, said opposed end portion of the band-like member having a plurality of spaced notches therein adapted to be engaged by the end of the latch member extending into the slideway, said latch member being so arranged as to permit the

end portion having the plurality of notches therein to move freely in a direction inwardly of the slideway and to engage an aligned notch for restricting movement of said notched end portion in the opposite direction.

2. A welder's helmet of the class described comprising a face protecting portion, a headband supporting structure pivotally connected to said face protecting portion, said supporting structure embodying a head strap portion and a band-like member carried by said strap portion and comprising two aligned sections having overlapping end portions, one of said sections having an uninterrupted inner surface for engaging the head and having flange-like members extending outwardly of the side surface thereof opposed to said inner surface and in substantially parallel relation with each other, a block secured between said flange-like members, with the base of the block spaced from the outer surface of said section an amount sufficient to produce a slideway for receiving the opposed end portion of the other section and with said block extending outwardly of said outer surface an amount sufficient to produce hand engagement means, said block having a slot therein, a spring-pressed latch pivotally supported by said block and lying within said slot with one end thereof extending into the slideway, said other section having a plurality of spaced notches therein adapted to be engaged by the end of the latch member extending into the slideway and being detachably secured to the head strap portion in alignment with the first section whereby said other section may be removed and replaced by a new section when the portion having the notches therein becomes worn, said latch member being so arranged as to permit the section having the plurality of notches therein to move freely in a direction inwardly of the slideway and to engage an aligned notch for restricting movement of said notched portion in the opposite direction.

LAWRENCE A. SEVERY.