

March 12, 1946.

E. R. BECK

2,396,239

WELDER'S SHIELD

Filed Dec. 9, 1943

3 Sheets-Sheet 1

FIG. 2.

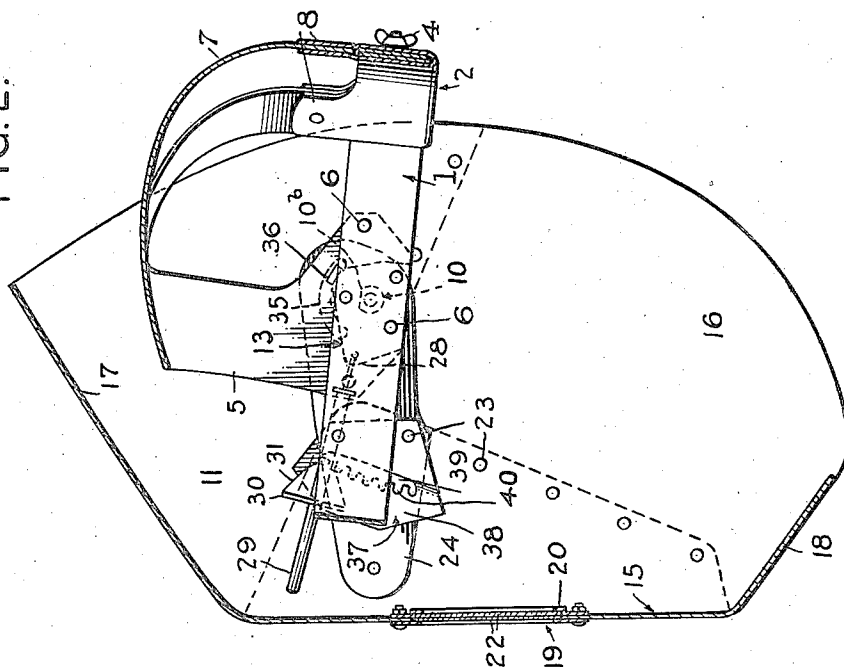
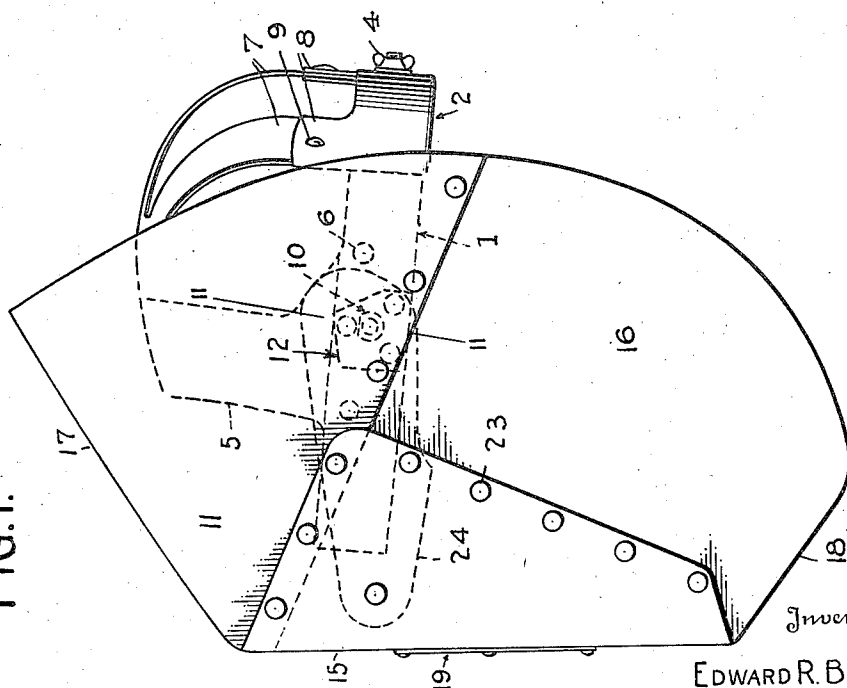


FIG. 1.



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FIG. 3.

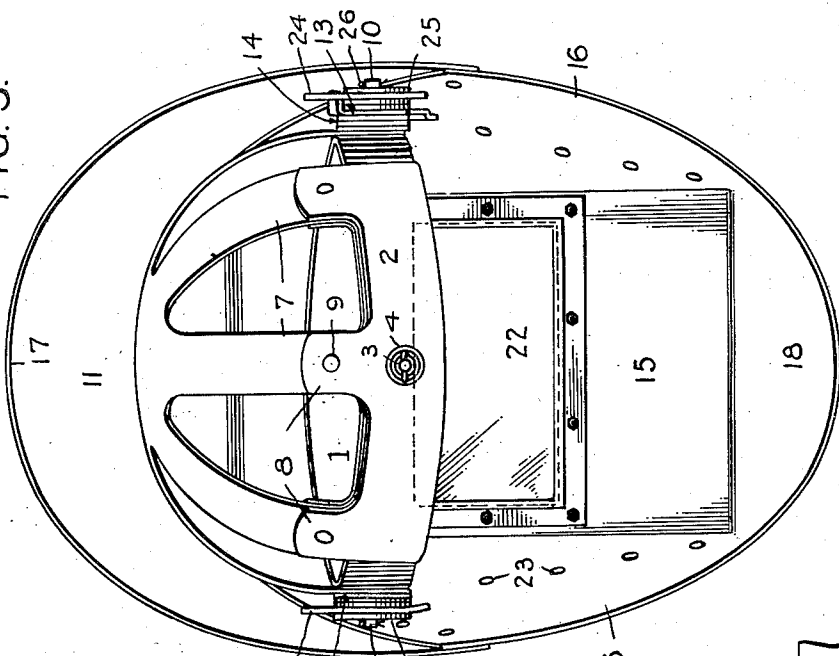
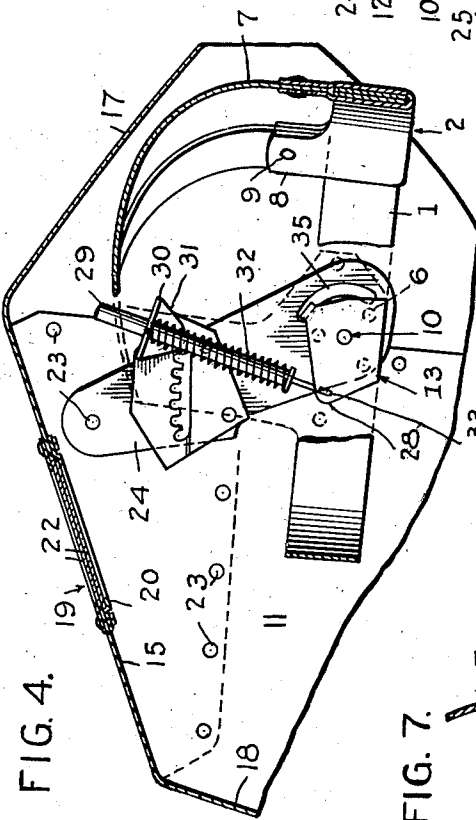


FIG. 6.

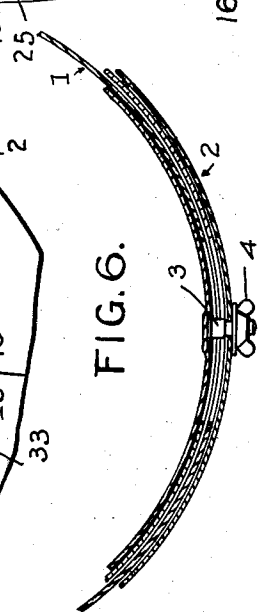


FIG. 7.

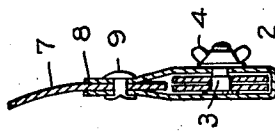
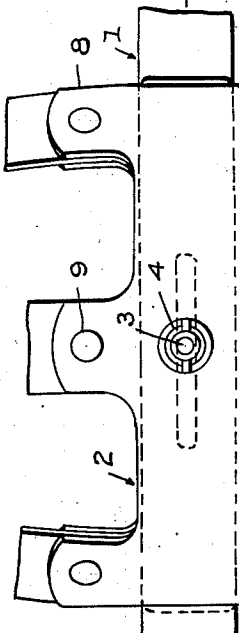


FIG. 5.



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FIG. 8.

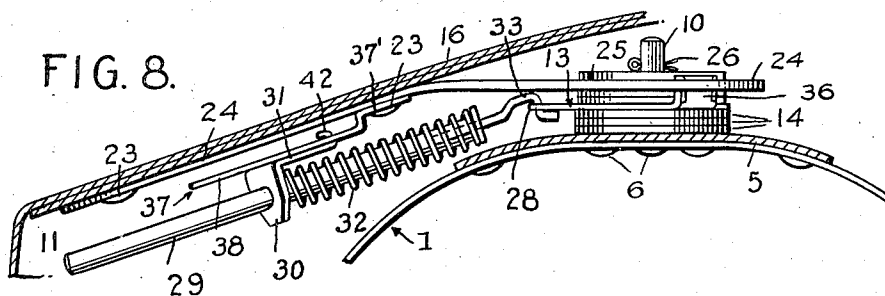


FIG. 9.

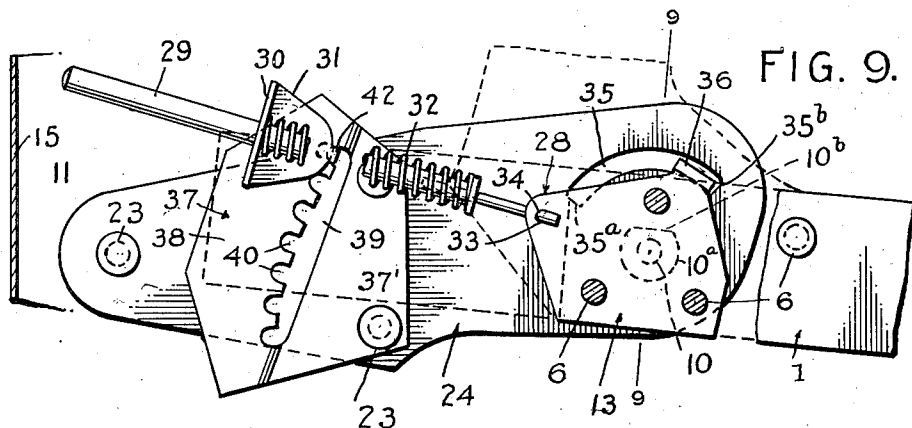


FIG. 12.

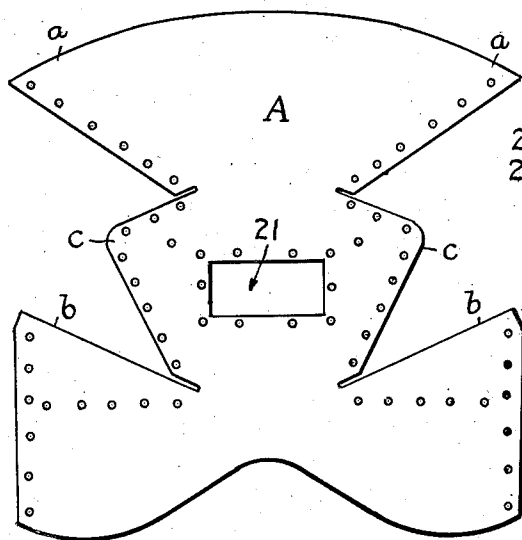
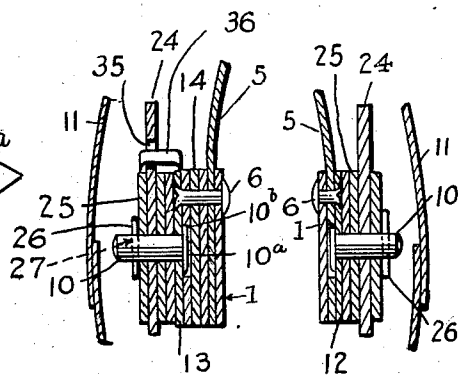


FIG. 10.

FIG. 11.



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UNITED STATES PATENT OFFICE

2,396,239

WELDER'S SHIELD

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Application December 9, 1943, Serial No. 513,524

15 Claims. (Cl. 2-8)

This invention relates to improvements in welder's shields of the general type comprising a supporting headpiece and a shield member pivotally mounted on the headpiece so that the same may be swung to an operative position covering the face or to an inoperative position above the head.

In shields of the type referred to, the point at which the shield member is pivoted to the headpiece is so far from the center of the shield member that a substantial amount of the weight of the same is forward or ahead of the pivotal point when it is in the raised or lowered positions respectively, and when the shield member is moved from the raised to the lowered position with unrestricted movement at the pivotal point, it falls with considerable force. Primary objects of the invention are to provide an improved shield of the type referred to in which the shield member may be raised or lowered by an upward or downward movement or shake of the head and there is spring means to yieldably maintain the shield member in operative or inoperative position that will cushion the throw of the shield member to lowered position and which under the weight and thrusting movement of the shield member to lowered position will be compressed and energy stored up therein in an amount in excess of that necessary to counterbalance the weight of the shield member sufficient to carry the same back to raised position when later released for that purpose, whereby an easy, satisfactory, automatic action of the shield member is obtained.

Another object of the invention is to provide spring means of the character referred to, together with means providing for readily changing the angular position of the connection of the spring means with the shield member whereby the degree of compression of the spring means may be varied and the sensitiveness of the automatic action of the shield member in the raising and lowering of the same may be regulated to suit different conditions due to changes in the position of the head of the user as when work is to be performed over-head or at or below a point level with the eyes.

The invention, with other objects and advantages thereof, and the particular construction, combinations and arrangements of parts comprising the same will be understood from the hereinafter contained detailed description when considered in connection with the accompanying drawings forming part hereof and illustrating one embodiment of the invention.

In the drawings:

Figure 1 is a side elevation of a shield constructed in accordance with the present invention, the shield being shown in operative position.

Figure 2 is a central vertical section of the shield as shown in Figure 1.

Figure 3 is a rear elevation with the shield member in the position shown in Figure 1.

Figure 4 is a central longitudinal section, the shield member being shown in inoperative position.

Figure 5 is a fragmentary rear elevation of the head piece.

Figure 6 is a longitudinal section on the line 6-6 of Figure 5.

Figure 7 is a transverse section through the central portion of Figure 5.

Figure 8 is a top plan view, on an enlarged scale, of the spring mechanism as viewed from the interior of the shield.

Figure 9 is a side elevation on an enlarged scale of the spring mechanism, the parts being shown in the position of the same when the shield member is in operative position.

Figure 10 is a transverse section taken on the line 9-9 of Figure 9.

Figure 11 is a transverse section on the line 11-11 of Figure 1, and

Figure 12 is a view of the blank from which the shield member is formed.

While a preferred embodiment of the invention is illustrated in the drawings it will be understood that minor changes and modifications may be made in the particular construction shown and the invention may be embodied in other forms as will appear to those skilled in the art and falling within the scope of the appended claims without departing from the spirit of the invention.

Referring to a detailed description of the particular embodiment of the invention illustrated in the drawings, the construction of headpiece shown comprises an adjustable horizontal head band 1 having slotted overlapping end portions at the rear and a relatively long sleeve member 2 U-shaped in cross section curved to fit the head and which serves to support and guide the overlapping end portions of the horizontal band, the overlapping end portions slidably fitting therein. The slotted overlapping end portions of the band 1 are clamped to the sleeve member 2 by a bolt 3 and nut 4, the bolt extending through an opening in the rear side of the sleeve member and through the slotted end portions of the band with the head of the bolt fitting against the inner slotted end portion of the band, and the nut engaging

the rear side of the sleeve member. The construction includes a transverse crown strap 5 secured at its ends by rivets 6 to opposite sides of the band 1.

The crown strap 5, which is disposed at the forward part of the band 1 and designed to fit the forward part of the head, has rearward longitudinal reinforcing extensions 7 connected to the sleeve member 2, the latter having spaced pairs of oppositely disposed tab extensions 8 projecting from the upper edges thereof and each of said reinforcing extensions being disposed between and secured by rivets 9 to a pair of the tab extensions. The head piece is preferably constructed of sheet fibre. As will be understood, the relatively long sleeve member 2 serves as the sole guide and support for the free ends of the horizontal band 1, and through its connection at separated points with the rearwardly diverging extensions 7 of the transverse crown strap 5, acts to stabilize the entire head piece construction.

On the head piece at opposite sides of the head band 1 at the points at which the ends of the crown strap 5 are fastened thereto, are pivots 10 on which the shield member or body 11 is mounted. The pivots 10 are shown fastened to the head band by metal plates 12 and 13, which are secured to the head band, by the same rivets 6 which fasten the ends of the crown strap 5 thereto. 14 designates plates of sheet fibre or other suitable material for spacing the plate 13 from the adjacent portions of the head piece. Each of the pivots 10 has a head 10^a which is provided with a flattened side 10^b. The pivot 10 at the right has its head 10^a disposed between the plate 13 and one of the spacer plates 14, the head 10^a of the pivot fitting into an opening in the adjacent spacer plate, the opening being of the same irregular shape as the head of the pivot.

The head of the pivot 10 at the left has its head 10^a positioned between the plate 12 and the head band 1, the head of the pivot fitting into a correspondingly shaped opening in the adjacent end portion of the crown strap 5. The shield member or body 11 is box-like in shape, the same comprising a flat front wall 15, integral rearwardly extending and diverging side walls 16, an integral upwardly and rearwardly inclined top wall 17 and an integral downwardly and rearwardly inclined bottom wall 18, the top and bottom walls being curved transversely.

The front wall 15 is provided with a suitable window 19 through which the workmen may view the work without danger of injury to the eyes, said window being formed by a framing 20 attached within a complemental opening in the front wall 15 and supporting appropriate protective lenses 22. The shield body is made from a blank of thin sheet fibre or like material of the form shown in Figure 12 of the drawings. The blank, designated A, as shown, has portions at the sides intermediate its top and bottom edges removed leaving at each side corner portions a, b, spaced from each other and a small triangular shaped flap portion c intermediate the same. The blank is molded or bent to shape, the corner portions a, b, at each side being brought together in overlapping relation, the small triangular flaps c being bent down onto the overlapping corner portions and all of the overlapping edge portions secured by rivets 23. The design of the blank is such that all of the overlapping riveted edge portions are disposed on the side walls 16 of the body and serve to reinforce the same against warping. The particular construction also provides reinforced areas on the side walls to which

to attach hangers 24 for pivotally mounting the shield body or member 11 on the head piece.

The hangers 24, which like the shield body, are preferably constructed of sheet fibre but of heavier stock, are secured at their forward end portions to the side walls 16 of the shield body at the overlapping portions a, b, thereof near the front wall 15, the rivets 23, which secure the overlapping portions a, b, also serving as securing means for the hangers 24. The hangers 24 extend rearwardly and upwardly from their points of connection with the side walls 16, engaging the pivots 10 at their upper end portions, the shield member or body 11 being thus supported to be swung to operative position illustrated in Figure 2 of the drawings, or to inoperative position shown in Figure 4. 25 designates washers on the pivots 10 at either side of the end portions of the hangers 24, and 26 are cotter pins engaging apertures 27 in the end portions of the pivots.

For cushioning the throw of the shield member to the lowered position and utilizing the energy developed by the downward motion of the shield member to store up energy in the spring to be later used to carry the same back to raised position, the invention contemplates a crank throw action, operating with respect to the point of the pivotal axis of the shield member, the crank being fixedly connected with the head piece, a spring that is compressed in the downward movement of the shield member between the crank and the shield member with stop means for limiting the downward and upward movement of the shield so set that the line of dead center of the crank and point of connection of the spring with the shield member is off center with respect to the limits of movement of the shield member on the head piece.

In the particular embodiment of the invention illustrated in the drawings, the means to accomplish these results, comprises a crank or eccentric portion 28 fixed to the metal plate 13, a rod 29 pivotally connected at one end to the outer end of the crank 28 and having its other end slidably engaging an eye 30 on a part 31, and a coil spring 32 sleeved on the rod 29 and connected to exert its thrust against the crank 28 at its lower end and against the eye 30 on part 31 at its upper end. The pivotal connection of the lower end of the rod 29 with the crank 28 may conveniently be formed as shown by a hook portion 33 on the lower end of the rod engaging an eye 34 on the crank 28. For limiting the downward and upward movement of the shield body or member 11, hanger 24 at the right is provided with an arcuate shaped slot 35 in the lower part thereof and the metal plate 13 has a laterally projecting lug 36 extending into the slot 35 and cooperating with the end walls 35^a, 35^b thereof.

Means is provided for mounting the part 31 on the hanger 24 so that the connection of the same with the hanger can be shifted transversely thereof whereby the line of dead center of the crank 28 and rod 29 with respect to the limits of travel of the shield member 11 on the head piece may be varied. The means for this purpose comprises a metal bracket 37 having a lower attaching flange 37' and an upper portion 38 offset laterally from the attaching flange 37' and provided with a slot 39, the upper wall of which is formed with a plurality of spaced notches 40. The attaching flange 37' is secured to the hanger 24 by the rivets 23, the upper portion 38 of the bracket being spaced from the hanger 24.

The part 31 slidably fits against the upper por-

tion 38 of the bracket 37 and it has at its lower end a hook portion 42 adapted to extend into the slot 39 and engage the notches 40. The part 31 is pressed outwardly by the coil spring 32. As will be understood, the part 31 can be readily moved to engage its hook portion 42 with any of the notches 40 and will be securely locked to the bracket.

As will be understood, when the shield member is in its raised position illustrated in Figure 4 of the drawings, a slight downward movement of the head throws the weight of the shield member against the coil spring 32. The fall of the shield member is cushioned by the spring and the spring is compressed under the weight and thrusting movement of the shield member. The energy developed in the downward movement of the shield member is accumulated and stored in the spring and the shield member is locked in its lowered position against the pressure of the spring, the rod 29 of the spring mechanism being carried beyond the line of dead center with the crank 28. The amount of energy accumulated in the coil spring is in excess of that necessary to counterbalance the weight of the shield member and is sufficient to return the same to inoperative position. When the shield member is in the lowered operative position shown in Figure 2 of the drawings, a slight upward movement of the head throws it far enough over the line of dead center of the rod 29 with the crank 28 to allow the coil spring to expand and carry it back to the raised inoperative position.

With the hook portion 42 of the part 31 engaged with the notch at the extreme right of the series of notches 40 as shown in Figures 2, 4 and 9 of the drawings, the rod 29 will be just beyond the line of dead center with the crank 28 when the shield member is in lowered position and the return automatic action is very sensitive. This positioning of the connection of the part 31 to the hanger 24 brings the shield member to rest at the limit of its upward travel with the crank 28 at approximately right angles to its position when the shield member is at the limit of its downward travel. In this position the spring mechanism has the greatest possible leverage on the head piece to sustain the shield member in the raised position. When the connection of the part 31 to the hanger 24 is shifted to the left through the positions of adjustment afforded by the notches 40 on the bracket, the return action of the shield member to raised position becomes progressively less sensitive, provision thus being made for controlling the sensitiveness of the automatic action of the shield member to suit different requirements due to changes in the position of the head of the wearer as when work is to be performed overhead instead of at or below a point level with the eyes. For example if work is to be done more nearly overhead, the same degree of sensitiveness of the return automatic action of the shield member can be obtained with the hook portion 42 of the part 31 shifted to the left from the position illustrated in Figures 2, 4 and 9 of the drawings into engagement with one of the other notches 40, as is obtained in welding at or below a point horizontal to the eyes with the part 31 in the position shown in Figures 2, 4 and 9.

Also there are certain types of welding where an extremely sensitive fall of the shield member from the raised to the lowered position is important. This action is obtained by shifting the part 31 to engage its hooked portion with the

notch at the extreme left of the series of notches, in which position the coil spring is compressed to a lesser degree, in the movement of the shield to lowered position. This feature is important where small parts are being welded together on a table. In this class of work the electrode is placed in proper proximity to the parts to be welded and any undue strain or motion necessary to shift the shield to the lowered position tends to move the electrode from the desired location, which is objectionable due to the "black out" which occurs between the falling of the shield and the beginning of the arc.

It will be appreciated that whereas I have illustrated herein the bracket 37 with the several notches 40, the number of these notches and their relationship with the hook portion 42 may be varied as desired, as where, due to the weight forward of the shield, in the lowered position, it will hold in this position without its actually being carried to or beyond dead center, in which case an additional notch or notches to the right in the bracket 37, will change the position of dead center of the spring mechanism with respect to the limits of travel of the shield on the head-piece, so that it will be brought to rest at the limit of its downward travel before it reaches dead center.

What I claim is:

1. In a welder's shield of the character described, a shield member, means for pivotally supporting the same on the head of the user whereby the shield member may be thrust to an operative or inoperative position by a shake of the head, spring mechanism adapted to cushion the throw of the shield member to operative position, instrumentalities operatively associated with said spring mechanism for compressing the spring under the weight and thrusting movement of the shield member to store up energy in the spring mechanism throughout the movement of the shield to its operative position in excess of the force of gravity tending to move the shield member to said operative position whereby the shield member may be raised by a shake of the head to its inoperative position without impedance from the weight thereof.

2. In a welder's shield of the character described, a shield member, means for pivotally supporting the same on the head of a user whereby the shield member may be thrust to an operative or inoperative position by a shake of the head, spring mechanism adapted to cushion the throw of the shield member to operative position, instrumentalities operatively associated with said spring mechanism for compressing the spring under the weight and thrusting movement of the shield member to store up energy in the spring mechanism in excess of the force of gravity tending to move the shield member to said operative position whereby the shield member may be raised by a shake of the head to its inoperative position without impedance from the weight thereof, the parts being correlated to assume a set or beyond dead center position without substantial dissipation of the stored energy when the shield member is in operative position but to be released by a slight upward shake of the head sufficient to move the parts from dead center or set position whereby the stored power of the spring mechanism may alone perform its function of restoring the shield manner to original inoperative position.

3. In a welder's shield of the character described, a shield member, means for supporting the same on the head of a user, pivotal means

connecting the shield member and support together whereby the shield member may be thrust to an operative or inoperative position by a shake of the head, said connecting means comprising a pivot between the shield member and support, and a yieldable cushioning means engaged at one end with the shield member and abutting at its opposite end with the support for relieving the shock incident to the downward thrust of the shield member into operative position, the engagement of the end of the cushioning means with the shield member being at a point offset from the pivotal axis of the shield member, said yieldable means and support being correlated with the said pivotal axis whereby the yieldable means will move to holding position in the upward and downward thrusts of the shield member and will change the relative position of the abutment of the yieldable means with the shield member and the connection thereof with the support to effect storing up energy in the yieldable means to expend added lifting force for the restoration of the shield member to inoperative position, and means for limiting the downward and upward movement of the shield member to operative and inoperative position.

4. In a welder's shield of the class described, a head piece, a shield member pivotally connected to the head piece so that the same may be thrust to an operative or inoperative position by a shake of the head, a coil compression spring adapted to cushion the throw of the shield member to operative position, said spring being interposed between a part on the shield member and a part on the head piece at a point offset from the pivotal axis of the shield member, the arrangement of said points of engagement of said spring relative to said pivotal axis of the shield member being such that the distance between said points decreases as the shield member moves downwardly from inoperative to operative position whereby the spring under the weight and thrusting movement of the shield member is compressed and energy stored up therein in excess of the force of gravity tending to move the shield member to said operative position, whereby the shield member may be raised by a shake of the head to its inoperative position without impedance from the weight thereof.

5. In a welder's shield of the class described, a shield member, a head piece for pivotally supporting the shield member on the head of a user whereby the shield member may be thrust to an operative or inoperative position by a shake of the head, spring mechanism adapted to cushion the downward throw of the shield member to operative position and to store up energy in excess of the force of gravity tending to move the shield member to said operative position, said spring mechanism including a crank portion offset with respect to the pivotal axis of the shield member fixedly connected with the head piece, a rod pivotally connected at one end to the outer end of said crank portion and at its other end slidably engaging an eye on a part fixedly connected with the shield member, the rod and crank portion being correlated to assume a beyond dead center position when the shield member is in operative position but to be released by a slight upward shake of the head sufficient to move the parts from beyond dead center position, whereby the stored power of the spring may alone perform its function of restoring the shield member to inoperative position.

6. In a welder's shield of the class described, 75

a shield member, a head piece for pivotally supporting the shield member on the head of a user whereby the shield member may be thrust to an operative or inoperative position by a shake of the head, spring mechanism adapted to cushion the downward throw of the shield member to operative position and to store up energy in excess of the force of gravity tending to move the shield member to said operative position, said spring mechanism including a crank portion offset with respect to the pivotal axis of the shield member fixedly connected with the head piece, a rod pivotally connected at one end to the outer end of said crank portion and at its other end slidably engaging an eye on a part fixedly connected with the shield member, the rod and crank portion being correlated to assume a beyond dead center position when the shield member is in operative position but to be released by a slight upward shake of the head sufficient to move the parts from beyond dead center position, whereby the stored power of the spring may alone perform its function of restoring the shield member to inoperative position, and means for limiting the downward and upward movement of the shield member to operative and inoperative position.

7. In a welder's shield of the class described, a shield member, a head piece for pivotally supporting the shield member on the head of a user whereby the shield member may be thrust to an operative or inoperative position by a shake of the head, spring mechanism adapted to cushion the downward throw of the shield member to operative position and to store up energy in excess of the force of gravity tending to move the shield member to said operative position, said spring mechanism including a crank portion offset with respect to the pivotal axis of the shield member fixedly connected with the head piece, a rod pivotally connected at one end to the outer end of said crank portion and at its other end slidably engaging an eye on a part fixedly connected with the shield member, the rod and crank portion being correlated to assume a beyond dead center position when the shield member is in operative position but to be released by a slight upward shake of the head sufficient to move the parts from beyond dead center position, whereby the stored power of the spring may alone perform its function of restoring the shield member to inoperative position, and means providing for changing the position of the connection of said part with the shield member whereby the line of dead center of said rod and crank with respect to the limits of travel of the shield member may be varied.

8. In a welder's shield of the class described, a head piece, a shield member, hangers secured at their inner end portions to the sides of the shield member extending rearwardly and pivotally connected at their outer end portions to the head piece at the sides thereof to support the shield member whereby the same may be thrust to an operative or inoperative position by a shake of the head, spring mechanism adapted to cushion the downward throw of the shield member to operative position and to store up energy in excess of the force of gravity tending to move the shield member to said operative position, said spring mechanism including a crank portion offset with respect to the pivotal axis of the shield member fixedly connected with the head piece, a rod pivotally connected at one end to the outer end of said crank portion and at its other end

slidably engaging an eye on a part fixedly connected with one of the hangers, the rod and crank being correlated to assume a set or beyond dead center position when the shield member is moved to operative position but to be released by a slight upward shake of the head sufficient to move the parts from beyond dead center position whereby the stored power of the spring may alone perform its function of restoring the shield member to inoperative position.

9. In a welder's shield of the class described, a head piece, a shield member, hangers secured at their inner end portions to the sides of the shield member extending rearwardly and pivotally connected at their outer end portions to the head piece at the sides thereof to support the shield member whereby the same may be thrust to an operative or inoperative position by a shake of the head, spring mechanism adapted to cushion the downward throw of the shield member to operative position and to store up energy in excess of the force of gravity tending to move the shield member to said operative position, said spring mechanism including a crank portion offset with respect to the pivotal axis of the shield member fixedly connected with the head piece, a rod pivotally connected at one end to the outer end of said crank portion and at its other end slidably engaging an eye on a part fixedly connected with one of the hangers, the rod and crank being correlated to assume a set or beyond dead center position when the shield member is moved to operative position but to be released by a slight upward shake of the head sufficient to move the parts from beyond dead center position whereby the stored power of the spring may alone perform its function of restoring the shield member to inoperative position, and means providing for changing the position of the connection of said part with said hanger whereby the line of dead center of said rod and crank with respect to the limits of travel of the shield member may be varied.

10. In a welder's shield of the class described, a head piece, a shield member, hangers secured at their inner end portions to the sides of the shield member extending rearwardly and pivotally connected at their outer end portions to the head piece at the sides thereof to support the shield member whereby the same may be thrust to an operative or inoperative position by a shake of the head, spring mechanism adapted to cushion the downward throw of the shield member to operative position and to store up energy in excess of the force of gravity tending to move the shield member to said operative position, said spring mechanism including a crank portion offset with respect to the pivotal axis of the shield member fixedly connected with the head piece, a rod pivotally connected at one end to the outer end of said crank portion and at its other end slidably engaging an eye on a part fixedly connected with one of the hangers, the rod and crank being correlated to assume a set or beyond dead center position when the shield member is moved to operative position but to be released by a slight upward shake of the head sufficient to move the parts from beyond dead center position whereby the stored power of the spring may alone perform its function of restoring the shield member to inoperative position, and means providing for changing the position of the connection of said part with said hanger whereby the line of dead center of said rod and crank with respect to the limits of travel of the

shield member may be varied, said means including a notched segment on said hanger, and a locking portion on said part adapted to engage the notched segment.

11. In a welder's shield of the class described, a head piece, a shield member, hangers secured at their inner end portions to the sides of the shield member extending rearwardly and pivotally connected at their outer end portions to the head piece at the sides thereof to support the shield member whereby the same may be thrust to an operative or inoperative position by a shake of the head, spring mechanism adapted to cushion the downward throw of the shield member to operative position and to store up energy in excess of the force of gravity tending to move the shield member to said operative position, said spring mechanism including a crank portion offset with respect to the pivotal axis of the shield member fixedly connected with the head piece, a rod pivotally connected at one end to the outer end of said crank portion and at its other end slidably engaging an eye on a part fixedly connected with one of the hangers, the rod and crank being correlated to assume a set or beyond dead center position when the shield member is moved to operative position but to be released by a slight upward shake of the head sufficient to move the parts from beyond dead center position whereby the stored power of the spring may alone perform its function of restoring the shield member to inoperative position, and means providing for changing the position of the connection of said part with said hanger whereby the line of dead center of said rod and crank with respect to the limits of travel of the shield member may be varied, said means including a bracket on said hanger formed with a transverse slot having an arcuate shaped upper wall provided with a plurality of notches, and a hook portion on said part adapted to engage said notches.

12. In a welder's shield of the character described, a shield member, a head-gear for pivotally supporting the shield member on the head of the user whereby the shield member may be thrust to an operative or inoperative position by a shake of the head, a spring snap-action mechanism connected to the shield member and to the head gear to cushion the movement of the shield member to operative position, and means for adjusting the connection of the spring snap-action mechanism to the shield member to thereby control the operation of the spring mechanism.

13. In a welder's shield of the character described, a shield member, a support for the same adapted to engage the head of a user whereby the shield may be thrust to an operative or inoperative position by a shake of the head, including connecting means comprising a pivot between the shield member and support, spring mechanism operatively associated with the support and shield member, including correlated devices controlled by the shifting of the shield member on its pivot to store up energy in the spring mechanism beyond that flowing from the weight of the shield member and consequent force of gravity sufficient to raise the shield member from its operative position to its inoperative position upon a shake of the head to start the movement of the shield member from its operative position toward inoperative position.

14. In a welder's shield of the character described, a shield member, a support for the same adapted to engage the head of a user whereby the

shield may be thrust to an operative or inoperative position by a shake of the head, including connecting means comprising a pivot between the shield member and support, a crank-like member offset from the axis of said pivot, spring mechanism operatively associated with the crank-like member and having adjustable connection with said shield member, including correlated devices controlled by the shifting of the shield member on its pivot to store up energy in the spring mechanism sufficient to raise the shield from its operative to its inoperative position upon a shake of the head to start the movement of the shield member from its operative towards inoperative position.

15. In a welder's shield of the character described, a shield member, a support for the same adapted to engage the head of a user whereby

the shield may be thrust to an operative or inoperative position by a shake of the head, including connecting means comprising a pivot between the shield member and support, spring mechanism operatively associated with the support and shield member, including correlated devices controlled by the shifting of the shield member on its pivot to store up energy in the spring mechanism beyond that flowing from the weight of the shield member and consequent force of gravity sufficient to raise the shield member from its operative position to its inoperative position upon a shake of the head to start the movement of the shield member from its operative position toward inoperative position, and means for adjustably positioning the spring relative to the support and shield member.

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