

July 10, 1951

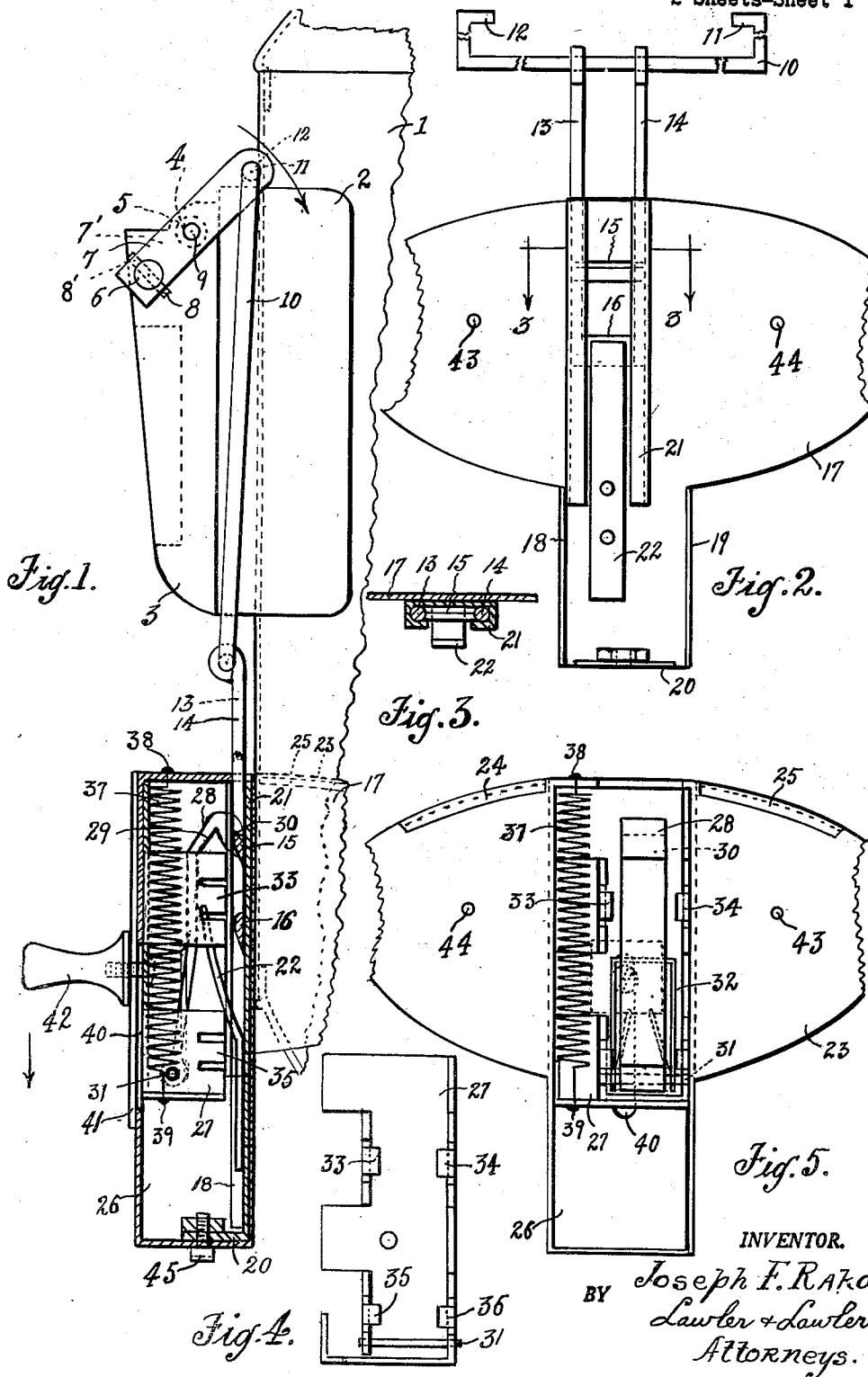
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2,559,795

HEAD SHIELD FOR WELDERS

Filed July 18, 1947

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

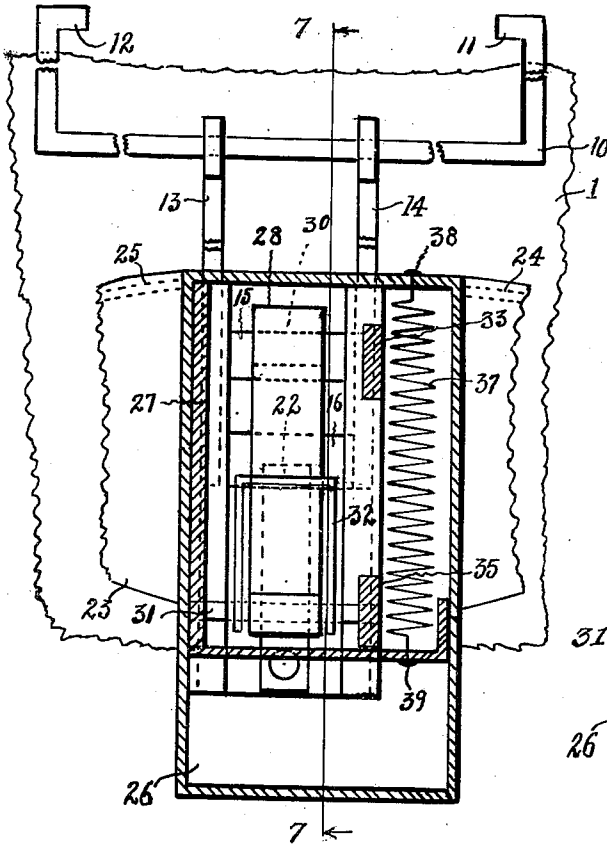


Fig. 6.

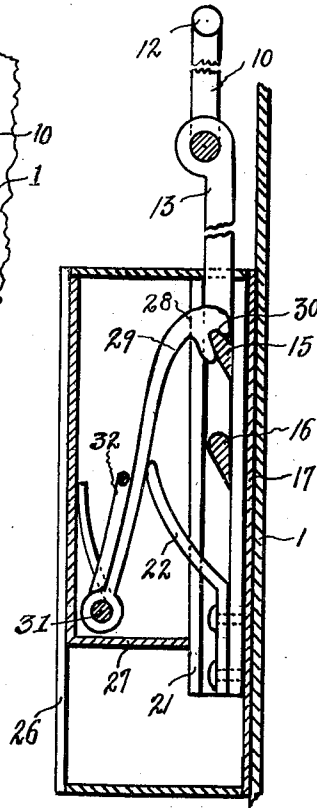


Fig. 7.

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UNITED STATES PATENT OFFICE

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HEAD SHIELD FOR WELDERS

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1 Claim. (Cl. 2—8)

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The object of the invention is to provide a simple, economical and efficient means for lifting the window hinged on the head shield.

Other objects of my invention will be apparent or will be specifically pointed out in the description forming a part of this specification, but I do not limit myself to the embodiment of my invention herein described, as various forms may be adopted within the scope of the claim.

Figure 1 is a fragmentary view of the head shield with the window lifting mechanism connected thereto, as seen from the side, certain parts being broken away to reveal certain of the operating parts thereof.

Figure 2 is a view in elevation of the back plate removed from the head shield.

Figure 3 is a sectional view on line 3—3 in Figure 2.

Figure 4 is a view in elevation of the sliding member apart from the mechanism to illustrate its configuration.

Figure 5 is a view of the front cover plate removed from the back plate and turned through 180° to reveal the mechanism looking into it from the rear.

Figure 6 is a vertical fragmentary sectional representation of the housing on an enlarged scale, and showing the position of the various parts therein.

Figure 7 is a sectional view taken on line 7—7 in Figure 6 looking in the direction of the arrows.

Similar numbers of reference refer to similar parts throughout the several views.

Referring to the drawing 1 indicates a conventional head shield, shown fragmentary, on which there is removably mounted a base 2. The window 3 is hinged to the base at its upper end by means of a hinge pin 4, around which there is coiled a helical spring 5 in torsion, adapted to hold the window pressed into closed position thereon, and also to return the window to closed position thereon when released after lifting by the window lifting mechanism.

Connected to and extending across the upper portion of the window there is a rod 6. Connected to the rod laterally of the window are the lever arms 7, 7', by means of pins 8, 8' or otherwise, and they extend obliquely inwardly and upwardly towards the head shield. Adjacent the upper end of the lever arms there is provided a through bore for the reception of the inwardly turned ends 11 and 12 of the bail 10. In one of the lever arms there is provided a through bore 9 through which the hinge pin may be removed, to replace the helical spring should it fail for any reason.

Hinged to the bail and extending downwardly therefrom in spaced parallel relationship are two members 13 and 14, spaced by the transverse members 15 and 16. The upper member 15 is

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bevelled to slant or incline off inwardly and downwardly, the purpose of which is hereinafter explained.

The back plate 17 is provided with upstanding flanges 18, 19 and 20 adapted to assist in positioning the front plate 23 thereon illustrated in Figure 5. On the back plate there is provided a channel-shaped guide-way 21 fixed thereto in which the spaced parallel members are slidably mounted. Connected to the back plate and positioned in the channel-shaped guide-way is a tongue 22 the upper end of which is adapted to release the window lifting mechanism at a predetermined point on being manually pulled as hereinafter explained.

The front plate is provided with two flanges 24 and 25, and a housing 26. In the housing there is mounted a slidably mounted member 27, see its general configuration in Figure 4, where it is shown apart from the front plate. In the member 27 there is freely mounted on the shaft 31 a member 28 the upper end of which is formed with an inclined portion 29 and terminates in a forked end 30. It will be noted in Figure 1, that when the window is closed, the forked end 30 of the member 28 engages the transverse member 15, and that the cross section of the member 15 is such that it fits into the forked end 30, and provides a means by which the window lifting members may be pulled down to open the window on the head shield. The member 28 is normally urged toward the back plate by means of the spring 32 that is coiled on the shaft 31 laterally of the member 28 and extends upwardly and across the back of the member, its free ends engaging the inner surface of the slidably mounted member 27, see spring construction in Figure 5, where its ends are shown in dotted lines.

The slidably mounted member 27 is provided with inwardly bent portions 33, 34, 35 and 36, adapted to ride on the upper surface of the channel-shaped guide-way to reduce the friction of the member 27 thereon.

Mounted in the housing there is a helical spring 37 the upper end 38 of which is connected to the housing, its lower end 39 is connected to the slidably mounted member 27. In the housing there is provided an elongated slot 40. The slot is covered with a plate 41 and the handle 42 is connected to the member 27 by means of a screw that extends through the slot, thence through a hole in the plate 41 to thread into a bore in the handle 42. The back and front plates are provided with holes 43 and 44 for the reception of bolts to fasten the plates to the head shield, while the flanges 24 and 25 fit over the upper edge of the back plate to hold the plates together at their top edge, while the flanges 18, 19 and 20 are adapted to prevent the shifting of the front plate out of place, while the screw 45

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holds the front plate in assembled relationship with the back plate.

The operation of the device is as follows:

The head shield is placed on the head and held in position thereon by the head band and chin straps installed therein.

When it is desired to open the window on the welding shield previous to the welding operation, the hand is so placed that it engages the lower end of the housing 26, while at the same time the handle 42 is grasped with some of the fingers of the same hand, and the handle 42 is then pulled down, imparting a movement to the bail 10, to which the spaced legs 13 and 14 are connected. It will be noted that the upper spacing member 15 of the legs is engaged by the forked end 30 of the member 28, and that it is provided with an inclined portion 29. The member 28 is mounted on the transverse shaft 31 in the slidably mounted member 27 in the housing 26 and is controlled by the spring 32. As the slidably mounted member 27 is pulled down, it carries with it member 28, the upper forked end 30 of which is in engagement with the transverse member 15 in the spaced legs connected to the bail 10. The member 28 is controlled by the spring 32. As the slidably mounted member 27 is pulled down, the underside of the member 28 mounted therein on the shaft 31 engages the outstanding tongue 22 connected to the back plate 17. On the pull down the inclined portion 29 of the member 28 is encountered by the tongue 22, thus forcing the member 28 out of engagement with the transverse member 15, with the result that the slidably mounted member 27 is returned to inactive position by the helical spring 37.

On its return to inactive position the member 28 slips over the lower member 16, and when it reaches its top position, the spring 32 moves the member 28 toward the back plate, with the result that the forked end 30 of the member 28 again is brought into engagement with the transverse member 15 between the spaced legs 13 and 14 for the next operation of the window. It is obvious that from the mechanical construction and the action of the various parts, that the window 5 is caused to open. When released, the helical spring 5 on the hinge pin 4 snaps the window to its closed position.

It is believed that the operation of the mechanism as a whole will be clear, in view of the foregoing description which has been given in connection with that of the construction of the same.

From the foregoing description of my improved window lifting mechanism, the manner of applying the same to use will be readily understood and it will be seen that I have provided a comparatively simple, inexpensive and efficient means for carrying out the objects of the invention.

While I have particularly described the elements best adapted to perform the functions set

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forth, it is obvious that various changes in form proportion and in the minor details of construction may be resorted to, without departing from the spirit or sacrificing any of the principles of the invention.

What is claimed is:

In a device of the class described, comprising, in combination, a head shield, a foundation member connected thereto, a window hinged to the foundation member by a hinge pin, a coiled spring in torsion on the hinge pin, a transverse member connected to the upper portion of the window, lever arms, the lever arms fixedly connected to the transverse member laterally of the window and having bores therein adjacent their upper ends, and positioned obliquely upward and inward toward the head shield when the window is closed, a bail having inturned ends mounted in the bores in the lever arms, a window lifting member hinged to the bail comprising downwardly extending legs held in spaced parallel relationship by spaced parallel transverse members interposed therebetween, the upper member of the forementioned members being generally wedge shaped in cross-section and extending upwardly and outwardly relative to the legs, a back plate removably connected to the head shield, a channel-shaped guide-way connected to the back plate, an outstanding tongue positioned in the channel-shaped guide-way and connected to the back plate, the back plate being provided with upstanding flanges, a front plate, the front plate provided with a housing, a slidably mounted member in the housing, a transverse shaft in the housing, a member freely mounted on the shaft having an inclined upper portion adapted to engage the outstanding tongue positioned in the channel-shaped guide-way and a hooked forked end adapted to engage the upper transverse member spacing the downwardly extending legs of the window lifting member, a helical spring the upper end of which is connected to the housing, its lower end connected to the slidably mounted member, a spring adapted to urge the member mounted on the transverse shaft toward the members spacing the downwardly extending legs of the window lifting member, and a handle adapted to pull the slidably mounted member downward in the housing, the helical spring adapted to return the slidably mounted member to its initial position when released after being pulled down.

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REFERENCES CITED

The following references are of record in the file of this patent:

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