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W. C. MOELLER

2,594,335

HINGED STRUCTURE

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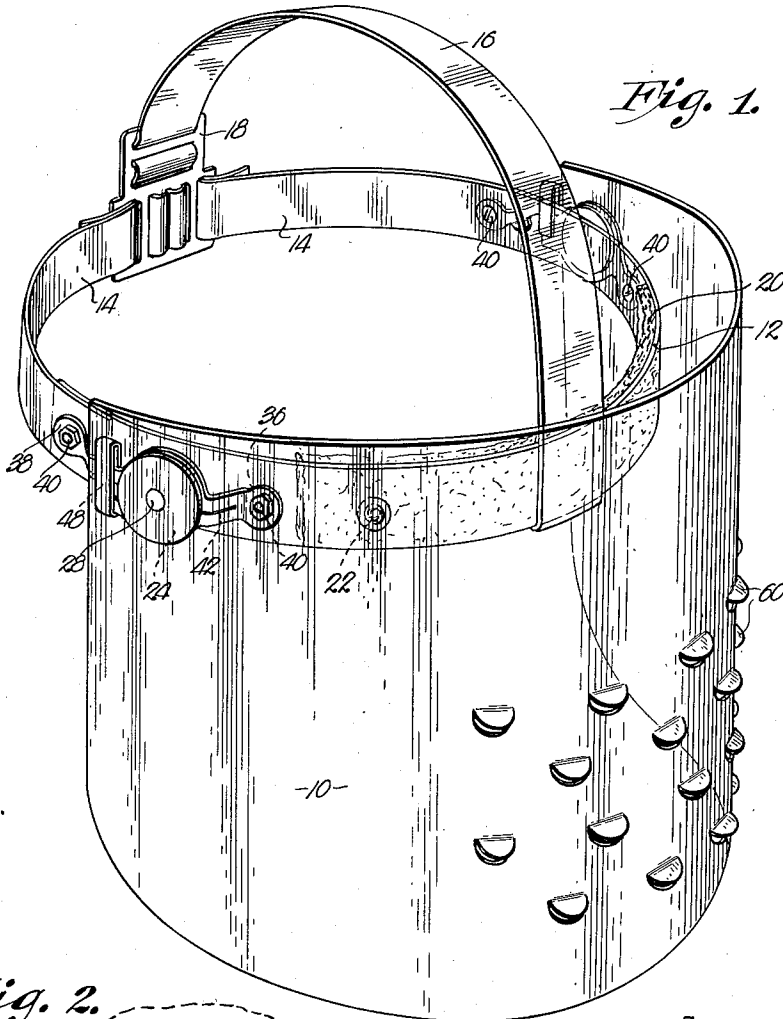


Fig. 1.

Fig. 2.

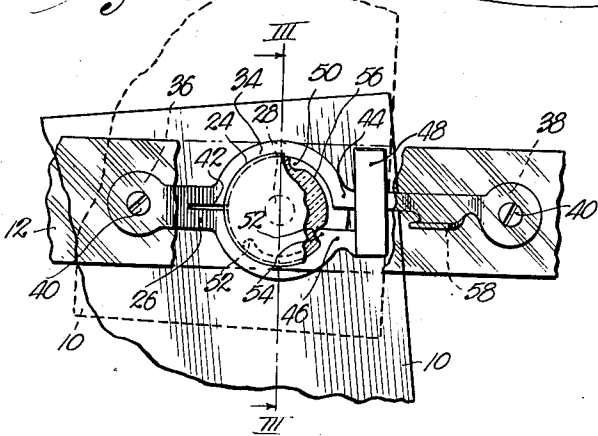
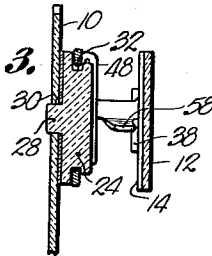


Fig. 3.



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2 Claims. (Cl. 16—142)

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This invention relates to safety devices of the general character adapted for wearing to protect the eyes and face of welders, and has for its primary aim to provide a face shield having unique and novel means for interconnecting the covering shield thereof to a head-engaging frame, formed to permit swinging movement of the shield to and from a position covering the face and yieldably holding the same at each end of its path of travel.

An important aim of this invention is to provide a welder's face shield having a pair of interconnecting elements for the head band and the face shield, which when assembled permit swinging the shield to and from a face covering position, each of which elements consist of a disc rigidly secured to the shield and a bracket mounted on the head band, the bracket being formed to present a yieldable, split ring circumscribing the disc and slidable in a groove formed therein, whereby the shield is easily swung to and from said positions as the ring rotates in the groove, and the entire assembly taken apart by simply exerting spreading pressure upon the ring portions of the brackets.

Another important aim of this invention is to provide in a welder's face shield having the aforesaid ring and disc connecting assembly, cavity and ear means in the groove and on the ring respectively for yieldably holding the shield either in a position covering the face of the wearer or in an inoperative position above his eyes when the shield is so swung.

Many additional minor objects, and particularly such as relate to the more purely structural details, will be made clear or become apparent as this specification progresses, referring to the accompanying drawings, wherein:

Figure 1 is a perspective view of a welder's face shield made in accordance with my present invention.

Fig. 2 is a detailed, fragmentary, inside elevational view of one of the mounting elements, parts being broken away for clearness of construction; and

Fig. 3 is a detailed cross-sectional view taken on line III—III of Fig. 2.

In the form of the invention chosen for illustration, the face covering comprises a shield 10 cut from sheet material in the nature of cellophane, plastic or the like which is transparent and capable of being arched as illustrated.

A head band, formed in much the same manner as head band for hats, comprises a front section 12 and a back section 14. Section 14 comprises

two strips, each having one end thereof overlapping one end of section 12 respectively, and formed from much the same material as shield 10, which material is capable of being fused upon itself upon application of heat thereto, and it is in this manner that sections 12 and 14 are interconnected at the point of overlapping as clearly seen in Fig. 1.

A supporting strap 16 has one end thereof looped over the section 12 substantially midway between its ends and fused in place, and the free ends of each of the strips forming section 14 as well as the free end of strap 16 are adjustably threaded in a number of slots formed in a holding appliance 18 of the kind well known in the art. Section 12 of the above described head-engaging frame, and the shield 10 are made from relatively rigid material capable of maintaining their arcuate shapes when assembled, yet adapted to be stretched to a flat condition for packaging and shipment. Section 14 and strap 16, however, are preferably formed from more flexible material to facilitate adjustment in appliance 18 and for greater comfort to the wearer.

A pad of absorptive material 20 is affixed to forward section 12 by a pair of rivets or the like 22 and when the device is worn by the welder, this pad 20 is brought against the brow of the wearer and precludes perspiration from running down into the eyes.

Since the holding means for securing the shield 10 to the section 12 comprises a pair of identical elements, diametrically disposed on the shield and head frame respectively, only one will be explained. These elements each comprise a substantially circular disc 24 mounted on shield 10 and a bracket 26 fixed to the section 14.

The disc 24 has a stub pin 28 integral therewith and projecting from one face thereof, which pin 28 passes through an opening 30 in the shield 10 and is fused in rigid securement thereto with the said one face of disc 24 resting flatly against the inner face of the shield 10. Disc 24 has a continuous, annular groove 32 formed in the edge thereof, and it is in this groove 32 that ring portion 34 of the bracket 26 is slidably mounted as the ring 34 partially circumscribes the disc 24.

Bracket 26 has a pair of opposed legs 36 and 38 extending from ring 34 and the free ends thereof are secured to the outer face of the section 12 through the medium of bolts or the like 40. The ring portion 34 is split as at 42 in leg 36, and also in diametrically opposed relation to slot 42 to form a pair of ends 44 and 46. End 44 of the ring 34 is actually a part of the leg 38, while end 46

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terminates in an upstanding U-shaped guide 43 that is looped over the leg 38 as shown in Fig. 1.

Thus it is clear that the bracket 26 is formed from a single sheet of material and when completely formed, ring 34, legs 36 and 38, and ends 44 and 46 form a unitary structure. A pair of cavities 50 and 52 formed in the disc 24 and in the bottom wall of the groove 32, receive an inwardly projecting ear 54 formed on the ring portion 34 of the bracket 26.

The bracket 26 is formed from resilient material, and in operation, as the shield 10 is moved from the position shown in Fig. 1, outwardly to an inverted position above the head of the wearer, the disc 24 will rotate on the ring 34 and cavity 52 will move from a position seating ear 54 to the inoperative position shown by dotted lines in Fig. 2, and cavity 50 will move to a position for receiving ears 54. This action is made possible through the inherent resiliency of the ring 34 and as cam face 56 of groove 32 between cavities 52 and 50 moves over ear 54, ends 44 and 46 will spread, and again snap together as the cavity 50 receives ear 54. These cavities 52 and 50 and the ear 54 are so disposed as to yieldably hold the shield 10 in the face covering position shown in Fig. 1 and in a completely inverted position, as shown by dotted lines in Fig. 2, extending upwardly from the back of the wearer's head, respectively. In other words, disc 24 turns within ring 34 as shield 10 is shifted, and bracket 26 remains on a substantially horizontal plane on the head of the wearer.

When it is desired to remove completely the shield 10 from the front section 12, the ends 44 and 46 are merely spread apart by exerting downward pressure on guide 48 to move end 46 in one direction, and upward pressure on a laterally extending tab 58 on the leg 36 to move end 44 in the opposite direction whereby the inside diameter of the ring 34 will be made large enough to be moved out of the groove 32.

A plurality of louvers 60 formed in the shield 10, by stamping openings in the shield and pressing the tab created thereby outwardly present inlets for air to the wearer when the device is worn in the face protecting position.

Manifestly various changes may be made in the form and arrangement of the parts of my welder's face shield without departing from the spirit of the invention or scope of the appended claims.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

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1. A hinge comprising a member having a continuous, annular groove formed therein; a split, resilient ring partially circumscribing said member and extending into said groove, said ring and said member being relatively rotatable, that part of said member forming the bottom wall of the groove having a number of cavities therein; and an ear on the ring, biased through the resiliency of the ring toward said bottom wall and selectively fittable into any one of said cavities when aligned therewith through relative rotation of the ring and the member, said ring having a pair of diametrically opposed elongated legs thereon adapted for attachment to an article to be pivotally connected with said member, said ring having a pair of spaced ends, one of said legs extending from one of said ends, the other leg being partially split longitudinally and radially outwardly from said ring.

2. A hinge comprising a member having a continuous, annular groove formed therein; a split, resilient ring partially circumscribing said member and extending into said groove, said ring and said member being relatively rotatable, that part of said member forming the bottom wall of the groove having a number of cavities therein; and an ear on the ring, biased through the resiliency of the ring toward said bottom wall and selectively fittable into any one of said cavities when aligned therewith through relative rotation of the ring and the member, said ring having a pair of diametrically opposed elongated legs thereon adapted for attachment to an article to be pivotally connected with said member, said ring having a pair of spaced ends, one of said legs extending from one of said ends, the other of said ends having means thereon, embracing said one leg for guiding the latter as said ends are moved toward end away from each other.

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