

Jan. 12, 1932.

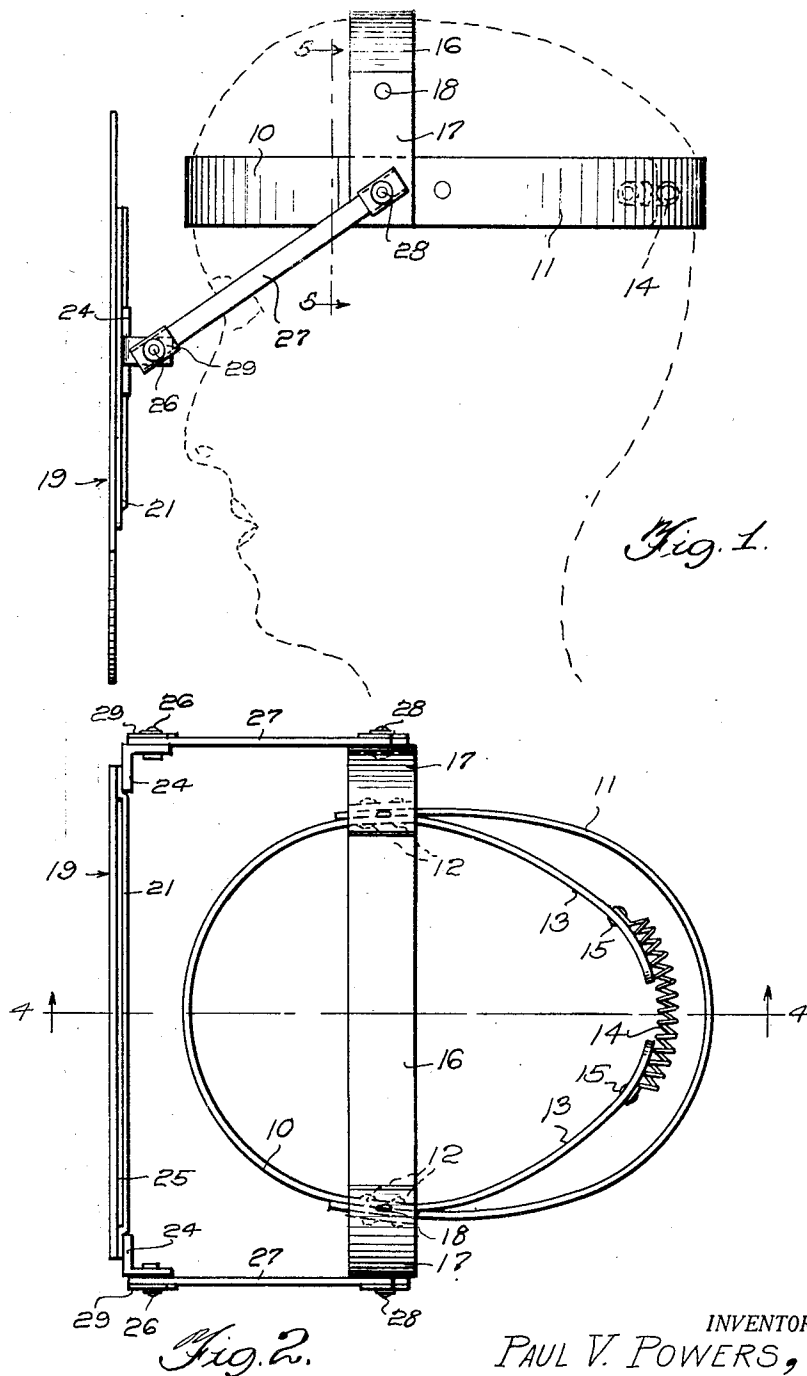
P. V. POWERS

1,841,054

SHIELD

Filed June 16, 1930

2 Sheets-Sheet 1



INVENTOR.
PAUL V. POWERS,
BY *B. M. Hehlman*
ATTORNEY.

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2 Sheets-Sheet 2

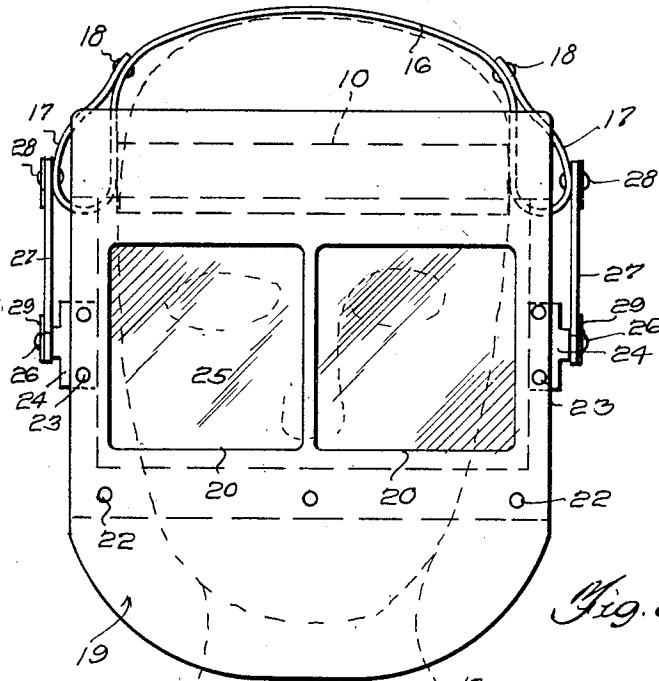


Fig. 3.

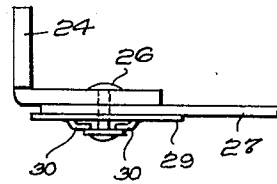


Fig. 6.

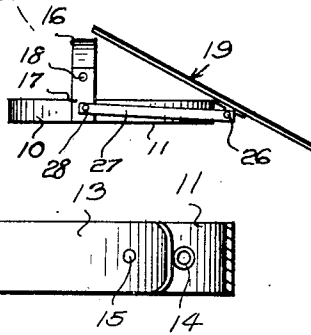


Fig. 7.

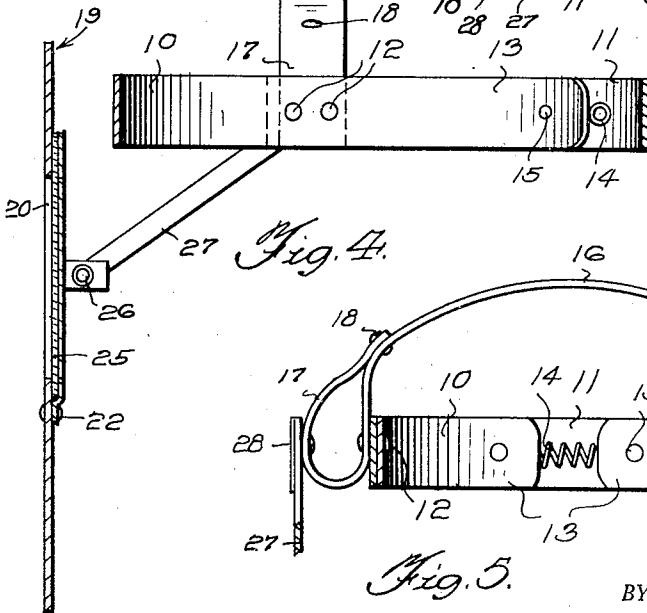


Fig. 4.

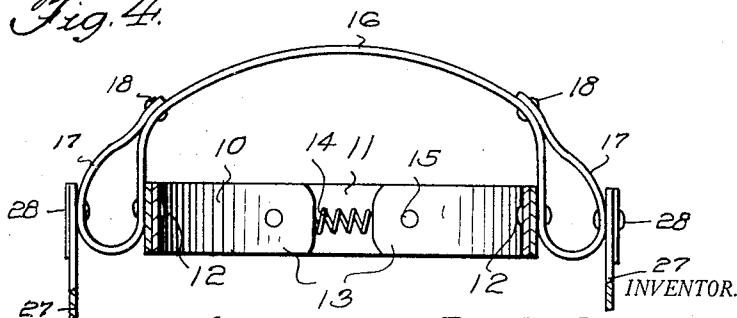


Fig. 5.

PAUL V. POWERS,
BY *B. M. McNamee*
ATTORNEY.

UNITED STATES PATENT OFFICE

PAUL V. POWERS, OF STEUBENVILLE, OHIO

SHIELD

Application filed June 16, 1930. Serial No. 461,579.

My invention relates to improvements in shields or guards to be worn upon the head, for protecting the face from the action of excessive heat, sparks, and flying solid particles or the like.

In accordance with my invention, I provide a head encircling frame, to be worn upon the head, and having self-adjusting means for properly securing the frame upon heads of different shapes and sizes, within limits. The shield element is carried by the head encircling frame and projects forwardly of the same to be arranged in advance of the face of the user. The connection between the shield element and the frame is such that the shield element may be folded rearwardly in a collapsed and substantially flat relation with respect to the frame. I have discovered that mica is practically a non-conductor of heat and is, of course, transparent. The shield element is equipped with relatively large window or windows, covering the major portion of the face of the wearer. These windows are much larger than would be required for eye openings and are made relatively large so that their mica covering will extend over the major portion of the face. This not only affords an unobstructed view, but provides the face with the maximum heat insulation, extending over the major portion of the face. The shield element with the window or windows and mica covering for the same is substantially flat. The arrangement is such that the mica covering may be readily applied to and removed from the shield element. The device is extremely simple, light, durable and cheap to manufacture. Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawings, forming a part of this specification, and in which like numerals are employed to designate like parts throughout the same,

Figure 1 is a side elevation of a guard device embodying my invention,

Figure 2 is a plan view of the same,

Figure 3 is a front elevation of the same,

Figure 4 is a longitudinal section taken on line 4—4 of Figure 2,

Figure 5 is a transverse section taken on line 5—5 of Figure 1,

Figure 6 is an enlarged plan view of a bracket and connecting arm, showing a frictional pivot joint between the same, and,

Figure 7 is a side elevation of the device, showing the shield element shifted to the rear position and collapsed or folded substantially flat upon the frame.

In the drawings, wherein for the purpose of illustration is shown a preferred embodiment of my invention, the head engaging member or frame embodies a forward generally U-shaped strip 10, which is arranged within and rigidly attached to a rear generally U-shaped strip 11 by means of rivets 12 or the like. The rear ends of the forward strip 10 project rearwardly beyond the rivets 12, in the form of extensions 13, which are flexible, and these extensions have their free ends connected with a retractile coil spring 14, attached thereto by rivets 15, or the like. It is thus seen that the U-shaped strips 10 and 11 constitute a band for encircling the head, while the extensions 13 and spring 14 constitute self-adjusting means for engagement with the head, so that the frame will properly fit heads of different shapes and sizes, within limits.

The numeral 16 designates an inverted U-shaped strip arranged above the horizontal loop or frame and having its ends bent upon themselves outwardly, affording loops 17, the free ends of which are attached to the strip 16 by rivets 18 or the like. The inner sides of these loops 17 are rigidly attached to the horizontal frame or loop by means of the rivets 12, as shown. The strip 16 is adapted to engage the top of the head, and thereby limit the downward movement of the frame upon the same.

The numeral 19 designates a shield or guard element as a whole, preferably in the form of a flat sheet or plate. This shield element is of a size to properly cover the face of the wearer. This shield element is provided with a pair of windows 20, which are

preferably relatively large, extending over the major portion of the face. At the rear of the shield element 19 is a pocket frame 21, having windows corresponding in shape and size to the windows 20. The lower end of the pocket frame is attached to the shield element 19 by rivets 22, spaced from the edges of the windows. The shield element and pocket frame are connected at their vertical edges by rivets 23, also passing through brackets 24, serving to rigidly attach all of these elements. The shield element and pocket frame afford a pocket at the rear of the shield element, which is substantially flat and the top of this pocket is open for receiving a strip of mica 25, which covers the windows. The arrangement is such that the sheet of mica is held firmly in place within the pocket and may be readily inserted in the pocket and removed therefrom. The entire shield element including the pocket is substantially flat.

The brackets 24 have pivotal connections 26 with supporting arms 27, the rear ends of which have pivotal connections 28 with the outer sides of the loops 17. Each pivotal connection 26 embodies a rivet or pivot element passing through openings in the parts connected and also through a spring washer 29 having resilient tongues 30. The purpose of the spring washer is to afford proper frictional engagement between the pivot element and connected parts, thereby providing a stiff joint so that the arms 27 and shield element will remain in the adjusted position when shifted thereto.

It is preferred to construct the head engaging frame, shield element, pocket frame, and supporting arms of fibre, due to its lightness, strength and resistance to heat.

In the use of the device, the frame is arranged upon the head which is inserted within the forward U-shaped strip 10 with the extension 13 thereof drawn into firm engagement with the head, due to the action of the spring 14. The strip 16 prevents downward displacement of the frame upon the head. The arms 27 may now be swung downwardly to a selected position to bring the shield element 19 in front of the face and this shield element may be properly angularly adjusted upon the arms as required. The mica covered windows are now disposed in front of the face, affording an unobstructed vision and the area of the windows is relatively large and covers the major portion of the face, affording the maximum protection against the action of heat. When desired, the shield element may be shifted rearwardly so that it assumes a generally flat position, contacting with the rear end of the head encircling frame and the strip 16. The device is extremely light, and comfortable in use and has a large range of adjustments as may be required by the user.

It is to be understood that the form of my

invention, herewith shown and described, is to be taken as a preferred example of the same, and that various changes in the shape, size and arrangement of parts may be resorted to, without departing from the spirit of my invention, or the scope of the subjoined claim.

Having thus described my invention, I claim:—

A face heat resisting shield, comprising a horizontal head encircling frame including a rearwardly facing forward U-shaped fibre strip, a rear forwardly facing U-shaped fibre strip, means rigidly attaching the forward ends of the rear U-shaped strip with the forward U-shaped strip at a point considerably nearer the forward end of the horizontal frame than its rear end, the ends of the forward strip extending rearwardly beyond the points of connection for a substantial distance, a retractile coil spring attached to the free ends of the forward strip to draw them together, a vertical inverted U-shaped fibre strip secured to the horizontal section by the same attaching means and hence arranged nearer the forward end of the horizontal frame, the ends of the inverted U-shaped strip being bent outwardly to form loops with the free ends of the loops attached to the inverted U-shaped strip, the outer sides of the loops being spaced a substantial distance from the horizontal frame, a flat fibre face plate having large eye-opening means extending over the major portion of the face, fibre arms hinged to the vertical edges of the face plate and hinged to the outer sides of the loops so that they are retained substantially parallel, the arms being longer than the height of the vertical inverted U-shaped strip so that the face plate can be swung back over the inverted U-shaped strip and rested upon the same and the rear end of the horizontal frame, said arms being then generally parallel with the horizontal frame so that the collapsed device is generally flat, and a flat mica sheet held upon the face plate to cover the eye-opening means.

In testimony whereof I affix my signature.

PAUL V. POWERS.