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2,266,967

PROTECTIVE SHIELD

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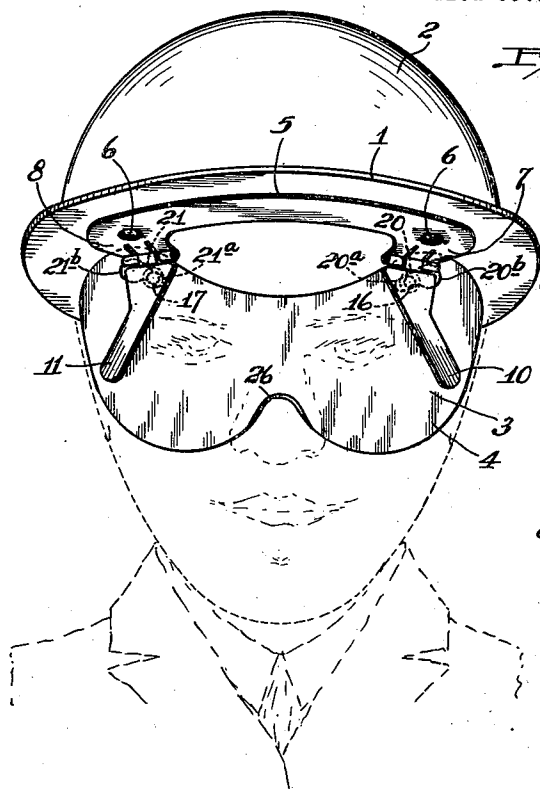


Fig. 1.

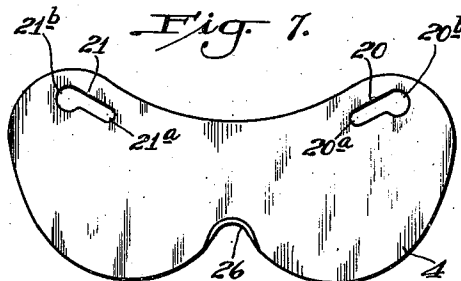


Fig. 7.

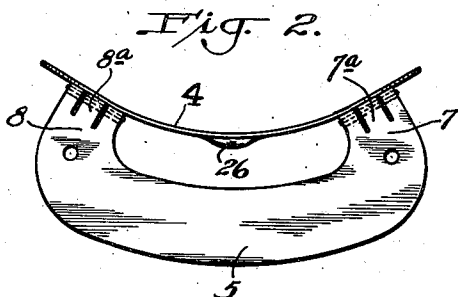


Fig. 2.

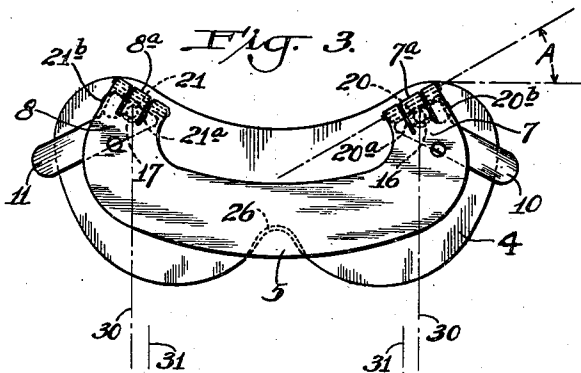


Fig. 3.

Fig. 4.

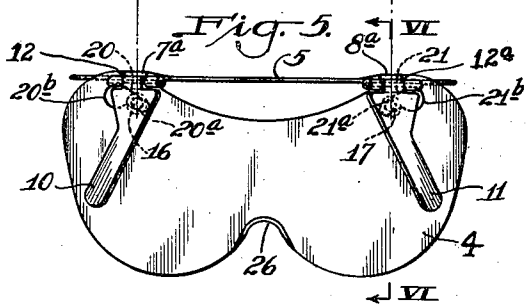
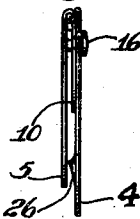
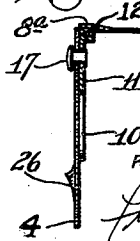


Fig. 5.

Fig. 6.



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PROTECTIVE SHIELD

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8 Claims. (Cl. 2—10)

This invention relates to an improvement in a protective shield and more particularly to a face shield which may be mounted onto the frontal brim of a headgear and disposed at will either in a protective position close to the wearer or in a position in which the shield is completely removed to the underside of the brim.

It is among the objects of this invention to provide a face shield which is inexpensive, which is adaptable to be readily mounted onto a headgear, which is operable to be placed in a position of non-use and unobstruction to a position close to the wearer to afford maximum lateral protection and which can be conveniently and readily moved from one position to another without requiring assistance or removal of the headgear.

A preferred embodiment of my invention is hereinafter described and is illustrated in the drawing in which:

Fig. 1 is a front face view of the embodiment and illustrates the shield in a protective position;

Fig. 2 is a top plan view of the embodiment unmounted and in the position illustrated in Fig. 1;

Fig. 3 is a view of the unmounted embodiment in a folded position or the position when the shield is placed in an unprotective position;

Fig. 4 is an end view thereof;

Fig. 5 is a rear view of the embodiment and its position illustrated in Fig. 1;

Fig. 6 is a sectional view taken along the line VI—VI of Fig. 5; and

Fig. 7 is a front elevational view of the protective shield.

While this invention is described in connection with providing a face-shield, it is to be understood that this term is to be construed broadly and is to include any shield that affords protection to any portion of the face such as eyes and such same construction is to be made when constructing the breadth of the appended claims.

The type of shield contemplated is mounted onto a brim 1 of a headgear 2, which in this instance is illustrated as a protective cap such as a reinforced plastic cap. Should it be desired to apply the shield to a hat not having a rigid brim, it would be necessary to add some means of reinforcement to the brim itself in order to maintain the support of the shield in an outwardly directed or horizontal position.

The shield 3 includes the protective means or face shield 4 and its support 5 which may be of metal or suitable material having sufficient rigidity and attachable to the underside of the brim 1. The support 5 is attached to the brim by means of rivets 6 which pass through the material of

the support and engage the brim. This support is composed of two spaced rearward portions 7 and 8 integral with the main or frontal portion of the support. Connected at the extremities of these rearward portions are hinged members 10 and 11, respectively, onto which is demountably attached a transparent flexible protective shield 4. This protective shield can be made of any of the plastic materials such as the cellulose derivative materials or the phenolic resin materials or any other material that is sufficiently flexible and is suitably transparent for visibility.

A feature of this invention is that the protective shield 4 when mounted on to these hinged members 10 and 11 can be moved from an unprotective or unobstructive position such as illustrated specifically in Fig. 3 and which is referred to as a folded position in which the shield extends outwardly similarly to the support 5 to a protective or downward position and so that the shield is finally disposed closely to the wearer to afford maximum protection. This spacing is closer than can be accomplished if the face shield were fixed and the headgear and shield slid down onto the head of the wearer. This function is accomplished principally by supporting the hinged members onto the ends of the rearward spaced portions of the support which are forwardly inwardly directed. This mounting is illustrated specifically in Fig. 3 and the extent of inward movement is illustrated by the angle A which is the extent of inward disposition relative to a line transverse to the longitudinal direction of the support of the shield. By so arranging the ends of these spaced portions, the engageable means attached to each of the hinged members, which in this instance, is illustrated as pins 16 and 17 having enlarged heads and attached to hinged members 10 and 11, respectively, are moved inwardly or in the direction of each other when the shield is moved from an unprotective or outwardly extending position to a downward or protective position. By this inward movement and the engagement of the pins with the shield, the central portion of the shield about the nose is bulged outwardly and conforms somewhat to the general contour of the face. This extent of bulge will depend upon the amount of free movement allowed in moving the pins 16 and 17 toward each other before engaging the inner extent 20a and 21a of apertures 20 and 21, respectively, provided in the shield and through which the pins pass. Figs. 3 and 5 illustrate this inward movement by the vertical lines 30 and 31 which indicate this amount of inward movement when

the shield is moved from a horizontal or unobstructive position to a downward or protective position.

For the purpose of convenience, in mounting the shield the outer extents 20b and 21b of these apertures 20 and 21, respectively, are enlarged to accommodate the enlarged heads of the pins and through which they can pass readily and for the purpose of holding the shield when the shield is in a flat unobstructive position, such as illustrated in Fig. 3, it is advisable to space the larger portions of the apertures greater than the spacing of the pins when the hinge portions are in a similar position so that the shield must be bulged slightly in order to insert the heads of the pins through the apertures so that when normally positioned the pins extend somewhat into the narrow portion of the apertures as illustrated.

The extent of bulge formed when the shield is moved to a downward protective position will depend also upon the amount of inward disposition of the ends of the rearward portions 7 and 8 of the support 5, that is, the angle A. The greater this inward disposition the more the shield will be bulged outwardly assuming that the same length of apertures is provided in each instance.

In all applications of the invention, the angular disposition of the hinge members provides a movement which can be utilized in obtaining a bulging action of the shield to conform to the face. The angular disposition produces a transverse movement of the movable portion of each hinge member towards the other. The members are appropriately attached to the shield and this transverse movement and consequent pressure is conveyed to the shield resulting in a bulge of the central portion. It is not intended that this invention be limited to the construction wherein the attaching means abuts a surface of the shield. It is recognized that any arrangement of assembly can be used wherein some pressure is exerted against the shield, such as by the hinge members being held in engagement with the shield during movement so that the hinge members press against the shield and produce a bulge.

A shield of the nature represented in the drawing is improved by shaping the nose engaging portion 26 so that it extends slightly outwardly and the surface engaging the nose is rounded or curved. This provides some comfort and also secures the lower extent of the shield when placed in a protective position.

Another advantage of this shield is the fact that it can be readily and conveniently moved from one position to another and without requiring any assistance or removal of the headgear. Also, by this close disposition of the shield when placed in protective position, it is effective in affording the maximum of protection the face or eyes such as may be accomplished in the use of goggles which fit closely to the face of the wearer. In order to position the shield in either of the two positions, a further feature is provided and consists of a means operative on the hinge to place a slight resistance to movement beyond the desired positions. This is illustrated in Figs. 2, 5 and 6. The central portions 7a and 8a of rearward portions 7 and 8, respectively, are separated from the portions forming the hinge and they are disposed in engagement with the outer surface of engaged ends 12 and 12a of the hinged portions 10 and 11, respectively, cooperating to form the hinge connection. By making their outer surface of angular cross sec-

tion, Fig. 6, the tension exerted on a flat surface of the engaged ends and against further turning by the extending portions 7a and 8a is sufficient to produce a locking or positioning effect of the shield. This function is very useful in the use of the shield because the face shield should be held in place when properly positioned by the wearer.

The support 5 while being illustrated as a single element having integral spaced rearward portions 7 and 8 can be made of separate pieces which are each attached to a brim or headgear support in spaced relation. Also, for the purpose of improving vision, the hinged members can be made of some suitable transparent material such as the cellulose or phenol plastic material.

I have explained the principle and mode of operation of my invention, and have illustrated what I now consider to represent its best embodiment. However, I desire to have it understood that, within the scope of the appended claims, the invention may be practiced otherwise than as specifically illustrated and described.

I claim:

1. A protective shield comprising a support, a flexible transparent shield, a pair of hinged members spaced laterally and positioned rearwardly of the support and each having a shield engaging means, the members being mounted onto the support so that movement of both members from a forwardly directed unprotective position to a downward protective position moves each shield engaging means laterally toward each other, and the shield being attached to each of the engageable means of the members whereby movement of the members from the forwardly directed unprotective position to a downward position produces a bulge in the central portion of the shield resembling the contour of the face.

2. A face shield comprising a support, a flexible transparent protective shield, the support having rearwardly extending portions spaced laterally of the support, a hinged member attached to the spaced members of the support, each of the hinged portions having a shield engageable means, the mounting of the hinged portion to the support being such that movement of the hinged portions from a normally forwardly directed unprotective position to a downwardly directed protective position causes the engageable means of each of the portions to be brought closer together laterally, the shield being attached to the engageable portion of each of the hinged portions so that the shield is substantially flat in a forwardly directed position and is bulged in its central portion and to the extent that it resembles the contour of the face when moved to a downward protective position.

3. A face shield comprising a support, a flat flexible transparent protective shield, the support having rearward portions spaced laterally of the support and terminating in converging biased ends, a shield mounting portion hinged to each of the biased ends arranged to move from a forwardly directed unprotective position to a downwardly directed protective position and carrying a shield engageable means, the transparent shield being attached to the engageable means of each of the mounting portions and arranged to be in a flat position when the mounting members are in an unprotective position relative to the support and being bulged in its central portion when the members are moved to a protective position so that the central portion resembles the contour of the face.

4. A face shield comprising a support, a flat flexible transparent protective shield, the support having rearward portions spaced laterally thereof to position the rearward edge of the support close to the wearer and each of the portions terminating in a biased end forwardly and inwardly directed, a shield mounting member hinged to each of the ends and having a fixed shield engageable means attached thereto, said members being movable from a horizontal unprotective position to a vertical protective position, the flat face shield having spaced openings to receive the engageable means of the members when placed in the horizontal position so that the shield has its normally flat shape and by engagement with the engageable means to produce a bulged central portion by moving the members to a vertical protective position whereby the shield in a protective position is positioned in close spaced relation to the wearer.

5. A face shield comprising a support, a flat flexible transparent shield, the support having laterally spaced rearward portions to position the rearward edge of the support close to the wearer and each of the portions terminating in biased ends inwardly and forwardly directed, a shield mounting member hinged to each of the ends and being movable from a horizontal and forwardly directed unprotective position to a vertical position extending downwardly of the support, the transparent shield having spaced openings to receive the engageable means of each portion when disposed in the horizontal position, the inward edges of each of the openings engaging the engageable means by movement of the members to a vertical protective position whereby the central portion of the shield is bulged and is disposed in close spaced relation to the wearer.

6. A protective shield comprising a support, a flat flexible transparent shield, the support having rearwardly spaced lateral portions and terminating in biased ends inwardly and forwardly directed, a shield mounting member hinged to each of the ends and being movable from a horizontal forwardly extending unprotective position to a vertical protective position extending downwardly of the support, a means integral with the spaced means of the support and resiliently engaging the hinged mounting of each of the members, the hinged mounting of each member having a flat surface disposed in engaging relation to the integral means of the support to position the shield mounting members in a predetermined downward unprotective position, the transparent shield having spaced openings to receive the engageable means of each member when disposed in a horizontal position, the openings terminating inwardly of the shield so that the portion of the shield between the openings is bulged by movement of the members to a vertical protective position whereby the shield can be disposed in close spaced relation to the wearer.

7. A protective shield comprising a support, a flat transparent shield, the support having rearward portions spaced laterally of the support and with the end of each biased and extending inwardly and forwardly of the support, a shield engageable member hinged to each of the ends and disposed in a forwardly converging direction inwardly of the support and movable from a forwardly directed horizontal position to a vertical protective position, means operative to position the members in a vertical protective position, each of the members carrying a fixed shield engageable means, the transparent shield having an opening in each of its upper lateral portions with the outward portion of each opening being enlarged to receive the engageable means of each member and with the inward portion of each opening being narrower in width so that the engageable means of the members become attached to the members, the spacing of the inward extent of each opening being greater than the spacing of the engageable means when the members are disposed in a vertical protective position which causes the central portion of the shield to be bulged outwardly by the engageable means engaging the inward end of the openings of the shield whereby the shield conforms to the head of the wearer and may be disposed in close relation thereto.

8. A face protective shield comprising a flat metal strip attachable to the brim of a head gear, a normally flat flexible transparent shield, the support having rearward portions spaced laterally of the support and with the ends extending forwardly inwardly of the support at a predetermined rate of convergence, a shield engageable member hinged to each of the ends so that the members are disposed in a converging direction forwardly and inwardly of the flat metal strip, means integral of the flat strip and operative to position the members in a downwardly protective position, each of the members carrying a fixed shield engageable means, the transparent shield having an opening in each of its upper lateral portions with the outward portion of each opening being enlarged to receive in a flat position the engageable means of each member when disposed in a horizontal position and with the inward portion being smaller in width so that the engageable means of the members become attached to the mounting members, the spaced inward extent of the openings being greater than the spacing of the engageable means of the members when disposed in a vertical position to produce a bulged central portion of the shield by movement of the members from a horizontal position to a vertical protective position by the engagement of the engageable means and the surfaces of the shield defining the opening.

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