

Jan. 12, 1971

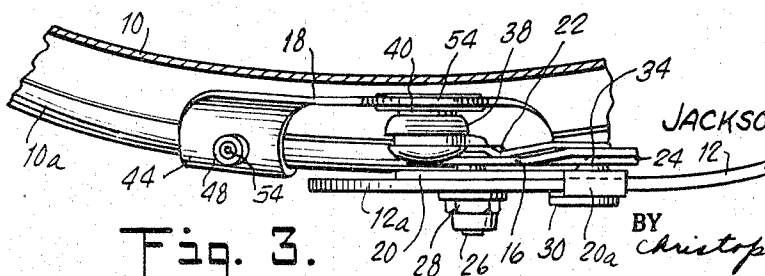
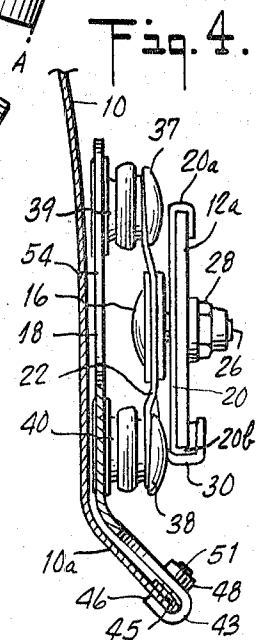
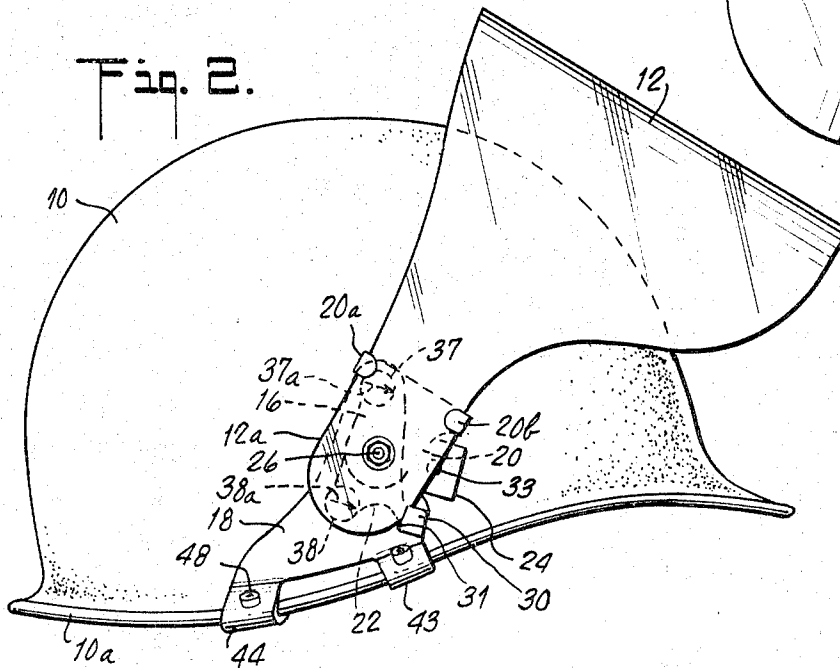
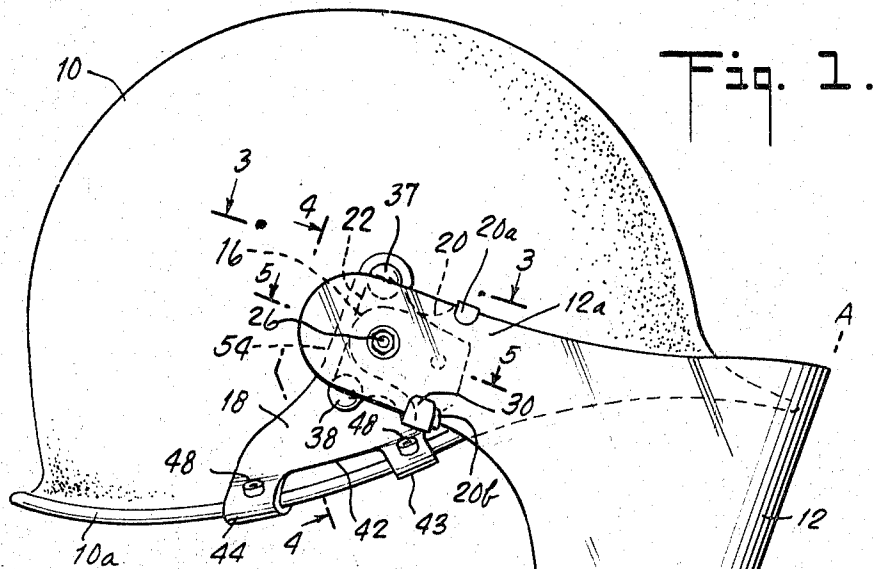
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3,553,734

RETRACTABLE EYE SHIELD FOR PROTECTIVE HELMET

Filed June 5, 1969

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

Fig. 5.

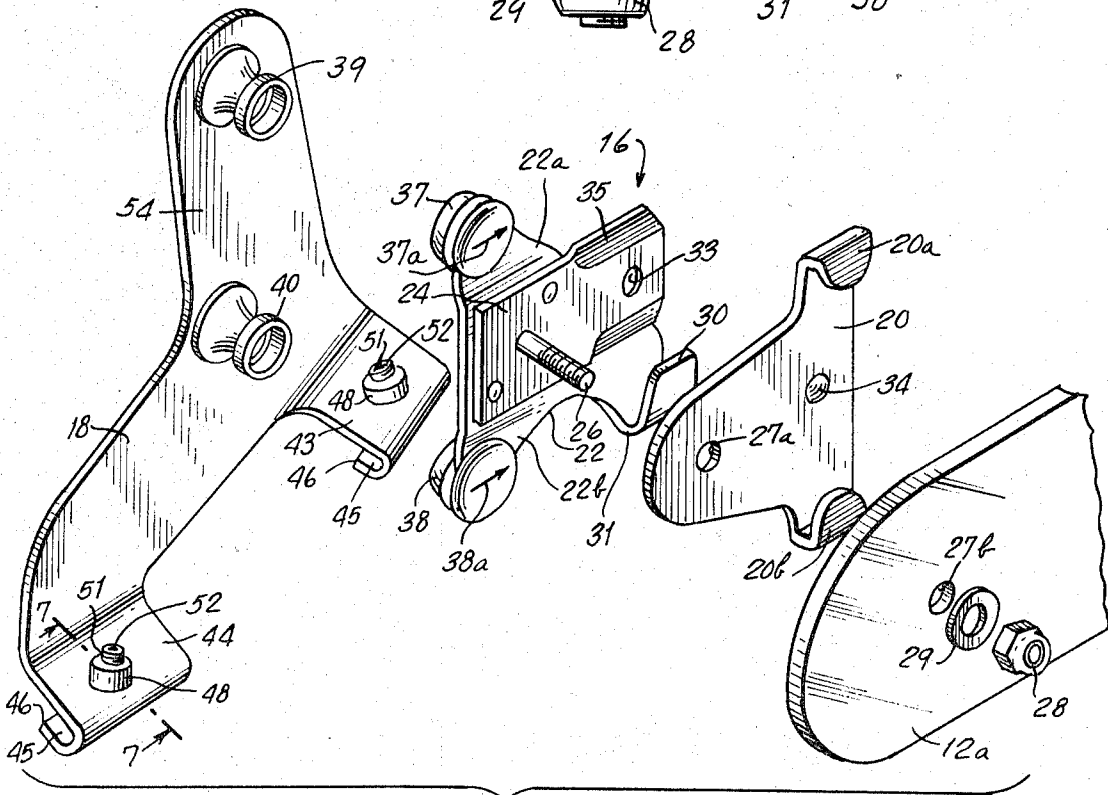
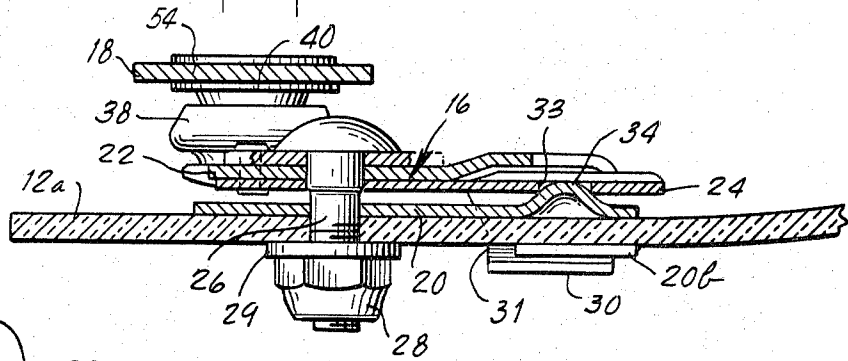


Fig. 8.

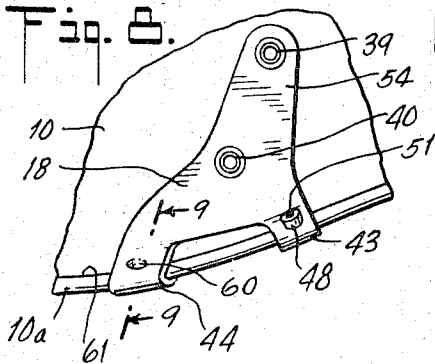


Fig. 6.

Fig. 9.

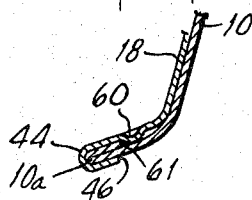
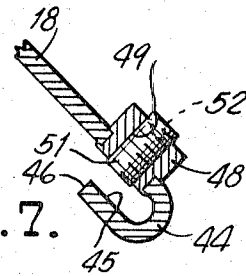


Fig. 7.



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3,553,734

RETRACTABLE EYE SHIELD FOR PROTECTIVE HELMET

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7 Claims

ABSTRACT OF THE DISCLOSURE

A rigid protective helmet having an eye shield with rearward extensions projecting on each side of the helmet and mounted on pivot mechanisms arranged to enable pivotal movement of the eye shield about a horizontal axis between a shielding position in front of the wearer's eyes and a retracted position above the eyes, wherein each of the pivot mechanisms is fastened to a bracket plate detachably secured to the helmet shell. Each bracket plate includes a channel portion which extends along the rim of a side portion of the helmet and defines a channel for receiving the rim, and an upstanding portion projecting above the channel portion and bearing means for fastening one of the pivot mechanisms to the bracket plate. Each bracket plate also carries one or more set screws, spaced horizontally along the rim of the helmet, and projecting inwardly through threaded sockets in the bracket plate to bear against the helmet rim and thereby to hold the bracket plate clamped in position on the helmet.

BACKGROUND OF THE INVENTION

This invention relates to protective helmets having retractable eye shields, and in particular to a new and improved detachable eye shield structure for mounting on a helmet.

Protective helmets of the type comprising a rigid shell supported on the wearer's head by an internal rigging are frequently provided with a transparent eye shield for protecting the wearer's eyes. The shield may be movable from its eye-shielding position in front of the eyes to a retracted position above the forward portion of the helmet, both to enable unimpeded vision in the absence of hazards and to facilitate removal of the helmet from the head. Thus the shield may have side portions projecting rearwardly along the opposite sides of the helmet and pivotally secured thereto so as to enable pivotal movement of the shield about a horizontal axis between its shielding and retracted positions.

In applicant's copending U.S. Pat. No. 3,491,372, dated Jan. 27, 1970, for Head Gear with Retractable Eye Shield, there is disclosed a pivotally retractable eye shield structure wherein each rearwardly projecting side portion of the eye shield is pivoted on a fixture that is secured by a pair of snap-fasteners to the adjacent side portion of the helmet shell, each of these fasteners comprising one (female or male) member carried by the shell and a cooperating (male or female) member carried by the fixture. The two fasteners on each side of the helmet are so aligned that a line connecting them points essentially toward the crown of the helmet. Each of the fixtures bears a detent projection disposed to engage the edges of the adjacent eye shield side portion when the eye shield is moved either to the shielding position or to the retracted position, thereby to stabilize the shield at each of these positions and to permit pivotal movement of the shield only between these positions.

The described arrangement of the pair of snap fasteners connecting each pivot fixture to the helmet shell is such as to enable ready manual disengagement of the eye

shield from the helmet (i.e. by separation of the male and female snap fastener members) when the eye shield is in retracted position, but to inhibit disengagement of the shield from the helmet when the shield is in shielding position. So-called unidirectional snap fasteners may be employed, openable or separable from one side only, and so oriented on the helmet that a separating force acting in the required direction to separate the fastener members may be effectively exerted on the fasteners only when the shield is in retracted position, to reduce further the possibility of disengagement of the shield from the helmet except when the shield is retracted. Thus the eye shield may be readily manually disengaged from the helmet upon movement of the shield to retracted position, to enable use of the helmet unencumbered by the shield in circumstances presenting no hazard to the eyes; yet when the shield is needed, it may readily be secured to the helmet, and as long as it is in eye-shielding position it is effectively invulnerable to accidental dislodgement from the helmet by blows or impacts.

Heretofore, attachment of a pivoted eye shield to a helmet shell has commonly required drilling of more or less precisely positioned holes through the shell to receive the connecting members, or welding of such members to the shell, or other operations involving structural modification of the shell. Not only may these drilling or other operations effect localized weakening of the shell, but in addition they are inconvenient, difficult, and time-consuming, and necessitate employment of tools that may not be readily accessible. Many types of commercially available helmets, e.g. having plastic, steel or like shells, such as those used as riot helmets by police and military personnel, are ordinarily manufactured and sold without eye shields, and it would be desirable for particular uses to equip such helmets with retractable eye shields; by way of illustration, it would in many cases be desirable for police or other public-safety forces to equip with eye shields existing supplies of these helmets. Thus it would be particularly desirable to provide an eye shield structure that could be securely mounted on a conventional helmet by simple manual operations, easily and rapidly performable by personnel unskilled in the use of tools, and requiring no drilling through or other structural modification of the helmet shell. In this way, conventional helmets on hand could be readily and economically equipped with eye shields.

One example of a helmet for which such a structure would be especially advantageous is the conventional military helmet having a steel shell with a flared rim. It would be very desirable to be able to adapt such a helmet for use under conditions requiring an eye shield, for example by mounting thereon a pivoted eye shield of the type described in the aforementioned copending application (having snap fasteners arranged to permit manual disengagement of the eye shield but only when the shield is retracted), without having to drill holes through the steel walls to receive the snap-fastener members.

SUMMARY OF THE INVENTION

The present invention broadly contemplates the provision of an eye shield structure for use with a rigid helmet which has a crown portion and a pair of opposed side portions each having a generally horizontal rim, the eye shield structure being of the type including an eye shield having a central portion adapted to extend laterally in front of the face of a wearer in eye shielding position and a pair of lateral tab portions extending rearwardly from the central portion on opposite sides thereof; and a pair of pivot mechanisms for mounting the eye shield for pivotal movement about an axis extending through the tab portions, the pivot mechanisms being respectively adapted to be disposed adjacent to the outer surfaces of

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the helmet side portions and each including a fixture member pivotally connected to one of the eye shield tab portions. In the structure of the invention, the improvement comprises the provision of a pair of bracket plates respectively connected to the fixture members of the pivot mechanisms, each of the bracket plates including a channel portion which extends along the rim of one helmet side portion and defines a channel for receiving the rim, and an upstanding portion projecting above the channel portion and bearing means for fastening one of the fixture members to the bracket plates; and means carried by the channel portion of each bracket plate for engaging the rim of the helmet side portion (preferably, at least at two spaced localities of the rim received within the channel of the channel portion) to clamp the rim and channel portion and thereby to hold the bracket plate fixed on the helmet, the rim-engaging means being adjustable to permit release of the rim from the channel.

The rim-engaging means carried by each of the bracket plates may comprise at least one set screw threaded in a socket in the channel portion of the bracket plate and projecting inwardly through the bracket plate so as to bear against the helmet rim portion contained within the channel. In one embodiment of the invention, each bracket plate carries two such set screws, threaded in horizontally spaced sockets in its channel portion. Loosening of the screws releases the bracket plate for removal from the helmet, while tightening of the screws secures the bracket plate fixedly to the helmet. The screws may have socketed heads for receiving a simple tool such as an Allen wrench to enable tightening or loosening of the screws.

The upstanding portion of each bracket plate may be of substantial vertical extent and may bear a pair of vertically spaced female or male snap fastener members, so disposed that when the bracket plate is in position on the helmet shell a line connecting the members extends substantially toward the crown of the helmet, and adapted to engage a similarly disposed pair of cooperating (male or female) snap fastener members carried by the fixture member of the pivot mechanism associated with the bracket plate.

In this way there is provided, for mounting on a steel or other helmet, an eye shield of the type described in the aforementioned copending application, wherein the fastener members connected to the helmet shell are carried by the bracket plates rather than being directly secured to the helmet shell. The bracket plates may very easily be fixedly secured to or removed from the helmet shell by adjustment of the set screws, and hence the eye shield structure may be mounted on the helmet in a facile and convenient manner without drilling holes through or otherwise structurally modifying the helmet.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side elevational view of a protective helmet having mounted thereon an eye shield structure embodying the present invention in a particular form, with the shield disposed in its eye shielding position;

FIG. 2 is a view similar to FIG. 1 but showing the shield in its retracted position;

FIG. 3 is an enlarged fragmentary plan view taken along the line 3—3 of FIG. 1 and showing the pivot mechanism and bracket plate connected to one side of the eye shield;

FIG. 4 is an enlarged fragmentary rear elevational view taken along the line 4—4 of FIG. 1, again showing the pivot mechanism and bracket plate of FIG. 3;

FIG. 5 is an enlarged fragmentary sectional view of the same pivot mechanism and bracket plate, taken along the line 5—5 of FIG. 1;

FIG. 6 is an exploded perspective view of the same pivot mechanism and bracket plate;

FIG. 7 is an enlarged fragmentary sectional view, taken along the line 7—7 of FIG. 6, illustrating one set screw

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and the adjacent channel portion of the bracket plate shown in FIG. 6;

FIG. 8 is a fragmentary elevational view of another embodiment of the invention; and

FIG. 9 is a sectional view taken along the line 9—9 of FIG. 8.

DETAILED DESCRIPTION

Referring to the drawings, there is shown a conventional military helmet comprising a rigid shell 10, e.g. fabricated of steel or the like, shaped and dimensioned to cover the head of a wearer, this shell having a crown portion and opposed side portions depending therefrom, with an outwardly flared rim 10a extending entirely around the periphery of the shell. This shell is adapted to be supported on the wearer's head, in spaced relation thereto, by means of a conventional internal rigging (not shown) suitably secured to the helmet. As thus supported, the shell 10 protects the wearer's head against blows or impacts.

Mounted on the helmet shell is an eye shield structure including a substantially rigid eye shield 12, fabricated of a suitable infrangible transparent plastic or the like, which has a curved central portion adapted to extend across at least the upper portion of the wearer's face in eye-shielding position, and two tab-shaped portions 12a (one being shown in the drawings) respectively projecting rearwardly from the central portion of the eye shield on opposite sides thereof, the rearward extremities of these tab portions 12a being respectively disposed in spaced adjacent relation to the outer surfaces of the depending side portions of the helmet shell 10. The longitudinal axes of the tab portions are perpendicular to the plane tangent to the front of the eye shield, such plane being represented by line A—A in FIG. 1.

Each of the tab portions is pivotally mounted on a pivot mechanism 16, which is fastened to a bracket plate 18 secured to the adjacent side portion of the helmet shell; in other words, there are a pair of bracket plates 18 respectively secured to the opposite side portions of the helmet shell, and a pair of pivot mechanisms 16 respectively fastened to the two bracket plates and pivotally connected to the two eye shield tab portions 12a. The pivotal connection of the pivot mechanisms to the eye shield tab portions is such as to permit pivotal movement of the eye shield 12, about a horizontal axis extending through the tab portions, between the eye shielding position shown in FIG. 1, in which the shield is disposed forwardly of the wearer's eyes and face (extending below the front rim of the helmet shell), and the retracted position shown in FIG. 2, in which the shield is disposed above the forward portion of the shell 10, out of the way of the wearer's eyes and face. The details of structure of one of the pivot mechanisms 16 and its associated bracket plate 18 are shown in FIGS. 3—7, and it will be understood that the other pivot mechanism and bracket plate (positioned on the opposite side of the shell, and not shown) are identical thereto.

The illustrated pivot mechanism 16 includes a first plate 20, disposed in contiguous facing relation to the inner surface of the adjacent eye shield tab portion 12a, and having outwardly projecting upper and lower channel tabs 20a and 20b which respectively engage the upper and lower edges of the tab portion 12a to hold the plate 20 fixed in relation to the tab portion. The pivot mechanism also includes a second plate 22, disposed inwardly of and in generally parallel relation to plate 20, and fastened (as hereinafter further explained) to the bracket plate 18 so as to be held by the bracket plate against rotation relative to the helmet shell 10. Fixedly secured as by rivets to the outer surface of plate 22 is a generally rectangular pivot plate 24 having vertical major surfaces, the outer surface of plate 24 facing the inner surface of plate 20. The plates 22 and 24 together constitute the fixture member of the pivot mechanism.

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A pivot pin 26, threaded at its outer end, is fixedly mounted on plate 24 and projects horizontally outward therefrom through coincident apertures 27a and 27b in the plate 20 and the eye shield tab portion 12a. To hold the plate 20 and tab portion 12a on the pin 26 while permitting them to move pivotally about the pin, a nut 28 is threaded on the outer end of the pin 26 (outwardly of tab portion 12a) and spaced from the outer surface of the tab portion by a washer 29 fitted over the pin. The tab portion 12a with its associated plate 20 is thus pivotable about pin 26 relative to the fixture member comprising plates 22 and 24.

The plate 22 includes a portion 30 disposed forwardly of the pin 26, and extending downwardly and thence outwardly to define an upwardly opening channel shaped and positioned to receive the lower edge of the eye shield tab portion 12a when the eye shield is pivoted forwardly and downwardly into the shielding position shown in FIG. 1. The engagement of the tab portion edge with the portion 30 of plate 22 arrests the tab portion to prevent further downward and forward pivotal movement of the eye shield, i.e. beyond the shielding position; thus portion 30 of plate 22 constitutes a stop or detent, supporting the eye shield in its shielding position. When the shield is pivoted upwardly into its retracted position, the lower edge of tab portion 12a is brought into engagement with the rear edge 31 of the portion 30 of plate 22, and is arrested thereby to prevent further upward and rearward pivotal movement of the eye shield beyond the retracted position. Consequently, the portion 30 of plate 22 also serves as a stop or detent restricting upward or rearward movement of the eye shield.

Forwardly of the location of pivot pin 26, plate 24 has an aperture 33 opening toward the plate 20 and disposed about midway between the upper and lower edges of plate 24. The plate 20 in its forward portion bears an inwardly projecting dimple 34 so disposed as to be received in aperture 33 when the eye shield 12 is in its shielding position. The spacing between plates 20 and 24 (determined by the position of nut 28 on pin 26) is less than the inward extent of the projection of dimple 34, so that the insertion of the dimple in the aperture 33 holds the eye shield against accidental displacement out of its shielding position. In other words, the dimple 34 and the apertured portion of plate 24 cooperate to act as a secondary detent means for maintaining the eye shield in its shielding position. When the shield is moved toward or away from shielding position, the dimple 34 slides across the flat vertical surface of plate 24 above the aperture 33, and the upper portion of that surface is slanted inwardly as shown at 35 to facilitate downward movement of the dimple past the upper edge of plate 24 when the eye shield is moved downwardly from retracted to shielding position; if the upper portion of plate 24 did not have this inward slope, interfering engagement of the dimple 34 with the upper edge of plate 24 might hinder desired ease of downward movement of the shield into its shielding position.

Rearwardly of pin 26, the plate 22 has two ears 22a and 22b respectively projecting upwardly and downwardly from the pin 22. A pair of inwardly opening female snap fastener elements 37, 38 are respectively secured to the two ears 22a, 22b, being so positioned as to be spaced apart along a line which, when the plate 24 is in its operative position on the helmet, extends substantially toward the crown of the helmet. These female snap fastener elements are adapted to receive and grippingly engage a cooperating pair of male snap fastener elements 39, 40 secured as hereinafter further explained, to the bracket plate 18.

The snap fasteners respectively comprising elements 37, 39 and 38, 40 may be entirely conventional in character, i.e. being interengageable by inwardly directed manual pressure applied to the heads of the female elements and separable by a tilting force applied in any direction around

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the periphery of the elements to tilt the female members relative to the male members. As more fully explained in applicant's copending application, in use of such conventional snap fasteners, it is very difficult to separate the eye shield 12 and its associated pivot mechanisms from the male snap fastener elements when the eye shield is in shielding position, but relatively easy to separate the snap fasteners when the eye shield is in retracted position, owing to the relative orientations of the long axis of the eye shield tab portions and the line interconnecting the snap fastener elements in each of these two positions. The desired avoidance of separation of the eye shield from the helmet when in shielding position may be further enhanced by using so-called unidirectional snap fasteners so oriented as to be separable only upon application of an opening force from the forward direction, i.e. from the direction indicated by the arrows 37a, 38a inscribed on the heads of the female elements 37, 38, respectively. Such unidirectional snap fasteners are again conventional commercially available articles and accordingly need not be described in detail. In this way, accidental dislodgement of the eye shield from the helmet when the eye shield is in shielding position is virtually entirely prevented.

The arrangement of elements thus far described, including the eye shield, pivot mechanism and snap fasteners, is (except for the bracket plate 18) disclosed in applicant's aforementioned copending patent, which sets forth the details of construction, assembly and operation thereof, and forms no part of the present invention except in the combination with the bracket plate now to be described.

In accordance with the invention, the bracket plate 18 is a unitary rigid body formed e.g. of steel or the like, and is positioned between the inner surface of the pivot fixture plate 22 and the outer surface of the adjacent side portion of the helmet shell 10, being mounted on the helmet shell side portion in the manner now to be described. It includes a channel portion 42 extending along the rim of the adjacent side portion of the helmet 10, in generally parallel relation to the rim. Forward and rearward channel tabs, respectively designated 43 and 44, are formed at the front and rear ends of the channel portion, respectively. Each of these channel tabs 43 and 44 flares outwardly, conforming to and overlying the outwardly flaring helmet shell rim 10a, and is curved downwardly and inwardly at its extremity to define a channel 45 for receiving a portion of the rim. That is to say, while the major extent of each channel tab 43 and 44 overlies the outer surface of the shell rim 10a, the extremity 46 of each channel tab is bent around the edge of the rim to bear against the inner surface of the rim.

Each of the channel tabs 43 and 44 bears in its major extent a socket 48 having an internally threaded bore 49 which extends entirely through the socket and opens inwardly through the channel tab, in axially perpendicular relation to the surfaces of the major extent of the channel tab and the subjacent helmet shell rim 10a. Threaded in each bore 49 is a small set screw 51 having a socket or recess 52 in its outer end shaped to receive the head of a so-called Allen wrench or like simple tool for turning the screw.

As will be apparent particularly from FIGS. 4 and 7, the axis of each screw 51, if extended, would intersect the subjacent channel tab extremity 46. Thus, when the bracket plate 18 is in place on the helmet shell, and the shell rim 10a is received within the channel 45 of each channel tab 43, 44, each screw 51 bears against the rim 10a and effectively clamps the rim securely between the screw and the subjacent channel tab extremity 46. Thereby, the bracket plate 18 is fixedly secured to the shell rim 10a at the two spaced localities of engagement of the shell rim by the channel tabs 43 and 44.

The bracket plate 18 further includes an upstanding portion 54 which projects vertically upward from the channel portion 42, at a forward locality of the channel portion. The two male snap fastener elements 39 and 40

are secured to this upstanding portion 54 of the bracket plate, projecting outwardly therefrom, and being spaced apart along a line that extends more or less vertically, i.e. generally toward the crown of the helmet shell 10 when the bracket plate is mounted on the helmet. These male snap fastener elements are, as already stated, positioned to interengage with the two female snap fastener elements 37 and 38 carried by the pivot fixture.

In assembling the described eye shield structure, the plate 20 is first placed in position on the eye shield tab portion 12a with its channel tabs 20a and 20b engaging the upper and lower edges of the tab portion and the apertures 27a and 27b in coincident relation. The pivot pin 26 is then inserted through the apertures 27a and 27b and the washer 29 and nut 28 are placed on the outer extremity of the pin. After each of the two tab portions of the eye shield has been thus assembled with its associated pivot mechanism, the eye shield and pivot mechanisms are ready to be mounted on the helmet.

The bracket plate 18 is then placed in position on the side portion of the helmet 10, with the set screws 51 loosened and the two channel tabs 43 and 44 fitted over the helmet rim 10a. The set screws are tightened to clamp the bracket plate firmly and rigidly on the helmet rim. This procedure is repeated to mount the second of the bracket plates (not shown) on the other side of the helmet, and the eye shield pivot mechanisms are then fastened to the bracket plates by interengagement of the respective male and female snap fastener elements. The eye shield is now securely mounted to the helmet, being pivotally movable between the shielding and retracted positions respectively shown in FIGS. 1 and 2, and is ready for use.

If it is desired to remove the eye shield structure completely from the helmet, this may readily be done by simply detaching the shield and pivot mechanisms from the bracket plates, and loosening the screws of the bracket plates so that they may be slipped off the rim of the helmet.

It will now be appreciated that the bracket plates 18 of the invention afford a means for mounting an eye shield on a conventional helmet without drilling of holes through the helmet or other structural modification thereof. The mounting operation may be readily performed by a person unskilled in the use of tools, since it requires only the tightening of the small set screws 51. An Allen wrench, as used for this purpose, is a small rod bent into the form of an L and having the end of the leg of the L shaped to engage the recess 52 of each set screw, to turn the screw for tightening or loosening it, such turning being accomplished by means of the fingers holding the arm of the L. Such a wrench may be made very inexpensively and provided in a kit with the eye shield structure so as to be available for use by the person mounting the eye shield on the shell.

In its illustrated embodiment, the invention provides an eye shield structure affording the advantages of that disclosed in the aforementioned copending application with respect to removability of the shield and security thereof against accidental dislodgement in shielding position, wherein the snap fastener elements connected to the helmet are supported on the bracket plates 18 rather than being secured directly to the helmet shell.

Referring now to FIGS. 8 and 9, the alternative embodiment of the invention there shown is generally similar to that illustrated in FIGS. 1-7, except that the bracket plate 18 carries only a single socket 48 and set screw 51, mounted in its forward channel tab 43, and an inwardly projecting dimple 60 is formed in the rear channel tab 44 of the bracket plate, i.e. in place of the socket and set screw carried by tab 44 in the bracket plate shown in FIGS. 1-7. The helmet rim 10a is bent to form a bead 61 extending along its outer surface, and the dimple 60 seats behind this bead to hold the channel tab 44 against displacement relative to the helmet shell. Thus the dimple in cooperation with the set screw 51 carried by the forward

ward channel tab 43, provides secure engagement of the bracket plate with the helmet shell at two horizontally spaced localities along the channel portion 42 of the bracket plate. The bracket plate is sufficiently resilient so that, when the eye shield 12 is detached therefrom, the dimple 60 may be slipped outwardly over the helmet rim head 61 to permit removal of the bracket plate from the helmet upon loosening of the set screw 51 in the forward channel tab 43.

I claim:

1. For use with a rigid helmet including a crown portion and a pair of opposed side portions each having a generally horizontal rim, eye shield structure comprising:

(a) an eye shield having a central portion adapted to extend laterally in front of the face of a wearer in eye-shielding position and a pair of lateral tab portions extending rearwardly from said central portion on opposite sides thereof; and

(b) a pair of pivot mechanisms for mounting said eye shield for pivotal movement about an axis extending through said tab portions, said pivot mechanisms being respectively adapted to be disposed adjacent to the outer surfaces of said helmet side portions and each including a fixture member pivotally connected to one of the eye shield tab portions;

wherein the improvement comprises:

(c) a pair of bracket plates respectively connected to the fixture members of said pivot mechanisms, each of said bracket plates including

(i) a channel portion which extends along the rim of one helmet side portion and defines a channel for receiving said rim and

(ii) an upstanding portion projecting above said channel portion and consisting of a pair of substantially vertically aligned snap fastener elements adapted to be positively engaged by cooperating snap fastener elements mounted on the pivot mechanism fixture member for fastening one of said fixture members to the bracket plate; and

(d) means carried by the channel portion of each bracket plate for engaging the helmet side portion rim at spaced localities of the rim received within the channel of said channel portion to clamp said rim and channel portion and thereby to hold the bracket plate fixed on the helmet, said rim-engaging means being adjustable to permit release of the rim from the channel whereby said eye shield structure can be readily separated from said helmet rim and said eye shield can be readily separated from said bracket plates.

2. Structure as defined in claim 1, wherein the rim-engaging means carried by each of said bracket plates includes at least two set screws threaded in horizontally spaced sockets in the channel portion of the bracket plate and projecting inwardly through the bracket plate so as to bear against a helmet side portion rim contained within the channel of the bracket plate.

3. Structure as defined in claim 2, wherein the channel of the channel portion of each bracket plate is discontinuous and is defined by at least two horizontally spaced channel tabs of said bracket plate, each of said tabs having one of said sockets and each of said sockets containing one of said set screws.

4. Structure as defined in claim 3, wherein said channel tabs are bent outwardly with respect to said upstanding portion of each bracket plate, to conform to a helmet having a flared rim.

5. For use with a rigid helmet including a crown portion and a pair of opposed side portions each having a generally horizontal rim, eye shield structure comprising:

(a) an eye shield having a central portion adapted to extend laterally in front of the face of a wearer in eye-shielding position and a pair of lateral tab portions extending rearwardly from said central portion on opposite sides thereof; and

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- (b) a pair of pivot mechanisms for mounting said eye shield for pivotal movement about an axis extending through said tab portions, said pivot mechanisms being respectively adapted to be disposed adjacent to the outer surfaces of said helmet side portions and each including a fixture member pivotally connected to one of the eye shield tab portions; 5
- wherein the improvement comprises:
- (c) a pair of bracket plates respectively connected to the fixture members of said pivot mechanisms, each of said bracket plates including 10
- (i) a channel portion which extends along the rim of one helmet side portion and defines a channel for receiving said rim and
- (ii) an upstanding portion projecting above said channel portion and consisting of a pair of substantially vertically aligned snap fastener elements adapted to be positively engaged by co-operating snap fastener elements mounted on the pivot mechanism fixture member for fastening one of said fixture members to the bracket plate; and 15
- (d) at least one set screw threaded in a socket in the channel portion of each bracket plate and projecting inwardly therethrough so as to bear against a helmet 20

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side portion rim contained within the channel of the bracket plate, for clamping the rim and channel portion to hold the bracket plate fixed on the helmet whereby said eye shield structure can be readily separated from said helmet rim and said eye shield can be readily separated from said bracket plates.

6. Structure as defined in claim 5, wherein the channel portion of each bracket plate includes a portion, spaced horizontally from the set screw carried by the channel portion, for positively engaging the helmet side portion rim received within the channel portion.

7. Structure as defined in claim 5, for use with a helmet wherein each said side portion rim has a bead extending along its outer surface, and wherein the channel portion of each bracket plate bears an inward projection spaced horizontally from the set screw carried by the channel portion and positioned to seat behind said bead.

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