

Feb. 24, 1942.

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2,274,222

SAFETY APPLIANCE

Filed July 8, 1939

Fig. 1.

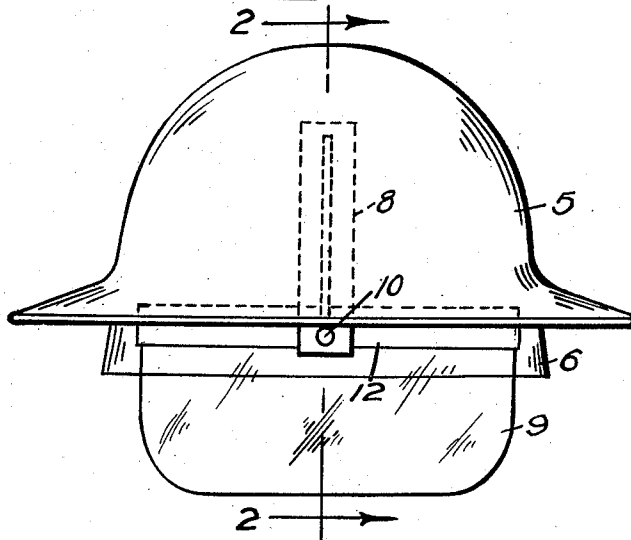


Fig. 2.

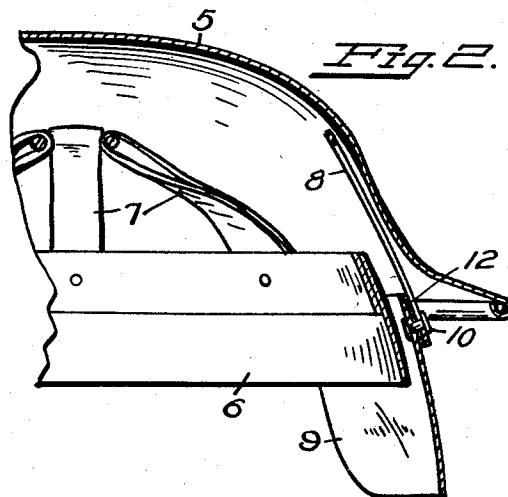
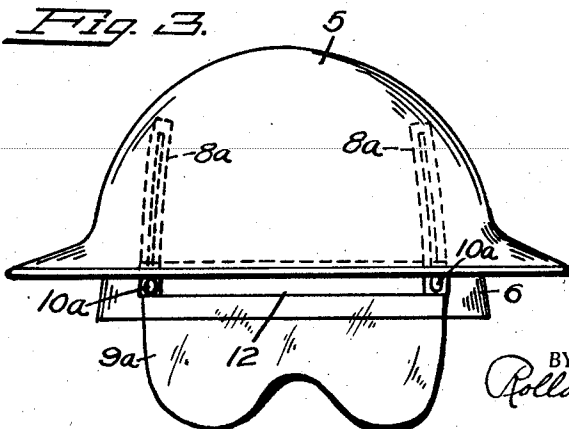


Fig. 3.



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2,274,222

SAFETY APPLIANCE

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Application July 8, 1939, Serial No. 283,382

3 Claims. (Cl. 2—10)

This invention relates to appliances for the protection of the head and eyes of a user, and more particularly relates to improvements in safety helmets of the type used by miners.

In various hazardous employments, such as mining, for example, many injuries occur from falling or flying fragments of rock or the like. Particularly, in the case of miners, certain safeguards have been taken, such as the provision of hats or helmets of rigid material, usually metal, which are capable of deflecting falling rock without injury to the head of the wearer.

The mining operation requires a considerable amount of drilling usually performed by power-drills or hammers which in the operation cause frequent displacement of rock fragments and the like, many of which are thrown in the direction of the operator of the tool at high velocity.

To prevent eye injuries, the machine operators are encouraged to wear safety goggles, but these goggles are uncomfortable and frequently interfere with vision, particularly in underground usage. As a consequence, even where provided, the goggles are not always used and many accidents occur because of inadequate safeguards.

Accident records kept by the present applicant disclose that injuries to the eyes of mine workers represent a substantial percentage of all casualties. In order to lessen the number of head and eye injuries to such workers, the present invention has been devised.

It is an object of the present invention to provide a simple, durable and comfortable head covering which will afford protection against flying fragments to both the head and eyes of the user.

Another object is to provide in a safety helmet or the like, a retractable eye shield which may be withdrawn from the field of vision of the user when eye protection is not required.

A further object of the invention is to provide an eye shield which may be simply and easily adjusted to a variety of operative positions.

Other objects reside in novel details of construction and novel combinations and arrangements of parts, all of which will appear more fully in the course of the following description.

In order to afford a better understanding of the invention and of the best manner of using the same, reference is made to the accompanying drawing, in the several views of which like parts have been designated similarly and in which:

Figure 1 is a front elevation of a helmet embodying the features of the present invention;

Figure 2 is a fragmentary section taken along the line 2—2 of Figure 1; and

Figure 3 is a front elevation of a modified form of safety helmet embodying features of the present invention.

Referring first to Figure 1, a helmet of stiff or rigid composition, preferably metal, is shaped to enclose the upper portion of the head of the user and preferably is provided with a flexible headband 6 carrying head-fitting strips 7 converging toward the center where they are tied together in the usual manner.

The term "helmet" as used herein is intended to designate any form of head covering of such composition and so shaped that it will deflect rock fragments or the like, traveling at relatively high velocity, without excessive deformation.

Preferably, the headband 6 is spaced from the crown of the helmet 5 by strips 7 which attach to the helmet adjacent the band, and such spacing provides room between the helmet and the headband for installation of the eye shield of the present invention, as well as providing adequate circulation of air about the head of the user.

At the front of the helmet, a slotted guide member 8 is attached by any convenient means such as rivets not shown, and extends from a terminus in the upper portion of the crown to a lower terminus at or near the brim or lower edges of the helmet. An eye shield 9 of suitable dimension to cover the eyes is provided with a headed member 10 fitted in the slot of the guide.

This headed member may be of any suitable construction, but preferably comprises a metallic composition providing a friction fit with the guide member 8 in order that upon retraction it will remain within the helmet enclosure until it is again withdrawn manually into an eye-shielding position.

The eye shield 9 may be of any suitable composition of transparent character, which is adapted to withstand impact of flying rock fragments without breakage. In particular, isinglass or other similar synthetic compositions possessing similar properties are satisfactory for this purpose.

In its extended position, the eye shield covers the eyes of the user to a sufficient degree to prevent rock fragments from striking in or about the eyes of the user and the retractable mounting permits simple and easy withdrawal of the eye shield to its inactive position out of the field of vision of the user whenever desired.

In Figure 3 a modified form of mounting has

been illustrated in which an eye shield 9a shaped to fit against the nose of the user and having extended portions projecting well below the eyes of the user is provided with two fastenings 10a movable in two guide members 8a disposed in parallel within the helmet enclosure.

Again in this form of the invention, the member 10a may be of any desired form, but preferably provides a friction fit with the guide member so that it may be held in selective positions in its movement through the slot.

The forms of fastening illustrated herein are not intended as a necessary limitation of the invention, it being obvious that any suitable retractable mounting which permits movement of the eye shield from active to inactive position and vice versa is within the contemplation of the present invention.

Likewise, the specific headband mounting is not an essential feature of the present invention, but simply provides a convenient means for permitting retraction of the eye shield without inconvenience or discomfort to the user.

In each of the forms illustrated, it is preferable to provide a reinforcing strip 12 along the upper edge of the transparent band to prevent damage to the material of the shield in the continued retracting movements.

From the foregoing, it is apparent that the present invention affords a satisfactory means for protecting both the head and eyes of the user in hazardous occupations and by reason of the simplicity of the construction and moving parts it satisfies the use requirements of retraction of the shield to an inactive position in which no interference or inconvenience is experienced by the user.

Changes and modifications may be availed of within the spirit and scope of the invention as defined in the hereunto appended claims.

What I claim and desire to secure by Letters Patent is:

1. The combination with a rigid helmet of a composition adapted to withstand the impact of rock fragments without excessive deformation, and means in the helmet for its support on the head of a user out of contact therewith, of coacting guide and slide members within the helmet, an eye shield carried on the slide member with its lower end disposed to extend below the wearer's eyes when the slide is at one end of the guide and to remain at the rim of the helmet when the slide is at the opposite end of the guide.

2. The combination with a rigid helmet of a composition adapted to withstand the impact of rock fragments without excessive deformation, and means in the helmet for its support on the head of a user out of contact therewith, of coacting guide and slide members within the helmet, an eye shield carried on the slide member with its lower end disposed to extend below the wearer's eyes when the slide is at one end of the guide and to remain at the rim of the helmet when the slide is at the opposite end of the guide, and means on the slide member acting on the guide member for holding the shield in selective positions within its range of movement.

3. The combination with a rigid helmet of a composition adapted to withstand the impact of rock fragments without excessive deformation, and means in the helmet for its support on the head of a user out of contact therewith, of coacting guide and slide member within the helmet, an eye shield carried on the slide member with its lower end disposed to extend below the wearer's eyes when the slide is at one end of the guide and to remain at the rim of the helmet when the slide is at the opposite end of the guide, and reinforcing means at the upper end of the eye shield disposed to contact the helmet during the said movements of the shield.

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