April 27, 1943. G. H. DEIKE, JR 2,317,954

PROTECTIVE HAT

Filed July 29, 1940

Fig. 1.

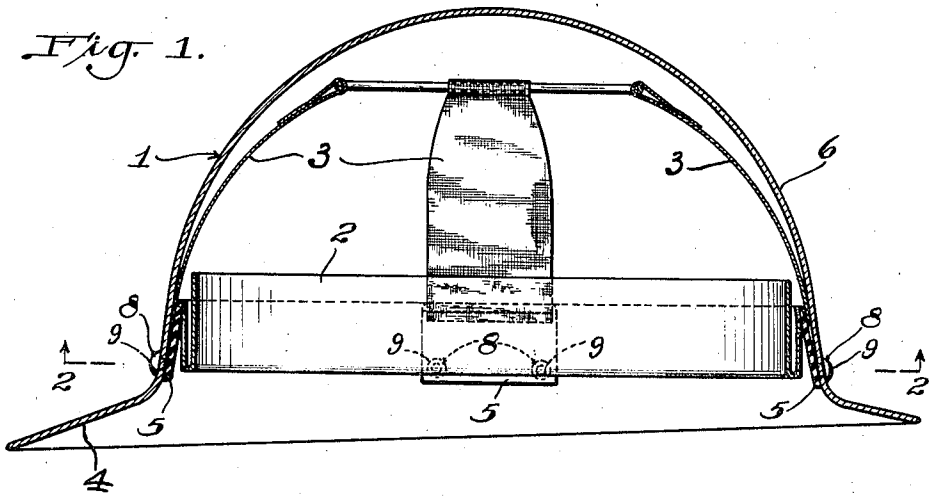


Fig. 2.

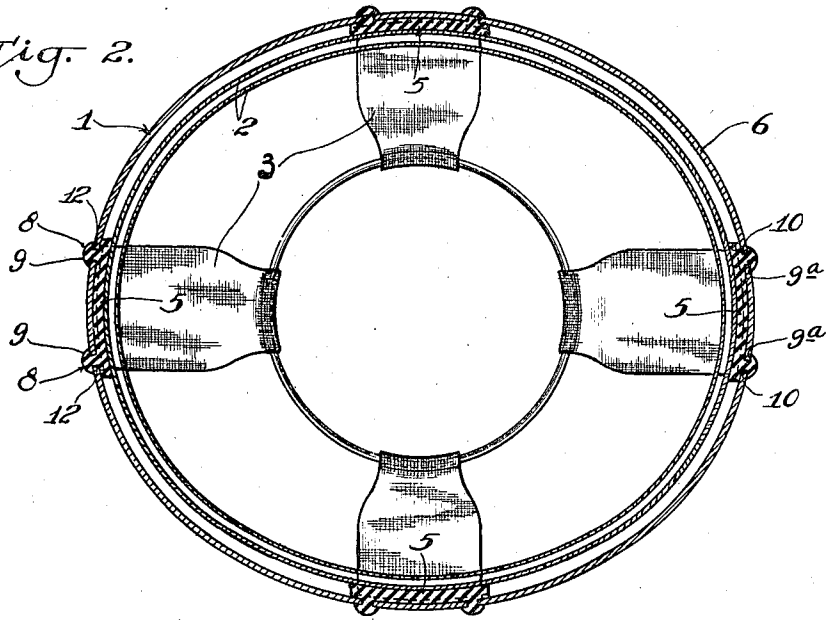


Fig. 4.

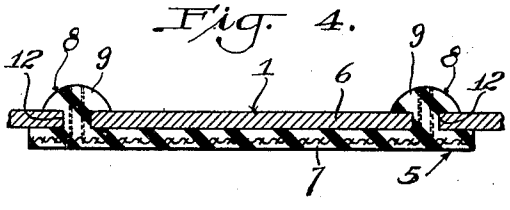
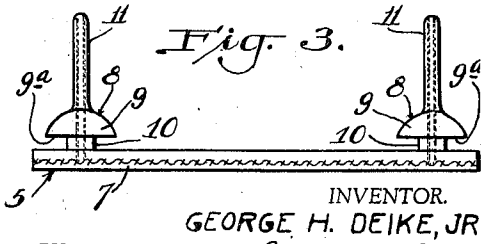


Fig. 3.



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PROTECTIVE HAT

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Application July 29, 1940, Serial No. 348,265

7 Claims. (Cl. 2—3)

This invention relates to an improvement in the construction of a protective hat such as worn by miners, firemen and others engaged in hazardous occupations, and more particularly to an improved means for attaching a head-engaging band to the protective headgear.

Heretofore, it has been the practice to use a cord or fibrous strip by which the headband and the crown of the headgear are attached by actually threading the cord through these elements. The principal disadvantage in the use of such a means has been the expense of assembly and the inability to provide a suitable moisture resistant material for properly supporting the headband onto the crown and which will provide a suitable attachment which is capable of some shock absorption resulting from blows to the headgear while maintaining the headband in proper fitting relation to the crown.

It is one of the objects of this invention to provide a moisture resistant yieldable means to attach the headband to the protective crown of the headgear and which is of sufficient strength to withstand severe shocks and which is inexpensive in manufacture and relatively simple in assembly of one portion of the hat to the other and which is capable of being removed without damage to either portion in the event that such should become necessary.

It is another object of this invention to provide a means of attachment which is moisture resistant and adaptable to the many materials used in providing the crown portion of the safety headgear and which is adaptable to the many available commercial types of hat without any material increase in expense in the manufacture of the assembled hat and which does not require any modification in the manufacture of the presently used headband which ordinarily includes a cradle or head harness for providing adequately distributed support over the head of a wearer.

Further objects of this invention will become apparent from a description of one embodiment which sets forth the principles involved and which is illustrated in the drawing, in which

Fig. 1 is a sectional view illustrating one embodiment of my improved means of attaching a headband to one type of protective headgear;

Fig. 2 is a sectional view taken along the line 2—2 of Fig. 1;

Fig. 3 is a detailed view of the attaching element; and

Fig. 4 is a fragmentary view illustrating the assembly of the attaching element to the crown material and disclosing by comparison some of the principles involved in the invention.

In order to provide a suitable shock-proof helmet, it is necessary to make the helmet of a material which will resist blows caused by falling objects, and ordinarily the material is of some plastic material such as a cellulose derivative or a phenolic resin, or it may be made of some suitable metal material. In view of these materials used and the extent of shocks which may be encountered, it is necessary to provide some appropriate means of attachment of a suitable headband to the rigid crown. The most suitable means used heretofore is a heavy cord which is threaded through additional fibrous strips attached to the headband and through the headgear and by tightly drawing the cord, the headband and headgear are attached in supporting relation.

In this invention, the helmet 1 composed of a headband 2 which ordinarily includes a cradle or harness 3 is connected to the crown portion 6 of the shock-proof headgear 4 by a means which in itself is resilient and provides some shock absorption in transferring the effect of a shock or blow applied to the rigid crown, to the headband and attached cradle. It is apparent that the means provided can be affixed initially either to the rigid material of the crown or to the headband, but it is preferred that the attaching element be attached to the headband and then assembled to the rigid crown.

The attaching elements 5 are spaced circumferentially within the crown 6 of the headgear to provide the necessary support properly distributed and effecting a desirable positioning of the safety helmet when worn. Each element is composed of a flat strip 7 preferably made of a resilient material reinforced by a fabric. Integral with the strip is a pair of headed or tab members 8 which contain a head portion 9 and a shank portion 10. It is obvious that the number of members used in each element 5 is a matter of practical expediency and the number selected will depend upon the conditions to be encountered. These members are made of some suitably resilient material and are reinforced with some suitable fabric or cord material, and it has been found that to provide some means of insertion of the headed members, it is advisable to employ an extended portion 11 (Fig. 3) which is made integral with the head portion 9 and which may be readily separated therefrom after the headed members

are assembled to the crown portion of the headgear.

It is a feature of this invention to so construct the means of attachment employed that a headband is somewhat rigidly connected to the crown and possesses some yieldability so as to provide a limited shock absorption medium and without resulting in any damaging effect to the means. To do this, the headed members of each element are constructed so that the shank portion 10 is of a length less than the thickness of the material of the crown 6. Also, the head portion 9 is constructed so as to provide an ample engaging surface 9a with the abutting surface of the crown and be sufficiently compressible so as to be readily insertable through an aperture or opening provided in the crown. This feature is important since it makes it possible to insert and fasten the headed members tightly onto the crown and thus attach the flat strip 7 in a desirable fashion onto the crown surface and provide a satisfactory yieldable attachment of the essential parts of the safety headgear which produces improved shock-proof results.

Fig. 3 illustrates the element in an unassembled position and by comparison with Fig. 4, it is apparent that the shank portion is placed in a state of stress when the tab members 8 are assembled to the crown because of the stretch necessary in passing the head portion 9 completely through the aperture 12 so that the abutting surface 9a properly engages the corresponding surface of the crown.

In the assembly of the headband to the headgear, the elements 5 are attached to the headband 3 as by sewing or stapling the flat strip 7 of each element to the headband, and then upon insertion of the headband carrying the plurality of properly circumferentially spaced elements 5 within the crown, the headed members can be readily inserted through the apertures 12 properly spaced in accordance with the spacing of the elements 5 and the spacing of headed member 8 on each flat strip 7 and by use of the extensions 11 the headed member can be readily pulled through the apertures and placed in proper engaging position. After the headed members are all inserted in their proper apertures, the extended portions 11 can be readily clipped from the head portion and the assembly of the headband to the crown is complete.

Because of the nature of the assembling means used in attaching the elements of the hat 1 and the result produced in the elements and because of the material used in the manufacture of the individual elements, some of the shock ordinarily transferred to the headband and harness resulting from a shock or blow applied to the crown is absorbed. This is distinctly advantageous in view of the purpose of the helmet. Furthermore, because of the nature of the material, it readily resumes its normal state after distortion and can be made of moisture resistant material without affecting the other advantages gained by the use of the invention. This factor of moisture resistance is of much importance since deterioration of the attaching element may go unnoticed and may result in grave injury to the wearer.

It is apparent that other modifications can be made of this invention and the embodiment discloses the principles involved, and it is intended that the scope of the invention be limited only by the appended claims.

I claim:

1. A protective head gear comprising a crown member, a headband member, one of the members having a means to secure the headband to the crown including a headed resilient means attached to one of the members and inserted through an aperture in the other member and engaging a surface thereof.

2. A protective head gear including a blow resistant crown member, a headband member, and one of the members having an attaching means to secure the headband member to the crown member comprising a means attached to one of the members and inserted through an aperture in the other member, the means having a resilient head portion engaging a surface of the apertured member to retain the members in an assembled position, and a resilient shank portion adjacent the head portion and of a length less than the thickness of the apertured member to place the means in a stressed condition when the members are assembled.

3. A protective head gear including a crown member, a headband member, and an attaching means to resiliently secure the headband member to the crown member and comprising a resilient tab member having a base portion attached to one of the members and having a compressible headed portion passable through an aperture in the other member and engaging a surface thereof after passage through the aperture and a shank portion spacing the head portion from the base portion and of a length normally less than the thickness of the apertured member to tightly assemble the members.

4. A protective head gear including a crown member, a headband member, and characterized by a means to resiliently and tightly secure the headband member to the crown member comprising a flat base strip attached to one member, resilient tab means integral with the strip and composed of a compressible head portion passable through an aperture provided in one of the members and engaging a surface thereof to retain the assembly and a resilient shank portion spacing the head portion from the base strip and of a length less than the thickness of the apertured member to elongate the shank portion and tightly connect the members together.

5. A protective head gear comprising a blow resistant crown, a headband comprising a head engaging member, inner circumferentially spaced members to yieldably and tightly connect the head engaging member and the crown, each spaced member having an outwardly extending resilient engageable means and attached to the headband, the engageable means having a head portion compressible to pass through an opening in the crown and to abut a surface of the crown after passage through the opening and attach the engageable means to the crown, and having a shank portion normally of a length less than the thickness of the crown to elongate the shank portion and tightly attach the headband to the crown.

6. A protective head gear comprising a blow resistant crown, a headband and an engageable means connecting the headband to the crown and comprising a flat resilient base member attached to the headband and having an outwardly extending resilient tab means integral with the base strip, the tab means having a head portion and a shank portion intermediate the base strip and the head portion, the head portion being of a size capable of being compressed to pass through an opening in the crown and normally having a size greater than the opening to en-

gage the outer surface of the crown member and the shank portion being of a normal length less than the thickness of the crown to place the engageable means in stress when assembled to provide a resilient tight assembly of the headband to the crown.

7. A protective head gear including a blow resistant crown, a headband, and characterized by a plurality of attaching means spaced from each other and fixed to the headband to resiliently and tightly secure the headband to the crown and each comprising a flat resilient reinforced base strip carrying a crown engaging means composed of a pair of tab means integral with the flat strip and each having a resilient headed portion spaced from the strip and of a size to enable passage of the portion through an opening in the crown and to support the strip from the crown after insertion by engagement with a surface of the crown, a resilient shank portion spacing the head from the base strip and of a normal length less than the thickness of the crown and an extending means integral with the head portion to facilitate passage of the head means through the opening in the crown.

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