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ANNULAR SUPPORT FOR RIGID PROTECTIVE HATS

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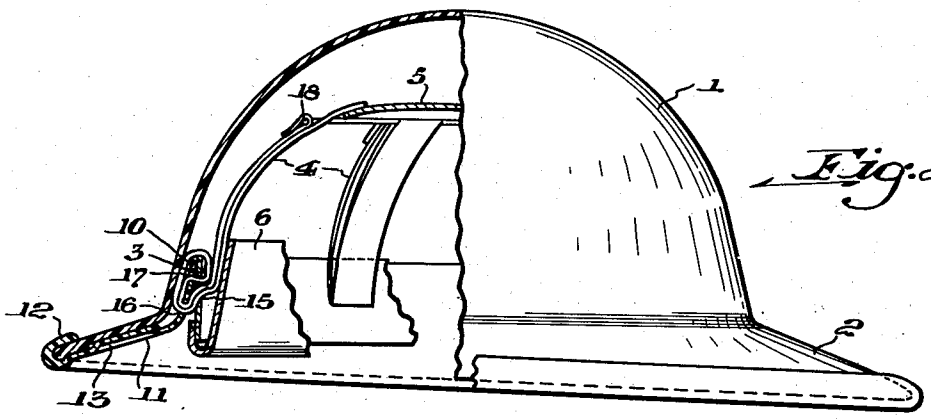

Fig. 2.

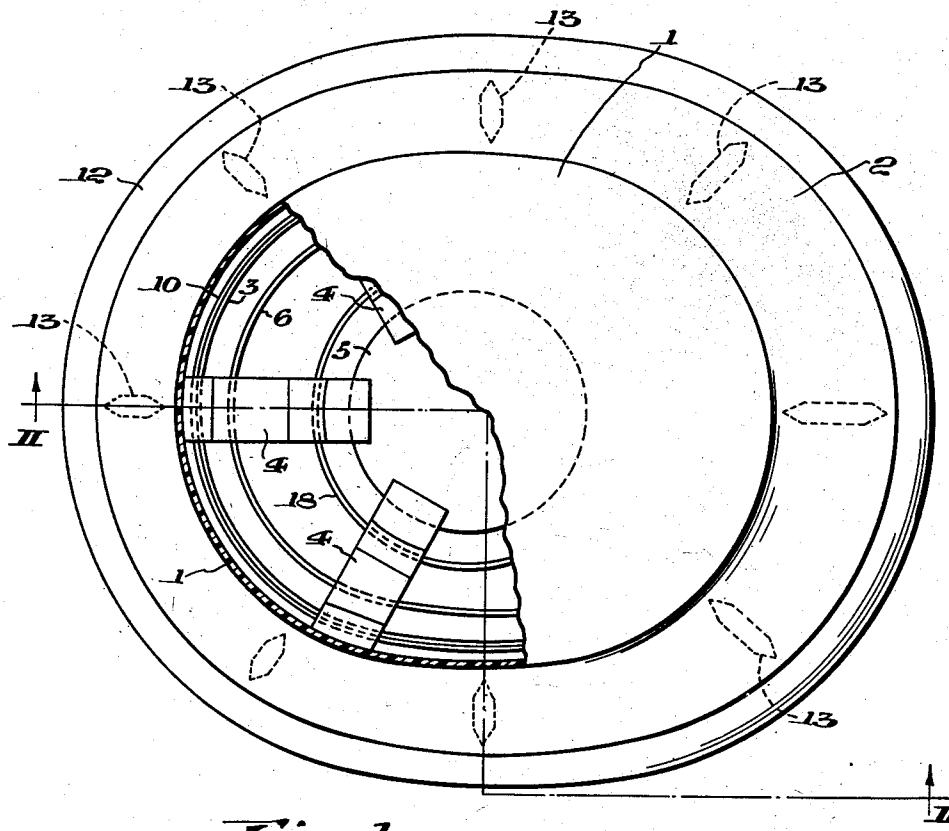

Fig. 1.

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ANNULAR SUPPORT FOR RIGID PROTECTIVE HATS

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4 Claims. (Cl. 2—3)

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This invention relates to rigid protective hats, and more particularly to means for supporting such hats on the head.

A well-known type of protective hat has a high rigid crown surrounded by an integral rigid brim. Such a hat is held on the head and spaced from it by means of a lining, consisting of a sweatband and a cradle that fits over the head, and also a liner band between the sweatband and crown. The liner band or the lower ends of the cradle straps are connected to the lower part of the crown in one way or another, such as by a lace extending in and out through perforations in the crown, or by metal fastening members extending through the crown. Under many conditions of use of the hat, perforations through it or exposed metal fasteners are objectionable. Moreover, blows against the crown are transmitted to the hat liner through the lace or the fasteners only at spaced points around the hat, thereby concentrating the shocks at those points.

It is among the objects of this invention to provide for a protective hat an annular support which supports the hat from the lining without requiring metal fasteners or perforations in the crown, which causes blows against the crown to be transmitted to the lining through the brim throughout the circumference of the brim, which is spaced from the crown, and which is inexpensive and easy to attach to the hat.

In accordance with this invention, the support consists of a relatively stiff annular member having an upper band-like portion extending a short way up into the crown of a rigid protective hat adjacent the inner surface of the crown. The support also has a flange surrounding the lower end of its upwardly extending portion and extending out along the underside of the brim of the hat. The outer edge of this flange is provided with an upwardly and inwardly extending marginal portion, so as to form a channel for receiving the edge of the brim in order to connect the support to the hat. The support is made of plastic material which is stiff enough to hold its shape, but which has enough stretch to permit it to be applied to the brim of the hat. The band-like portion of the support inside the crown is formed to support a hat lining. Thus, it may be provided with circumferentially spaced horizontal slots, through which the lower ends of cradle straps may extend. The straps also can support a sweatband inside the hat.

The preferred embodiment of the invention is illustrated in the accompanying drawings, in which Fig. 1 is a plan view of a protective hat with a portion of the crown broken away to show part of the lining; and Fig. 2 is a vertical section and side view of the hat taken on the line II—II of Fig. 1.

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Referring to the drawings, the hat may be made of any material which will give it the necessary rigidity. For most purposes it will be a non-metallic material, such as a molded composition. Such hats are well known and generally have a high dome-like crown 1 surrounded by an integral inclined brim 2. The hat is made as rigid and strong as possible. Inside the crown there is a lining which, in the embodiment shown, includes a flexible liner band 3 supported by the lower ends of cradle straps 4. The upper ends of the straps are fastened to a pad 5 that rests on top of the head. The lower part of the band supports the lower edge of a sweatband 6 that extends up through the liner band.

This invention is directed primarily to the means by which the hat lining is connected to the hat, so that the hat will be supported on the head by means of the lining. Accordingly, the connecting means just mentioned consists of a single member in the form of an annular support which has an upper band-like portion 10 that extends a short distance up into the crown of the hat between liner band 3 and the side wall of the crown. Preferably, it is spaced a short distance from the crown. Surrounding the lower end of upper portion 10 of the support is an integral flange 11 that extends out along the underside of the hat brim substantially parallel to it. To connect the annular support to the hat, the outer edge of flange 11 is turned up and back on itself all around the support to form an upwardly and inwardly extending marginal portion 12 overlapping the marginal portion of the hat brim. In other words, the turned-back portion of the flange forms between itself and the underlying area of the flange a channel extending around the support for receiving the edge of the brim.

It will be seen that before the hat brim can be inserted in all of the channel of the annular support, the support has to be stretched out to some extent to permit marginal portion 12 to snap over the brim. On the other hand, the support must be stiff enough to hold its shape so that it will not pull off the hat brim, but will stay in its proper location in the hat and not collapse. A material that is suitable for this use is a plastic, such as a linear polyamide resin, a polyvinyl chloride or a cellulose acetate-butyrate. These plastics can be molded under heat and pressure into relatively stiff or rigid material, yet one which can be stretched enough to slip the support disclosed herein over the edge of a hat brim. To

add rigidity to the flange 11 of the support without interfering with stretching it into place, the flange may have several radial ribs 13 molded into it. Preferably, the ribs are formed on the upper surface of the flange and engage the lower surface of the hat brim. Also, it is desirable to make the portion of the flange that hooks around the edge of the hat brim a little thicker than the rest of the support so that it will be stronger and hold its shape better.

Although there are various ways of fastening the hat lining to the annular support just described, the preferred way is to provide the upper portion 10 of the support with a plurality of circumferentially spaced horizontal slots beside similar slots in liner band 3, and then pass the cradle straps through the adjacent pairs of slots so that both the sweatband and support are suspended from the straps. Again, this may be done in various ways. In the arrangement shown, each strap 4 extends downward from head pad 5 and out through a slot 15 in the liner band and through the lower one of a pair of vertically spaced slots 16 and 17 in the annular support. The strap then extends upward and then inward across the tops of the support and liner band, and then down and again out through band slot 15 and the upper slot 17 in the support. The strap then extends down and back through the lower slot 16 and band slot 15 again, and then upward to a point near pad 5. This free end of the strap is provided with a loop so that a lace 18 can extend through the loops of all of the straps to hold them in place. By tightening or loosening the lace, the elevation of the pad in the crown can be adjusted for heads of different sizes. By spacing the upper portion 10 of the annular support a short distance from the surrounding wall of the crown, blows that strike the side of the crown are less likely to be transmitted directly to the head of the wearer.

By utilizing the invention disclosed herein it becomes unnecessary to provide the hat with perforations or fasteners extending through the wall of the crown. The lining can be attached to the plastic annular support, and then the latter applied to the brim of the hat. This is a quick and relatively inexpensive way of fastening the lining in the hat. Any blows against the hat are transmitted to the lining through the edge of the brim and the annular support, and therefore the shock is distributed more or less uniformly around the entire hat.

According to the provisions of the patent statutes, we have explained the principle of our invention and have illustrated and described what we now consider to represent its best embodiment. However, we 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.

We claim:

1. A support for a rigid protective hat that has a crown surrounded by a brim, said support being a relatively stiff resilient annular member having an upper portion adapted to extend a short way up into a hat crown adjacent to but spaced from its inner surface and having a flange surrounding the lower end of said portion to extend out along the underside of the hat brim, the flange being provided with a plurality of circumferentially spaced ribs extending substantially radially across it for engagement with the underside of the brim, the outer edge of said flange being provided with an upwardly and inwardly extending marginal portion to form a channel for receiving the edge of the brim to connect said support to the hat, and said upper portion being formed to support a hat lining within the crown, said member being formed of a material capable of being stretched radially to permit the hat brim to be inserted in said channel.

2. A support for a rigid protective hat that has a crown surrounded by a brim, said support being a relatively stiff resilient molded plastic member having an upper annular portion adapted to extend a short way up into a hat crown adjacent its inner surface, said member also having an integral flange surrounding the lower end of said portion to extend out along the underside of the hat brim, the outer edge of said flange being provided with an upwardly and inwardly extending marginal portion adapted to be stretched over the edge of the brim to connect said support to the hat, and said upper portion being provided with circumferentially spaced openings for connecting it to a hat lining.

3. The combination with a rigid protective hat having a crown surrounded by a brim, of a relatively stiff resilient molded plastic member having an upper annular portion extending a short way up into said crown adjacent to but spaced from its inner surface, said member also having an integral flange surrounding the lower end of said portion and extending out along the underside of said brim, the outer edge of said flange being provided with an upwardly and inwardly extending marginal portion forming a channel receiving the edge of the brim to connect said member to the hat, and said upper portion being formed to support a hat lining within said crown, said marginal portion being stretchable radially to permit the hat brim to be inserted in said channel.

4. The combination with a rigid protective hat having a crown surrounded by a brim, of a relatively stiff resilient molded plastic member having an upper annular portion extending a short way up into said crown adjacent to but spaced from its inner surface, said member also having an integral flange surrounding the lower end of said portion and extending out along the underside of said brim, the flange being provided with a plurality of circumferentially spaced integral ribs extending substantially radially across its upper surface in engagement with the underside of the brim, the outer edge of said flange being provided with an upwardly and inwardly extending marginal portion forming a channel receiving the edge of the brim to connect said member to the hat, and said upper portion being formed to support a hat lining within said crown, said marginal portion being stretchable radially to permit the hat brim to be inserted in said channel.

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