Feb. 25, 1936. J. B. DYM 2,032,203

PROTECTIVE HEADGEAR

Filed March 7, 1935

Fig. 1.

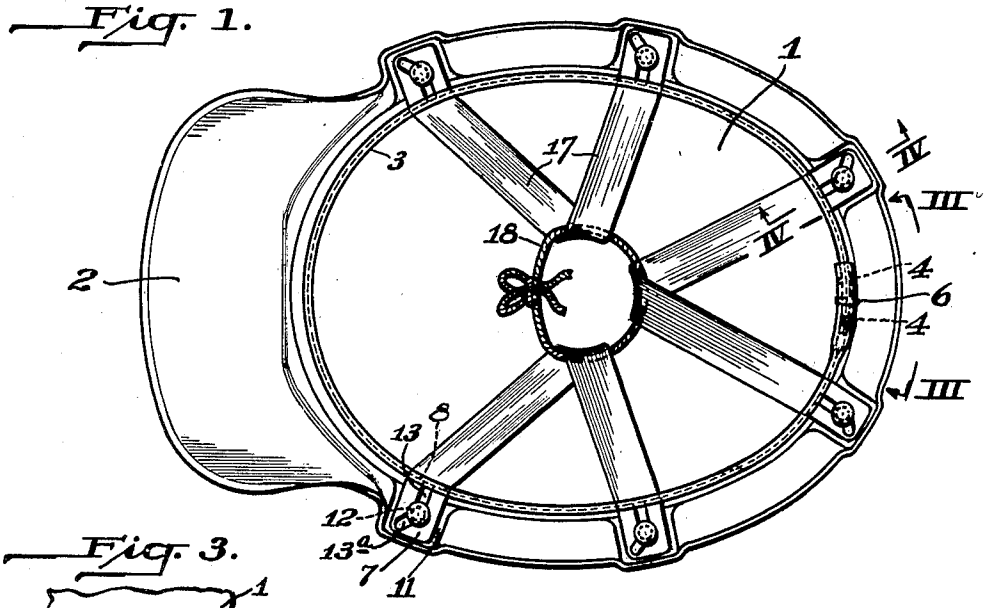


Fig. 3.

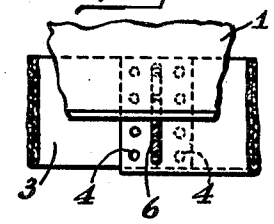


Fig. 2.

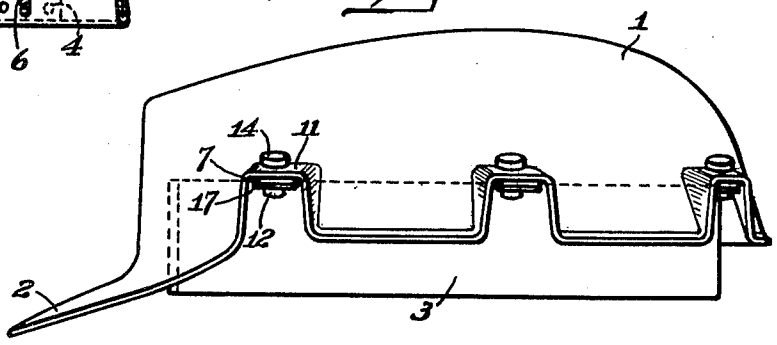


Fig. 4.

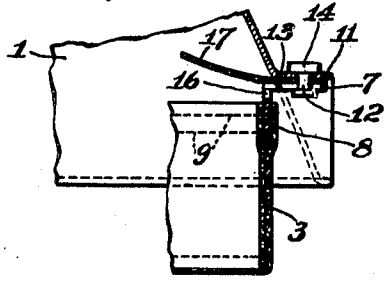
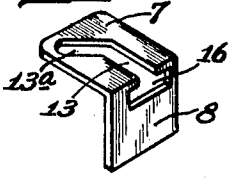


Fig. 5.



WITNESSES

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PROTECTIVE HEADGEAR

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10 Claims. (Cl. 2—3)

This invention relates to head-gear, and more particularly to miners' safety head-gear having head bands that are adjustable in size so as to fit heads of various shapes and sizes.

To reduce the manufacturing cost of safety head-gear it is desirable to make as few different head sizes as possible, preferably one standard size which is provided with means for adjusting it to fit heads of various shapes and sizes. It is not new to provide a hat with a head band which is adjustable in size, but such bands are generally stitched or otherwise rigidly connected along one edge to the hat so that only the free portion of the band can be contracted. The result is that when the band is contracted it varies in size from top to bottom and does not fit the head snugly and properly. Furthermore, as the stitched edge of the band can not change its form, the band can not properly shape itself to heads of various shapes.

It is among the objects of this invention to provide a safety head-gear, such as a hat, cap, or helmet, in which the head band is adjustable in size uniformly throughout its width, in which the entire band is free to accommodate itself to heads of various shapes, and in which gathering or wrinkling of the band when it is is contracted is substantially eliminated.

Further objects are to provide such a head-gear which is light in weight and comfortable to wear, and which rests securely on the head.

The invention may be described with reference to the accompanying drawing in which Fig. 1 is a bottom plan view of the preferred embodiment in association with a safety cap; Fig. 2 a side view thereof; Fig. 3 a fragmentary elevational view of the rear portion indicated by the line III—III of Fig. 1; Fig. 4 a fragmentary sectional view taken on the line IV—IV of Fig. 1; and Fig. 5 a perspective view of a connecting member.

Referring to Figs. 1 and 2 of the drawing, the invention is shown, by way of illustration, as applied to a safety cap comprising two general parts, a shallow crown 1, preferably provided with an integral visor 2, and a head-engaging band 3 disposed partly within the crown, to which it is connected in a manner to be described hereinafter. The crown is made of any suitable blow-resistant rigid material of which a variety are known in this art, such as fabric impregnated with a suitable synthetic resin, or, for example, shaped metal, fibre, or hard asphaltic or rubber compositions.

The head band is made of a strip of flexible material, such as fabric, leather, or imitation leather, folded double lengthwise with its two ends disposed at the rear of the crown where they are connected together in such a manner that the band can be expanded or contracted as desired in order to fit large or small heads. Preferably, as shown in Fig. 3, one end of the band overlaps or telescopes over the opposite end, the outer fold of the two ends being provided with holes 4 through which a cord 6 is laced for connecting the ends together. There are several sets of holes 4 whereby to permit the band ends to be overlapped to a greater or lesser extent, as is found necessary, two sets being shown in each end of the band although more may be added. The inner fold of the head band covers lacing cord 6 so that a smooth surface engages the head.

The manner in which head band 3 is connected to crown 1 will now be described. Projecting substantially radially outwardly from the upper edge of the head band are a plurality of circumferentially spaced rigid lugs 7, six having been found to be a desirable number. As shown in Fig. 5, each lug has an integral vertical portion 8 meeting it at a suitable angle, and is formed from fibre board, metal, hard asphaltic or rubber composition, or the like, so that its vertical portion can be stitched, riveted or otherwise attached to the head band, stitches being indicated by dotted lines 9 in Fig. 4. The crown, at the several points adjacent the lugs, has its side wall pressed outwardly and upwardly to form substantially horizontal lips 11 directly below which the lugs 7 are disposed and to which they are loosely connected by double-headed pins 12 rigidly mounted or integrally molded in the shelves and projecting down through outwardly extending slots 13 in the lugs (Fig. 4).

The upper ends of the pins are enclosed in a non-conducting material 14 so that if they happen to come in contact with live wires electric shocks will not be transmitted by them to the wearer of the hat. The upper end of the vertical portion 8 of each lug is provided with a transverse slot 16 opening into slot 13 for the purpose of permitting the lower head of a pin 12 to pass through portion 8 so as to allow the lug to be slipped over the pin.

By means of this loose connection between the head band lugs and the crown pins it will be understood that the head band is loosely but securely attached to the crown, and that the lugs can pivot and slide on the pins to permit the band to accommodate itself to the particular shape of the wearer's head. Furthermore, due to the fact that outwardly extending slots 13 allow the lugs

and the upper edge of the head band to move inwardly of the crown, the head band is contracted uniformly throughout its width when its ends are overlapped to a greater extent for that purpose.

It is a further feature of this invention that slots 13 in the lugs have diagonally disposed portions 13a which extend outwardly and away from the connected ends of the head band at the rear of the crown. Therefore, as the lugs are drawn inwardly by the head band from the position shown in Fig. 1 as the band is being contracted or diminished in size, the diagonal slots cause them to move in the general direction of the ends of the band. Consequently, the head band is drawn toward the back of the crown while it is being drawn inwardly so that slack is not formed in the band between the lugs as would be the case if the lugs moved radially inwardly. In other words, by reason of the connection disclosed herein, substantially all slack in the contracted head band is formed at the rear of the band where it is taken up by overlapping the band ends the desired amount, whereby the band is substantially as taut and as even in its contour in its smallest size as it is in its expanded size.

To space the crown from the wearer's head, and to prevent it from being jammed down on his head by falling objects, a cradle or hammock is disposed in the crown. This consists of a plurality of fabric tapes 17 the ends of which are disposed between lugs 7 and crown lips 11 where they are held in place by pins 12 that pass through them. As shown in Fig. 1, the two ends of each tape are secured to adjacent pins so as to form a loop, the several loops being adjustably connected together at the center of the head-gear by a cord 18. By drawing up or loosening the cord the distance the top of the crown is held above the head can be varied to suit the wishes of the wearer.

Safety head-gear constructed in accordance with this invention is comfortable to wear because the head is engaged by the flexible head band only, and not by the rigid crown. As no more heavy material is used in the head-gear than is necessary, the weight is decreased relative to the weight of safety head-gear of this type known heretofore. The head band, due to its particular connection with the crown, shapes itself to heads of various shapes and sizes without wrinkling, and thereby fits heads snugly and securely without discomfort.

According to the provisions of the patent statues, I have explained the principle and construction of my invention, and have illustrated and described 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 safety head-gear comprising a rigid blow-resistant crown, a head band disposed therein, means for varying the size of the band, and a plurality of members rigidly connected to the head band and connected to the side wall of said crown for movement transversely thereof, whereby the head band is movable inwardly and outwardly relative to the crown throughout the width of said band.

2. A safety head-gear comprising a rigid blow-resistant crown, a head band disposed therein, means for varying the size of the band, and means connected to the band and pivotally connected to the crown, said means also being movable inwardly and outwardly with the band relative to the crown whereby the size of the band is variable uniformly throughout its width.

3. A safety head-gear comprising a rigid blow-resistant crown, a head band disposed therein, means for varying the size of the band, a plurality of lugs connected at spaced intervals to the upper edge of the head band and projecting substantially radially outwardly therefrom, said lugs being provided with outwardly extending slots, and pins rigidly connected to said crown and projecting down through said slots for loosely connecting the head band to the crown, whereby the head band is movable inwardly and outwardly relative to the crown throughout the width of said band.

4. A safety head-gear comprising a rigid blow-resistant crown member, a head band member disposed therein with its two ends adjacent the back of the crown, means for connecting said ends together in variable relationship to vary the size of the band, and means rigidly connected to one of said members and movably connected to the other of said members to permit said variation in size uniformly throughout its width, said connecting means being formed for movement inwardly and toward said head band ends whereby when the head band is contracted it moves rearwardly as it is drawn inwardly to thereby cause substantially all slack therein to be formed at its rear portion where it is taken up by said end-connecting means.

5. A safety head-gear comprising a rigid blow-resistant crown, a head band disposed therein with its two ends adjacent the back of the crown, means for connecting said ends together in variable relationship to vary the size of the band, and a plurality of members connected to the head band and movably connected to said crown to permit said variation in size uniformly throughout its width, said members being formed for movement inwardly and toward said head band ends whereby when the head band is contracted it moves rearwardly as it is drawn inwardly to thereby cause substantially all slack therein to be formed at its rear portion where it is taken up by said end-connecting means.

6. A safety head-gear comprising a rigid blow-resistant crown, a head band disposed therein with its two ends adjacent the back of the crown, means for connecting said ends together in variable relationship to vary the size of the band, and a plurality of members rigidly connected at spaced intervals to the upper edge of the head band and connected to the side wall of said crown for movement transversely thereof, said members being formed for movement inwardly and toward said head band ends whereby when the head band is contracted it moves rearwardly as it is drawn inwardly to thereby cause substantially all slack therein to be formed at its rear portion where it is taken up by said end-connecting means.

7. A safety head-gear comprising a rigid blow-resistant crown, a head band disposed therein with its two ends adjacent the back of the crown, means for connecting said ends together in variable relationship to vary the size of the band, and a plurality of members rigidly connected at spaced intervals to the head band and pivotally connected to the crown, said members also being formed for movement inwardly and toward said head band ends whereby when the head band is contracted it moves rearwardly as it is drawn inwardly to thereby cause substantially all slack

therein to be formed at its rear portion where it is taken up by said end-connecting means.

8. A safety head-gear comprising a rigid blow-resistant crown, a head band disposed therein with its two ends adjacent the back of the crown, means for connecting said ends together in variable relationship to vary the size of the band, a plurality of lugs connected at spaced intervals to the upper edge of the head band and projecting substantially radially outwardly therefrom, said lugs being provided with slots, and pins rigidly connected to said crown and projecting down through said slots for loosely connecting the head band to the crown, said slots extending outwardly and away from said head band ends whereby when the head band is contracted it moves rearwardly as it is drawn inwardly.

9. A safety head-gear comprising a rigid blow-resistant crown, a head band disposed therein with its two ends adjacent the back of the crown, means for connecting said ends together in variable relationship to vary the size of the band, the side wall of said crown being provided with a plurality of outwardly extending portions, a plurality of lugs connected to the upper edge of the head band and projecting outwardly below said crown portions, said lugs being provided with slots, and pins mounted in said crown portions and projecting down through said slots for loosely connecting the head band to the crown, said slots extending outwardly and away from said band ends whereby when the head band is contracted it moves rearwardly as it is drawn inwardly.

10. A safety head-gear comprising a rigid blow-resistant crown, a flexible head band disposed therein, means for varying the size of the band, and means connecting the band to the sides and ends of the crown, said means being movable inwardly and outwardly with the band relative to the crown whereby the size of the band is variable uniformly throughout its width and the shape of the band is automatically varied by the head to conform to the shape thereof when the head-gear is placed on the head.

JOSEPH B. DYM.