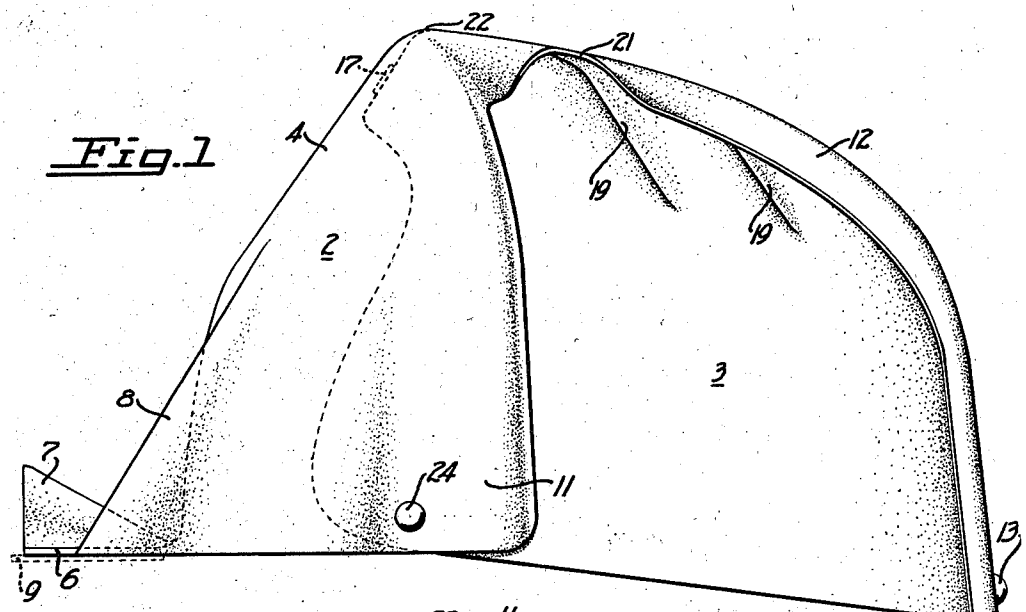
Oct. 20, 1936. G. M. GLIDDEN 2,058,146

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Fig. 1



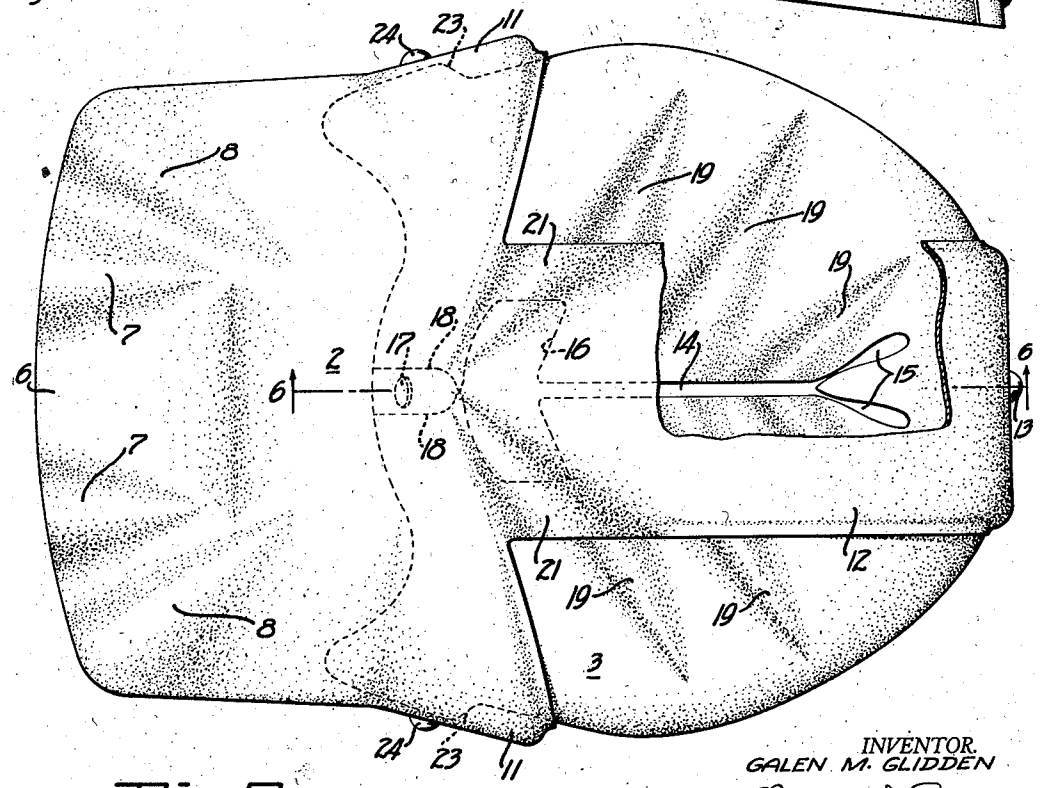


Fig. 2

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Fig. 3

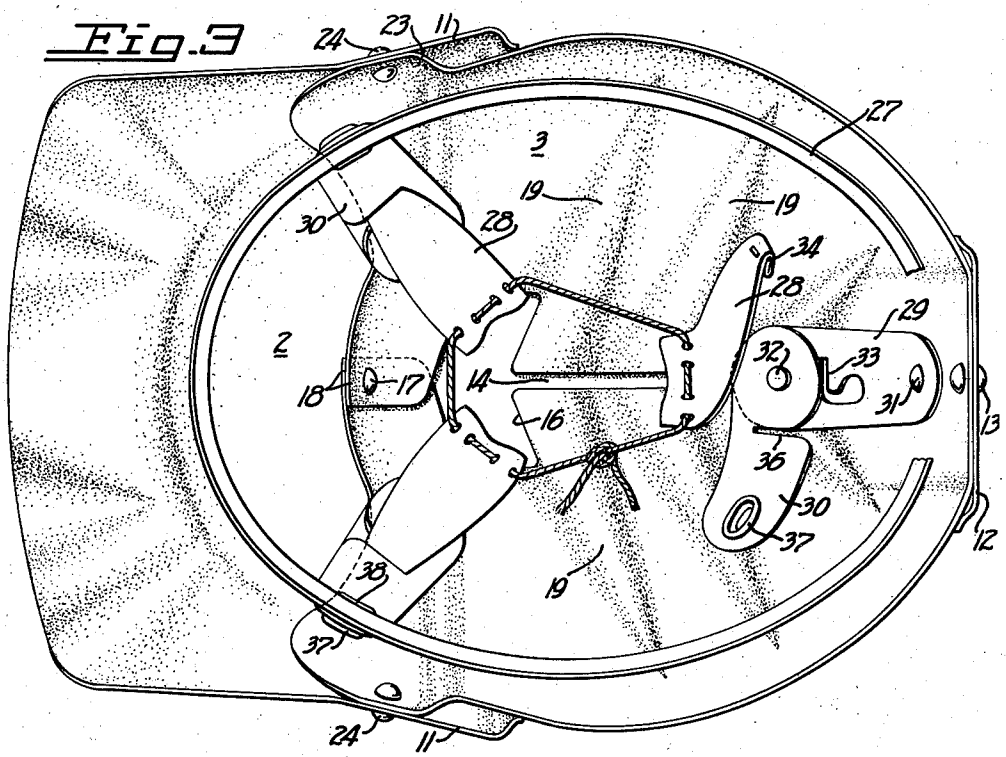
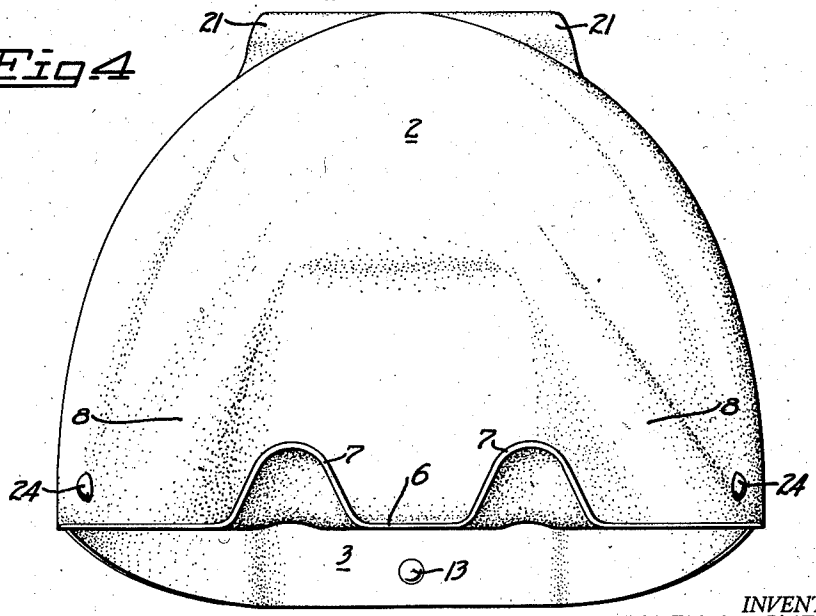


Fig. 4



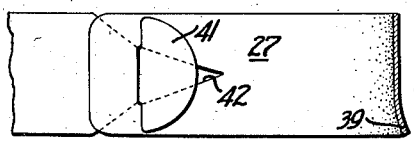


Fig. 5

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Fig. 6

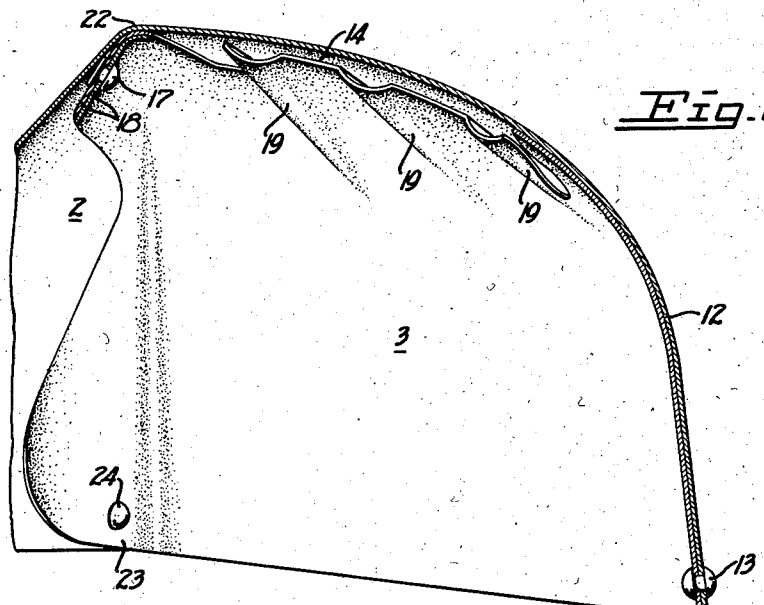
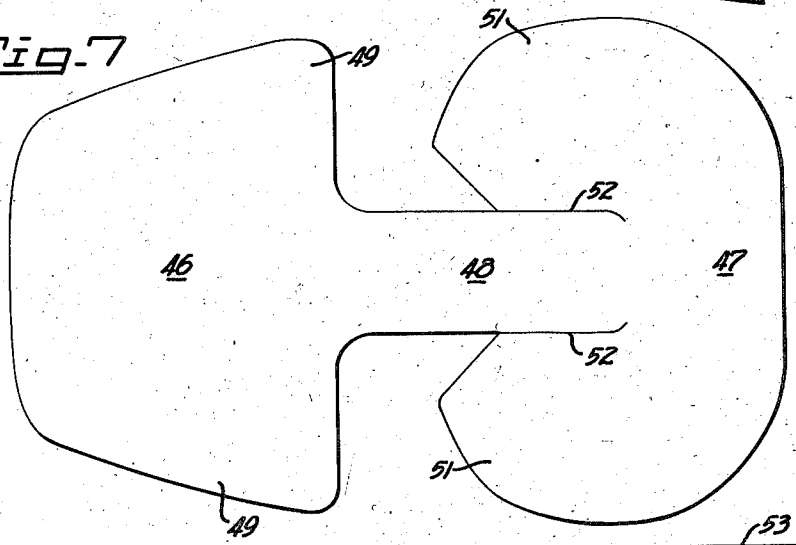


Fig. 7



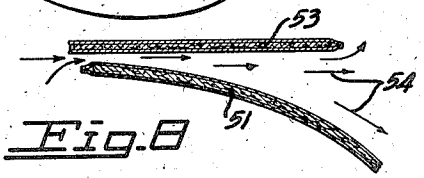
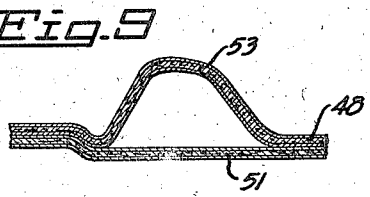


Fig. 8

Fig. 9



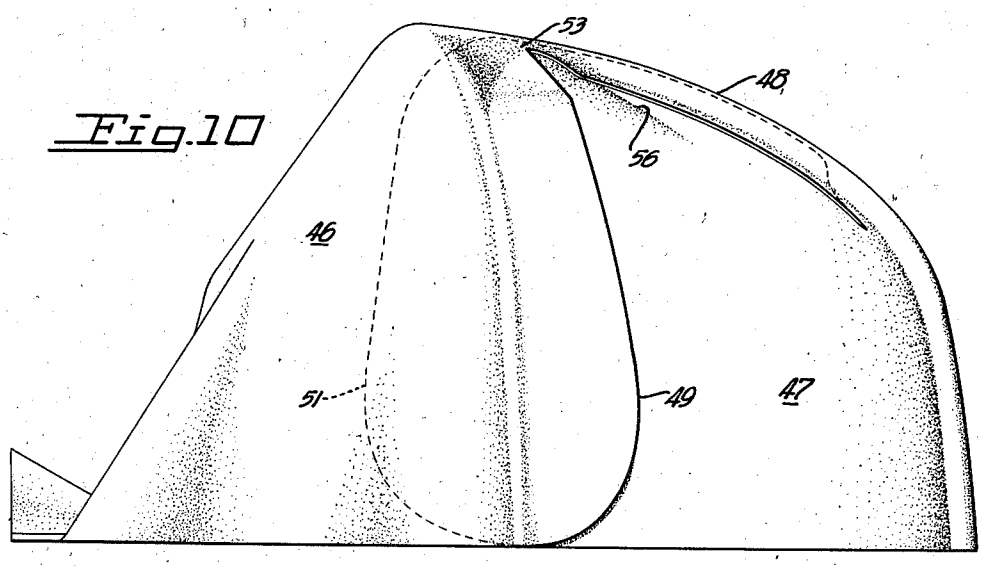
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Fig. 10



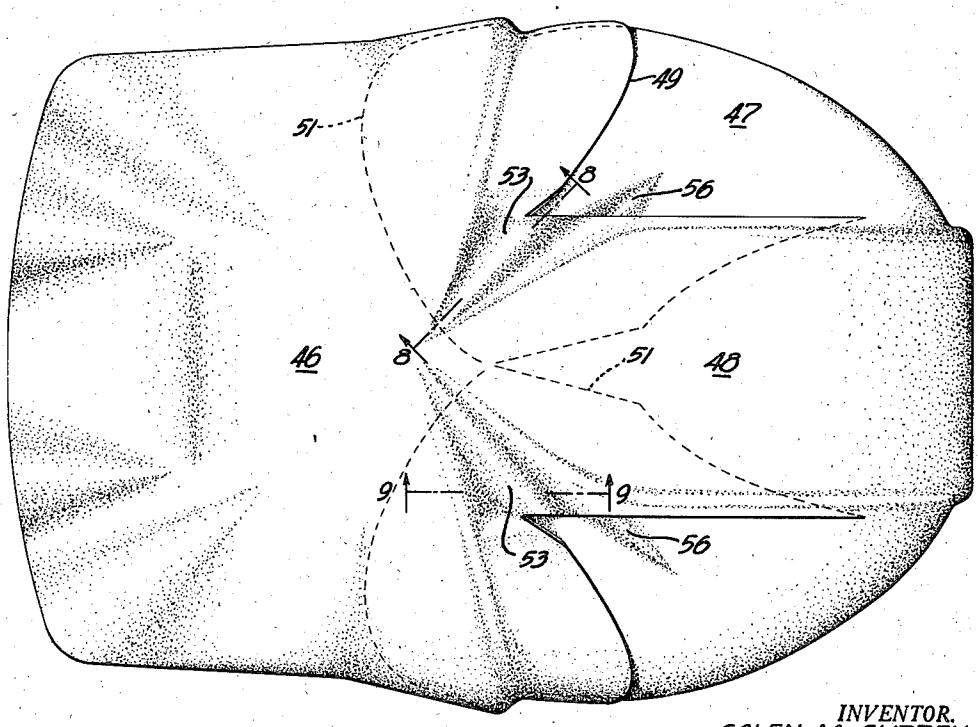


Fig. 11

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UNITED STATES PATENT OFFICE

2,058,146

HAT

Galen M. Glidden, Wheaton, Ill., assignor to E. D. Bullard Company, San Francisco, Calif., a corporation of California

Application April 19, 1935, Serial No. 17,167

14 Claims. (Cl. 2—3)

My invention relates to a hat, and more particularly to a safety hat.

It is among the objects of my invention to provide a hat which will protect the head of the wearer against physical injury, and which is both waterproof and ventilated.

Another object of my invention is to provide such a hat which may be formed from blanks of sheet material which are relatively nonconformable.

Another object of my invention is to provide a hat of the character described which is adjustable in size.

A further object of my invention is to provide a hat embodying the above mentioned features, yet which is easily fabricated.

The invention possesses other objects and features of advantage, some of which, with the foregoing, will be set forth in the following description of my invention. It is to be understood that I do not limit myself to this disclosure of species of my invention, as I may adopt variant embodiments thereof within the scope of the claims.

Referring to the drawings:

Figure 1 is a side view of a hat embodying the improvements of my invention.

Figure 2 is a top view of the hat, portions of the structure being broken away to disclose the construction more clearly.

Figure 3 is a bottom view looking at the inside of the hat, portions of the sweat band being broken away and parts of the suspension and hammock supports being opened to disclose the construction more clearly.

Figure 4 is a front elevational view of the hat.

Figure 5 is a detail sectional view showing the construction of the sweat band.

Figure 6 is a vertical sectional view taken in the plane indicated by the line 6—6 of Figure 2.

Figure 7 is a plan view of a blank for making a one-piece hat embodying the improvements of my invention.

Figure 8 is a detail sectional view of the one-piece hat construction, taken in a plane indicated by the line 8—8 of Figure 11; and

Figure 9 is a similar view taken in a plane indicated by the line 9—9 of Figure 11.

Figure 10 is a side view of the one-piece hat; and

Figure 11 is a top view of the same.

In terms of broad inclusion, the improvements in safety hats embodying my invention rise out of the problems and difficulties encountered in making hats from stiff and relatively nonconformable sheet materials, such as hard compacted fibrous sheets. These sheet materials are not easily handled and offer great resistance to deformation out of the plane of the sheet, which deformation is necessary in the formation of three dimensional objects, such as a hat crown. In my improved hat the crown is made in sections, either separate or integral, and capable of being readily formed into the desired crown shape from a relatively nonconformable sheet. The crown sections are arranged to overlap and parts of the overlapping portions are spaced, preferably adjacent the top of the crown, to provide ventilating passages. The spacing is preferably effected by the formation of flutes, which not only give the ventilating feature, but also serves to expend the surplus material in the deformation of the sheet into the crown shape. In one form of my hat the crown sections are slidably fitted together and are adjustable relative to the amount of their overlapping engagement to vary the hat size. Means are also preferably provided along the overlapping edges to form a water seal.

In greater detail, and referring particularly to Figures 1 to 5 of the drawings, the safety hat or cap of my invention comprises a front crown section 2 and a rear crown section 3. These crown sections are formed from blanks of sheet material, such as hard compacted fiber. Preferably a vulcanized fiber having surface layers of resin impregnated fabric is employed. Of course it is understood that any other suitable sheet material may be used. The sheet material is preferably steamed or otherwise softened and then pressed into the desired shape, in accordance with the usual practice of forming sheet materials. After the vulcanized fiber has been formed, a resin impregnated sheet (which forms the outer and inner surfaces of the crown section) is placed in a mold. The preformed vulcanized fiber is then placed in the mold and is followed by another resin impregnated sheet. The three layers are then subjected to heat and pressure to laminate them into an integral body.

The front crown section 2 comprises an arched body portion 4 with its forward portions pressed inwardly to provide a forwardly extending horizontal portion 6. The excess material in forming this horizontal vizor portion is taken up by the formation of two upstanding flutes 7. The pressing in of the forward portions of the crown section in the manner described also forms two radially extending folds 8, one along each side of the depressed area, which function as bracing or supporting elements for the horizontal vizor portion 6. The portion 6 may itself provide the

vizor for the cap, or if desired a separate vizor 9 may be provided, in which case the portion 6 would provide the vizor mounting. In either case the horizontal flutes 7 give strength and rigidity to the vizor.

The side or wing portions of the forward crown section are formed to provide relatively wide channels 11. These channels start from the top of the crown section and flare outwardly toward the bottom of the section. A crest strip 12 is also provided on the front crown section 2, and extends rearwardly over the top and down the back of the rear crown section 3. The edges of this strip are crimped inwardly to seat tightly against the surface of the rear section. A rivet 13 adjacent the lower end of the strip 12 serves to fasten the latter to the rear section.

The rear crown section 3 is pressed from a notched blank of the sheet material so that when the section is formed into its rounded or arched shape the edges of the notch are brought together along the top of the section. As best shown in Figures 2 and 3 the edges of the notch are spaced to provide an elongated opening 14 along the top of the crown section. The rear end of the notch is split into two diverging notch portions 15 to facilitate forming the crown, and recesses 16 are preferably cut in from the sides of the notch to enlarge the size of the opening. The forward end of the rear crown section is fastened by a rivet 17 passing through the tabs 18 which are brought into overlapping relationship when the notch is closed during the formation of the crown section. As shown in Figure 2 the opening 14 is completely covered by the strip 12 which extends back over the rear crown section.

When the rear crown section is pressed into shape a plurality of flutes or folds 19 are formed in the top of the section. The grooves or channels formed by these flutes extend radially from under the cover strip 12 to provide air passages leading into the opening 14. This arrangement protects against the entrance of water yet gives the desired ventilation for the hat.

The manner in which the flutes or grooves 19 extend under the strip 12 and open into the aperture 14 is best shown in Figure 6. As better illustrated in Figure 1, a pair of upstanding flutes 21 are also provided in the cover strip 12 and lead into the opening 14 to provide additional ventilating passages.

The rear crown section 3 extends into the front crown section 2 so that the side edges of the front section overlap those of the rear section. From the structure just described it will be seen that the two crown sections will pivot about the point 22 (see Figure 1) and will slide together along the overlapping side edges. This sliding together of the crown sections, which amounts to an adjustment relative to the amount of their overlapping engagement, will vary the size of the hat, as will be readily appreciated.

Means are provided for securing the crown sections together in a selected position of adjustment. This is accomplished by providing a radially extending and outwardly projecting rib 23 along the edges of the rear crown section and adapted to interengage with the channels 11 formed around the edges of the front section. By reason of the width of the channels 11 the ribs 23 are given a considerable degree of lateral movement.

Suitable rivets 24, which may be plain or insulated, are provided adjacent the lower side edges of the crown sections and pass through the overlapping portions at the point where the ribs 23 engage the channels 11. As best shown in Figures 1 and 3, the channelled edges of the front section 2 taper outwardly from front to rear, so that when the sections are pushed together the rear section is simultaneously reduced in width. This operates to reduce the hat size uniformly. By the adjustable feature, different sized hats may all be made in the same way, using the same sized blanks, forming dies and other apparatus. This is a great asset from the standpoint of cost and manufacture.

An important feature of the interlocking (rib and channel) arrangement of the overlapping side edges is that an effective seal is provided against the entrance of water. The rib 23 is adapted to move laterally in the relatively wide channel 11, to accommodate adjustments in the hat size, yet in any position of adjustment these interengaging elements function to provide an effective water seal along the lapping edges.

Means are provided for supporting the hat on the wearer's head. As shown in Figure 3 the suspension for the sweat band 27 and hammock supports 28 comprises pairs of pivotally connected tabs 29 and 30 spaced about the inside of the hat and all mounted on the rear crown section 3. The under tabs 29 are secured adjacent their lower ends to the crown section 3 by suitable rivets 31. Preferably one of the pairs of tabs is arranged adjacent the rear end of the crown section and the other pairs of tabs are preferably positioned adjacent the forward edges of the section.

The tabs 29 and 30 may be made of any suitable material, such as composition fiber, and are pivotally connected adjacent their upper ends by a suitable rivet 32. An L-shaped aperture 33 is formed in the under tab 29 for receiving the folded end 34 of one of the flexible hammock supports 28, and a slot 36 is provided in the outer tab 30 for engaging the hammock support and locking it in the aperture 33 when the tabs are closed.

A snap button 37 is provided at the lower end of each of the outer tabs 30 for snapping into a complementary button 38 provided on the sweat band 27. This arrangement provides a support for the band and also locks each of the tabs in the closed position. When it is desired to remove the sweat band it is merely necessary to unsnap the button 37—38. A subsequent opening of the supporting tabs will release the hammock supports 28, if it is also desirable to remove the latter. Since the sweat band and hammock are the only elements which contact a wearer's head, the replacement of these elements gives a subsequent wearer the feeling of a new hat, and avoids the problem rising out of the fact that a workman dislikes to wear something which has been used by a previous workman.

Another advantage of the removable sweat band feature is that the band may be replaced by another of different size. As shown in Figure 5 the sweat band comprises a strip 27 having an outwardly flared lower edge 39. The ends of the band are preferably disconnectably fastened together by a notched end 41 engaging a triangularly shaped aperture 42 in the other end of the band.

A modification of the hat embodying my invention is shown in Figures 7 to 11. In this case the front and rear crown sections 46 and 47, together

with the connecting crest strip 48, are all formed as an integral piece thereby providing a one-piece hat construction. Figure 7 shows the blank from which the one-piece hat is formed. As shown, the blank comprises a front crown section portion 46 and a rear crown section portion 47 connected by a narrow crest strip portion 48. The two end portions 46 and 47 which form the crown sections are provided with outwardly extending wings or tabs 49 and 51, respectively. In order to facilitate forming the crown, tabs 51 are severed partially from the crest strip 48 by rearwardly extending slits 52.

In shaping the crown the enlarged end portions 46 and 47 are formed into arched shape as shown in Figures 10 and 11, so that the final hat is similar in general outline to the crown shape of the two-piece hat first described. In forming the one-piece hat the side wings or tabs 49 and 51 are brought together with the front tabs 49 overlapping the rear tabs 51. This is clearly shown in Figures 10 and 11. As the rear section 47 is brought forward portions of the rear tabs 51 are forced inwardly under the crest strip 48, as shown in Figure 11. The upstanding flutes 53 (note Figure 9) in the crest strip 48 overhang these underlying portions of the tabs 51 to provide ventilating passages which lead into the opening formed between the tabs under the crest strip.

Figures 8 and 9 illustrate the ventilating features and the arrows 54 in Figure 8 indicate the ventilating air currents. As in the hat first described, suitable flutes 56 are also formed in the rear crown section, which flutes radiate from under the crest strip to provide additional ventilating passages.

Figures 10 and 11 illustrate primarily the formation of the inner blank of compacted fiber. Actually, in the preferred form, this inner fiber is covered on both sides with layers of resin saturated fabric. Figures 8 and 9 show these outer layers of fabric and Figure 8 also illustrates how the fabric sheets are preferably brought together over the ends of the inner fibrous sheet, so that the fiber is completely sealed in. In forming the hat the resin saturated sheets are preferably cut in the form of blanks similar to but somewhat larger than the blank of compacted fiber. The sheets are then laminated together under pressure in a mold. This molding not only laminates the fabric to the inner fibrous sheet, but also laminates the overlapping portions of the crown sections together.

The laminated fiber construction is preferred, but it is understood that any other suitable material may be employed. For example, metal may be used and cut in the blank form shown in Figure 7 and then pressed into the hat shape with the overlaping edges secured together by any suitable means, such as rivets. Of course it is understood that a suitable hanger for supporting the crown on the head of the wearer such as that shown in Figure 3, is provided in the one-piece hat structure.

An important feature characterizing my hat constructions is the provision of the ventilating ducts or passages radiating from a vent opening in the top of the crown. The structure shown provides a waterproof hat, yet gives ideal ventilation since heated air within the crown tends to rise and pass up through the opening in the top of the crown, whereupon it is drawn out through the passages under the crest strip. This arrangement of the ventilating passages adjacent the top of the crown thereby creates a forced draft. Another important ventilating feature is that the sides of the crown are spaced from the sweat band to provide an open space about the sides of the wearer's head. With this bottom opening a free path for air circulation is provided from the rim of the crown, past the sweat band, over the top of the wearer's head, and then out through the top of the crown.

Another feature of the hat is the sealing in of a compacted fibrous sheet between two sheets of resin impregnated fabric. The resin treated fabric is impervious to moisture and operates to prevent the moisture from evaporating from the inner fiber. It is a known fact that a compacted fiber will gradually lose its moisture and become brittle. In a safety hat this would be highly dangerous, and I have prevented this deterioration by sealing the moisture in. Likewise the moisture impervious layers prevent the compacted fiber from taking up excess moisture and becoming soft.

I claim:

1. A safety hat comprising a plurality of overlapping rigid crown sections slidably fitted together and adjustable relative to the amount of their overlapping engagement to vary the hat size, and means for securing the crown sections together in a selected position of adjustment.

2. A safety hat comprising a plurality of overlapping crown sections slidably fitted together and adjustable relative to the amount of their overlapping engagement to vary the hat size, means for securing the crown sections together in a selected position of adjustment, and flutes formed in one section to provide ventilating passages between the sections.

3. A safety hat comprising a front crown section, a rear crown section with side edges lapping the front section, a crest strip on the front section and extending rearwardly over the top of the rear section, means for fastening said strip to the rear section, and means for securing the lapping edges of the sections together.

4. A safety hat comprising a front crown section, a rear crown section with side edges lapping the front section, and having an opening in its top portions, a crest strip on the front section and extending rearwardly over said opening, means for fastening said strip to the rear section, and means for securing the lapping edges of the sections together.

5. A safety hat comprising a front crown section, a rear crown section with side edges lapping the front section, and having an opening in its top portions, said rear section having flutes leading into the top opening, a crest strip on the front section and extending rearwardly over said opening, means for fastening said strip to the rear section, and means for securing the lapping edges of the sections together.

6. A safety hat comprising a front crown section having channels radiating from a point adjacent the upper portion thereof, a rear crown section slidably engaging the front section and having ribs interengaging the channels of the front section, and means for securing the sections together.

7. A safety hat comprising a blank formed to provide an arched front crown section, and a notched blank formed to provide an arched rear crown section with the edges of the notch positioned along the top of the crown, said front

section overlapping the rear section along the adjacent edges and having an integrally formed crest strip extending rearwardly over the top of the rear section and covering the joint formed by said notch.

8. A safety hat comprising a blank formed to provide an arched front crown section, and a notched blank formed to provide an arched rear crown section with the edges of the notch positioned along the top of the crown and providing an opening in said top, said front section overlapping the rear section along the adjacent edges and having an integrally formed crest strip extending rearwardly over the top of the rear section and covering said opening, the rear section having flutes therein extending under the crest strip and leading into said opening.

9. A safety hat comprising a blank formed to provide an arched front crown section, and a notched blank formed to provide an arched rear crown section with the edges of the notch positioned along the top of the crown and providing an opening in said top, said front section overlapping the rear section along the adjacent edges and having an integrally formed crest strip extending rearwardly over the top of the rear section and covering said opening, the rear section having flutes therein extending under the crest strip and leading into said opening, said crest strip also having flutes leading into the opening.

10. A safety hat comprising a blank formed to provide an arched front crown section, and a notched blank formed to provide an arched rear crown section with the edges of the notch positioned along the top of the crown, said front section overlapping the rear section along the adjacent edges and having an integrally formed crest strip extending rearwardly over the top of the rear section and covering the joint formed by said notch, the crown sections being adjustable relative to the amount of their overlapping engagement to vary the hat size, and means for securing the sections together in a selected position of adjustment.

11. A safety hat comprising a blank having enlarged end portions and a narrower interconnecting portion, said end portions being shaped to provide front and rear crown sections with the interconnecting portion providing a crest strip over the top of the crown.

12. A safety hat comprising a blank having enlarged end portions and a narrower interconnecting portion, said end portions being shaped to provide front and rear crown sections with the interconnecting portion providing a crest strip over the top of the crown, and means for spacing the crest strip from one of the crown sections to provide a ventilating passage.

13. A safety hat comprising a plurality of crown sections pivoted at the crest of the crown and having overlapping edges along the sides of crown, said sections being adjustable relative to the amount of overlapping engagement to vary the hat size, and means for securing the crown together in a selected position of adjustment.

14. A safety hat comprising a crown section, and a second crown section overlying portions of the first section, said underlying section having infolded flutes leading under the edges of the overlying section whereby ventilating passages are provided between the sections without elevating the overlying section above the surface of the underlying section.

GALEN M. GLIDDEN.