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2,858,538

SAFETY HELMET

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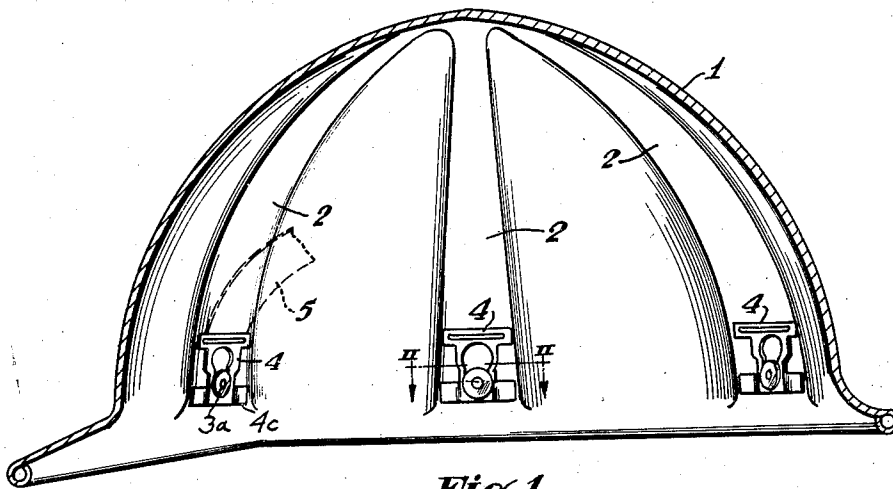


Fig. 1.

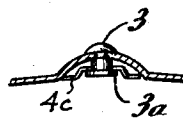


Fig. 2.

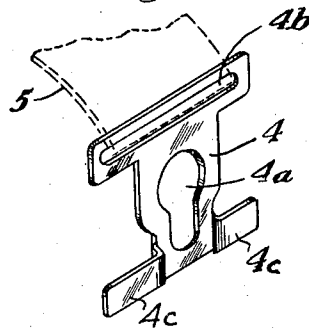


Fig. 3.

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1

2,858,538

SAFETY HELMET

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2 Claims. (Cl. 2—3)

This invention relates to a safety cap or hat of the type used by miners and industrial workmen to protect the head from injury as the result of falling objects and the like. More specifically, it relates to a safety cap or hat and crown suspension combination arranged to prevent injury by the crown suspension itself as it is forced against the head as the result of a severe blow.

In conventional types of safety caps or hats, a crown suspension is mounted inside and usually includes clips and other metallic or rigid parts which engage studs projecting inwardly of the inner surface of the crown and which have the outstanding disadvantage of piercing the head of the wearer when the cap or hat is struck with a severe blow.

An object of the present invention is to provide a novel safety hat and suspension arranged in a manner so as to be devoid of the above named disadvantages of conventional safety headgear and which will prevent injury to the head by parts of the crown suspension, even when the cap or hat is given a very severe blow.

A more specific object of my invention is to provide a corrugated safety cap or hat including a crown suspension having clips which are fitted into the corrugations so as not to project inwardly toward the head, that is, beyond the inner surface of the cap or hat.

Other objects and advantages of my invention will become more apparent from a study of the following description taken with the accompanying drawing wherein:

Fig. 1 is a vertical sectional view of a corrugated safety cap including a suspension embodying the principles of the present invention

Fig. 2 is a cross-sectional view taken along line II—II of Fig. 1 and,

Fig. 3 is an enlarged, perspective view of one of the clips shown in Figs. 1 and 2.

Referring more particularly to the drawing, numeral 1 denotes a safety cap or hat of any desired shape and which may be made of metal, such as aluminum, or of rigid plastic material, preferably reinforced by random oriented, glass fibers, or which may be made of other suitable material. Safety cap or hat 1 is provided with a plurality of spaced, vertically extending corrugations 2, symmetrically arranged and preferably flared outwardly in a downward direction, as shown. A plurality of spring clips 4 are provided, made of spring steel or other suitable material, each having the construction shown more clearly in Fig. 3. Spring clip 4 has a horizontal slot 4b in the top portion thereof for engaging the end loops at the bottom of a crown suspension 5 of any well known type, a fragmentary portion of which is shown in dotted outline.

A rivet 3 is fastened to a central portion of each corrugation adjacent the brim portion of the hat or cap and has an internally projecting, integral head portion 3a whose inner surface is flush or substantially continuous with the inner surface of the safety hat or cap. Rivets 3 are in substantially the same horizontal plane as shown

2

in Fig. 1, arranged circumferentially adjacent the brim portion of the hat or cap. Spring clip 4 is provided with a key hole slot 4a and with two inwardly and horizontally outwardly extending integral ear portions 4c. It will be understood that each of the clips 4 is fastened to a separate bottom loop portion of the crown suspension 5 and comprises the sole means for attaching the suspension to the hat by detachably connecting clips 4 to the head portions 3a of rivets 3.

In operation, each of the clips 4 is first pushed into the corresponding corrugation 2 while the rivet is in registry with the largest hole portion of the key hole slot 4a, thereby flexing ear portions 4c as its extremities are held against the inner surface extremities of the corrugation. Thereafter the clip is pushed vertically upwardly so that the head portion 3a will slide along and push against the sides of the lower or most restricted portion of the key hole slot, as shown in Figs. 1 and 2, during which time ear portions 4c are in tension so as to provide a tight and yieldable fit with maximum friction between head portion 3a and the contacting slot portion of the clip.

It will be noted, therefore, that falling objects striking the hat or cap 1 will merely cause head portion 3a to move to the lower extremities of the key hole slot. It will also be noted that the upper, horizontally extending portion of clip 4 which includes slot 4b is also within the confines of the corrugation. Thus, neither the clips 4 nor any portion of rivets 3 will project beyond the inner surface of the cap or hat 1 toward the head of the wearer. Thus, even if a severe blow is struck on the side of the hat or cap, there is no possibility of pushing any portion of clip 4 or rivet 3 against the head of the wearer and injuring him. If desired, corrugations 2 may extend only slightly above clip 4 rather than being continued to the top of the cap or hat.

Inasmuch as the clips 4 are completely enclosed within the hollow portions of corrugations 2, a closer fit of the cap or hat is provided whereby even if a resilient shock absorbing ring (not shown) is interposed between the clips and sweat band portion of the crown suspension, such ring will not add appreciably to the thickness of the suspension so as to make the cap or hat appear greatly oversize, thus detracting from the appearance of the wearer. Furthermore, a side blow on the cap or hat will be more evenly distributed along the entire inner surface of the hat or cap if such surface is continuous with the inner surfaces of the clips, as shown, as distinguished from prior suspensions wherein the rivets and clips project inwardly of the hat surface, therefore providing spaced, high pressure points at which the resultant forces of the blow are concentrated and transmitted to the wearer's head.

Thus it will be seen that I have provided an efficient safety cap or hat having vertical corrugations in which the clips of the crown suspension and the fastening rivets of the hat are completely enclosed so as not to provide inward projections which would transmit concentrated forces as the result of a severe blow on the hat; furthermore I have provided a novel clip construction which provides a yieldable, high friction connection with the head of a fastening rivet so as to securely hold the detachable clip in place relative to the rivet and prevent accidental detachment.

While I have illustrated and described an embodiment of my invention, it will be understood that this is by way of illustration only, and that various changes and modifications may be made within the contemplation of my invention and within the scope of the following claims.

I claim:

1. A safety headgear including a rigid crown portion

3

having a plurality of circumferentially spaced, outwardly extending projections forming well portions adjacent the brim thereof, an inwardly projecting fastening element rigidly secured to the center of each projection adjacent said brim and having a radially inwardly extending stud portion terminating in an enlarged head portion which forms a shoulder, the inner terminal surfaces of said head portions being confined within said well portions, a crown suspension including a plurality of spring clips whose upper ends are secured to straps of said suspension and having key hole slots centrally thereof with the narrowest openings at the lower end and having laterally extending ear portions, the terminals of which span substantially the circumferential width of said projections within said well portions, whereby said spring clips may be pushed into said well portions while their terminals are anchored to and slid adjacent the extremities of said well portions until said head portions project beyond the narrowest openings of said keyhole slots so as to maintain said clips under tension and provide a tight and readily detachable, yieldable fit with maximum friction between said shoulders and the contacting portions of the clips.

2. A safety helmet having a crown portion of rigid material including a plurality of molded, circumferentially spaced, radially extending corrugations tapered upwardly and inwardly toward each other at the top, an inwardly projecting rivet secured to the center of each corrugation adjacent the brim portion of the helmet and having a radially inwardly extending stud portion termi-

4

nating in an enlarged head portion which provides a shoulder, the inner terminal surface of said head portions being totally enclosed within said corrugations so as not to provide inward projections toward the head of the wearer, a crown suspension including strap means attached to slots formed in the upper ends of a plurality of spring clips, each clip having a central key hole slot with the narrowest opening at the lower end and having a pair of integral, radially inwardly and outwardly extending ear portions whose terminals are anchored to and slid within the boundary surface of each corrugation while the spring clip is pushed into the corrugation, whereby said ear portions are flexed to maintain the clip under tension as its portion surrounding the narrowest part of the key hole slot is engaged with said shoulder so as to provide a tight, yieldable and readily detachable fit.

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