

May 13, 1958

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2,834,017

DETACHABLE SHIELD FOR SAFETY HATS

Filed March 28, 1955

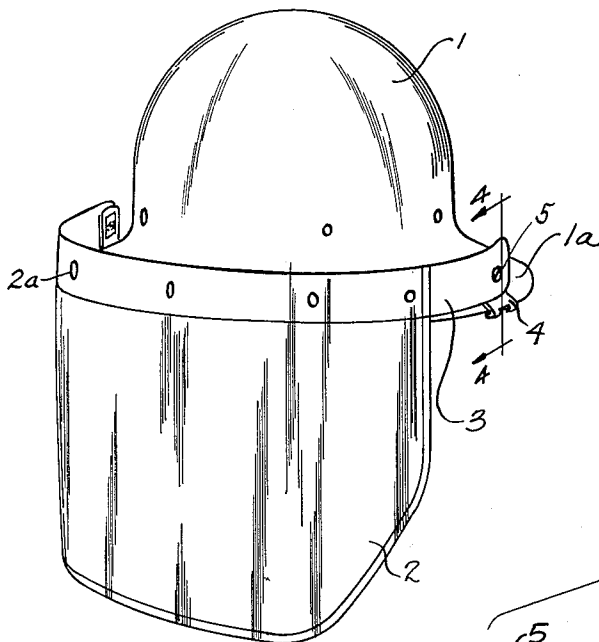


FIG 1

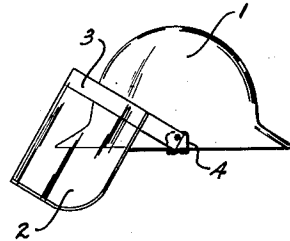


FIG 2

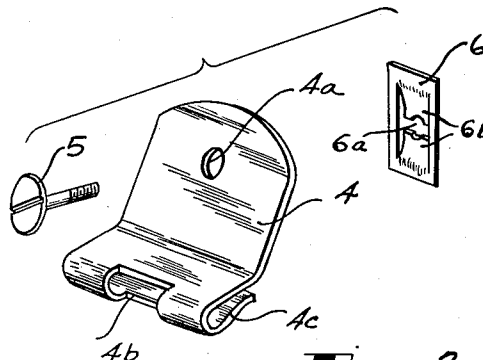


FIG 3

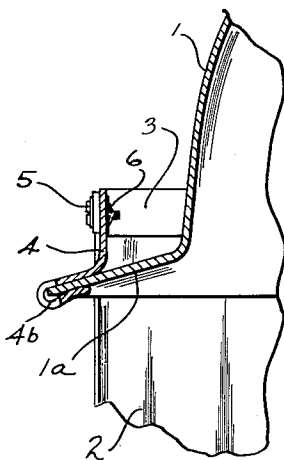


FIG 4

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DETACHABLE SHIELD FOR SAFETY HATS

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Application March 28, 1955, Serial No. 497,052

1 Claim. (Cl. 2—10)

The present invention relates to a detachable shield for safety hats and, more particularly, to detachable spring clip mountings for pivotally and adjustably supporting a face shield or other protective device on a safety hat or cap.

Heretofore, it has been common to provide, on a safety hat, a permanent attachment onto which a detachable, face protective shield could be mounted when needed. However such attachments constituted obstructions detracting from the appearance of the hat and, together with the shield mountings, have been cumbersome in construction and expensive to manufacture, partly because of the fact that such face protective shields are somewhat heavy and must be adjustably held at different and selected angular positions.

Furthermore such mountings have the further disadvantage of not lending themselves to easy and quick attachment to or detachment from the safety hat attachment and oftentimes require a semi-permanent type of connection.

An object of the present invention is to provide a combination safety hat and face protective shield including a novel detachable clip pair for detachably securing and pivotally mounting the shield on opposite side brim portions of the hat in a manner so as to overcome the above mentioned disadvantages of commonly used devices.

A more specific object of our invention is to provide a novel detachable clip of exceedingly simple and inexpensive construction which may be easily and quickly attached to or detached from the brim portion of a safety hat at the sides thereof, and which clip is adapted to pivotally mount, in an angularly adjustable manner, a face protective shield, goggle, helmet or similar protective device without the necessity of providing permanent fastener attachments on the hat.

A further object of the present invention is to provide a novel spring clip construction for mounting face protective shields on a safety hat, which spring clip is of such construction as to be attachable to a wide variety of hats or caps having varying brim thicknesses or contours, including outer beads, and without any tendency of lateral twisting movement while clipped on the brim portion of the hat.

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

Figure 1 is a front perspective view of a combination safety hat and face protective shield supported thereon by novel clip and pivotal supporting elements embodying the principles of the present invention;

Figure 2 is a side view of the hat and shield combination shown in Figure 1 but wherein the shield is shown as being held in a raised, angular position;

Figure 3 is an enlarged perspective and exploded view of one of the clips and associated fastening elements such as clipped onto brim portions on opposite sides of the hat as shown in Figure 1; and

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Figure 4 is an enlarged, fragmentary sectional view taken along line 4—4 of Figure 1.

Referring more particularly to the drawing, numeral 1 denotes a safety hat or helmet which may be made of metal, plastic, such as fiber glass reinforced plastic, or of other suitable material, and having a brim portion 1a. A curved face protective shield or visor 2 of transparent material, such as plastic, is attached to a visor support or strip 3 by suitable fastening means, such as rivets or screws 2a. Visor support 3 is in the form of a strip of relatively stiff but flexible material, such as molded plastic. The lower edge of the strip 3 forms a stop which limits the downward pivotal movement of the shield 2 by resting on the brim portion 1a of the hat. While strip 3 may be simply a flat strip of material, in the case of a safety hat as shown, instead it may be provided with a lower inwardly extending flange so as to provide a somewhat L-shaped cross-section particularly in case the shield is to be supported on a hat having a shorter brim, or perhaps a cap having no side brim portions at all.

A hole is provided at each end portion of strip 3 through each of which holes there may be passed the shank portion of a bolt 5, which shank portion is also passed through hole 4a of a corresponding clip 4, for providing the pivotal axis about which the shield 2 may turn. The threaded part of bolt 5 is preferably screwed into a hole 6a of a speed nut 6 having cut out and protruding leaves 6b to form a yieldable, spring washer-like connection with the threads.

Thus, the visor support strip 3 is pivotally mounted so as to turn about holes 4a of the clips 4 as an axis. By turning clockwise the kerf of bolt 5 by means of a coin or screw-driver so as to pull in leaves 6b of the speed nut 6, a progressive tighter friction fit will be obtained between visor support 3 and clip 4. Thus by properly adjusting the friction at the pivot, shield 2 may be made so that it can be lifted by hand without too much effort and yet may be held in an inclined elevated position as shown in Figure 2 upon release of the hand. A looser friction fit would allow the shield to move merely by a nod of the head.

Clip 4 has a spring clip portion 4c in the form of a partially closed loop having an outer or convex portion of greater width than the end portion so as to accommodate, within the loop, a bead at the outer edge of the brim of the hat, also so as to be attachable to brims of different thicknesses.

An important feature of clip 4 is the provision of a central cut out portion 4b so that it will permit outward projection therethrough of the outer edge of the brim portion of the hat onto which clip 4c grasps and thus prevent lateral twisting movement of spring clip 4c while clipped on the brim. That is to say, if there were no cut out portion 4b, the outer edge of the brim would provide only a single point of contact, tangentially with the inner wall of the convex portion of spring clip 4c and thus the spring clip 4c would rock along the edge of the brim as the result of pivotal movement of shield 2 and therefore would provide a somewhat unstable support.

In operation, the shield assembly comprising shield 2, strip 3, and clips 4 pivotally attached to the ends thereof, may be easily and quickly mounted on hat 1 by simply clipping on portions 4c to brim 1a at both sides of the hat. The lower edge of strip 3 acts as a stop and will rest on brim portion 1a at the lowermost position of shield 2. By suitable tightening of bolts 3 to obtain the desired friction between strips 3 and clips 4, shield 2 may be raised to any desired angular position and held there by friction.

When it is desired to remove shield 2, the ends of strip

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3 are grasped and pulled apart so as to unclip the clips 4 from the brim.

If it is desired to substitute some other type of face protector, such as a pair of goggles or perhaps even a welding shield, these may be rigidly supported by a strip similar to strip 3, and the latter rotatably mounted on clips 4 in the same way as described above. Of course, if a shield of similar shape to shield 2 were to be substituted therefor, screws 2a may be removed to permit removal of shield 2 and substitution of a new shield having corresponding holes made.

Thus it will be seen that we have provided an efficient, simple, and inexpensive assembly for detachably fastening a face protective shield on a safety hat or cap in a quick and easy manner and without the necessity of permanent attachments on the hat, or of cumbersome and expensive connections between the hat and shield; furthermore we have provided a novel construction of spring clip adapted for attachment to the brim portion of a safety hat in a secure manner, eliminating any tendency of rocking, thus assuring stable support even of relatively heavy protective shields; furthermore we have provided friction adjusting means which can be adjusted very simply by the use of a coin to permit the shield to be frictionally held in any desired angular position with respect to the hat, which shield is also provided with a supporting strip which also acts as a stop element for limiting pivotal movement of the shield in a downward direction.

While we have illustrated and described a specific embodiment of our 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 our invention and within the scope of the following claim.

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We claim:

In combination with a safety helmet having a crown and an outwardly extending brim at the front part thereof, an arcuate transparent shield of substantially the same radius as the brim for protecting the face of the wearer, a flexible strip bent into arcuate shape and rigidly secured across the upper portion of the shield and projecting outwardly beyond the shield, a pair of readily detachable supporting clips clipped onto opposite side portions of said brim for rotatably supporting the end portions of said strip, each of said clips being in the form of a single strip of spring metal having a substantially U-shaped portion adapted to be clipped onto a side portion of said brim and having a vertical portion extending upwardly from one of the extremities of said U-shaped portion and inwardly of said brim, said vertical portion having a hole with a bolt extending therethrough, the ends of the strip extending from said shield across the brim and being pivotally attached to the said vertical portion by the said bolt.

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