June 9, 1959 W. A. STUART ET AL 2,889,555

HELMET WITH SIDE SHIELDS

Filed Feb. 21, 1957

Fig. 1.

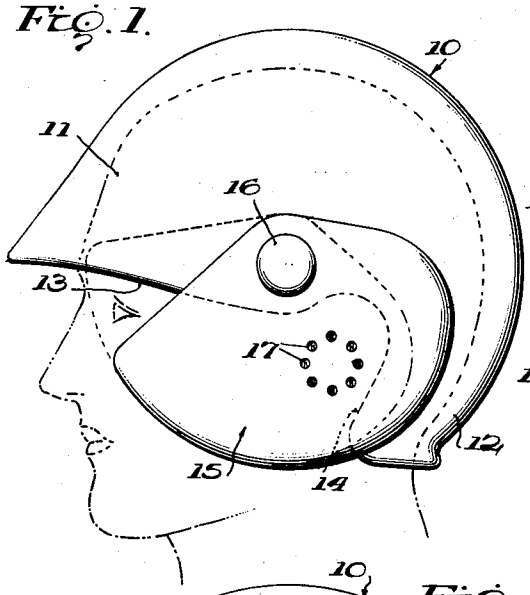


Fig. 2.

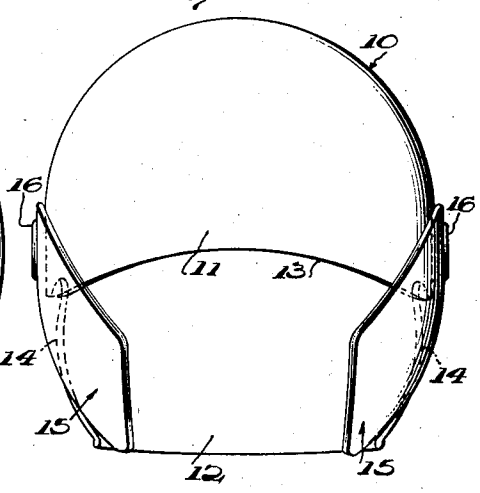
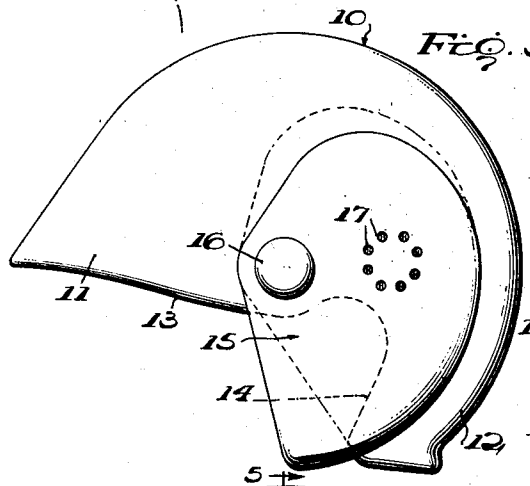


Fig. 3.



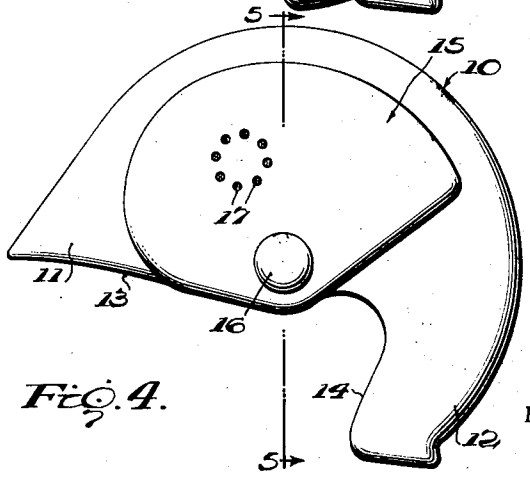
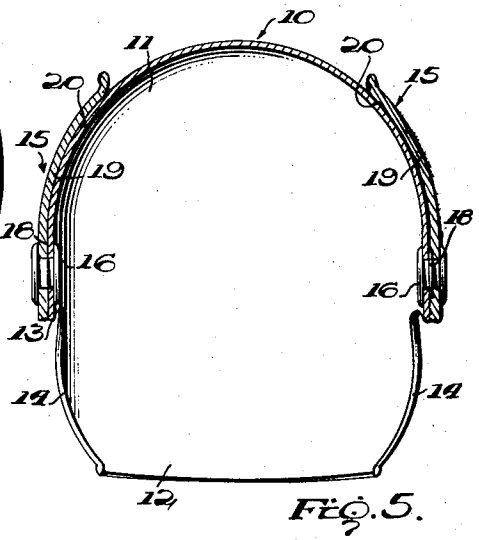


Fig. 4.

Fig. 5.



INVENTORS

Whitney A. Stuart.
Leonard G. Huxtable.

BY W. J. Eccleston.

ATTORNEY

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HELMET WITH SIDE SHIELDS

Whitney A. Stuart, New Brunswick, N.J., and Leonard G. Huxtable, New York, N.Y., assignors to the United States of America as represented by the Secretary of the Army

Application February 21, 1957, Serial No. 641,775

3 Claims. (Cl. 2—6)

The invention relates to protective helmets or the like, particularly helmets which comprise a shell of relatively rigid material such as metals, alloys thereof, or synthetic plastic materials.

Such helmets are well known and, of necessity, must have a head opening larger than the largest dimensions of the head to permit the helmet to be put on and taken off. It follows then, that the same cannot have a reasonably close fit in the face or neck areas unless they include portions which are hinged to the crown portion of the helmet shell. Hinges are not only expensive and heavy whereby to add to the cost and weight of the shell but they are easily damaged by the rough usage incident to military operations and are correspondingly difficult to repair in the field.

With the foregoing in view, it is an object of the invention to provide an improved helmet shell of the class described.

A further object is to provide an improved shell which includes a relatively small shell body together with supplementary covering means mounted on said body for movement from inoperative positions at least substantially entirely overlying said shell to an infinite number of operative positions wherein the said covering means projects beyond the shell to augment the protection offered by the shell body.

A further object is to provide an improved device such as that last described wherein said supplementary covering means has at least two-point support on said shell in every operative position.

Other objects and advantages reside in the particular structure of the device, the structure of the several elements comprising the same, combinations and subcombinations of such elements, all of which will be readily apparent to those skilled in the art upon reference to the drawing which illustrates an embodiment of the invention and to the following specification wherein the invention is described and claimed.

In the drawing:

Figure 1 is an elevational view of a helmet including the invention, the parts being shown in two operative positions;

Figure 2 is a front view of Figure 1;

Figure 3 is a view like Figure 1, the parts being shown in two other operative positions;

Figure 4 is a view like Figure 1, the parts being shown in the inoperative position; and

Figure 5 is a vertical sectional view taken substantially on the plane of the line 5—5 of Figure 4.

Referring specifically to the drawing wherein like reference characters designate like parts in all views, **10** designates generally a helmet shell according to the invention which includes a crown portion **11** and a nape or neck protecting portion **12**. Said crown and nape portions **11** and **12** respectively have lower and front edge portions **13** and **14** which intersect on opposite sides of the helmet to define the top and rear limits of substantially triangular areas which normally expose the side portions of the face and head of the wearer as clearly seen in Figure 1. The arrangement is such that although the nape portion **12** of the shell is shaped to have a close fit with the lower portion of the skull and the nape, the helmet may be readily donned and doffed because the lower edge **13** of the crown portion **11** is extended rearwardly past the vertical center line of the head and is located on or just above the line of the greatest width of the head. Thus, the helmet may be put on by seating the nape portion first and thereafter swinging the crown portion **11** downwardly. In this connection, it is understood that the shell **10** is provided on the inside with suitable sweat band and head supporting cradle (not shown) when the shell is formed as a helmet liner. A typical and suitable sweatband and cradle are shown in the patent to Riddell, No. 2,250,275. However, when the helmet **10** is worn over a liner, such sweatbands and cradle are omitted. Therefore, it should be understood that the helmet according to the invention may comprise either a helmet liner-type of head covering or it may be a mere shell for covering a helmet liner.

To cover the exposed areas which are partially defined by the lower and front edges **13** and **14**, covering means now to be described have been provided. In the embodiment illustrated, such means comprise a pair of covering means **15** which may be generally oval in shape and which are secured for pivotal sliding movement over the nape and crown portions **12** and **11** respectively, by suitable pivot-providing means **16**. Pivot means **16** are coaxial and are located in the crown portion **11** above edge **13** and forwardly of edge **14**. The covering means **15** may be formed with suitable apertures **17** to ventilate them or to permit sounds to reach the ears of the wearer more readily. The pivots **16** may include any suitable or well known friction washers **18** (Figure 5), between the covering means **15** and the crown portion **11** to resist pivoting of the former and to frictionally retain them in adjusted positions.

Likewise, the portions of the crown portion **11** and nape portion **12** which partially surround the pivots **16** have convex outer surfaces **19**, Figure 5, of generally uniform curvature while the inner surfaces **20** of the covering means **15** are concave and have a curvature complementary to the convex surfaces **19** aforesaid. The concave surfaces **20** of the covering means **15** are disposed concentrically of the convex surface portions **19** and have a close sliding fit thereover to present a neat appearance as well as to minimize the chances of being caught on projections and accidently moved. Likewise, this close fit tends to augment the action of the friction washers **18** in maintaining the covering means in their several positions.

In operation, when the helmet is to be donned, the covering means are moved to the inoperative or raised positions of Figure 4. If the need for maximum protection does not exist, they may be left in such positions to permit maximum head ventilation and coolness. From such inoperative positions, the covering means **15** may be swung downwardly to any of an infinite number of operative positions as required by the wearer. Thus, in Figure 1, in solid lines, one covering means **15** has been moved to an operative position which substantially entirely covers the triangular area defined by the edges **13** and **14**. At the same time, a V-shaped area has been left exposed to the side of the wearer's eye to permit side vision. If maximum protection is needed more than side vision, this V-shaped area may be eliminated by moving the covering means **15** further to the fully closed position, shown in broken lines, Figure 1. Figure 3 in solid and broken lines illustrates two more positions of the covering means **15**. Obviously, the covering means **15** may be

positioned at any intermediate position between the inoperative positions of Figure 4 to the fully closed operative position shown in broken lines in Figure 1.

An important feature of the invention is that in all operative positions of the covering means **15**, they bridge a portion of the exposed area so as to have at least a two-point support on the edges **13** and **14**. Thus, substantially all of the surface areas of the covering means are braced against inward movement toward the face by this two-point support. This allows the covering means **15** to be unpadded and permits a close fit with the shell **10**.

The structure shown and described hereinabove has many advantages over a closed type helmet. When one of the side covering means **15** is up, as shown in Figure 4, the helmet is most compatible with rifle firing and since each covering means pivots independently of the other the helmet is ideally suited for either a right handed or for a left-handed rifleman. Obviously, ventilation is greatly improved and hearing is unimpaired when the covering means are up. Further advantage of the individual covering means **15** lies in the flexibility. Specially designed covering means could incorporate communications equipment, etc. This lends itself to economy as the base shell **10** would never have to be changed.

While there has been shown and described what is now thought to be a preferred embodiment of the invention, it should be understood that the same is susceptible of other forms and expressions. Consequently, the invention is not limited to the precise structure shown and described hereinabove except as hereinafter claimed.

We claim:

1. The combination with a helmet shell including crown and nape portions respectively having lower and front edges which intersect on opposite sides of said helmet at acute angles to define the top and rear limits of substantially triangular areas exposing side portions of the face and head of the wearer, covering means for said areas, means mounting said covering means on said shell in frictional engagement therewith for sliding movement from operative positions at least substantially entirely clear of said areas to any of an infinite number of operative positions, one operative position for each covering means covering at least the entire related area and the other operative positions covering lesser portions of the area, said covering means, crown and nape portions having concentric and complementary abutting surfaces, and said covering means being shaped to bridge said areas and have supporting bearings on both said lower and front edges of said shell in all operative positions.

2. The combination with a helmet shell including crown and nape portions respectively having lower and front edges which intersect on opposite sides of said helmet to define the top and rear limits of substantially triangular areas exposing side portions of the face and head of the wearer, said front edges extending downwardly and forwardly so as to underlie portions of said lower edges, covering means for said areas, means mounting said covering means on said shell in frictional engagement therewith for sliding movement from operative positions at least substantially entirely clear of said areas to any of an infinite number of operative positions, one operative position for each covering means covering at least the entire related area and the other operative positions covering lesser portions of the area, said shell including two convex outer side surface portions, and said covering means including concave inner surfaces which are complementary to said convex outer surface portions and are disposed at least partially thereon in concentric relation thereto in all positions of said covering means, and said covering means being shaped to bridge said areas and have supporting bearings on both said lower and front edges of said shell in all operative positions.

3. The combination of claim 2 wherein said means mounting said covering means includes a pivot pivotally mounting each covering means and a friction washer on each pivot between said convex and concave surfaces for resisting pivotal movement of each covering means.

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"Helmets and Body Armor in Modern Warfare," copyright 1920, by the Yale University Press, page 229, Figure 178. (Copy in Division 24.)