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NECK SHIELD FOR PROTECTIVE HELMET

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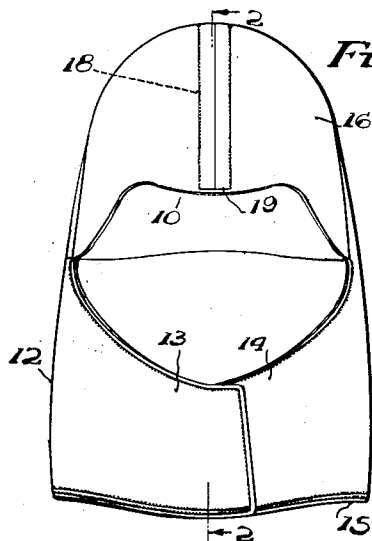


Fig. 1.

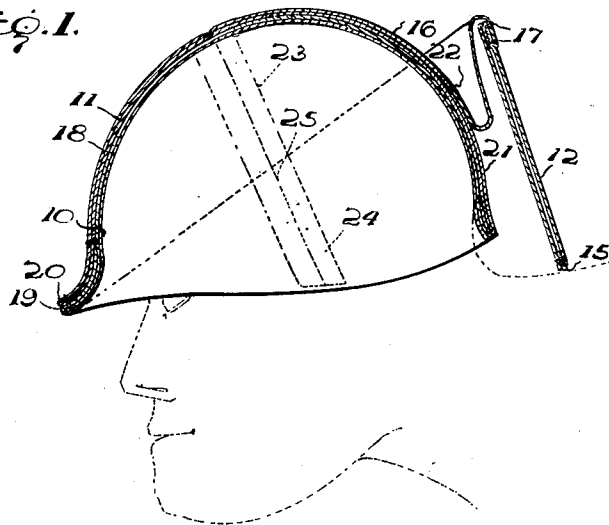


Fig. 2.

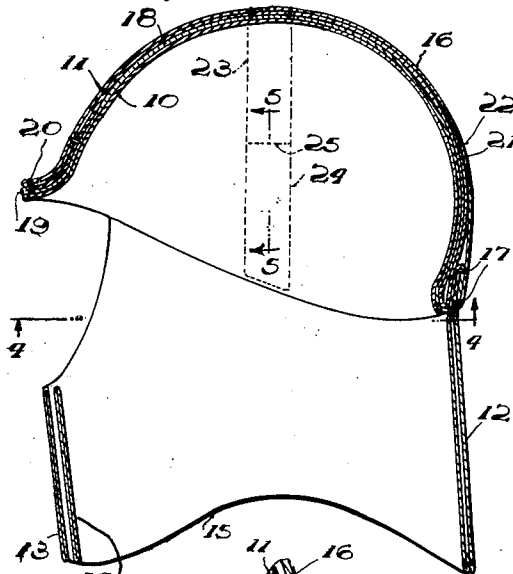


Fig. 3.

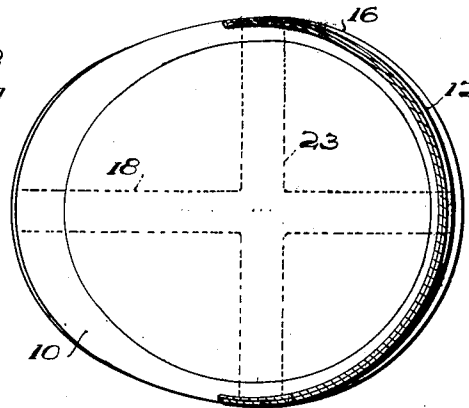
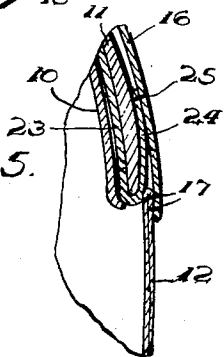


Fig. 4.

Fig. 5.



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NECK SHIELD FOR PROTECTIVE HELMET
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5 Claims. (Cl. 2—6)

(Granted under Title 35, U.S. Code (1952), sec. 266)

The invention described herein, if patented, may be manufactured and used by or for the Government for governmental purposes, without the payment to me of any royalty thereon.

The invention relates to supplemental armor for protective helmets of the type which comprise a substantially rigid shell comprising a crown and a brim. Such helmets are well known and many designs of the same have been used in the past. Militarily, they have the weakness that they cannot provide protection below the brim, particularly at the rear of the helmet and still permit the wearer free head tilting movement. Thus, the wearer of a helmet of World War I vintage had no all around protection below the brim. In World War II the brim was formed with a depending side and rear portion which defined an ear and nape protecting portion. However, even this structure left exposed areas below the nape and ear protecting brim portions which were necessary if the wearer were to be permitted to look upwardly.

With the foregoing in view, it is an object of the invention to provide an improved accessory for a helmet which comprises an improved armored curtain depending from the brim thereof to protect those areas of the face or neck which would otherwise be exposed by the particular helmet being worn.

A further object is to provide such an improved accessory which includes a novel connection with the helmet which permits free tilting movement of the head without either dislodging the helmet or injuring the wearer.

Other objects and advantages reside in the particular structure of the accessory, the structure of the several elements of the same, combinations and subcombinations of such elements with each other and/or with a helmet, helmet liner or the head of a wearer, all of which will be readily apparent to those skilled in the art upon reference to the attached drawing in connection with the following specification wherein the invention is shown, described and claimed.

In the drawing:

FIGURE 1 is a frontal elevational view of one form of the invention the same being shown applied to a helmet and helmet liner;

FIGURE 2 is a longitudinal vertical sectional view taken substantially on the plane of the line 2—2 of FIGURE 1;

FIGURE 3 is a view like FIGURE 2 but showing the operation of the device when the wearer's head is tilted back;

FIGURE 4 is a horizontal sectional view taken substantially on the plane of the line 4—4 of FIGURE 2, and

FIGURE 5 is an enlarged fragmentary vertical sectional view taken substantially on the plane of the line 5—5 of FIGURE 2.

Referring specifically to the drawing, wherein like reference characters designate like parts in all views, 10 designates a conventional helmet liner which is nested in a conventional helmet shell 11. Both liner 10 and shell 11 are of World War II vintage but could obviously assume other shapes. As will appear liner and helmet may be combined in a single unit.

A relatively stiff armored curtain 12 is arranged to depend from at least the back and side portions of the brim

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of the helmet liner assembly. Forward extensions 13 and 14 of said curtain 12 may overlap each other in downwardly spaced relation to the visor portion of the helmet brim to provide a face opening. Extensions 13 and 14 are detachably secured together by any suitable separable fastening means, not shown. The curtain 12 has a lower edge 15 which is contoured and sized to have a close fit on at least the shoulders and back of a wearer to insure complete protection between those points and the brim of the helmet. The curtain 12 may be formed of any suitable material such as two or more plies of nylon duck impregnated with a suitable plastic material or any other well known material. The specific material of which 12 is formed is not considered to be a part of the invention. As the curtain 12 is substantially stiff, it is obvious that a rigid connection between the same and the helmet will effectively prevent any tilting movement of the head of a wearer whereby not only to insure discomfort in the way of a stiff neck but also to impose sharp limitations on the wearer's field of vision. Therefore, a novel connection has been provided which permits substantially free tilting of the head of a wearer in any direction without exposing any area protected by the curtain 12.

In the embodiment illustrated, this connection is included in a cover 16 for the helmet 11 which is complementary thereto and which receives the same therein with a close fit. The cover 16 and curtain 12 preferably have overlapping lower and upper edges respectively which are secured together in any suitable manner as by the lines of stitching 17. Cover 16 is secured to the helmet assembly by one or more flexible tethers 18 and 23 which may have opposite ends connected to the cover and central portions which span the interior of the helmet shell 11 and are held therein by the liner 10 or the head of a wearer in a manner readily understood.

In the embodiment illustrated, the flexible tether or strap 18 has a forward end 19 which is secured in any suitable manner as by stitching 20 to the cover 16 in the immediate region of the visor portion of the helmet brim. It has a rear end portion 21 which extends across the back portion of the helmet brim and upwardly over the shell 11 beneath the cover 16. The tip of said rear end portion 21 is secured, as by stitching 22, to the cover 16 a substantial distance above the back portion of the helmet brim whereby to provide a substantially wide portion of the cover 16 below the connection 22 which is free of the helmet. Thus, when the wearer tilts his head backwards as in FIGURE 3, the curtain 12 rides up over the helmet without discomfort to the wearer and without exposing any part covered by the curtain.

In addition to the tether 18 or in place thereof, there may be provided a second flexible member 23 which extends transversely. Such tether 23 has side end portions 24, which are extended across side portions of the brim and then upwardly over the helmet beneath the cover 16. Such side end portions 24 have tips which are secured or connected to the cover 16 inwardly thereof substantial distance above the side portions of the helmet brim. These connections may comprise stitching 25 and they function just as did the previously described connection 22 or as a supplement to it when used therewith. Thus, the central portion of tether 23 extends across the interior of the shell 11 and is secured therein by the liner 10 or the head of a wearer. The side end portions extend across the side portions of the brim and upwardly over the exterior of shell 11 to the connections 25.

It follows from the foregoing that a wearer may tilt his head in any direction without discomfort and without there being any tendency for the rising curtain to lift the helmet assembly off of his head. In this connection, when the wearer tilts his head downwardly, there

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may be some slight closing of the face opening but no other action. Thus, the connection 20 at the visor portion of the brim retains the cover 16 against rearward movement under the weight of the curtain 12. Of course, when the head is untitled, gravity maintains the parts in their proper positions.

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

I claim:

1. The combination with a protective helmet including a brim having a front visor portion, two opposite side portions and a back portion; of a flexible cover complementary to said helmet and receiving the same therein, a relatively stiff armored curtain secured to said cover and depending therefrom below at least said side and back portions of said brim, flexible anchor means secured within said helmet, said anchor means extending across at least said back portion of said brim and upwardly over said helmet beneath said cover, said anchor means having a tip secured to said cover a substantial distance above said back portion of said brim whereby to provide a substantially wide cover portion below said connection which is free to move upwardly of said helmet with said curtain.

2. The combination with a protective helmet including a brim having a front visor portion, two opposite side portions and a back portion; of a flexible cover complementary to said helmet and receiving the same therein, a relatively stiff armored curtain secured to said cover and depending therefrom below at least said side and back portions of said brim, flexible anchor means secured within said helmet, there being two opposed side anchor means and a rear anchor means, said side anchor means extending across said side portions of said brim and upwardly along said helmet beneath said cover, said rear anchor means extending across said back portion of said brim and upwardly of said helmet beneath said cover, and all of said anchor means having tips secured to said cover substantial distances above said brim to provide a substantially wide cover portion below said tips which is free of said helmet.

3. The combination with a protective helmet including a brim having a front visor portion, two opposite side portions and a back portion; of a flexible cover complementary to said helmet and receiving the same therein, a relatively stiff armored curtain secured to said cover and depending therefrom below at least said side and back portions of said brim, anchor means connected to said helmet, said anchor means comprising at least one flexible strap having front and rear ends and a central portion, said central portion being disposed inside said helmet and retained therein by the head of a wearer, said front end being secured to said cover in the region of said visor portion of said helmet brim, said rear end of said strap extending across said back portion of said brim and being then upwardly directed over said helmet beneath said cover, and said rear end having a tip secured to said cover a substantial distance above said back portion of

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said brim to provide a substantially wide cover portion below said rear end of said strap which is free of said helmet.

4. The combination with a protective helmet including a brim having a front visor portion, two opposite side portions and a back portion; of a flexible cover complementary to said helmet and receiving the same therein, a relatively stiff armored curtain secured to said cover and depending therefrom below at least said side and back portions of said brim, anchor means connected to said helmet, said anchor means comprising a flexible strap having opposite ends and a central portion, said central portion being disposed inside said helmet and extending transversely thereof, said central portion being retained in said helmet by the head of a wearer, said opposite ends of said strap being extended across said opposite side portions of said brim and then upwardly along said helmet beneath said cover, and said opposite ends of said strap having tips secured to said cover substantial distances above said side portions of said brim to provide a substantially wide cover portion therebelow and rearwardly thereof which is free of said helmet.

5. The combination with a protective helmet including a brim having a front visor portion, two opposite side portions and a back portion; of a flexible cover complementary to said helmet and receiving the same therein, a relatively stiff armored curtain secured to said cover and depending therefrom below at least said side and back portions of said brim, anchor means connected to said helmet, said anchor means comprising first and second crossed flexible tethers, said first tether extending longitudinally of said helmet and having front and rear ends, said second tether extending transversely of said helmet and having opposite ends, said tethers having central portions disposed inside said helmet and secured therein by a helmet liner or the like, said front end of said first tether being secured to said cover in the region of said visor portion of said helmet brim, said rear end of said first tether being extended across said back portion of said brim and upwardly over said helmet beneath said cover, said rear end having a tip secured to said cover a substantial distance above said back portion of said brim, and said opposite ends of said second tether being extended across said side portions of said brim and upwardly along said helmet beneath said cover, said opposite ends having tips secured to said cover substantial distances above said side portions of said brim, whereby to provide substantially wide side and rear portions of said cover below said last named three ends of said tethers which are free to move upwardly of said helmet with said curtain.

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