



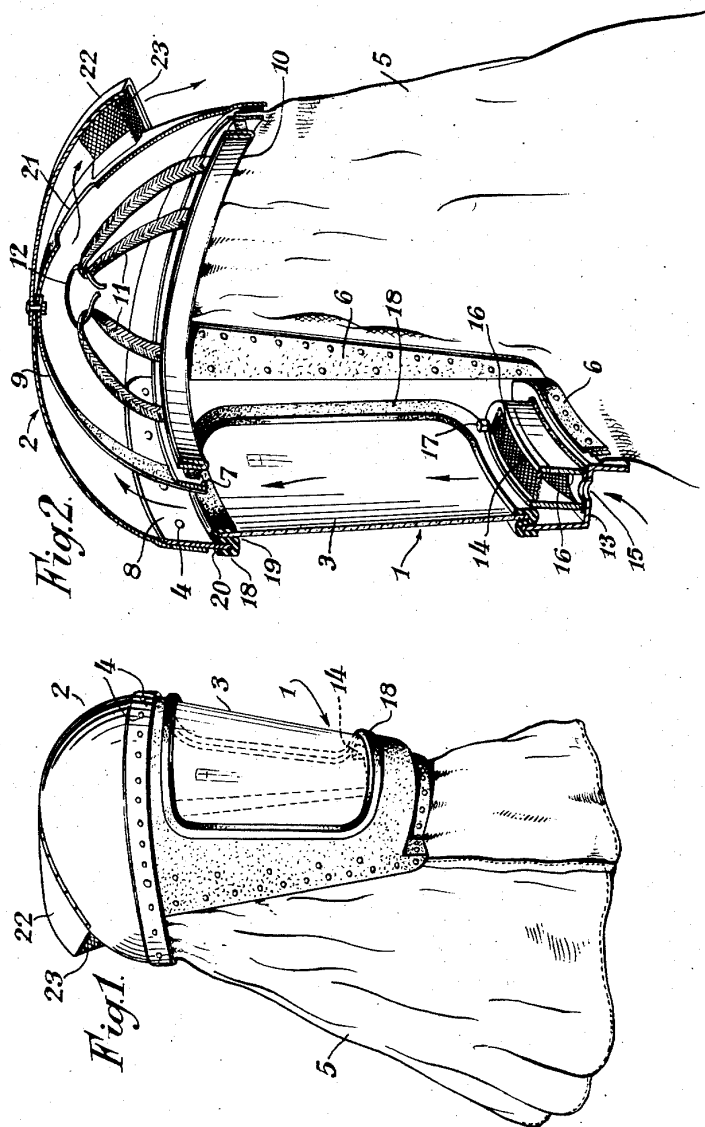
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PROTECTIVE HOOD

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PROTECTIVE HOOD

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The invention relates to protective hoods or helmets, such for example as those commonly used by welders and chemical workers.

The invention has among its objects to provide an improved form of protective hood which can be worn without discomfort, while working for prolonged periods, and which is provided with an adequate supply of fresh air for breathing, even when the temperature of the atmosphere outside the hood is such as would normally allow the hood to be worn only for limited periods.

According to the invention, a protective hood or helmet formed with a face-shield is provided with a filter immediately below the face-shield in the front of the hood or helmet and with an exit at the top or crown of the hood or helmet, whereby circulation of air within the hood or helmet is induced upwardly and over the face of the wearer.

According to the invention furthermore, the filter is so positioned as to be protected against the flow of liquids or other foreign bodies into the hood or helmet, except when directed upwardly and directly against the external inlet to the filter.

The invention is diagrammatically illustrated by way of example in the accompanying drawings, in which:

Figure 1 is a perspective view of the outside of the hood or helmet, and

Figure 2 is a cut-away perspective view on an enlarged scale of the hood or helmet.

The hood or helmet may be made of a light, rigid and durable material, and may comprise the facepiece 1 of curved form substantially semi-circular in transverse section to mask the face of the wearer, and the crown 2, of substantially dome-shape to form a covering for the skull of the wearer. In the facepiece 1 is mounted a curved panel 3 of a transparent substance such as cellulose acetate.

The two parts 1 and 2 are secured together along their contiguous edges by metal rivets 4 to form an air-tight joint.

The material of which the hood or helmet is made may be externally coated with an acid-resisting paint.

Secured to the edges of the facepiece 1 and the crown 2 is a skirt or apron 5 which is adapted to complete the enclosure of the wearer's head and is of such dimensions as to depend in use as far as, or beyond, the shoulders of the wearer so as to permit barring completely or substantially the entrance of air into the helmet

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under the skirt. The skirt or apron 5 is secured to the facepiece and crown by means of strips 6 of a stiff reinforcing fabric material, which extends around the edges of these two parts of the hood or helmet on the inner surface, to secure the edges of the skirt between the strips 6 and the inner surfaces at the free edges of the hood or helmet. The skirt may advantageously be made of cotton impregnated or otherwise treated with polyvinyl chloride.

A strip of reinforcing material is provided around the lower edge of the crown 2 of the hood or helmet as a substantially oval frame 7 to follow generally the shape of a human skull, and mounted eccentrically with respect to the crown 2 to be secured at the back of the crown and leaving a space 8 of crescent shape in transverse section at the front. The front of the frame 7 is held in position in relation to the roof of the crown 2 by a curved strip 9 of the reinforcing material extending from the front rearwardly. On the outside of the frame 7 is connected, in known manner, a padded strip 10 with looped tapes 11, a string or tape 12 being threaded through the loops of the tapes, whereby the hood or helmet may be adjusted to the shape of the head of the wearer so as to fit comfortably.

The lower edge of the facepiece 1 below the transparent panel 3 is set back towards the neck of the wearer, to form a ledge or shoulder 13 on the inside of the hood or helmet for the reception of a filter casing 14 in which may be carried any suitable adsorptive material such as activated carbon, silica gel or the like, depending upon the gases or atmosphere in which the wearer is required to work, or instead of a chemical filter, a mechanical filter may be provided.

The underface of the ledge or shoulder 13 on the outside of the hood or helmet is provided with a series of holes 15 providing the only air inlet to the hood or helmet, thus ensuring that all air is filtered before it is passed to the wearer.

The filter casing 14 may be formed of a plastic substance having wire gauzes 16 at top and bottom to hold the filter medium, and mounted with air-tight fit on the ledge or shoulder 13 in the hood or helmet with an encircling strip of rubber or the like in the form of a washer, interposed between the bottom of the casing 14 and the surface of the ledge or shoulder 13, the whole being assembled by means of screw-threaded bolts 17 provided to extend vertically through holes provided one in each end of the casing.



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The transparent panel 3 of arcuate form is mounted in the face-piece 1 of the hood or helmet, which is cut away at the appropriate position for its reception. The panel 3 may be made of any suitable non-inflammable heat resisting transparent substance, such as cellulose acetate, and may be mounted with air-tight fit in the cut-away part of the facepiece by means of an endless strip of rubber or the like 18 forming a seating. The strip 18 is of substantially S-section to present two opposed and adjacent grooves or channels 19 and 20 respectively, in the inner of which 19 the edges of the panel 3 are received, and the outer 20 of which engages the edges of the cut-away portion of the facepiece, thus ensuring an air-tight joint between the facepiece and the panel 3, which is thus also readily removable for replacement or repair.

The crown 2 of the hood or helmet is cut-away at a rear position to serve as an outlet 21 for the air passing upwardly into the hood or helmet through the filter casing 14. The outlet 21 is covered by a small hood or casing 22 which, increasing progressively in transverse cross-section is directed rearwardly and downwardly to follow the curve of the rear part of the crown 3 of the hood or helmet, and within the mouth of which is mounted a gauze or screen 23 to prevent accidental entry of foreign bodies through the outlet 21.

In use, air for ventilating the inside of the hood or helmet passes upwardly through the filter casing 14 and from bottom to top across the face of the wearer, and out at the top via the crescent-shaped space 8 between the inner surface of the hood or helmet and the forehead of the wearer, to the outlet at the back of the crown 3, thus ensuring an adequate supply of fresh filtered air for the wearer, while ensuring a free passage for the air through the helmet. The air entering the hood or helmet passes close to the inner face of the transparent panel thus preventing condensation of moisture on the panel to obstruct the view of the wearer through the panel.

The particular disposition of the filter ensures that it is protected against the entry through the air holes in the base of any liquids or other foreign bodies, except those directed from below and directly against the holes.

I claim:

1. A protective hood comprising in combination a crown part, a face-shield part depending from the front of said crown part and having a transparent panel portion dimensioned to extend over substantially the full length of the face of the wearer when the hood is in use, a head-enclosing apron secured to the edges of said crown part and of said face-shield part, and air filter means disposed at the base of said face shield part below said panel portion and spaced inwardly from said transparent section, said crown part having an outlet at a rear position thereof, whereby circulation of air is induced upwardly through said air filter means and across the face of the wearer to said outlet.

2. A protective hood according to claim 1, comprising means providing an inner supporting frame eccentrically arranged within said helmet, whereby a large space is formed for the passage of air between the helmet and frame with the space at the front between said helmet and frame being wider than the space at the rear.

3. A protective hood according to claim 1, in which said face-shield comprises air-tight flex-

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ible seating means within which said panel portion is removably mounted on said face-piece.

4. A protective hood according to claim 1, wherein said apron is formed of cotton impregnated with polyvinyl chloride.

5. A protective hood according to claim 1, wherein said helmet including said apron is externally coated with an acid-resisting paint.

6. A protective hood comprising in combination a crown part, a face-shield part depending from the front of said crown part and having a transparent panel portion dimensioned to extend over substantially the full length of the face of the wearer when the hood is in use, a head-enclosing apron secured to the edges of said crown part and of said face-shield part, and air filter means disposed at the base of said face-shield part below said panel portion, said crown part an outlet at a rear position thereof, whereby circulation of air is induced upwardly through said air filter means and across the face of the wearer to said outlet, and a casing over said outlet in the crown of the helmet, said casing being arranged to direct air issuing from said outlet rearwardly and downwardly.

7. A protective hood according to claim 6, comprising protective air screening means mounted in said casing.

8. A protective hood according to claim 7, wherein said protective air screening means is a gauze.

9. A protective hood comprising in combination a crown part, a face-shield part depending from the front of said crown part and having a transparent panel portion dimensioned to extend over substantially the full length of the face of the wearer when the hood is in use, a head-enclosing apron secured to the edges of said crown part and of said face-shield part, and air filter means which is of the chemical filter type, disposed at the base of said face-shield part below said panel portion, said crown part having an outlet at a rear position thereof, whereby circulation of air is induced upwardly through said air filter means and across the face of the wearer to the outlet.

10. A protective hood as defined in claim 9, in which the chemical filter is selected from the group consisting of active carbon and silica gel.

11. A protective hood comprising in combination a crown part, a face-shield part depending from the front of said crown part and having a transparent panel portion removably mounted on said face piece and dimensioned to extend over substantially the full length of the face of the wearer when the hood is in use, said face-shield being provided with an opening for said transparent panel and having flexible seating means formed as an endless flexible strip of substantially S-shape section with adjacent grooves or channels respectively to receive the transparent panel portion of the face-shield and to engage the edge of said opening in the face-shield, a head-enclosing apron secured to the edges of said crown part and of said face-shield part, and air filter means disposed at the base of said face-shield part below said panel portion, said crown part having an outlet at a rear position thereof, whereby circulation of air is induced upwardly through said air filter means and across the face of the wearer to said outlet.

12. A protective hood comprising in combination a crown part, a face-shield part depending from the front of said crown part and having a transparent panel portion dimensioned to extend



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over substantially the full length of the face of the wearer when the hood is in use, a head-enclosing apron secured to the edges of said crown part and of said face-shield part, a ledge portion extending inwardly of said hood below said panel portion, and air filter means including a filter casing supported by said ledge portion, said crown part having an outlet at a rear portion thereof, whereby circulation of air is induced upwardly through said air filter means and across the face of the wearer to said outlet.

13. A protective hood according to claim 12, wherein said ledge portion is provided with a series of holes forming the only air inlet to the helmet when the latter is in use.

14. A protective hood comprising in combination, a crown part, a face-shield part depending from the front of said crown part and having a transparent panel portion dimensioned to extend over substantially the full length of the face of

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the wearer when the hood is in use, a head-enclosing apron secured to the edges of said crown part and of said face-shield part, said face-shield and said crown part being of rigid construction and said apron of flexible construction, and air filter means disposed at the base of said face-shield part below said panel portion, said crown part having an outlet at a rear position thereof, whereby circulation of air is induced upwardly through said air filter means and across the face of the wearer to said outlet.

THOMAS TRAILL MacLEAN.

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