

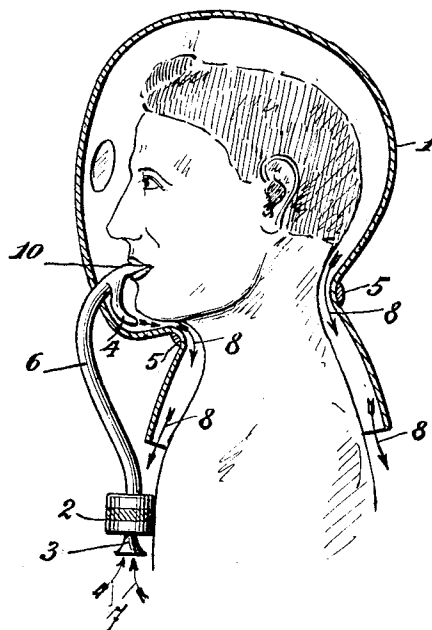
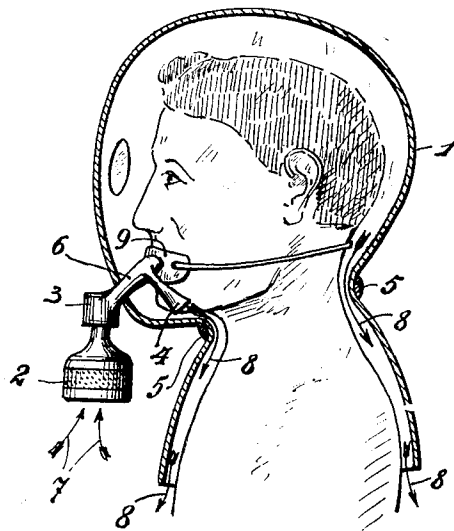
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RESPIRATORY HOOD

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RESPIRATORY HOOD

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2 Claims. (Cl. 128—141)

The present invention relates to a protecting helmet which may be used for breathing in an atmosphere impregnated with asphyxiating gases, this object being obtained with very simple and inexpensive means, which, however, afford the complete protection obtained even against the most penetrating gases.

The construction of my new helmet is such that the head of the wearer and his shoulders, down to the arm pits, are covered with a shroud, which is fastened to the body. The drawing in of the fresh air to be inhaled can be accomplished in any known manner and the exhaled air is carried away by a closed pipe provided with a water-seal or check valve.

The object of the present invention is a particular embodiment of the helmet specified above, which may allow it to be used for breathing in enclosed places filled with asphyxiating gases. This is obtained by fastening the helmet so that it is not entirely air-tight around the neck, by means of a collar or strap and by the combination of the helmet with one of a known type of device (gas-mask) which allows breathing in infected air. These latter devices usually consist of a filter, an inlet valve, an outlet valve and a mouth-piece, said combination being such as to allow the expired air to be breathed out into the space within the helmet.

The filter of said apparatus is arranged outside of the helmet, either at the waist-band or in any other suitable position, while the expiration valve is placed within the helmet or, when no valve is used, the expiration occurs within the helmet. This expired air goes out to the atmosphere through the space resulting from the looseness of closure of the helmet around the neck of the bearer.

In my invention the respiratory helmet, instead of operating as an helmet, operates substantially as a gas-mask. In fact while in the respiratory helmet the air to be breathed circulates in a closed cycle, in the case of the gas-mask, according to the present invention, the air which is to be breathed is drawn directly into the mouth, after removal of the poison gases by an effective filtration. When it is exhaled within the shroud or helmet, it re-enters the atmosphere through the incomplete closure around the neck-band. Due to the resistance offered to the escape of said expired air, a certain pressure builds up within the shroud, thereby preventing the entrance of poisoned gas into the same, though maintaining in the shroud a fouled atmosphere but one which is not a dangerous atmosphere.

The gas-mask according to the present invention, presents the following advantage over those used heretofore: if the check-valve sticks or becomes inoperative, the asphyxiating gases do not come in contact with the mucous-membranes of the nose or of the mouth.

A failure as above, with ordinary gas-masks, is detected only by the smell, by the taste or by the vesicating action of the poison gas coming in direct touch with the nose or mouth. But at such a moment it is generally too late to look at the valve and remedy its failure by hand, because the poison gas has already damaged vital organs.

With the gas-mask, constructed in accordance with my invention, an accident in its operation results at first in an inhalation of the air contained within the helmet. This air, though it is foul air, is not poisoned, so it cannot injure internal organs. Moreover, this inhalation of air causes the flexible shroud to adhere to the head of the wearer and to expand and contract with the respiratory rhythm of the wearer. This calls attention to the accident and the wearer can easily take steps to place the valve in operation again. For very irritating gases a head-cover is generally used in addition to the gas-mask; this is not necessary with the present invention as the shroud is permanently in place. According to the noxiousness of the poison gas it is possible to vary within certain limits the pressure within the head-shroud, by tightening or loosening the neck collar without forming an air tight seal at this point.

As the nose of the wearer is not in a poisoned atmosphere and a possible inhalation through the nose is not dangerous, it is not necessary to pinch the nose, which removes one of the causes of the unpopularity of the ordinary gas-mask.

The gas-mask according to the present invention occupies little space and is inexpensive to construct.

In the accompanying drawing are shown two embodiments of the present invention which are given purely as examples of my invention: Fig. 1 shows a head-gear with a whiskers-band and filter positioned high near the mouth and Fig. 2 shows another head gear with mouth-piece and filter fixed on the chest of the operator. Both devices are provided with an expiratory valve.

In the figures shown (1) is the head-shroud, (2) the filter, (3) the inspiration valve, (4) the expiration valve and (5) the collar strap, cord, or rope, the parts being connected by rubber pipes (6).

The admission of air to the mouth is regulated either by a whisker-band (9) or by a mouth piece (10).

The apparatus operates as follows:

5 The poisoned air enters, as shown by the arrows (7) into the filter-box, where it leaves its poisonous ingredients and is drawn in the mouth and lungs of the operator through valve (3) and pipes (6). The air expelled from the lungs and
10 mouth enters again the adjacent part of tube (6) and escapes through valve 4, within the shroud wherein it builds up a certain amount of pressure. It escapes into the atmosphere through the space between the neck and the
15 shroud formed by a suitable looseness in the closure means 5. This may be termed an "imperfect closure".

The resistance which this imperfect closure offers to the escape of the expired air can be
20 adjusted in a very simple way by a proper tightening or releasing of collar or strap 5. The means by which the strap or collar 5 may be tightened or loosened to regulate the amount of
25 closure between the shroud and the neck of the wearer is well known. This particular means of adjustment forms no part of my invention.

It is to be understood that any modification of my disclosed device consistent with the novel invention herein disclosed may be employed. The
30 scope of my invention is not to be determined

by any description set forth in this specification, but is to be regulated solely by the scope of the appended claims.

What I claim is:

1. A respiratory head-gear for enabling the
80 wearer to breathe in an atmosphere containing poisonous gases, comprising a cowl member enclosing the entire head of the wearer, means
85 positioned adjacent the wearer's neck for securing the head gear in such a manner that the cowl is not completely air-tight, a filter member
90 positioned exterior to said head gear through which the air used for inspiration is inhaled, a conduit for conducting said inhaled air from the filter to the mouth of the wearer, the air exhaled
95 by the wearer being expelled into the space within said cowl member, and then passing to the external atmosphere through the non-complete closure of the cowl around the wearer's neck.

2. A respiratory head-gear as claimed in claim
1, including a check valve positioned within said
100 head gear, means for conducting exhaled air from the respiratory organ of the wearer to said check valve, the exhaled air escaping into the space within said cowl member after having
105 passed through said check valve, and then passing to the external atmosphere through the non-complete closure of the cowl around the neck of the wearer.

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