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2,006,373

VENTILATED IMPERVIOUS SUIT

Filed April 6, 1933

FIG. 1.

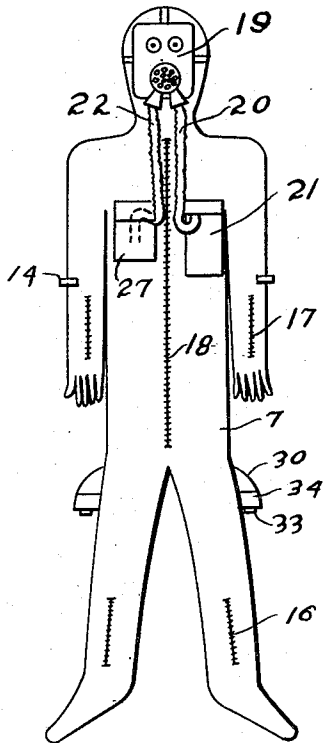


FIG. 2.

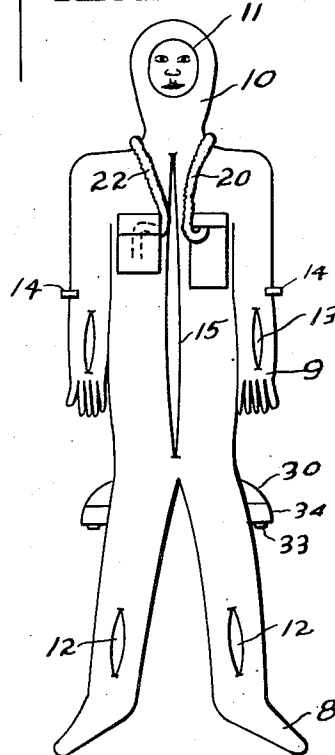


FIG. 3.

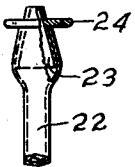


FIG. 4.

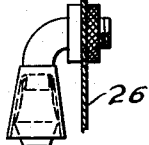


FIG. 5.

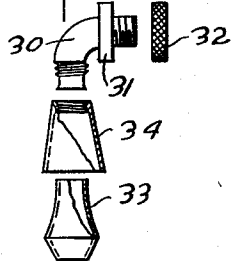
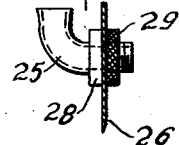


FIG. 6.



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VENTILATED IMPERVIOUS SUIT

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Application April 6, 1933, Serial No. 664,769

6 Claims. (Cl. 2—79)

(Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)

This invention relates to a protective suit to be worn by personnel engaged in warfare where they are likely to be exposed to attack by vesicant gas or liquid.

5 It is an object of this invention to provide an article of the type mentioned that may be worn with comfort for long periods.

A further object is to connect the interior of the suit to receive the air exhaled by the wearer whereby the interior of the suit is ventilated.

10 A further object is to provide an impervious suit that may be given gas-tight integrity over all parts of the body except the face of the wearer which is covered by a gas mask in the known manner.

15 With the above and other objects in view, this invention consists in the construction, combination and arrangement of parts as will be described more fully hereinafter.

20 In the drawing:

Fig. 1 shows my invention as worn during a gas attack or when such an attack is imminent;

Fig. 2 shows the manner of wearing the suit when a gas attack is not imminent;

25 Fig. 3 is a detail of the means for connecting the exhalant pipe to the gas mask;

Fig. 4 is a side assembly view of a flutter valve whereby the air escapes from the suit;

30 Fig. 5 is a disassembled view of the parts shown in Fig. 4;

Fig. 6 is a detailed view of the fitting for connecting the exhalant pipe to the interior of the suit.

35 The fabric of which the suit 7 is made may be of any kind suited to the purpose. The garment is made in the form of a coverall with attached feet 8 adapted to be worn inside the shoes and attached gloves 9 to protect the hands. A hood-like portion 10 covers the head and has in it an opening 11 for the face of the wearer.

40 The legs of the suit are provided with slits 12 through which the feet may be exerted when no gas attack is expected. The sleeves are likewise provided with slits 13 for withdrawing the hands from the gloves at such times, the gloves 9 being then tucked through loops 14 on the sleeves. As shown in Fig. 1, the slits 12 and 13 and the long body slit 15 are provided with slidable closures 16, 17 and 18 of a well-known type whereby the openings are closed sufficiently tightly to exclude gas.

55 The gas mask 19 is carried on the back except when in use and is connected by means of an inhalant pipe 20 to the gas mask cannister in a pocket 21. The air exhaled by the wearer when

the gas mask is positioned over the face passes through an exhalant pipe 22 to the interior of the suit. A substantially conical fitting 23 has a flange 24 extending therefrom whereby the fitting is secured to the gas mask; the exhalant tube 22 is stretched over the large end of fitting 23 whereby a tight contact between the tube 22 and the fitting 23 is assured. The lower end of the pipe 22 is engaged with a fitting 25 that passes through the fabric 26 of the suit inside a pocket 27, the fabric being tightly clamped against flange 28 of fitting 25 by means of a nut 29.

To each leg of the suit 7 there is secured an elbow 30, the fabric 26 of the suit being clamped between flange 31 and nut 32. The outer end of elbow 30 has on it the flutter valve 33 which permits air to pass out from the suit but prevents entry of air into the suit. To protect the valve 33, which is of soft rubber, a metal sleeve 34 is disposed around the valve 33 and in screw threaded engagement with elbow 30. The air exhaled by the wearer passes through pipe 22 into the suit where sufficient pressure is built up to cause the passage of air through the flutter valves 33 and thus a constant circulation is set up inside the suit resulting in a continual changing of the air therein.

The suit is donned by inserting the legs of the wearer into the legs of the suit through the body opening 15; the upper part of the suit is then drawn up and the hands are inserted into the shoulder portion of the suit which is then drawn up over the head, the hands being thrust into the sleeves and the hood then being pulled down on the head of the wearer.

35 The head piece fits under the regulation gas mask and forms a gas-tight closure therewith to the end that complete gas-tight integrity in all parts of the equipment is maintained.

40 It is obvious that the exhaled breath of the wearer will aid in warming the interior of the suit, which fact makes it very desirable for use in arctic regions and for high altitude flying. In the latter case an oxygen supply means may be substituted for the gas mask.

45 It will be understood that the above description and accompanying drawing comprehend only the general and preferred embodiment of my invention, and that various changes may be made within the scope of the appended claims without sacrificing any of the advantages of this invention.

55 The invention described herein may be manufactured and used by or for the Government of the United States of America for governmental

purposes, without the payment of any royalty thereon.

I claim:

1. An impervious suit adapted to cover the whole body except the face of the wearer, having in it an opening extending from adjacent the crotch to the throat and other openings through which the hands and feet of the wearer may be exerted, slidable closure means to make a gas-tight closure of each of said openings, means to carry exhaled air into the interior of said garment at the breast portion thereof, a flutter valve disposed to control a passage opening into each leg of said garment and a metal protecting member disposed substantially to enclose each of said flutter valves.
2. An impervious garment adapted to cover substantially the entire body of the wearer, means to conduct air exhaled by the wearer into the interior of said garment and a flutter valve on each leg of said suit to permit egress of air therefrom.
3. An impervious garment adapted to cover substantially the entire body of a wearer, means to conduct air exhaled by said wearer into the interior of said garment and a one-way outlet valve on each leg of said garment to permit egress of air therefrom.
4. A single impervious garment adapted to cover substantially the entire body of a wearer, a pocket on said garment adapted to contain a gas

mask canister, means to carry air exhaled by the wearer into the interior of the garment and means spaced lengthwise of the garment from the aforesaid means to permit egress of air from the interior of the suit while maintaining the gas-tight integrity thereof, said last mentioned means being so disposed that passage of air thereto within the garment ventilates substantially the entire interior of the garment.

5. In combination with a gas mask, an impervious garment adapted to cover substantially the entire body of a wearer, means connecting the interior of the garment with said mask to conduct exhaled air into said garment and means spaced lengthwise of the garment from the first means to permit egress of air from the interior of the suit while maintaining the gas-tight integrity thereof, said last mentioned means being so disposed that passage of air thereto within the garment ventilates substantially the entire interior of the garment.

6. A one-piece, impervious garment adapted to cover substantially the entire body of a wearer, and a one-way outlet valve disposed sufficiently far below the longitudinal mid-portion of the garment that air exhaled by the wearer and caused to pass through the interior of the garment will effect a continuous change of air substantially throughout the entire interior of the garment.

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