

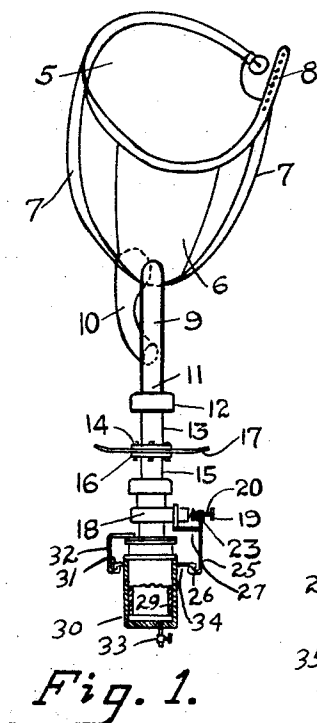
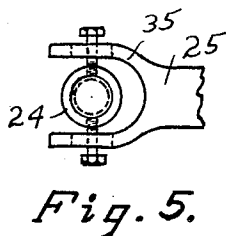
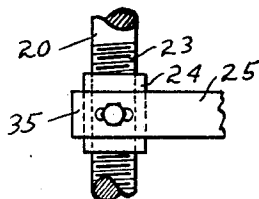
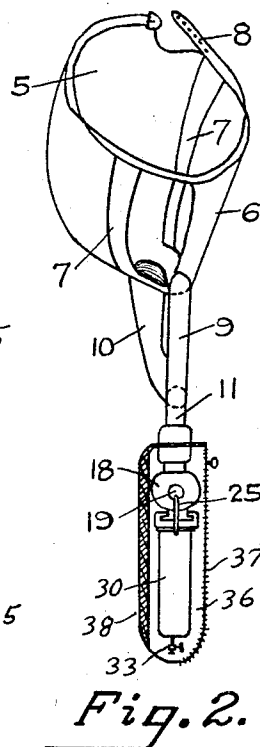
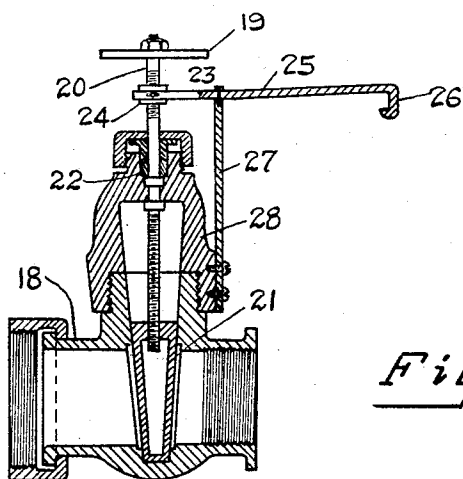
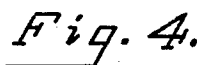
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B. M. THOMPSON

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BODY WASTE REMOVER

Filed Nov. 5, 1931



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BODY WASTE REMOVER

Application filed November 5, 1931. Serial No. 573,159.

(GRANTED UNDER THE ACT OF MARCH 3, 1883, AS AMENDED APRIL 30, 1928; 370 O. G. 757)

This invention relates to a device for permitting a person wearing an impermeable suit, while engaged in warfare where he is exposed to chemicals, to eliminate body wastes without exposing his body in any way to the action of such chemicals.

It is the object of my invention to provide a device of the kind mentioned that will be light in weight, of such construction as not to discommode the wearer, that may be easily used and cleaned, and impervious to gas at all times.

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

Reference is to be had to the accompanying drawing forming a part of this specification, in which like reference characters indicate corresponding parts throughout the several views, and in which:

Figure 1 is an assembly view of my invention, with parts of the receptacle in section,

Figure 2 is an assembly view thereof showing the receptacle in the pocket,

Figure 3 is a detail view of the discharge valve in longitudinal section, and the parts associated therewith;

Figure 4 is a front view of a suit provided with the present invention, showing the positions of the several parts, and

Figures 5 and 6 are details of the means for actuating the interlock bar.

There is no doubt that in future wars the use of vesicant (skin burning) gases such as mustard gas and Lewisite will be widespread both on land and sea, and as both of them are persistent and linger for days or even weeks it will be necessary for the personnel of a force operating in such an area or on a ship upon which a gas of this type has been disseminated to wear impermeable suits for long periods. In such cases, without some provision being made for the removal of the body wastes by a means like my invention, the wastes must either be passed into the suit, to the detriment of the health and morale of the individual, or the suit must be opened and the body exposed to the action of the gas.

Referring more particularly to the draw-

ing, the body portion 5 of the article may be made of the same kind of fabric as are drawers, with spaced strips 6 and 7 of elastic webbing like that used for jock straps at the front and sides, respectively, with spaces between the front strip and the two side strips through which the legs of the wearer will be passed. That is, body member 5 is in the form of a full seat whereof the forward edges are respectively secured to the rear edges of strips 7, giving in effect a jock-strap with a full seat. An adjustable belt 8 is fixed to the upper edges of body 5 and strips 6 and 7, which may be made in whatever sizes are desirable.

Through the strip 6 is a hole to the edges of which a urine tube 9 is secured. Feces tube 10 opens into the seat of body 5 and connects to urine tube 9. Tube 10 is preferably larger than tube 9 to permit free passage of a large discharge, and should afford a substantially straight path to the receptacle. Both of these tubes are preferably of circumferentially corrugated tubing like that used on gas masks. The common portion 11 below the junction of tubes 9 and 10 is provided with a fitting 12 whereby it may be coupled to a metal sleeve 13 with a flange 14. A metal sleeve 15 has a flange 16 that is adapted to be secured to flange 14 with the fabric 17 of the impermeable suit between the flanges, there being a hole through the fabric in registry with the passages in the sleeves.

Sleeve 15 is connected to a gate valve 18 that has a hand wheel 19 on a stem 20 whereby disk 21 is moved to open or close the passage through the valve. The stem is packed as indicated at 22 to make the stem liquid and gas-tight. The packing 22 should be of material impregnated against poison gas in a manner similar to that of the fabric of the impregnated suit.

The waste chamber comprises an inner member 29 and a cap 30 that fits over member 29. The two parts of the chamber carry interlocking hooks 31 and 32, respectively. Before assembling the parts of the chamber the cap should be filled with water to drive out any gas that may have entered it, and then slipped on to the inner member. After starting the cap on the inner member they

should be tilted so that the bottom of the cap is somewhat higher than the other end thereof to collect in the bottom of cap 30 any gas that may have gained access to the chamber, and then drain cock 33 is opened to permit the gas to escape, after which the major part of the water is drained out of the chamber, leaving only enough to form a seal in the bottom of the cap. The valve is then closed.

To insure gas-tight integrity of the suit at all times means must be provided that will make it impossible to remove cap 30 when valve 18 is open. This is accomplished by interlock bar 25 with a terminal hook 26 to engage a hook 34 on cap 30. The bar 25 is fixed intermediate its ends to the end of a support 27 that is secured to cap 28 of valve 18. One end of bar 25 is formed into a yoke 35 that is connected to a collar 24 that is in threaded engagement with left-hand threads 23 on valve stem 20. The length of threaded portion 23 is such that when the stem 20 is turned collar 24 is moved sufficiently to engage hook 26 with, or disengage it from, hook 34, after which it moves off the threads to the slightly smaller unthreaded portion of the stem above or below the threads. The threads are made sufficiently coarse that they will not be injured by the end of those in the collar slipping over the ends of the threads 23 when collar 24 has moved off the threads.

This construction permits using a long enough thread to raise disk 21 to open the valve without the necessity of having an equally long thread for collar 24, which in any case would be too long for the possible movement of lever 25 to follow collar 24 over such a distance. The inherent resilience of parts 25 and 27 is sufficient to keep the threads in collar 24 in contact with threads 23 so that as soon as the direction of rotation of stem 20 is reversed the two sets of threads will engage and move collar 24 along threads 23 to the other end thereof. It will be seen that when stem 20 is turned to raise disk 21, collar 24 will move down on stem 20 which will move hook 26 out into tight engagement with hook 34 and prevent removal of cap 30 while valve 18 is open. When stem 20 is turned to close the valve hook 26 is moved away from hook 34 and cap 30 may be removed for cleaning.

The waste chamber and valve may be located in a pocket 36 on the back of the left leg of an impermeable suit 40. A zipper fastener 37 makes a gas-tight closure for the pocket, and a pad 38 between the leg of the wearer and the device prevents chafing. Ties 39 are provided to hold the parts in pocket 36 snugly against the leg of the wearer to prevent them from shaking around as the wearer moves about. The pocket 36 is disposed inwardly of the back center line of

the leg so it does not interfere with either walking or sitting.

If found desirable, a small metallic vial of an alcoholic solution of sodium hydroxide or other mustard gas neutralizer may be carried in the pocket 36 for use in eliminating any gas from cap 30 after it has been cleaned before reassembling the cap with member 29.

To use my invention, valve 18 is opened and the body wastes evacuated into the waste chamber and then the valve is closed.

At the first opportunity cap 30 is removed, the waste emptied out and cap 30 cleaned and replaced, after which it is ready for use again. The above mentioned precautions for clearing out any gas from cap 30 before replacing it should always be observed.

It will be understood that the above description and accompanying drawing comprehends only the general and preferred embodiment of my invention, and that various changes in construction, proportion and arrangement of parts may be made within the scope of the appended claims, without sacrificing any of the advantages of my invention.

The herein described invention may be manufactured and used by or for the Government of the United States for governmental purposes without the payment of any royalty thereon.

I claim:

1. A device of the class described, comprising a portion adapted to be worn about the hips of a person, a feces tube and a urine tube suitably disposed and connected to the seat and front, respectively, of the said portion, a waste chamber comprising an inner portion and removable cap, a drain cock in the bottom of said cap, and a gate valve connected to said chamber, the stem of said valve having a threaded portion, an internally threaded collar engageable with said threaded portion, a supporting member carried by said valve, a bar carried by said member, said bar having a yoke connected to said collar, a hook on the other end of said bar, a hook on said cap adapted to coact with said hook, and means to make a gas-tight connection through the fabric of a gas-impermeable garment between said valve and said tubes.

2. A device of the class described, comprising a portion adapted to be worn about the hips of a person, a feces tube and a urine tube suitably disposed and connected to the seat and front, respectively, of said portion, a waste chamber comprising an inner portion and a removable cap, a drain cock in the bottom of said cap, a gate valve connected to said chamber, locking means to hold said cap in place so connected to said valve that said cap may not be removed when said valve is open, and means to make a gas-tight connection through the fabric of a gas-imperme-

able garment between said valve and said tubes.

3. A device of the class described, comprising a garment like portion, a feces tube
5 and a urine tube suitably positioned and connected to said portion, a removable receptacle, a valve connected thereto and to said tubes whereby said receptacle may be placed in communication with said tubes, means
10 actuatable by the stem of said valve to lock said receptacle when said valve is open, and means to make a gas-tight connection through the fabric of a gas-impermeable garment between said valve and said tubes.

15 4. A device of the class described, comprising a garment like portion, tubes connected thereto to receive body wastes eliminated by a wearer thereof, a removable receptacle for said wastes, a valve connected to said receptacle, and means connecting said tubes and
20 said valve the assembly being adjusted to prevent access of the toxic or vesicant gases to an impermeable garment within which said body portion is worn and without which
25 said receptacle is disposed.

5. In a device of the kind described, a valve comprising a body, a cap on said body, movable means therein to close the passage
therethrough, a stem in said valve having
30 threaded connection with said means, said stem having a threaded portion exteriorly of said body with an unthreaded portion at each end thereof, an internally threaded collar adapted to engage said threaded portion
35 of the stem, a bar having at one end a yoke connected to said collar and at the other end a hook, and a supporting member having one end secured to said cap and the other end fixed to said bar intermediate the ends of
40 said bar.

6. In a device of the class described, a receptacle having a detachable portion, a valve connected to said receptacle, means
carried by said valve and operable by the
45 operation of said valve to lock in place the said detachable portion when said valve is open, and means to convey body waste connected to said valve.

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