Aug. 25, 1953 H. A. CHAPPELL 2,649,584

PROTECTIVE GARMENT

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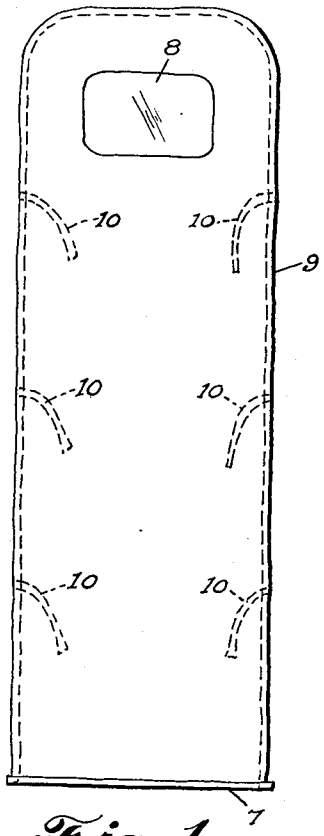


Fig. 1

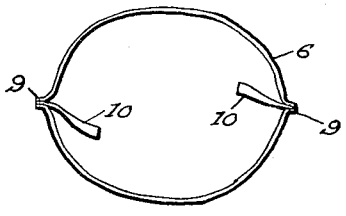


Fig. 2

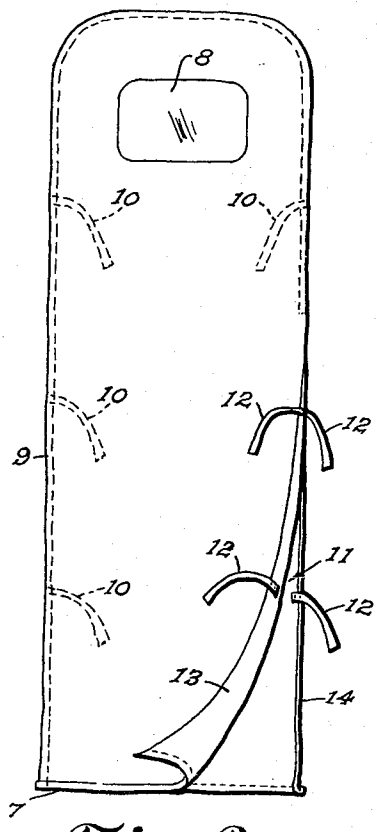


Fig. 3

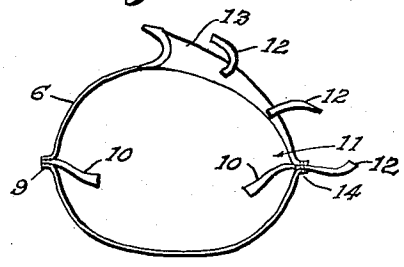


Fig. 4

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PROTECTIVE GARMENT

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1 Claim. (Cl. 2—2)

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This invention relates to a garment of a protective nature, as distinguished from garments intended to adorn, to conceal, or to warm the wearer, and has as a principal object the provision of a readily portable garment which may be quickly put on in an emergency.

More specifically, it is an object of this invention to provide a garment which may be donned quickly in the event of an atomic explosion and which will afford the wearer protection against the irradiated dust which follows an airburst of an atomic bomb and the irradiated mist which follows a sub-aqueous burst.

It is not within the province of this invention to protect a person against the blast effects of concussion and intense heat which occur within a limited zone immediately upon an atomic explosion and which last but an instant of time. No protection, to my knowledge, has yet been devised for a person caught in the open within disabling range of the concussive and thermal emanations of a bomb burst of any type. However, the atomic explosions at Hiroshima and Nagasaki demonstrated that these effects are rapidly reduced in intensity as the distance from the burst grows, and that a very large proportion of the bomb casualties resulted from burns caused by radio-active particles carried at high velocity by violent winds set up by the explosion and spread over an area far greater than that in which the instantaneous emanations were effective.

It is against burns caused by such particles that my invention is intended to give a measure of protection. Based on information released by those charged with planning civilian defense, it appears that such particles arrive at the limits of the zone in which the instantaneous effects of the bomb burst are incapacitating about thirty seconds after the burst has occurred. In other words, a person not incapacitated by the blast or heat has about thirty seconds or more in which to seek protection from the contaminated dust or mist. It is established that buildings are unlikely to afford protection, as their windows in all probability will have been shattered and the violent dust-carrying wind will sweep through them. Individual and complete coverage of the person, by every person within the dust danger zone, is the recommended safety measure, such coverage to be made within a matter of seconds following the explosion and maintained until the dust has settled or has been blown away.

Accordingly, it is an object of my invention to provide a garment of light weight which may be

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folded compactly so that it may be carried constantly in a hand-bag, pocket, or automobile glove-compartment; which is of material impermeable to dust and moisture; which is easy to don, even by a person suffering from shock; and which is so constructed that doffing it does not involve placing the hands upon its possibly contaminated exterior surfaces.

To carry out the above-stated objects and others hereinafter apparent, I have devised a bag-like garment, which may be drawn over a person's head so as to completely enclose a person down to the ground while leaving a person's feet free for walking. As the difficulties of getting into a bag, even feet first, are well known to anyone who has tried it, and as the difficulties of getting out of a bag without first freeing the hands and grasping the exterior of the bag are equally acute, I have provided interior handgrips which may be grasped to pull the bag down over the head of a person donning it, and which may be grasped to raise the bag in the act of doffing it.

In the accompanying drawing, illustrative of preferred and modified forms of my invention,

Fig. 1 is an elevational view of preferred embodiment of my invention,

Fig. 2 is a bottom plan view of the garment shown in Fig. 1;

Fig. 3 is a view similar to Fig. 1, of a modification of my invention; and

Fig. 4 is a bottom plan view of the garment shown in Fig. 3.

Having reference now to the details of the drawing, I have shown a bag 6 of sufficient length and width to encase a standing person, but substantially reduced in width in proportion to its length so as to leave only moderate free space within the bag around a person encased therein while yet permitting freedom of movement of the arms and hands. The limited interior space is for the purpose of reducing bellows action of the bag which might be caused by movements of the wearer or by contact with external objects and which might result in contaminated air being drawn into the bag. The bag should not, however, fit so tightly as to prevent movement of the arms up and down within the bag, in order to permit the bag to be donned and doffed as hereinafter described and to permit other manual operations such as adjustment of a gas-mask. The bag has an open end 7 through which the feet of the wearer may emerge to permit walking.

The bag 6 is of pliable material which is impermeable to dust and preferably also imper-

meable to water. I have found thin sheeting of polyethylene film to be a suitable material, as this material is both strong and light in proportion to its weight and may be tightly folded so that a large bag may be reduced to a small convenient package. Polyethylene film is also transparent, affording vision to the wearer, and readily takes dyes to produce opacity. If the film is dyed, I prefer to use a white dye in order to increase resistance to heat radiation, and to leave an undyed area at head-level, as shown at 8, to serve as a window.

The bag 6 is formed with side seams 9, and to assist the wearer in donning and doffing the bag, handles 10 are attached to the seams at spaced intervals. Some of these handles are preferably within arm reach of a person standing erect within the bag, so that the bag may be pulled down to cover a person fully and be held in such a position against the effect of a sudden air blast, and may be raised without forcing the person to bend and grope within the bag; and others of said handles are preferably disposed near the open end of the bag but totally therewithin, so that the wearer may lift the bag over his head without touching an exterior part of the bag. So as not to interfere with folding of the bag, the handles 10 are preferably pliable tapes, stitched at one end into the side seams 9, and may be of the same material as the bag or of textile or other suitable material. While the handles 10 may be attached to other locations within the bag 6, I prefer to attach them at the seams, as a simplification in manufacture and as being at a defined location so that groping for them is not necessary.

In Figs. 3 and 4, I have illustrated a modification of my invention, in which one of the side-seams 9 extends from the closed, or head, end of the bag only to shoulder level, and is then discontinued, leaving a side opening 11. Tapes 12 are sewed to the bag 6 adjacent the open side margins 13 and 14, the points of attachment being spaced a little back from the margins so that when the tapes are tied, the margins will overlap and make a better closure. The tapes 12 serve the same purpose as the handles 10 in

assisting the wearer to don and to doff the garment and permit the wearer easily to lift and doff the garment while the tapes remain tied. No contaminated part of the garment need be touched.

Upon the occurrence of an atomic explosion, or upon forewarning thereof if such is provided, a person possessed of my protective garment will quickly unfold it and don it, using the handles 10 and tapes 12 to pull the garment down over his head. He should then remain as still as possible until danger from falling radioactive particles has passed, but if necessary for him to move, he may walk and he may see to walk. When the danger has passed, the wearer may doff the bag by lifting on the handles 10 without touching the exterior of the bag.

I wish it understood that modifications and alterations falling within the scope of the appended claim are to be considered as embodiments of the spirit of my invention and included therein.

I claim:

A garment for protection of the wearer against radio-active particles of matter which comprises: a bag of pliable dust-proof material of sufficient length and width to encase a standing person and having an open end and a closed end and having a side opening extending from said open end towards said closed end; tapes attached to the interior of said bag adjacent both margins of said side opening so as to close said side opening when tied; and additional tapes attached to the interior of said bag opposite to said side opening, said first and said last-mentioned tapes being adapted to serve as handles whereby said garment may be doffed while said first-mentioned tapes remain tied.

HENRY ARNOLD CHAPPELL.

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