Jan. 30, 1945. H. G. SYDENHAM ET AL 2,368,272

PROTECTIVE COVER

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Fig. 2

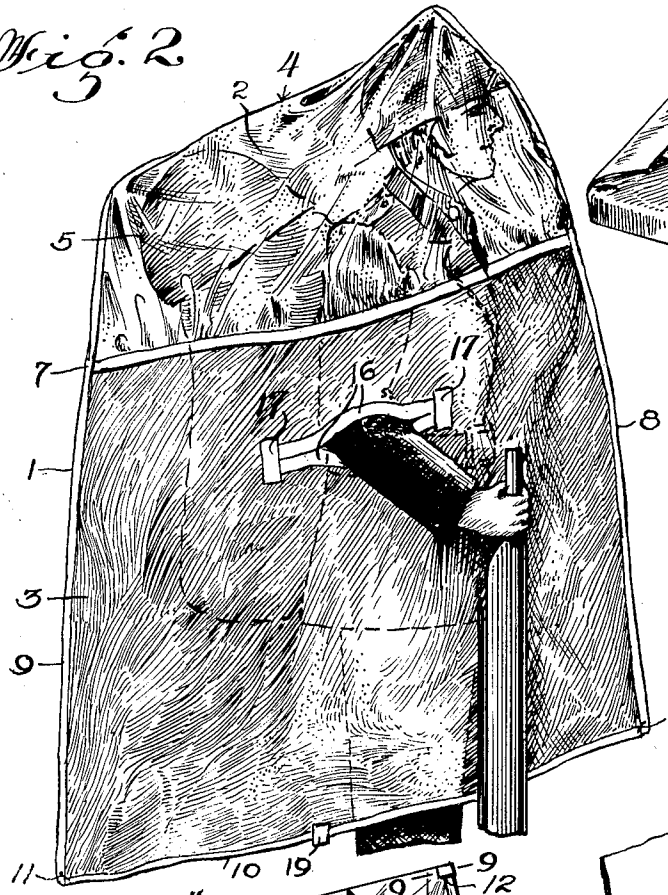


Fig. 1

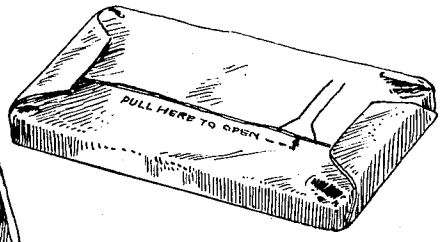
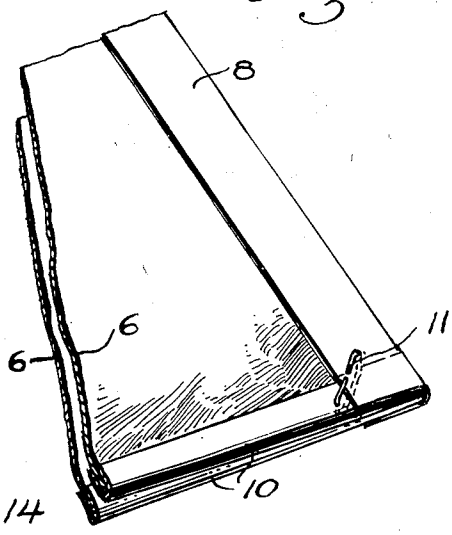


Fig. 11



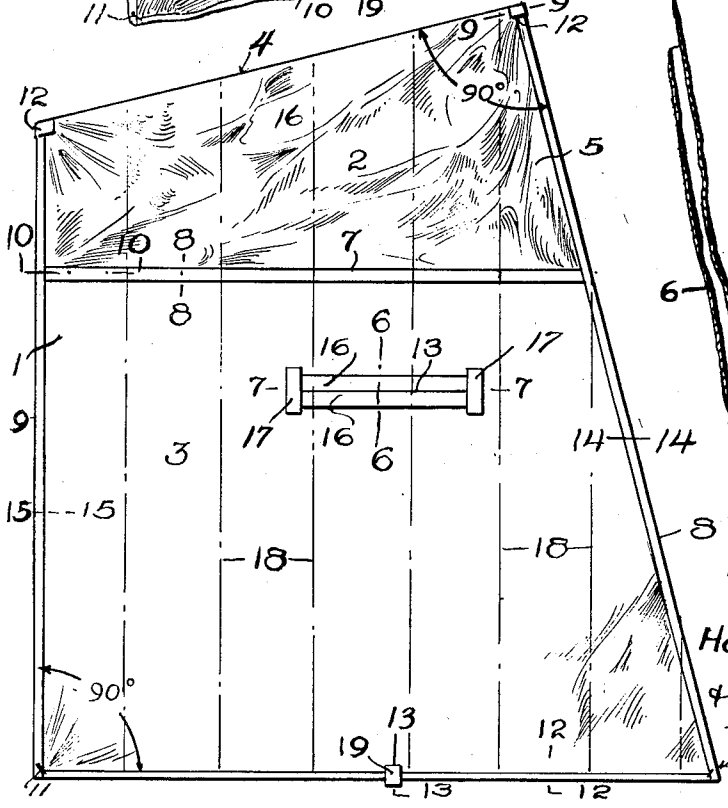


Fig. 3

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PROTECTIVE COVER

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Fig. 17

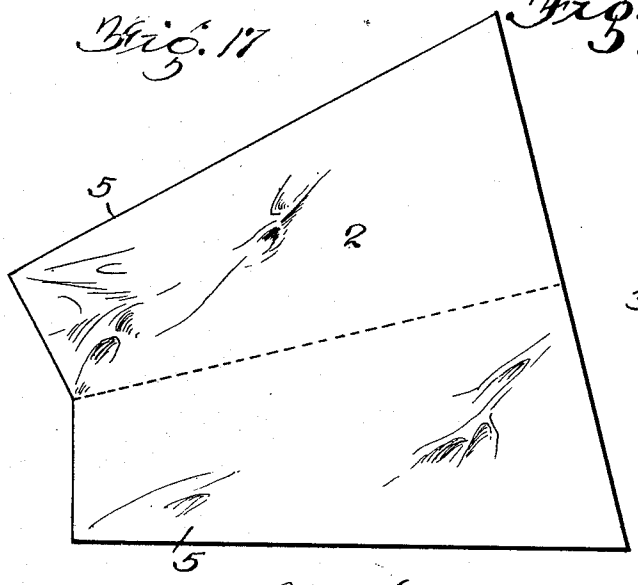


Fig. 8

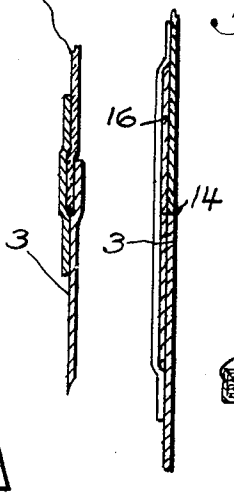


Fig. 6

Fig. 9

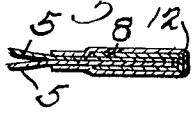


Fig. 10

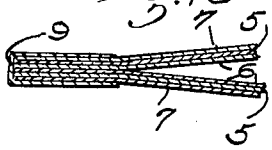


Fig. 18

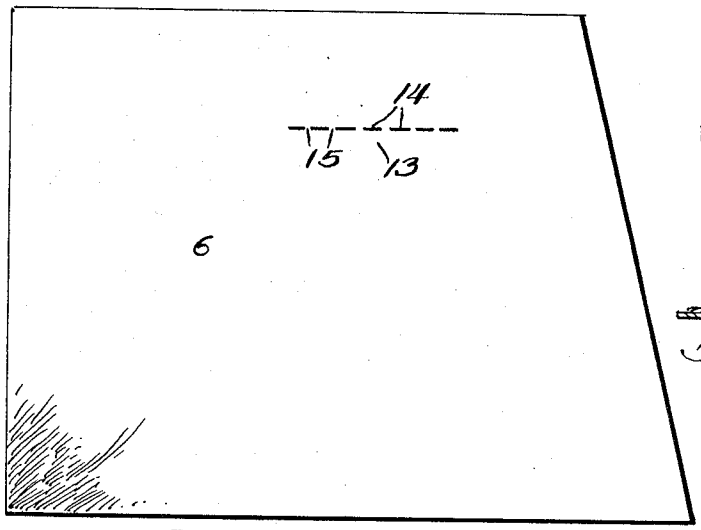


Fig. 15

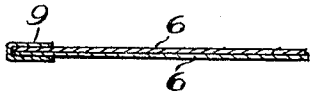


Fig. 14

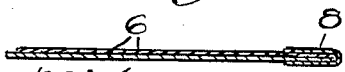


Fig. 13

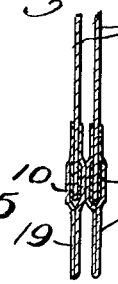


Fig. 12

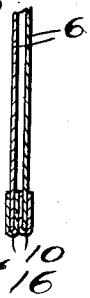


Fig. 5

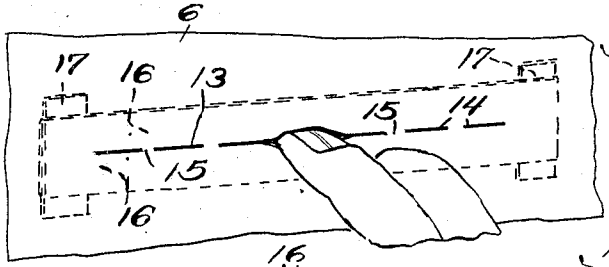


Fig. 16

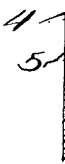


Fig. 4

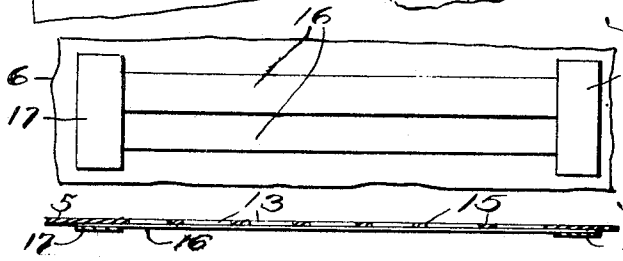


Fig. 7

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UNITED STATES PATENT OFFICE

2,368,272

PROTECTIVE COVER

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Application September 25, 1942, Serial No. 459,614

3 Claims. (Cl. 2—88)

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

The invention described herein, if patented, may be manufactured and used by or for the Government for governmental purposes, without the payment to us of any royalty thereon.

This invention relates to a cover and more particularly to a protective cover for an individual soldier in the event of an air attack, wherein poison gas is sprayed on troops, each soldier being provided with his regular equipment, also one or more covers, each folded in compact form, that are quickly available, and may be promptly unfolded and drawn down over the head of the soldier and when necessary, he may push his hands and arms out through semi-sealed openings for the purpose of handling equipment or the like, outside of the cover.

The objects in view are:

To provide a cover that will effectively protect the wearer and prevent any leakage of liquid through the cover.

To provide a cover of sufficient size to permit freedom of action inside of the cover.

To provide a cover, light in weight and also of a very durable character, of thin light and flexible material, yet not likely to tear under the rough usage that an article of this kind will be subjected to in the haste and conditions under which it is used.

To provide an article that may be conveniently carried, and of such an inexpensive character that it may, at little cost, be destroyed or thrown away after it has been used only once.

To provide an article that can be compactly refolded and again carried in convenient form in the event of a false alarm, wherein the cover has been unfolded and adjusted over the head of the wearer, but has not been contaminated.

To provide for visibility through the cover where required, and opaque and of a dull outer finish throughout other portions of the cover.

To provide a cover of such shape and having all of the other desired characteristics at the maximum degree of economy in the amount and cost of material required and time required in the production of the cover.

While a preferred form of cover is here shown and described, it will be understood that slight changes may be resorted to without departing from the spirit of the invention or fall beyond the scope of the claims.

Similar numerals indicate corresponding parts in all the figures of the drawings in which:

Fig. 1 is a perspective view of the container with the cover therein, as it will be carried by a soldier or other person.

Fig. 2 is a view showing the cover as applied to the wearer, his arms extending through the side slits of the cover.

Fig. 3 is a view of the cover flat, showing in light lines where folds occur when folded.

Fig. 4 is an enlarged face view of the arm slit prior to opening.

Fig. 5 is a view showing manner of perforating the material for the arm slits.

Fig. 6 is a section on line 6—6 of Fig. 3.

Fig. 7 is a section on line 7—7 of Fig. 3.

Fig. 8 is a section on line 8—8 of Fig. 3.

Fig. 9 is a section on line 9—9 of Fig. 3.

Fig. 10 is a section on line 10—10 of Fig. 3.

Fig. 11 is an enlarged view of one of the front lower corners of the cover.

Fig. 12 is a section on line 12—12 of Fig. 3.

Fig. 13 is a section on line 13—13 of Fig. 3.

Figs. 14, 15, and 16 are sections on lines 14—14, 15—15, and 16—16 of Fig. 3, respectively.

Fig. 17 is a view of the blank adapted to form the upper transparent portion of the cover.

Fig. 18 shows the blank of one of the duplicate opaque side members of the cover.

Referring now to the drawings by numerals, 1 is the cover as a whole, consisting of an upper transparent portion 2 and a lower opaque portion 3.

The upper transparent or clear portion 2 and the lower opaque portion 3 of the cover may be composed of laminated or single films of Cellophane, or any other materials having the same characteristics.

Said upper transparent portion is provided for visibility by the wearer of the cover in his movements, and is sufficiently transparent to permit the reading of messages, orders, or other printed matter set in 18 point type, or larger, at a distance of about 18 inches.

While the upper transparent portion of the cover has an objectionable reflecting surface pending the development of a non-reflecting material, the lower opaque portion of the cover has a dull surface finish that does not reflect. The desirability of an all non-reflecting cover provides against the location of troops wearing the covers from the air and the scaring of horses.

The cover throughout is preferably made up without stitching and thus avoids leakage through the perforations caused by the needle, and instead of stitching the parts together, adhesive cellulose tape, or the like, of a desired width and strength, secure the parts together and effectively seals the joints against leakage, which is required

if the cover is to function successfully, and provide the protection for which it is intended.

In the production of the cover in the most effective manner in large quantities with the greatest economy of time, material, skilled labor, and use of expensive machines—all being of very great importance at this time—the parts of the cover may be prepared and assembled in the following manner, but not necessarily in the sequence mentioned, the latter being controlled by available conditions.

The upper transparent portion of the cover is cut in the form shown in Fig. 17 of the drawings, and is doubled on itself to form the upper edge 4 of the cover, which is continuous, there being no seam along that edge, and forming depending side flaps 5 (see Fig. 16).

Duplicate, opaque side sheets or films 6 are cut in the form shown in Figs. 5 and 18 of the drawings. Two of the side sheets are arranged adjacent to each other in perfect parallelism and all edges corresponding throughout. In said position of the side sheets, the lower depending edges of the transparent upper portion of the cover are lapped over the upper edges of the side sheets a short distance on the outside of the adjacent side sheet and adhesive tape 7 of proper width is applied along the seam, thus forming sides of the garment and effectually sealing same against leakage (see Fig. 8).

It will be noted that the front edges of the transparent portion and the opaque members are in alignment, and the rear edges of said parts also lie in a straight line, and binding tapes 8 and 9 of a proper width are lapped around said front and rear edges, respectively, and effectively seal said edges against leakage (see Figs. 14 and 15).

Binding tapes 10 are arranged along the bottom edges of the side sheets and extend up a short distance on the inner and outer faces of said sheets (see Fig. 12). Said binder tapes 10 at the bottom edges of the side sheets, and the sealing and attaching tapes 7 between the upper and lower portion of the garment, extend to the edges of said portions and are securely sealed at their ends under the front and rear attaching and sealing tapes 8 and 9, whereby said tapes are secured against starting loose at their ends (see Figs. 10 and 11). As a further precaution against the separation of the parts of the garment at its front and rear lower corners, when subjected to the strains incident to the hasty adjustment of the cover over the head of the wearer, paper clips 11 of any well-known and easily applied type are passed through all of the lapping portions of both sides of the garment where they join at the front and rear lower portions of said parts (see Figs. 3 and 11).

Short reinforcing tapes 12 are secured around the upper front or peak and rear upper portion of the cover to seal and strengthen it at those points (see Figs. 3 and 9).

In the side opaque sheets or skirts of the garment are arranged interrupted arm slits 13, consisting of perforations in the form of short slits 14 separated by short uncut portions 15, said arm slits on the sides of the garment (see Figs. 5, 7, and 18) are provided for the passage of the arms of the wearer out through the sides of the garment when necessary for the purpose of handling equipment or the like outside of the cover.

Preferably on the outside of the cover and paralleling opposite edges of the arm slits 13 are strengthening binder tapes 16 extending a short distance beyond the opening and reinforcing tie-down tapes 17 are applied to said extending portions of the tapes 16 to firmly secure the ends of said tapes in place and prevent ripping of the armhole beyond its proper length (see Figs. 6 and 7). Light vertical lines 18 on Fig. 3 of the drawings indicate where the cover may be folded and then accordion folded in the opposite direction to form a compact package that when drawn from the container practically falls or springs to a partly open condition.

Extending a short distance below the lower edges of the sides of the cover at about their centers, are tabs 19 (see Figs. 3 and 13), preferably of a color to be quickly seen by the wearer, said tabs are placed in such a position that when grasped and separated by a person who desires to adjust the cover over his own or another's head, the cover will open in such a manner as will facilitate said adjustment in the most expeditious manner and with as little danger as possible of tearing the cover as it is drawn down over the head of the wearer.

The cover is resistant to liquid mustard throughout for not less than 30 minutes, may be made of any material, such as regenerated cellulose, cellulose acetate, or the like, is resistant to water, heat and cold, and slow burning, will withstand repeated folding without cracking, and is of tough material.

The relative proportions of transparent and opaque portions of the cover are approximately what is shown in the drawings, but are subject to change if found necessary.

After the cover has been thrown over the head and it is found necessary to pass the arms out through the cover, a finger may be inserted into a short slit, as shown in Fig. 5 of the drawings and the general opening for the passage of the arms is easily and quickly accomplished.

Having fully described our invention, what we claim and desire to secure by Letters Patent is:

1. A fabricated individual protective cover for emergency use in a gas attack comprising an upper transparent portion permitting vision in all directions and formed from a single transparent sheet of gas resistant material folded on its longitudinal center line, said folded edge forming the top edge of said protective cover, and a lower opaque portion formed from sections of opaque gas resistant material, said upper portion overlapping said lower sections at their juncture, said upper and lower portions being secured at said junctures by adhesive strips extending horizontally from the forward to the rear edge of said cover, said adhesive strip providing a fluid tight seal at the said junctures, the forward and rear edges of said upper and lower portions being secured by strips of adhesive extending from top to bottom of said cover and overlapping the ends of said horizontally extending sealing strips, said vertically extending strips being folded along their longitudinal center lines and overlapping the outer edges of said cover from top to bottom to provide a fluid tight seal at the said edges of the cover.

2. A fabricated individual protective cover for emergency use in a gas attack comprising an upper transparent portion permitting vision in all directions and formed from a single sheet of transparent gas resistant material folded on its longitudinal center line, said folded edge forming the top edge of said protective cover, and a lower opaque portion formed from sections of opaque gas resistant material, said upper section over-

lapping said lower sections at their junctures, said upper and lower portions being secured at their junctures by adhesive strips extending horizontally from the forward to the rear edges thereof, said adhesive strip providing a fluid tight seal at said junctures, the forward and rear edges of said upper and lower portions being secured by a strip of adhesive folded on their longitudinal center lines and extending from top to bottom of said cover, said folded edges overlapping and adhering to the marginal edges of said cover from top to bottom to provide a fluid tight seal along the front and rear edges of said cover, said portions in assembled relation forming a trapeziform shaped cover having a backwardly inclined forward edge, a top edge declining from front to rear, a perpendicular rear edge and a horizontal bottom edge.

3. A fabricated individual protective cover for emergency use in a gas attack as set forth in claim one wherein said lower sections are provided with a series of horizontally extending closely spaced slits of short length to obviate leakage therethrough, the spaces between said slits being adapted to be readily torn by the wearer while the cover is being worn to form one slit of sufficient length to permit egress and ingress of the hand of the wearer for manipulating objects outside the cover.

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