April 26, 1932. H. W. HOUGHTON 1,856,062

PACKAGE AND GENERATOR FOR FUMIGANT MATERIALS

Filed June 27, 1927

Fig. 1.

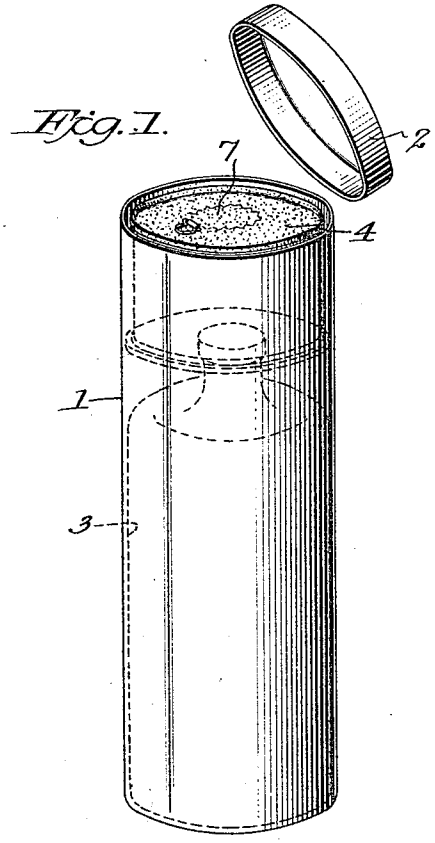


Fig. 2.

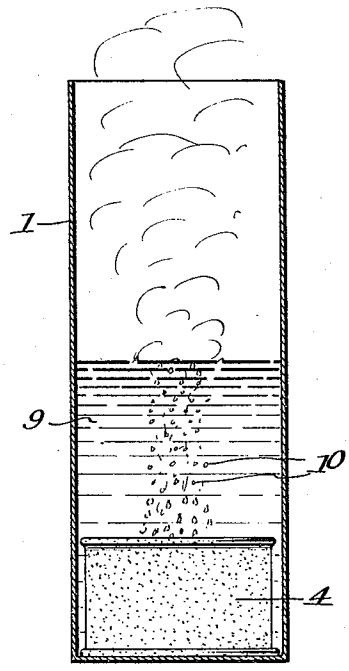
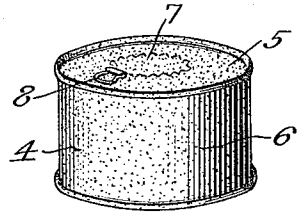


Fig. 3.



Inventor

Harry W. Houghton.

By Emery, Booth & Janney & Varney

his Attorneys

Patented Apr. 26, 1932 1,856,062

UNITED STATES PATENT OFFICE

HARRY W. HOUGHTON, OF GLEN ECHO, MARYLAND, ASSIGNOR TO SAFETY FUMIGANT COMPANY, A CORPORATION OF MASSACHUSETTS

PACKAGE AND GENERATOR FOR FUMIGANT MATERIALS

Application filed June 27, 1927. Serial No. 201,950.

This invention relates to the packaging of fumigant materials and the generation of toxic gases therefrom, such, for example, as the hydrocyanic acid gas and cyanogen chloride gaseous fumigant described in my prior Patent No. 1,521,537, dated December 30, 1924, and aims to provide a safe and convenient unitary package wherein the proper proportions of all ingredients necessary for the generation of predetermined quantities of fumigant gases may be safely transported and kept for indefinite periods.

This invention insures that the active ingredients of the charge shall be out of contact with one another, and yet may be quickly and conveniently mixed within said package when it is desired to generate such gases, thereby avoiding the necessity for the user to provide an additional vessel to serve as a generator, and also enabling the user to avoid measuring the materials for a charge.

Further objects and advantages of my invention will be apparent from the following specification, taken in conjunction with the accompanying drawings showing a preferred form of my invention and illustrating the principles thereof, it being understood that the principles are susceptible of application in other forms, and that the invention is not restricted to that shown in the accompanying drawings.

Fig. 1 illustrates a package comprising a preferred embodiment of my invention, the arrangement of the contents being shown by dotted lines;

Fig. 2 is a view similar to that of Fig. 1, showing the package in use as a gas generator, and

Fig. 3 is an enlarged illustration of a safety acid-proof container wherein the solid ingredients of the charge are packed.

My package provides for keeping the liquid and dry ingredients of the charge separated, until the time of use, and consists of a tall cylindrical casing made of tin-plate or other material reasonably resistant to the reaction by which the gas is generated, having a cover 2 preferably at the top, so that the entire depth is available as a generating tank. Within this casing 1 a bottle 3 of acid and a can 4 of dry fumigant ingredients are packed, the bottle being on the bottom as a precautionary measure against contact of the acid with the dry ingredients in case the bottle should accidentally break. In this connection it is contemplated that my package will be shipped in cartons and boxes intended to be kept always with the same side up. Corrugated board or similar lining may be provided inside the package, and between the bottle and the can 4, but this is not shown in the drawings, for the reason that it a well known expedient and constitutes no part of my invention.

The can 4, (Fig. 3) containing the dry ingredients, is preferably made, for the sake of economy, with bottom and sides of tin-plate, but the top 5 is of zinc or some other metal adapted to be destroyed by contact with the acid used. The entire can is covered with an acid-resisting protective coating 6, such as paraffine wax. To enable a part of the top to be exposed to the corrosive action of the acid, when desired, a tab 7 of cloth, paper, or other suitable material, with a ring 8 attached, is laid upon the top of the can under the protective wax coating 6 and held by the coating directly against the bare zinc, so that removal of the tab will expose that portion of the top 5.

By the use of this invention, the fumigant gas described in my prior Patent No. 1,521,537, may be made effective for household use in convenient form, and without danger to the user, by placing the proper quantities of coated sodium chlorate and sodium cyanide or other chemicals used in the can, and a mixture of hydrochloric acid with an equal quantity of water in the bottle. If desired, the briquette form of packaging the chemicals described in my application Serial No. 39,614, filed June 25, 1925, may advantageously be utilized.

To employ my package as a generator, the top 2 of the casing 1 is removed, and the can 4 and bottle 3 taken out. The contents of the bottle are poured into the now empty casing 1 as shown at 9, Fig. 2. The ring 8, from which the wax coating may be readily broken by the finger nail, is pulled away

from the can, thus removing the tab 7 and exposing a bare spot of the zinc beneath. The can 4 is now dropped into the acid, which soon destroys the zinc, exposing the dry ingredients, which react with the acid, as shown by the bubbles 10 (Fig. 2), forming the fumigant gas. The quantities of liquid in the bottle 3 and of dry ingredients in the can 4 are properly proportioned to generate a given quantity of such fumigant gas when mixed.

Having described one form of my invention, it is to be understood that I do not limit myself thereto, but what I claim is:

1. A can of solid material inert in a dry state but active toward an acid, said can comprising a tinned iron bottom and sides and a zinc top, the whole being protected by a coating of paraffine, and a tab adapted, when pulled, to remove a portion of said paraffine coating from said zinc top.

2. A container for gas evolving materials having inert natures towards each other but active toward an acid, said container having a side wall inactive toward said acid and a top or end wall active toward said acid, whereby there will be an appreciable delay in the formation of said gaseous material.

3. A casing containing chemical ingredients prepared against reacting upon each other in the dry state but active in the presence of an acid, said casing having an acid resisting portion and a portion adapted to be dissolved in an acid to expose the contents.

4. In the production of fumigant gas, the method of handling materials adapted to react with an acid to produce such gas, which comprises segregating said materials in a closed container including a metallic portion readily attacked by the acid to thereby delay penetration of said acid to said materials for an appreciable time, and, when it is desired to produce such gas, placing said container of materials with said portion in contact with said acid, thereby to provide a time interval between the placing of said container of materials in contact with said acid and the commencement of the generation of such gas.

5. In the production of fumigant gas, the method of handling materials adapted to react with an acid to produce such gas, which comprises segregating said materials in a closed container including a metallic portion readily attacked by the acid to thereby delay penetration of said acid to said materials for an appreciable time and having a protective coating over said portion, and, when it is desired to produce such gas, exposing a part of said metallic portion and placing said container of materials with said portion in contact with said acid, thereby to provide a time interval between the placing of said container of materials in contact with said acid and the commencement of the generation of such gas.

In testimony whereof, I have signed my name to this specification.

HARRY W. HOUGHTON.