

Aug. 11, 1959

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2,898,744

CHEMICAL FREEZING PACKAGE

Filed June 15, 1956

2 Sheets-Sheet 1

FIG. 1.

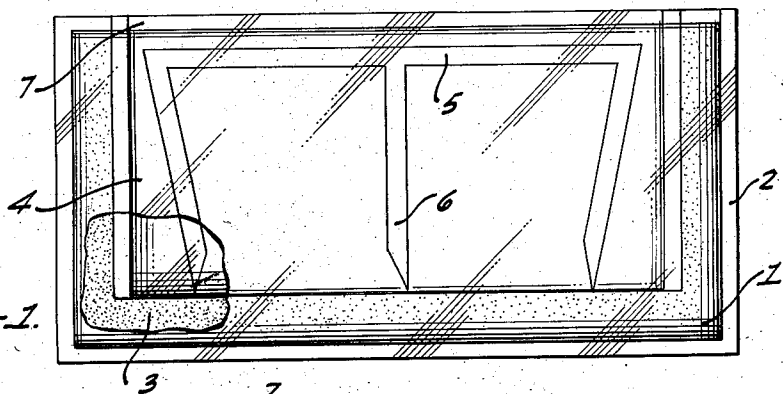


FIG. 2.

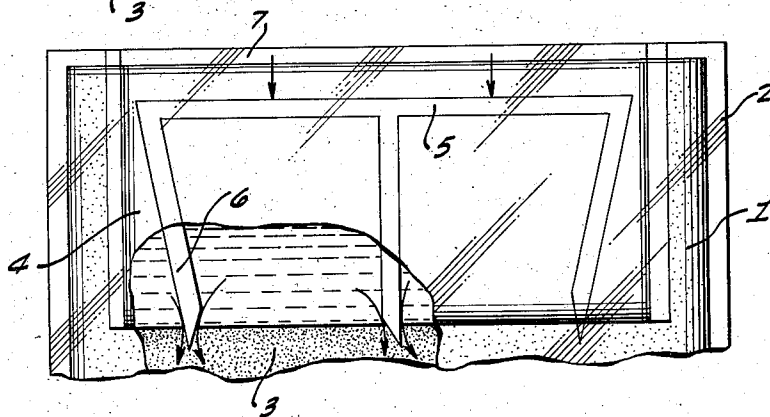


FIG. 3.

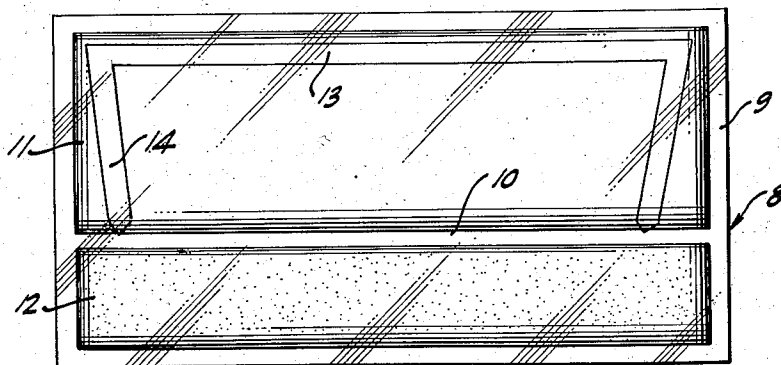
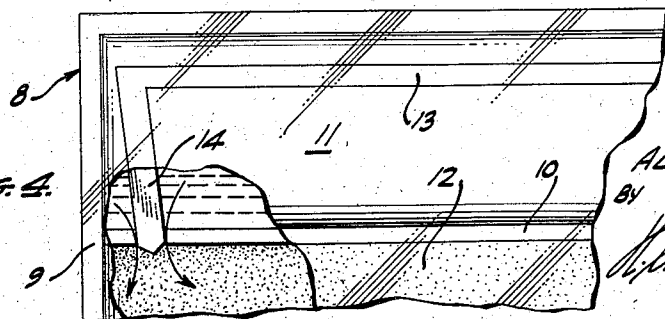


FIG. 4.



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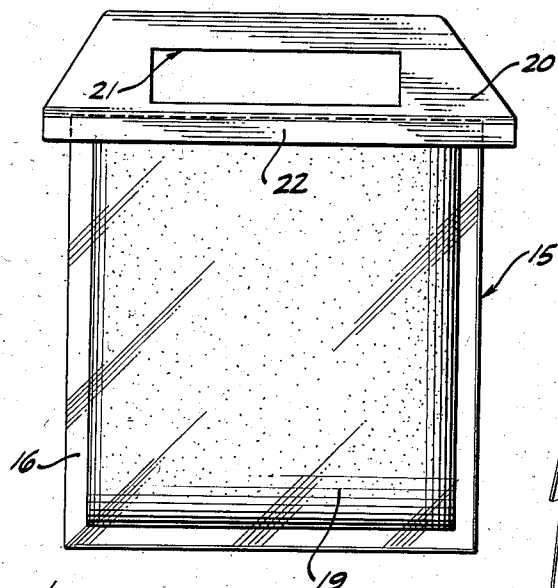


FIG. 6.

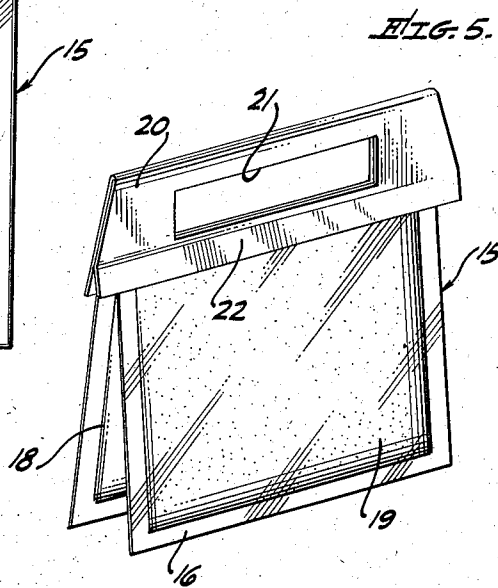


FIG. 5.

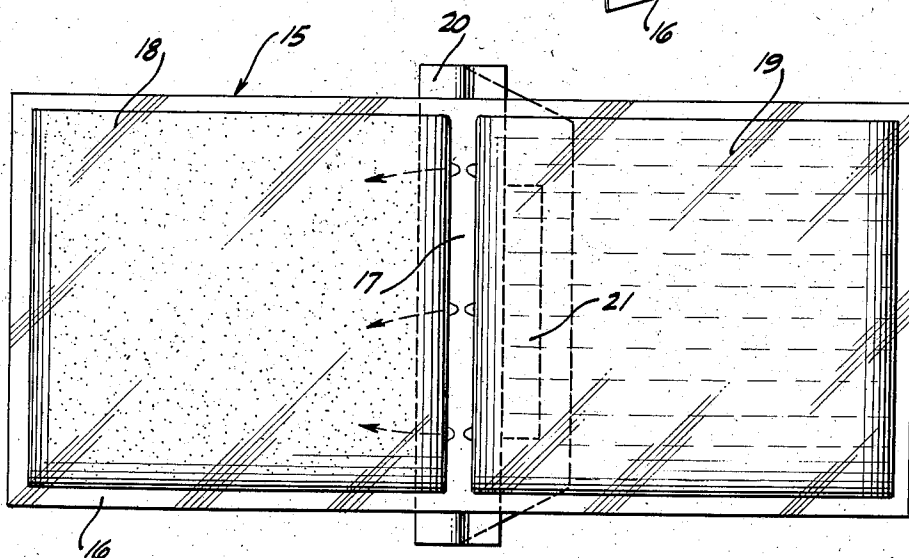


FIG. 7.

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CHEMICAL FREEZING PACKAGE

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Application June 15, 1956, Serial No. 591,758

3 Claims. (Cl. 62—4)

This invention relates to a chemical freezing package, and particularly to a package in which the chemicals can be easily and simply mixed when it is desired to reduce the temperature of the package.

An object of my invention is to provide a chemical freezing package consisting of an outer envelope with compartments therein, and with a physical means within one of the compartments which perforates or severs the wall or partition between the compartments.

Another object of my invention is to provide a novel chemical freezing package, including an outer or main envelope, and with a toothed or pointed frame in one compartment which enables the user to perforate or sever the wall or division between the compartments of the package.

Still another object of my invention is to provide a novel chemical freezing package in which the separated ingredients of the package can be intermingled by manually causing the separating wall or division in the package to be broken or perforated, said perforation or severing of the dividing wall or sealed strip being accomplished manually by the user, the user actuating a pointed frame or article within one of the compartments of the package.

Other objects, advantages and features of invention may appear from the accompanying drawing, the subjoined detailed description and the appended claims.

In the drawing—

Figure 1 is a side elevation of one form of my chemical freezing package with parts broken away to show interior construction.

Figure 2 is a fragmentary side view of the modification shown in Figure 1 and illustrating the means to perforate or break a wall of the package.

Figure 3 is a side elevation of a modified form of my freezing package.

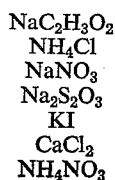
Figure 4 is a fragmentary side elevation of the modification shown in Figure 3 and illustrating the breaking or perforating of the separating seam or strip.

Figure 5 is a perspective view of a modified form of my invention.

Figure 6 is a side elevation of the modified form of my invention shown in Figure 5.

Figure 7 is a top plan view of the modified form of my invention with the back extended horizontally.

While it is well known in the chemical art that certain chemicals absorb heat when water is added thereto, this heat being obtained from adjacent bodies by means of conduction, convection or radiation, or possibly all three; these so-called freezing mixtures will be so termed in the following specification and may include any of the following chemicals, or many others having the same property. Some of these freezing mixtures have the following formulae:



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The addition of water to any of these chemicals will cause a marked reduction in temperature in the surrounding air or to adjacent articles. Consequently, a package containing any of the freezing mixtures when enclosed in a box, carton, hamper, or container will lower the temperature therein and will maintain a low temperature in foods, liquids, cans, bottles, etc., which are placed within the containers, etc.

In order that the freezing package may be easily transported and, further, that it may be activated to reduce temperature at any time desired, I provide a chemical freezing package as follows: An outer envelope or housing 1 is preferably formed of a plastic sheet material, such as polyethylene, vinyl or acetate. This plastic sheet material is usual and well known in the industry and the sheets are formed of sufficient thickness so that they will not readily tear or break. Further, the plastic sheet is sufficiently dense so that gases will not readily pass therethrough. By gases is meant ammonia, chlorine, etc. The envelope 1 is preferably formed by heat sealing the edges 2, or by means of a suitable adhesive so that a completely enclosed envelope is provided. The envelope 1 is filled with a salt 3, which is termed a freezing mixture as specified above. Within the envelope 1 I provide a second envelope or compartment 4. This last named envelope is also formed of a suitable plastic sheet material, such as polyethylene, vinyl or acetate, and the walls thereof are sufficiently thin so that it may be broken or perforated in a manner to be subsequently described. The compartment 4 is preferably filled with water, or with a hydrous chemical, such as sodium carbonate (Na_2CO_3 with $5-10\text{H}_2\text{O}$); for example, the water in the hydrous chemical being sufficient to activate the freezing mixture. Within the envelope or compartment 4 I provide a comb-like frame 5 which is formed with sharp teeth or projections 6. Manual pressure on the top of the frame 5 will cause the teeth 6 to break or perforate the wall of the envelope 4, thus permitting the water or a hydrous chemical to admix with the freezing mixture 3, thus reducing the temperature of the freezing package. If desired one edge of the envelope 4 may be sealed with the envelope 1, as shown at 7, so that the envelope 4 will be held substantially immovable within the envelope 1.

In the modification, shown in Figures 4 and 5, the outer envelope 8 is formed of a plastic sheet material, such as polyethylene, vinyl or acetate, and the outer edges 9 are sealed either by means of heat or pressure, or by means of a suitable adhesive. A sealed strip 10 divides the envelope 8 into two compartments 11 and 12. The sealed strip 10 is formed by a heated iron or sealing instrument, or by applying an adhesive, so that the compartments 11 and 12 are separate and distinct. The compartment 11 may contain water and the compartment 12 contains a freezing mixture, for the same purpose as previously described. To permit the intermingling of the water and the freezing mixture I again provide a frame 13 which is formed with pointed or sharp comb-like fingers 14 which normally rest on the dividing strip 10, as shown in Figure 3. By applying manual pressure to the top of the frame 13 the fingers 14 are forced through the dividing strip 10, thus providing communication between the compartments 11 and 12 and permitting the water to drain into the freezing mixture and mix therewith.

In the modification shown in Figures 5, 6 and 7 the outer envelope 15 is formed of a plastic sheet material such as polyethylene, vinyl or acetate, and the outer edges 16 are sealed together by means of heat or pressure or by means of a suitable adhesive. A sealed strip 17 divides the envelope 15 into two compartments 18 and 19. The sealed strip 17 is formed by placing a release type coating on the inside of the plastic sheet which forms the

envelope and subsequent heat and pressure will seal the strip 17, thus forming the two compartments 18 and 19. The compartment 18 is preferably filled with water, while the compartment 19 is filled with a freezing mixture for the same purpose as previously described. The sealed strip 17, which is of the release type as previously described, may be broken, separated or fractured by exerting pressure on the envelope 15 and preferably by exerting pressure on the water compartment 18.

In order that a transportable package may be provided I fold the envelope 15 along the sealed strip 17 and with that sealed strip at the top of the fold a paper strip or handle 20 is attached to the outside of the envelope 15 and along the sealed strip 17, thus tending to hold the envelope 15 in its folded position as shown in Figure 5. The handle 20 may also be formed with a slot 21 therein to facilitate carrying the envelope. The lower edges 22 of the handle 20 are glued or otherwise attached to the outer surface of the envelope 15 adjacent the sealing strip 17 so that the envelope tends to remain in a folded position as shown in Figure 5. The envelope, however, can be flattened or placed in a horizontal position as shown in Figure 7, and in this flat position the sealing strip 17 may be separated, fractured or broken for the purpose of intermingling the water and the freezing mixture.

Having described my invention, I claim:

1. A chemical freezing package comprising an outer envelope hermetically sealed on all of the edges thereof, said envelope being formed of a thin, flexible, plastic sheet material, a second envelope within said outer envelope, said second envelope being also hermetically sealed at all of the edges thereof, said outer envelope containing a dry freezing chemical mixture therein, said second envelope containing a quantity of water therein, and means positioned entirely within said second en-

velope adapted to perforate a wall of the second envelope to permit intermingling of the water and the freezing chemical mixture.

2. A chemical freezing package comprising an outer envelope hermetically sealed on all of the edges thereof, said envelope being formed of a thin, flexible, plastic sheet material, a second envelope within said outer envelope, said second envelope being also hermetically sealed at all of the edges thereof, said outer envelope containing a dry freezing chemical mixture therein, said second envelope containing a quantity of water therein, one edge of said second envelope being fixedly attached to one edge of the outer envelope to restrain movement of the second envelope in the outer envelope, and means positioned entirely within said second envelope adapted to perforate a wall of the second envelope to permit intermingling of the water and the freezing chemical mixture.

3. A chemical freezing package comprising an outer sealed envelope, another sealed envelope within the outer sealed envelope, said outer envelope containing a dry freezing chemical mixture and said inner envelope containing a quantity of water, a frame within the inner sealed envelope, said frame including sharpened projections thereon, the projections being adapted and arranged to pierce the wall of the inner envelope and permit intermingling of the water and the dry freezing chemical mixture.

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