

Oct. 16, 1962

A. A. ROBBINS

3,058,313

COOLING PACK WITH RELEASABLE CONSTRICTION

Filed May 2, 1960

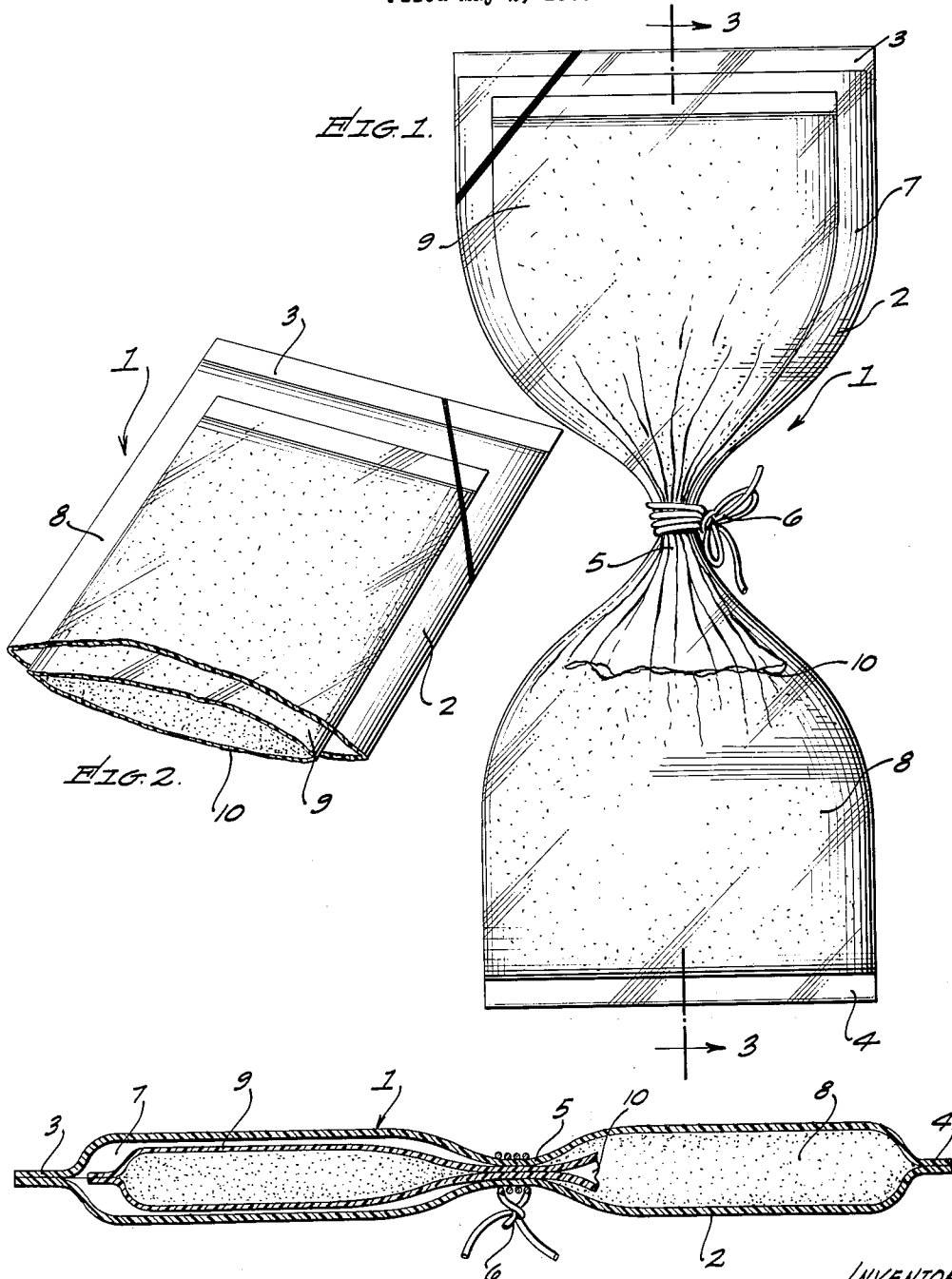


FIG. 3.

INVENTOR.
ALBERT A. ROBBINS,
BY
N. H. Packman
ATTORNEY.

1

3,058,313 COOLING PACK WITH RELEASABLE CONSTRICTION

Albert A. Robbins, 333 S. Glendora Ave.,
West Covina, Calif.

Filed May 2, 1960, Ser. No. 26,348
3 Claims. (Cl. 62—4)

This invention relates to a cooling pack with a releasable constriction on the pack, and is an improvement on my co-pending application, Serial No. 735,721, filed May 16, 1958, for "Crystal Type Cooling Pack" now abandoned. This invention is also an improvement on my Patent Nos. 2,882,691; 2,882,692 and 2,898,744. This present improvement relates more particularly to a cooling pack in which a crystalline or granular form of cooling reagent is enclosed in one bag, and another substantially dry or saturated chemical reagent is enclosed in another bag, and separated from the bag containing the crystals or granules by a tie or string or other means of constricting and holding the outer bag to confine the dry or substantially dry chemical reagent to one position or one end of the outer bag.

An object of my invention is to provide a cooling pack of the character stated which consists of an outer envelope bag or container, preferably formed of flexible sheet plastic (such as polyethylene), and where the outer envelope or bag is relatively difficult to tear or break due to the thickness of the plastic sheet. A second envelope contained within the outer envelope retains the crystalline chemical reagent and this inner envelope is also formed of a thin walled flexible plastic sheet material, with one end of this envelope being open or unsealed, and with this open end of the envelope constricted or tied by means of the tie or string which holds or constricts the outer envelope whereby the release of the constricting tie or string will permit the contents of both envelopes to be intermingled.

Another object of my invention is to provide a means of holding a constricting area in the outer bag or tying off one end of that bag in which a dry chemical reagent is contained, and simultaneously tying off or closing the open end of the inner bag, thus separating the dry reagent from the contents of the inner bag which contains the crystalline reagent until the string or tie is loosened, thus permitting intermingling of the chemical reagents.

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

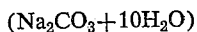
In the drawing:

FIGURE 1 is a plan view of my cooling pack with a releasable constriction.

FIGURE 2 is a fragmentary perspective view of the outer and inner bags prior to constricting and tying the same.

FIGURE 3 is a sectional view taken on line 3—3 of FIG. 1.

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 perhaps all three. The water necessary for this reaction can be in a crystalline form obtained from the crystalline form of some chemical reagents, and during the time that the crystalline form of the chemical is mixed or in contact with a dry form of chemical. The dry form of chemical, termed "prills", consists of ammonia nitrate (NH_4NO_3). The crystalline reagent may consist of sodium carbonate



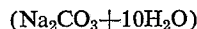
or a similar chemical reagent. The water of crystallization is sufficient to cause the necessary freezing reaction,

2

although additional water may be added to the sodium carbonate if desired. On the ammonia nitrate side of the bag, as will be further described, there may be these prills alone, or 50% ammonia nitrate (NH_4NO_3) and 50% ammonia chloride (NH_4Cl).

In constructing my cooling bag 1, I provide an outer elongated type of bag or container 2 which is hermetically sealed at both ends 3 and 4. This outer bag is formed of a thin walled flexible plastic sheet material, such as polyethylene film. This film is a material which has sufficient strength so that it will not readily tear, break or shatter in normal handling, and still is flexible enough so that any bag within the container 2 can be manipulated from the outside of the bag 2, and can be moved about within the bag 2 by pressure or manipulation of the wall of the bag. The bag 2, being hermetically sealed, will effectively retain any materials therein, either liquid or dry, and will not leak or spill its contents. The outer bag 2 is tied, constricted or confined as shown at 5, and this constriction is approximately in the longitudinal center of the bag, although this is not necessarily true. A suitable tie or string 6 encircles the constricted or neck portion 5 for the purpose of forming the bag into two separated compartments 7 and 8. Either of the compartments 7 or 8 is substantially filled with the prills (ammonia nitrate NH_4NO_3) and these prills are confined to the compartments 7 or 8 by the tie 6 until it is desired to activate the cooling pack.

A second bag 9 is positioned within one of the compartments 7 or 8, and in this instance it is positioned in the compartment 7 and is separated from the compartment 8 in which the prills are placed by means of the constricted or neck portion 5 and the tie 6 of the outer bag 2. The inner bag 9 is open at one end, as shown at 10, and this open end of the bag 9 extends into the compartment 8, and also overlies the constricted neck portion 5 of the outer bag 2. The inner bag 9 contains the crystalline or saturated sodium carbonate



The bag 9 is formed of a thin walled flexible plastic sheet material so that it can be readily crushed or manipulated through the walls of the bag 2. To activate the chemical reagents in the bag 2 and 9 the tie 6 is released and at this time the sodium carbonate in the bag 9 can be dumped into the prills in the compartment 8 through the open end 10 of the bag 9. The end 10 of the bag 9 opens simultaneously with the release of the tie 6, thus permitting the intermingling of the cooling reagents.

In preparing the cooling pack one end of the outer bag 2 is left open or unsealed, and the inner bag 9 is now inserted with the open end 10 of the inner bag extending towards the still open end 4 of the outer bag. The inner bag has been previously filled with its required amount of saturated sodium carbonate and the open end of the bag overlies or extends through the longitudinal central portion of the outer bag 2. The neck 5 of the outer bag 2 is now formed by squeezing the walls of the bag together, which also simultaneously constricts or closes the open end 10 of the inner bag 9. A tie 6 now holds the neck 5 in constricted position and also holds the bag 9 in proper relation within the bag 2. The prills are now inserted in the compartment 8 in the proper amount, after which the end 4 is hermetically sealed. The cooling pack is now complete for storage or shipment and will remain inactive until the tie 6 is released and the neck 5 is straightened out, thus permitting the contents of the bag 9 to be dumped or intermingled with the contents of the bag 2.

If desired, the inner or second bag 9 may also be attached within the outer bag 2 by suitably fastening one end of the bag 9 to a wall of the outer bag and within

one of the two compartments thereof. Preferably the end of the bag 9 opposite its open end 10 may be attached to the sealed end 3 or 4 of the outer bag 2.

Having described my invention, I claim:

1. A cooling pack with releasable constriction comprising an outer envelope, all of the edges of the envelope being hermetically sealed to prevent escape of any material therefrom, said outer envelope being formed of a thin, flexible, plastic sheet material, a releasable tie means encircling the outer envelope to constrict the outer envelope at one point and divide said outer envelope into two compartments, a quantity of a cooling material in one of said compartments, a second envelope in one of said compartments, said second envelope containing another cooling material therein, said second envelope being formed of thin, flexible, plastic sheet material, said second envelope being open at one end thereof and the other sides of said envelope all being hermetically sealed, said open end of the second envelope overlying the constricted part of the outer envelope, the open end of the second envelope being held closed by the releasable tie means simultaneously with the constricting of said outer envelope.

2. A cooling pack with releasable constriction comprising an outer envelope, all of the edges of said outer envelope being hermetically sealed to prevent escape of any material therefrom, said outer envelope being formed of a thin, flexible, plastic sheet material, a releasable tie encircling the outer envelope at a point between two ends thereof to constrict the outer envelope at one point and divided said outer envelope into two compartments, a quantity of ammonia nitrate in one of said compartments, a second envelope positioned within one of said compartments, said second envelope containing crystalline sodium carbonate therein, said second envelope being formed of thin, plastic, flexible sheet material, one end of the second envelope being open, a portion of the open end of the second envelope overlying the constricted area of the outer envelope, the open end of the second envelope being constricted and closed by said releasable tie

simultaneously with the constricting of the outer envelope, the remaining edges of the second envelope other than the open end thereof being hermetically sealed to prevent escape of any material therefrom.

3. A cooling pack with releasable constriction comprising an outer envelope, all of the edges of said outer envelope being hermetically sealed to prevent escape of any material therefrom, said outer envelope being formed of a thin, flexible, plastic sheet material, a releasable tie encircling the outer envelope at a point between two ends thereof to constrict the outer envelope at one point and divide said outer envelope into two compartments, a quantity of ammonia nitrate in one of said compartments, a second envelope positioned within one of said compartments, said second envelope containing crystalline sodium carbonate therein, said second envelope being formed of thin, plastic, flexible sheet material, one end of the second envelope being open, a portion of the open end of the second envelope overlying the constricted area of the outer envelope, the open end of the second envelope being constricted and closed by said releasable tie simultaneously with the constricting of the outer envelope, the remaining edges of the second envelope other than the open end thereof being hermetically sealed to prevent escape of any material therefrom, and means securing one end of the second envelope within one of said compartments to prevent movement of the second envelope out of said compartment.

References Cited in the file of this patent

UNITED STATES PATENTS

2,052,158	Zink	Aug. 25, 1936
2,157,169	Foster	May 9, 1939
2,714,974	Sawyer	Aug. 9, 1955
2,882,692	Robbins	Apr. 21, 1959
2,907,173	Robbins	Oct. 6, 1959
2,925,719	Robbins et al.	Feb. 23, 1960

FOREIGN PATENTS

1,054,170	France	Oct. 7, 1953
-----------	--------	--------------