



**Feb. 28, 1933.**

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**1,899,286**

## CONTAINER FOR CHEMICAL HEATING COMPOSITION

Filed Oct. 1, 1931

2 Sheets-Sheet 2

Fig-5

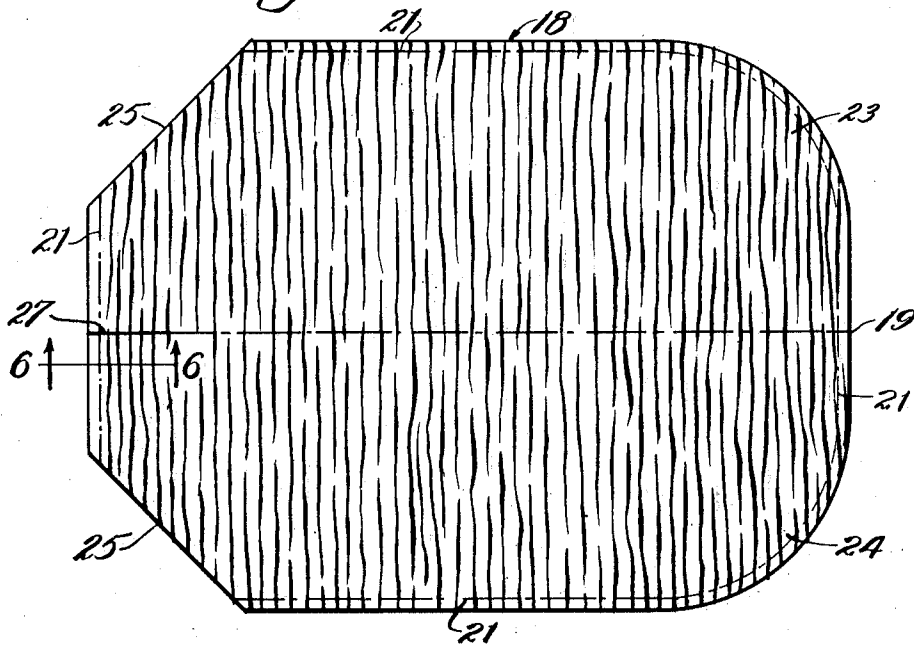


Fig-6

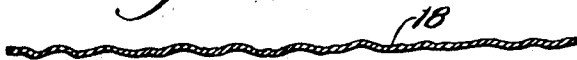
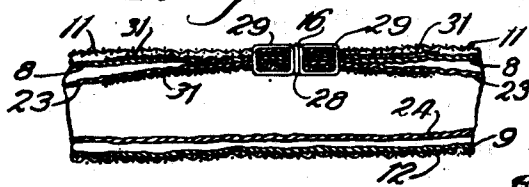


FIG-4



8  
23  
In Sentor,  
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Atty.

## UNITED STATES PATENT OFFICE

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## CONTAINER FOR CHEMICAL HEATING COMPOSITION

Application filed October 1, 1931. Serial No. 566,273.

This invention relates to chemical heating pads and particularly to a novel form of container for holding the heating mixture.

It is the usual practice in this art to place the chemicals, which are in finely divided condition, in a porous bag or envelope which is, in turn, enclosed in an outer casing of waterproof material. Generation of heat is effected by introducing water into the mixture of chemicals contained in the inner bag. The combined unit is used much as in the manner of use of an ordinary hot-water bottle.

Much difficulty has been experienced in the art because of the failure to provide a bag which will prevent the finely divided portions of the mixture from working out through the opening through which the water is introduced. There is necessarily a considerable amount of handling of these units incident to marketing during the course of which the fine portions of the mixture tend to work out through the filling opening. This gives an unsightly appearance to the bag and makes it unclean for handling.

The object of my invention is to provide a container of the character referred to which is provided with means for preventing the finely divided mixture from working out through the water inlet opening.

The invention will be fully understood from the following detailed description, taken in connection with the accompanying drawings, wherein I have shown a preferred embodiment thereof.

Referring to the drawings:

Fig. 1 is a plan view of a container constructed according to the invention, a portion of the outer wall being broken away to show the internal structure;

Fig. 2 is a broken section through an edge portion of the container taken on line 2—2 of Fig. 1;

Fig. 3 is a detail section through a corner portion of the container taken on line 3—3 of Fig. 1;

Fig. 4 is a section through the water inlet opening taken on line 4—4 of Fig. 1;

Fig. 5 is a plan view of the sheet from

which the filling conduit, or funnel, is formed; and

Fig. 6 is a section through a portion of said sheet taken on line 6—6 of Fig. 5.

In the embodiment shown the container is in the form of a flat bag structure consisting of an inner paper lining comprising a pair of matched pieces of paper 8 and 9, and an outer cloth covering comprising a pair of matched cover pieces 11 and 12. The paper lining, and its cloth covering, are bound together at their edges by a piece of cloth tape 13, which is lapped or folded over the container edge and secured in place by rows of stitching 14.

The paper which forms the lining must be sufficiently porous to allow for the free passage of air into the mixture. Kraft paper of high porosity has been found suitable for this purpose, the paper being preferably crinkled as shown in Fig. 1 to augment the effective surface exposed to the air. A paper of this texture will allow the free passage of air to the interior of the bag, but will effectively prevent passage of dust or finely divided portions of the heating mixture. The outer cloth covering preferably consists of a sized open mesh fabric. The purpose of this covering is to give strength to the bag.

The matched pieces forming the walls of the bag are first sewed together along their edges, except for a small opening, through which the chemical heating mixture, indicated at 15, is introduced, after which the sewing together of the edges is completed. Generation of heat is effected by introducing water into the mixture 15, and for this purpose there is provided in a wall of the container, near one edge, a diagonally disposed filling opening 16. This opening, however, does not communicate directly with the interior of the bag, since such a construction would be ineffective to prevent the working out of the mixture from the interior of the container. Accordingly, pursuant to my invention I provide means for conducting the water from the opening 16 into the mixture at a point remote from said opening. This means consists of a conduit or funnel-like insert piece 17, which is preferably formed from a sheet of crinkled kraft paper 18 (Fig. 5). The

sheet 18 is folded longitudinally upon itself along line 19 to form a flat tube; the free edge portions thereof as outlined by the dash-and-dot line 21, being secured between the inner paper walls 8 and 9 by the lines of stitching 14. The sheet 18 when thus folded and secured in place, as shown in Fig. 1, forms a pocket 22, the side walls 23 and 24 of which represent the opposite halves of sheet 18.

Communication between one end of conduit 17 and the interior of the bag is provided by cutting diagonally across the end portions of walls 23 and 24, as indicated at 25. An opening is thus formed in the conduit 17 near the corner 26, this opening being disposed a substantial distance from the water inlet opening 16. If desired, an additional opening may be provided in the same end of conduit 17 by slitting sheet 18 a short distance along the fold line 19 as indicated at 27.

Referring particularly to Fig. 4, an inlet opening 28 is provided in the wall 23 of the conduit for communication with opening 16 in the container wall. The openings 16 and 28 are preferably formed in a regular button-hole machine which sews walls 23, 8 and 11 together with stitching 29 and then cuts through the assembled layers to form both openings. A pair of strips of adhesive cloth 31 are placed on the inner face of wall 23 and on the outer face of wall 8 to reinforce the opening and to provide an anchor for the lines of stitching. The opening 28 in wall 23 of conduit 17 is thus made coincident with the water inlet opening 16 in the container wall and at the same time is completely sealed from communication with the interior of the bag.

To introduce water into the opening 16 it is merely necessary to grasp the container in one hand and apply a slight pressure diagonally across the corner adjacent the opening 16, whereupon the lower half of the opening will spread open to permit ready introduction of the water. The water thus introduced flows through the funnel-like pocket 22 to the lower end of the conduit from which it emerges through the opening in the end thereof into contact with the heating mixture 15. By thus delivering the water into the mixture at a point remote from the water inlet opening 16, there is provided an effective seal for preventing the fine portions of the mixture from working out through said opening.

In order to prevent migration of portions of the mixture through conduit 17 to the inlet opening, I preferably employ a crinkled kraft paper for the sheet 18, as shown in Fig. 5. When a paper of this kind is folded upon itself the irregularities or corrugations therein interlock with one another to prevent migrations of dust along the conduit channel or pocket 22. The opposite walls of the conduit 17 are normally in engagement with one another, as shown in Fig. 3, being sur-

rounded by heating mixture 15. About the only time these walls are separated is when the container is grasped to spread the opening sufficiently to permit introduction of water. The crinkled character of the paper forming this conduit thus serves as an effective seal for checking the movement of the particles of the mixture through the conduit toward the inlet opening 16.

While I have shown the container as consisting of an inner paper lining and an outer cloth covering, it will be apparent that the novel means for introducing the water into the container may be applied to a container which is made entirely of cloth or other flexible material. Although I prefer to form the conduit 17 of a crinkled paper, other flexible materials may be employed for this part. The material used, however, should be of a sufficiently fine texture to prevent passage of the mixture and also preferably should be of a crinkled or corrugated nature to impede the progress of fine portions of the mixture toward the water inlet. When paper is used it should be sufficiently heavy to hold its form when moistened.

The foregoing detailed description has been given for clearness of understanding only, and no unnecessary limitations should be understood therefrom, but the appended claims should be construed as broadly as permissible in view of the prior art.

What I regard as new and desire to secure by Letters Patent is:

1. A container for a finely divided chemical heating mixture having an opening in a wall thereof through which water may be introduced, and a flexible, self-closing conduit disposed within the container for conducting water into the mixture, said conduit, when closed, serving to obstruct passage of particles of said mixture to said opening.

2. A container for a finely divided chemical heating mixture comprising a bag structure having an opening in a wall thereof through which water may be introduced, and means comprising a flexible conduit disposed within the container for conducting the water into the mixture at a point remote from said inlet opening.

3. A container for a finely divided chemical heating mixture comprising a bag structure having an opening in a wall thereof through which water may be introduced, and means comprising a flexible conduit disposed within the container for conducting the water into the mixture at a point remote from said inlet opening, the walls of said conduit being formed of a material which is impervious to passage of the heating mixture.

4. A container for a finely divided chemical heating mixture comprising a rectangular-shaped bag structure consisting of opposed walls of flexible material secured together at their edges, one of said walls hav-

ing a diagonally disposed opening near a corner thereof through which water may be introduced, and means comprising a flexible conduit disposed within the bag along one edge thereof for conducting the water into the mixture at a point remote from the inlet opening.

5. A container for a finely divided chemical heating mixture comprising a bag-like structure having an opening in a wall thereof through which water may be introduced, and means disposed within the container for sealing said opening against escape of the mixture therethrough comprising a pair of flexible wall members secured together at their edges to form a funnel-like conductor having an inlet opening coincident with said opening in the container wall and an outlet opening communicating with the interior of the bag and disposed at a point remote from said inlet opening.

6. A bag-like container for a finely divided chemical heating mixture having an opening in a wall thereof for the introduction of water, and means positioned within the container forming a funnel-like conductor having an inlet opening coinciding with said opening in the container wall and an outlet opening communicating with the interior of the bag at a point remote from the inlet opening, the walls of said conducting means being formed of flexible material having corrugations formed therein, which prevent migration of finely divided portions of the mixture through the conductor to the inlet opening.

7. A container for a finely divided chemical heating mixture comprising a flat bag-like structure having an opening in a wall thereof for the introduction of water, and means positioned within the container forming a funnel-like conductor having an inlet opening, said conducting means being formed of flexible crinkled material the ridges on the opposing walls of which interlock with one another to form a seal preventing migration of finely divided particles of the mixture through the conductor to the inlet opening.

8. A bag for containing a finely divided chemical heating mixture having an opening in a wall thereof through which water may be introduced and means disposed within the bag for sealing said opening against escape of the mixture therethrough, comprising a substantially flat conduit formed of pliant crinkled material and having an inlet opening registering with said opening in the bag wall and an outlet opening communicating with the interior of the bag and disposed at a point remote from the inlet opening.

9. A bag for containing a finely divided chemical heating mixture having an opening in a wall thereof through which water may be introduced and means disposed within the bag for sealing said opening against escape of the mixture therethrough, comprising a sub-

stantially flat conduit formed of crinkled paper and having an inlet opening registering with said opening in the bag wall and an outlet opening communicating with the interior of the bag and disposed at a point remote from the inlet opening.

10. A bag for containing a finely divided chemical heating mixture comprising opposed walls of flexible material secured together at their edges, one of the walls having an opening therein near one edge through which water may be introduced, and a flexible conduit in the interior of the bag consisting of a sheet of pliant material folded upon itself and secured along its free edges between the edge portions of the bag walls, said conduit having an inlet opening in a wall thereof registering with said opening in the bag wall and an outlet opening communicating with the interior of the bag at a point remote from the inlet opening.

11. A bag for containing a finely divided chemical heating mixture comprising opposed walls of flexible material secured together at their edges, one of the walls having an opening therein near one edge through which water may be introduced, and a conduit in the interior of the bag consisting of a piece of crinkled paper folded upon itself and secured along its free edges between the edge portions of the bag walls, said conduit having an inlet opening in a wall thereof registering with said opening in the bag wall and an outlet opening communicating with the interior of the bag at a point remote from the inlet opening.

In witness whereof, I hereunto subscribe my name to this specification.

GLENN B. MEAGHER.