

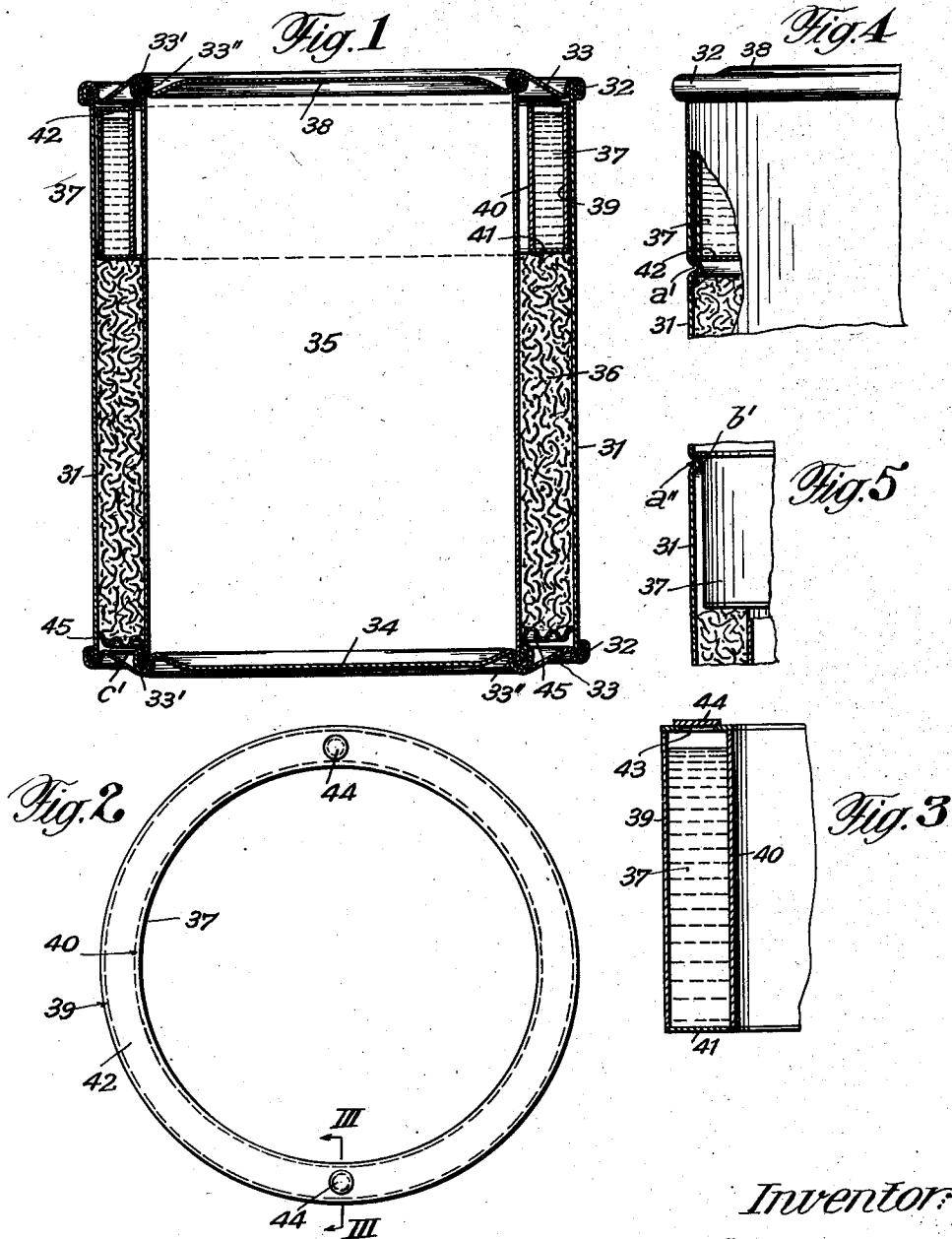
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CONTAINER AND HEATING MEANS THEREFOR

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CONTAINER AND HEATING MEANS
THEREFOR

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This invention relates to a preserving can with an arrangement for heating its contents chemically, by means of an annular chamber encompassing the can for the reception of the heat-generating substance and a separate chamber for a fluid to be added to said substance.

Preserving cans of this type as previously proposed are defective in that the outer jacket of the annular chamber cannot be connected with the can in a simple manner, so that the can is not held securely in the jacket. Moreover, the construction and production of such cans are complicated and consequently expensive.

These defects are eliminated by the present invention in that at least one ring connecting the outer jacket of the annular space with the can is provided with a flange at its inner portion engaging over the projecting outer edge of the end of the can so that the can is firmly positioned with respect to the outer jacket. In this manner a simple connection is provided between the outer jacket and an ordinary preserving can, and for the production of which no special machinery is required, whereby economical production of a preserving can with a heating arrangement is possible. The connection between the ring and the can is tight and strong, without soldering.

The outer jacket is preferably connected by two similar rings engaging over the projecting edge of the can above and below, at the inner side, thus further simplifying the production of the can with the heating arrangement.

A tightly-closed fluid receptacle insertable as a separate member in the annular space above the heat-generating substance consists preferably of a material adapted to be deformed and collapsed by the expansive force of the heat-delivering substance. Thereby, the space which the filled receptacle occupied is available for the expansion of the heat-generating substance. This would not be possible if the fluid receptacle consisted of rigid material. Moreover, the provision of additional expansion spaces is not necessary, thus presenting the advantage that the annular chamber can be relatively small.

In the accompanying drawing several constructional forms of the invention are illustrated by way of example only, in which:

Fig. 1 is a sectional view of one constructional form of the invention;

Fig. 2 is a top plan view of Fig. 1;

Fig. 3 is a larger scale section on the line III—III of Fig. 2;

Fig. 4 is a sectional elevational view of a modified detail of Fig. 1, and

Fig. 5 is a view similar to Fig. 4 of a further modification.

In the constructional form shown in Figs. 1 to 3, a jacket 31 of sheet metal or some other suitable structural material is firmly connected at the lower end with a ring-shaped cover 33 by means of a crimped seam 32 of a kind conventionally used for conserve canisters. The cover 33 is provided with a central circular aperture and with a flute or groove 33'. The shape of the groove 33' corresponds exactly to the outer shape of the projecting bottom edge 34 of a container which is closed in normal fashion for preserving the contents thereof, as, for example, a conventional canister 35. In the jacket 31 provided with the lower ring-shaped cover 33, the complete conserve canister 35 is inserted so that the bottom edge 34 engages into the groove 33'. In the annular space between the canister 35 and the jacket 31 a quantity of a heat emitting substance 36 is supplied and a fluid-tight annular vessel 37 is set thereon. The vessel 37 may rest on the filling 36 directly, as in Fig. 1, or it may seat on an annular shoulder on the inside of the jacket 31, as in Fig. 4 which shows a crease a' pressed inwardly from the material of the jacket 31. This shoulder may, if desired, be constituted by several ribs pressed inwardly circumferentially of the jacket 31. Due to the fact that in this case the completed and closed vessel can be inserted in the annular space as a self-contained unit, no separate working operations are necessary for fastening and closing this vessel. After the parts 36, 37 have been inserted, the jacket 31 is connected with the margin of the cover 38 of the conserve canister 35 by means of the cover 33 which is also of ring shape. The upper cover 33 may be similar to the lower cover. The outer connection of the upper cover with the jacket 31 is in the form of a conventional bead or seam 32. The margin of the cover 38 is seated in a groove 33' of the cover 33 the same as described for the lower cover. The inner marginal edge of the cover 33 is designated by 33'.

Due to the fact that both covers are exactly alike, the various parts can be manufactured in simple and cheap manner and the connection between the outer jacket and the canister can be effected in simple and time-saving manner. Furthermore, for manufacturing these covers only a single combined punching and stamping die is necessary and for the joint between the cover and the jacket a sealing machine can be used which serves ordinarily for closing the con-

ventional conserve canisters, so that no special sealing machine is required.

For forming the spaces of the heating device, a less expensive sheet material may be used than that usually used for forming conserve canisters in which way the manufacture of the heating device is further cheapened.

Since the vessel 37 is fluid-tight, it is not necessary to provide packings between the parts 34, 38 and the two covers 33. It is, however, obvious that suitable packings may be inserted in the grooves 33' if desired.

The heating device is operated by simply piercing the upper cover 33 and the liquid vessel 37, so that liquid can pass from the vessel 37 to the filling 36.

In this constructional example, the vessel 37 is made of Celluloid. The cylindrical walls 39, 40 are sections of Celluloid tubes which are closed at their lower and upper ends in liquid-tight manner by ring-shaped Celluloid plates 41, 42. Apertures 43 provided in the plate 42 serve for filling and venting the vessel 37. On the termination of the filling, the apertures 43 are closed by means of small Celluloid tabs 44, which is easily and quickly accomplished with the aid of acetone. The Celluloid walls are so thin that they can be crushed by the expanding heat emitting substance 36, whereby the liquid is completely discharged, the space formerly occupied thereby thus becoming available as an expansion chamber for this substance, while the liquid is discharging, which would be impossible if the canister were made of a rigid material such as sheet metal. Therefore, no additional recipients and expansion chambers are required which brings with it the advantage that the annular space can be kept down to relatively small size.

As a structural material for the liquid vessel 37, apart from Celluloid, all other liquid resisting readily deformable materials as, for example, gelatine, Cellophane, impregnated paper, natural or artificial gut, as well as rubber, artificial rubber, metal foils, artificial resinous substances or the like may be used. The annular liquid vessels may be open-ended, so that the vessel can also be formed by a piece of rubber tube which is closed at both ends and which can be inserted in the jacket by bending it to ring shape.

When it is desired to suspend the liquid vessel, this may be effected by providing the vessel with upper projecting marginal portions as indicated in Fig. 5, at b'. Accordingly, the jacket 31 is then provided with a corresponding groove a' for the projecting portions b' to rest against from above.

Tube-like vessels may be closed at their ends as is customary for tubes to be used, for example, for tooth paste, by providing a folded seam to which a sheet metal clamping strip is applied.

With a view to providing for a greater margin for the expansion of the filling 36, a wavy partition consisting of an easily deformable material is provided. In the example shown, in Fig. 1, a corrugated ring-shaped partition 45 is inserted in the lower portion of the interior of the jacket. This partition may consist of a corrugated paper, cardboard or any other kind of foil. In supplying the filling 36 the space designated by c' remains reserved as an additional expansion chamber for the filling 36 when heated up.

The shaping of the liquid vessel 37 may also be effected in well-known manner by means of which a current of hot air or hot water is applied for producing a container from Celluloid.

I do not limit myself to the particular size, shape, number or arrangement of parts as shown and described, all of which may be varied without going beyond the scope of my invention as shown, described and claimed.

What I claim is:

1. A chemically self-heating preserving receptacle comprising a container for the material to be preserved and heated, an external jacket surrounding said container in spaced relation thereto and forming with the container an annular chamber for a heat-generating chemical, and a separate closed liquid receptacle located in the annular chamber above the heat-generating chemical and formed of a material deformable by expansion of the heat-generating chemical so that the contents of the liquid receptacle may be fully discharged and the space occupied thereby may become available for expansion of the chemical.
2. A chemically self-heating preserving receptacle comprising a container for the material to be preserved and heated, an external jacket surrounding said container in spaced relation thereto and forming with the container an annular chamber for a heat-generating chemical, and a liquid reservoir located in the annular chamber above the heat-generating chemical, the wall of said reservoir adjacent the chemical being formed of a material deformable by expansion of the heat-generating chemical so that the contents of the liquid reservoir may be fully discharged and the space occupied by the liquid will be available for expansion of the chemical.
3. A chemically self-heating preserving receptacle comprising a container for the material to be preserved and heated, an external jacket surrounding said container in spaced relation thereto and forming with the container an annular chamber for a chemical which generates heat upon contact with a liquid, and a wall of readily deformable material located within said annular chamber to provide space for expansion of the chemical when the liquid is applied thereto.
4. A chemically self-heating preserving receptacle comprising a container for the material to be preserved and heated, an external jacket surrounding said container in spaced relation thereto and forming with the container an annular chamber for a chemical which reacts with a liquid to generate heat, a separate, closed receptacle for liquid adapted to be inserted as a separate unit in said annular chamber above the heat-generating chemical, said liquid receptacle being formed of a material which is deformable by pressure exerted by the expansion of the heat-generating chemical when the water of said receptacle is applied to the chemical.
5. A chemically self-heating preserving receptacle comprising a container for the material to be preserved and heated, an external jacket surrounding said container in spaced relation thereto and forming with the container an annular chamber for a chemical which generates heat upon contact with a liquid, a separate closed receptacle inserted in said annular chamber above the said chemical and containing a liquid which reacts with said chemical to generate heat, said liquid receptacle being formed of a flexible material so as to be readily collapsible under the pressure of the expansion of the heat-generating chemical so that the contents of the liquid receptacle will be fully discharged and the space occupied thereby will be available for expansion of the chemical.

6. A chemically self-heating preserving receptacle comprising a container for the material to be preserved and heated, a second container, for a heat-generating chemical, in heat-transmitting association with the first container, and a liquid reservoir located in the second container above the heat-generating chemical therein, the wall of said reservoir adjacent the chemical being formed of a material deformable by expansion of the heat-generating chemical when the liquid of said reservoir is applied to the chemical.

7. A chemically self-heating preserving receptacle comprising a container for the material to be preserved and heated, a second container, for a heat-generating chemical, located in heat-transmitting relation to the lower portion of the side wall of the first container, and a liquid reservoir located in the second chamber above the heat-generating chemical, the wall of said reservoir adjacent the chemical being formed of a material deformable by the expansion of the heat-generating chemical when the liquid in said receptacle is applied to the chemical.

8. A chemically self-heating preserving receptacle comprising a container for the material to be preserved and heated, a second container, for a heat-generating chemical, in heat-transmitting relation with the wall of the first container, said chemical being capable of generating heat upon contact with liquid, and a wall of readily deformable material located within the second container to provide space for expansion of the chemical when liquid is applied thereto.

9. A chemically self-heating preserving receptacle comprising a container for the material to be preserved and heated, a second container, for a heat-generating chemical, in heat-transmitting relation with the wall of the first container, said chemical being capable of generating heat upon contact with liquid, and a corrugated wall of readily deformable material located within the second container to provide space for expansion of the chemical when liquid is applied thereto.

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