Oct. 31, 1944. W. M. SNYDER 2,361,425

CRYSTAL NOVELTY OR PAPERWEIGHT

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FIG. 1

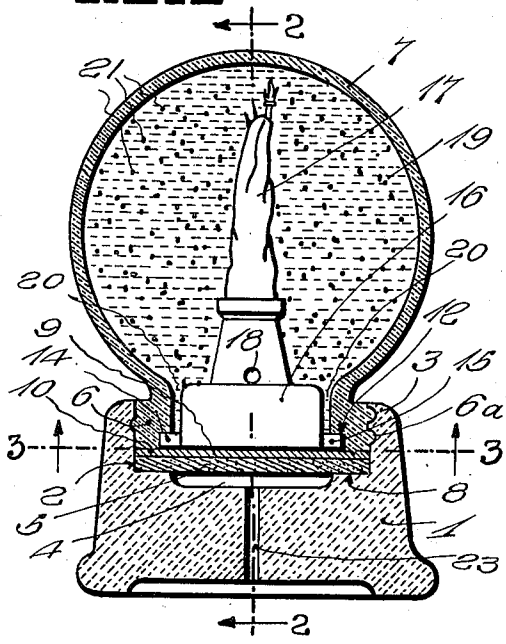

FIG. 2

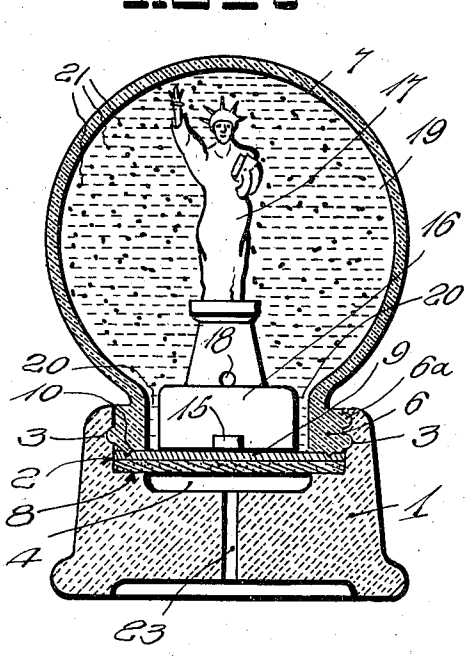

FIG. 3

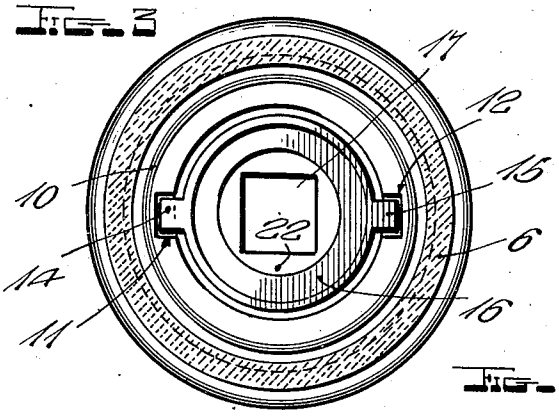

FIG. 5

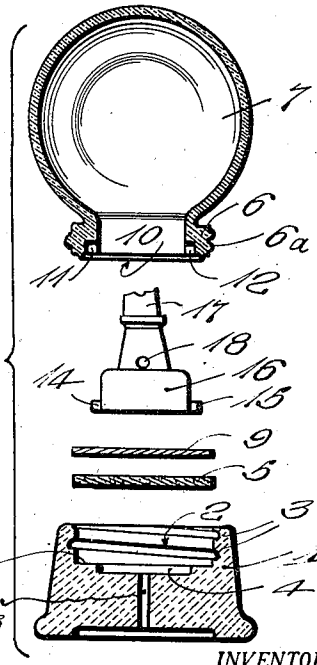

FIG. 4

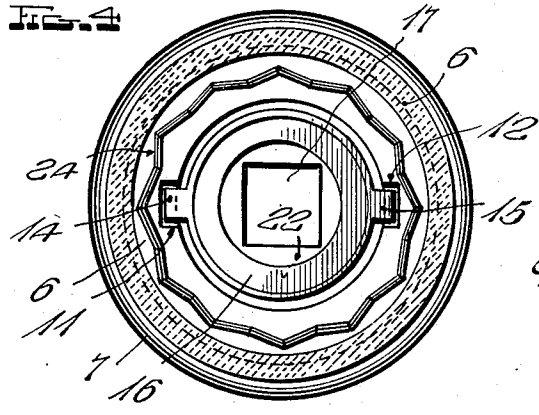

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FIG. 6

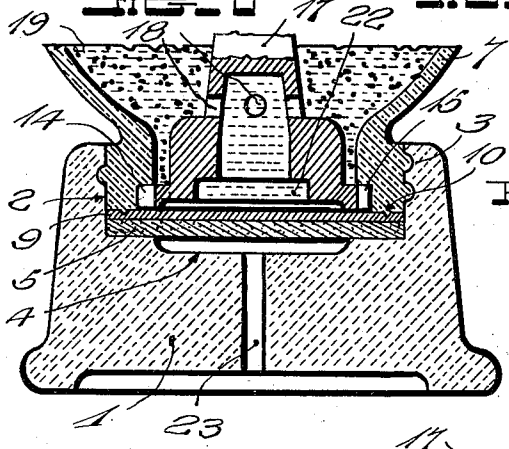


FIG. 7

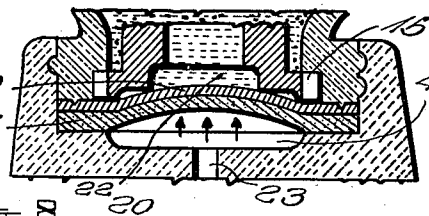


FIG. 8

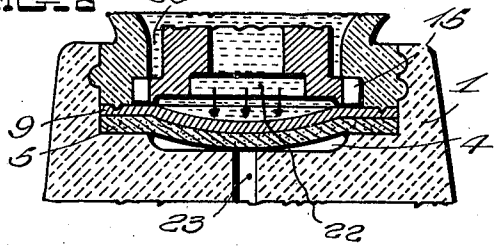


FIG. 9

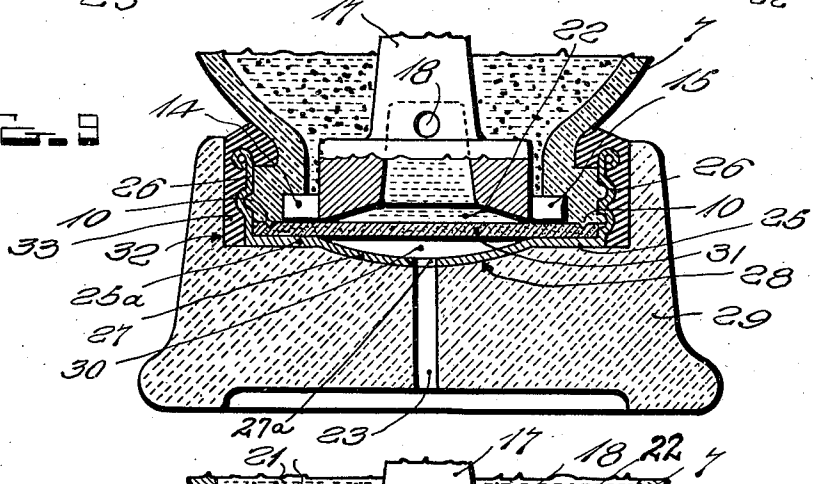
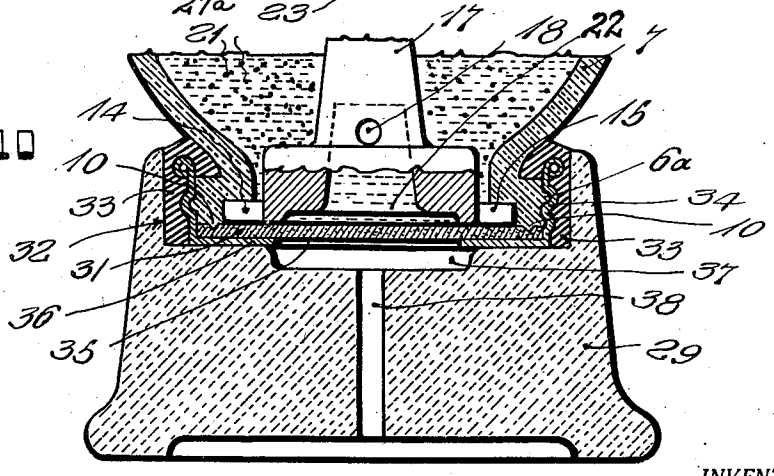


FIG. 10



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UNITED STATES PATENT OFFICE

2,361,425

CRYSTAL NOVELTY OR PAPERWEIGHT

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Application August 1, 1942, Serial No. 453,241

6 Claims. (Cl. 41—10)

My invention relates broadly to crystal novelties or paperweights and more particularly to an improved structural arrangement for facilitating mass production of crystal novelties or paperweights.

One of the objects of my invention is to provide a construction of crystal novelty or paperweight employing a minimum number of parts for sealing a liquid filled container enclosing a figure with respect to a base member for facilitating mass production of crystal novelties or paperweights.

Another object of my invention is to provide a construction of crystal novelty or paperweight in which a fluid-tight seal may be obtained between a fluid filled container enclosing a figure and a base member employing a minimum number of parts.

Still another object of my invention is to provide a construction of crystal novelty or paperweight including a closure device for the fluid filled figure enclosing container adapted to provide for the expansion and contraction of fluid within the container and effectively preventing the formation of air bubbles within the container.

A further object of my invention is to provide a construction of fluid filled figure enclosing container and base support therefor wherein a displaceable diaphragm forms part of the closure for the fluid filled container and allows expansion and contraction under conditions of variable temperature or barometric pressures without formation of air bubbles.

A still further object of my invention is to provide a construction of crystal novelty or paperweight which requires minimum amounts of critical materials for its fabrication.

Other and further objects of my invention reside in the structural arrangement of closure means for a figure enclosed fluid filled container and mounting means for the supporting base structure, as set forth more fully in the specification hereinafter following by reference to the accompanying drawings, in which:

Figure 1 is a vertical sectional view through one form of crystal novelty or paperweight embodying the structural features of my invention with parts of the figure and mounting means therefor illustrated in side elevation; Fig. 2 is a vertical sectional view taken on line 2—2 of Fig. 1 and illustrating the enclosed figure and supporting means therefor in elevation; Fig. 3 is a transverse sectional view taken on line 3—3 of Fig. 1 and showing the annular beading by which a fluid-tight connection is established between the container and the supporting base structure; Fig. 4 illustrates a modified construction of beading which may be employed for effecting a fluid-tight closure for the fluid filled container; Fig. 5 is a view showing the parts of the crystal novelty or paperweight about to be assembled, the parts being illustrated in superimposed relation in the order in which the parts are assembled in forming the completed novelty; Fig. 6 is a fragmentary vertical sectional view showing on an enlarged scale the details of the seal for the container and the mounting means for the container with respect to the base structure; Figs. 7 and 8 show alternate displaced positions of the diaphragm which extends between the container and the base structure under conditions of variation in temperature or barometric conditions; Fig. 9 illustrates a modified construction of seal and closure and supporting means for the crystal novelty or paperweight in a base structure in accordance with my invention; and Fig. 10 shows a still further modified form of seal enclosure for a crystal novelty or paperweight embodying the principles of my invention.

Wherever hereinafter I have referred to my invention as a crystal novelty it will be understood that I intend the term to also include and be synonymous with paperweights or ornaments embodying the structure set forth in the accompanying specification.

My invention is directed to an improved construction of crystal novelty which does not require appreciable critical material for its fabrication. Metal and rubber are regarded as critical materials and in the fabrication of certain forms of the crystal novelty of my invention, metal and rubber are eliminated. The crystal container is provided with a screw threaded neck portion which terminates in a projecting beading adapted to make a fluid-tight connection with a gasket member. The gasket member may be a shell-like plastic composition or any water-proof material which has expansive or contractive properties. The plastic composition material may be supported by an oiled fiber composition material such as oiled stencil paper which serves as a backing for the sheet-like plastic composition material. The fiber sheet material is supported by a base member of porcelain, wood or other material capable of being turned, molded, or otherwise fabricated, which is screw threaded to receive the screw threaded neck of the crystal. Bases made of vital materials are wholly eliminated if so desired. The base has a breathing

chamber formed therein immediately behind the fiber sheet-like member of fiber material and a breathing aperture is provided in the base allowing pressure changes due to variations in temperature and barometric conditions to occur in the breathing chamber.

In certain forms of my invention the beading may be circular, sinuous or irregular in its contour for establishing a firm seat and seal with respect to the plastic sheet-like material. Certain forms of my invention may include a cap member engaging the screw threads of the neck of the crystal to secure in place a transverse member which may be flexible in character and formed from any suitable waterproof plastic composition having expansive or contractive properties. In order to facilitate the expansion and contraction of the diaphragm-like plastic closure member, the cap which seals the member in position with respect to the end of the neck of the crystal may be open at its center to permit displacement of the plastic diaphragm in accordance with changes in temperature and barometric conditions and prevent the enclosing of air in the fluid filled crystal and thereby preventing development of undesirable air bubbles.

In the forms of my invention which involve a closure cap for closing the neck of the crystal, I apply a water-proof cement around the annular inside portion of the base against which the capped crystal is applied. The cement unites the annular skirt of the cap with the inside annular wall of the base. In the form of my invention in which the crystal is directly screw threaded into the base I apply a varnish or any other water-proof sealing composition to the inside of the threads for insuring a firm connection between the crystal and the base.

Referring to the drawings in detail, reference character 1 designates the base structure which may be formed from porcelain, wood or other material capable of being turned, molded or otherwise fabricated. The upper end of the base is recessed at 2 and is provided with internal screw threads at 3. The central portion of the recess 2 is depressed or cut out as represented at 4 to provide a chamber for the displacement of the closure diaphragm 5 which extends transversely of the neck 6 of the container 7. The closure diaphragm 5 is formed from fibrous composition material such as oiled stencil paper and is in the shape of a disc which is supported on the annular ledge 8 extending around the central depressed portion 4 of the recess 2. The fibrous composition material disc 5 serves as a backing support for the sheet-like plastic composition material 9 which is directly seated against the projecting beading 10, that is, carried by the annular neck portion 6 of the container 7. The annular neck portion 6 of the container 7 is provided with diametrically opposed recesses 11 and 12 therein adapted to receive the correspondingly shaped lugs 14 and 15 that project from diametrically opposite sides of the circular base 16 of the ornamental figure 17 which is enclosed by the container 7. The figure or base 16 is apertured in any suitable position such as indicated at 18 to allow circulation of the fluid 19 enclosed by the container for permitting access of the fluid directly against the sheet-like plastic composition member 9 for exerting expansive or contractive force thereagainst. The base member 16 is spaced from the interior wall of the neck 6 by a narrow annular gap indicated at 20 which also permits direct pressure application of the fluid 19 against the sheet-like plastic composition material 9. The fluid 19 floatingly suspends the precipitate particles of insoluble material indicated at 21 for simulating whirling snow which may be induced upon shaking or agitating the container 7.

The sheet-like plastic composition material 9 extends directly in contact with the base 16 and over the annular beading 10 and against the peripheral extremity of the annular neck 6 supported by the fibrous backing material 5. As the screw threads 6a on the neck 6 of container 7 are engaged in screw threads 3 in base 1 and screwed to a firm securing position for closing the neck of the fluid filled container 7, the annular beading 10 presses into the sheet-like composition material 9 forming a fluid-tight closure. The base 16 of the figure 17 has a hollow interior portion represented at 22 providing a displacement chamber interiorly of the figure for the movement of the sheet-like plastic composition material 9 and backing sheet 5 as represented in Fig. 7 under conditions where contractive forces are exerted within the fluid filled container 7. The base 1 with the central depressed portion 4 therein serves as a similar or complementary chamber in which the backing sheet 5 and the sheet-like plastic composition material 9 may be displaced under conditions of development of expansive forces within container 7. Base 1 is provided with a central passage or aperture 23 leading to the atmosphere so that atmospheric pressure is continuously exerted against the diaphragm-like backing sheet 5. It will be seen that the oppositely disposed chambers 22 and 4 provide ample space into which the diaphragm-like members 5 and 9 may move.

Fig. 5 represents more clearly the simplified relationship of the parts constituting the crystal novelty. It will be seen that the assembly process is extremely simple as it is only necessary to deposit the backing sheet-like diaphragm 5 in the recess 2 in base 1, then deposit the diaphragm 9 of the sheet-like plastic composition material, next mount the figure in the crystal container by engaging the lugs 14 and 15 in recesses 11 and 12, then applying varnish or any other water-proof sealing composition to the inside of the threads 3 in base 1, and finally applying the fluid filled and precipitate enclosing container 7 to the base 1 by engaging screw threads 6a on neck 6 into screw threads 3 in recess 2 of base 1.

In lieu of the central projecting beading 10, I may provide a sinuous or angularly directed projected beading on the peripheral extremity of the neck 6 of container 7 as illustrated at 24 in Fig. 4. The angularly extending rib or projection enters the sheet-like plastic composition material 9 forming a fluid-tight joint for confining the fluid within the container 7 and preventing leakage of air with development of undesired air bubbles.

In Fig. 9 I have shown a modified form of my invention where a metallic closure cap member 25 and a screw threaded skirt 26 are adapted to engage the screw threads 6a on neck 6. The screw threaded cap 25 has a central outstruck portion 27 therein adapted to be seated in a conformed depression 28 in the base 29. The central outstruck portion 27 provides a chamber 30 into which the expansible and contractible diaphragm 31 which is seated in cap 25 may be displaced under conditions of expansion and contraction forces which may develop in container 7. The closure cap 25 has an annular portion 25a which

serves as a bearing means against lugs 14 and 15 through the material of diaphragm 31 for securely maintaining the figure 17 in position within container 7. The projecting beading 10 is forced into the material of the diaphragm 31 forming a fluid-tight seal. The chamber 22 in the base of figure 17 allows displacement of diaphragm 31 into the chamber while chamber 30 allows displacement of the diaphragm 31 away from the fluid within the container depending upon various conditions of temperature and barometric pressures. A port 27a connects chamber 30 with the atmosphere through port 23.

The base 29 has a circular recess 32 in the upper portion thereof adapted to receive the screw threaded cap 25 and permit the cap to be anchored in position by application of a water-proof cement 33 as shown.

In Fig. 10 I have shown a further modified form of my invention in which a closure cap 34 has a screw threaded skirt engaging the screw threads 6a on the neck 6 of container 7 and is centrally apertured at 35 as shown. The annular peripheral portion 36 of the cap 34 serves as a mounting means for the figure 17 as the annular portion 36 of cap 34 directly engages the expansible and contractible diaphragm 31 which bears directly against lugs 14 and 15 of the base 16 of the figure 17. The projecting beading 10 enters the material of the gasket 31 forming a fluid-tight closure. The expansible and contractible diaphragm 31 may be displaced into the chamber 22 and the base of figure 17 or may be displaced into the chamber 37 in base 29 through aperture 35 in closure cap 34 according to variable conditions of temperature and barometric pressure. A port 38 extends through base 29 into chamber 37 for applying atmospheric pressure directly against diaphragm 31. The screw threaded closure cap 34 enters the recess 32 in base 29 and may be secured in position with respect thereto by means of the water-proof cement indicated at 33.

The forms of my invention illustrated herein have been found highly practical for mass production of crystal novelties inexpensively with minimum labor and with minimum critical materials. However I realize that modifications in the structural arrangement of the crystal novelty of my invention may be made and I intend no limitations upon my invention other than may be imposed by the scope of the appended claims.

What I claim as new and desire to secure by Letters Patent of the United States is as follows:

1. A crystal novelty comprising a container for fluid having a fillable neck portion, a base structure, an expansion chamber in said base structure, an expansible and contractible closure for the fillable neck portion of said container displaceable into and out of said expansion chamber, a figure supported within said container and means for mounting said neck portion in said base structure.

2. A crystal novelty comprising a fluid container terminating in a fillable neck portion, a figure supported within said container with the base thereof terminating in the plane of said fillable neck portion, the base of said figure including a centrally disposed recess, a diaphragm of expansible and contractible material extending transversely of said neck portion and across said recessed base, a mounting structure for said container, said mounting structure including a central recess therein aligned with the recess in said base whereby said diaphragm is free for displacement either into the recess of said base or the recess of said mounting structure.

3. A crystal novelty comprising a container terminating in a fillable neck portion, a figure mounted within said container, a mounting structure for said container centrally recessed to receive the fillable neck portion thereof, an expansion chamber in said mounting structure, a diaphragm of expansible and contractible sheet-like plastic composition material disposed within the recessed mounting structure, the peripheral edge of the neck portion of said container having a projecting beading thereon against which said diaphragm is compressible for effecting a fluid-tight seal between said mounting structure and said container and the central portion of said diaphragm being displaceable into and out of said expansion chamber.

4. A crystal novelty comprising a fluid container having a fillable neck portion, a base for supporting the neck portion of said container in inverted position, an expansion chamber in said base, and a figure mounted in said container and terminating ina base substantially in the plane of said fillable neck portion, a diaphragm of expansible and contractible material extending transversely across said base and expansion chamber, and a backing sheet supporting said diaphragm, above said expansion chamber said backing sheet and said diaphragm coacting to close the neck portion of said fluid filled container and being displaceable into and out of said expansion chamber.

5. A crystal novelty comprising a fluid container having a fillable neck portion, a figure mounted in said container and terminating in a base substantially in the plane of said fillable neck portion, a diaphragm of expansible and contractible material extending transversely across said base, a closure cap engaging the neck portion of said container for securing said diaphragm in position, said closure cap having an out-struck central projection therein forming a chamber and the base of said figure having a recess therein forming a diametrically opposite chamber, said diaphragm being displaceable into either of said chambers, and mounting means for said closure cap.

6. A crystal novelty comprising a fluid filled container terminating in a fillable neck portion, a figure mounted in said container having a base portion extending in the plane of said fillable neck portion, said base portion being centrally recessed, a closure member engageable with the exterior of said neck portion, a diaphragm of expansible and contractible material extending transversely of said neck portion and across said base portion and secured in position by said closure member, said closure member being centrally apertured, mounting means for said closure member having a central recess therein aligned with the central aperture in said closure member whereby said diaphragm is free to be displaced into the recess in said base portion or to the recess in said mounting means.

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