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W. H. WHEELER
CONTAINER DEVICES
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Fig. 1.

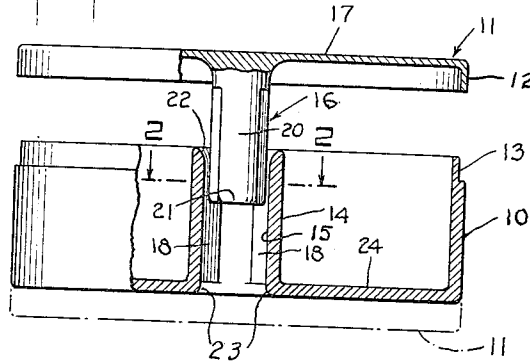


Fig. 2.

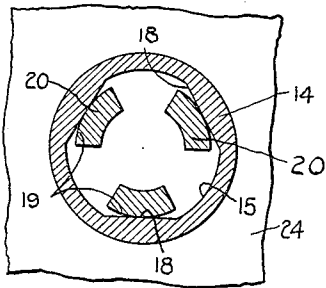


Fig. 3.

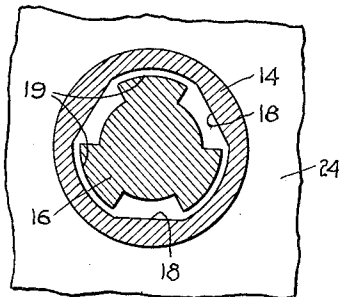


Fig. 4.

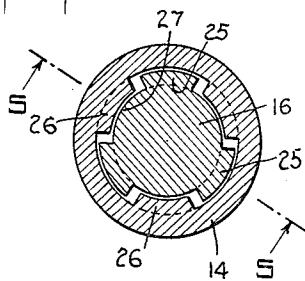


Fig. 5.

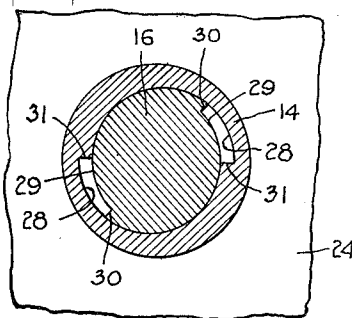
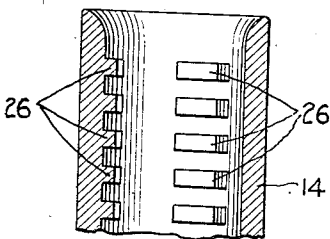


Fig. 5.



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CONTAINER DEVICES

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7 Claims. (Cl. 220—40)

This invention relates to container devices having adjustably displaceable closure means associated therewith. More particularly the invention relates to container devices of the character described, wherein the container and closure parts thereof have interengaging hub portions including cooperating means thereon actuated by limited rotary movement of the closure part with respect to the container part for locking said closure part in different vertically spaced positions with respect to said container part.

In the packaging of various materials of a volatile nature as, for example, materials for the freshening, deodorizing or similar treatment of air, it is frequently difficult to provide means for controlling in an effective way the rate of volatilization or evaporation of air treating agents.

An object of my invention is to provide a simple and practical device which can be economically produced, in which the closure means can be quickly and easily locked in supporting engagement with the container in different vertically adjustable positions with respect to the container in a manner to provide complete closure, partial opening or complete opening in controlling the emission or evaporation of volatilizable material therefrom.

Regarded in certain of its broader aspects my improved container device comprises a container part of relatively flat and circular contour, having at the axis thereof a hub portion providing a socket therein, and a closure member for said container having a central stem or hub portion insertable in the socket of said container, and registering surfaces of the socket and stem including means providing free vertical movement thereof in one position of rotary orientation and clamping engagement therebetween in other positions of rotary adjustment.

The novel features of my container device will readily be apparent from a consideration of the following description taken together with the accompanying drawing showing certain adaptations thereof, wherein the various parts of the device are identified by suitable reference characters in each of the views and wherein:

Fig. 1 is an elevation view, partially in section, showing one form of my device with the closure means and container locked in partially extended position;

Fig. 2 is a partial sectional view substantially on the line 2—2 of Fig. 1;

Fig. 3 is a view, similar to Fig. 2, showing the parts thereof rotated from the locked position to the position permitting vertical sliding movement therebetween, and indicating a modified form of construction in one of the parts;

Fig. 4 is a view, similar to Fig. 3, showing a modified form of locking means with the said locking means in disengaged position;

Fig. 5 is a partial sectional view substantially on the line 5—5 of Fig. 4; and

Fig. 6 is a view, similar to Fig. 3, showing a modified

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form of locking means with said locking means in operative or locking engagement.

In Figs. 1 to 3 of the drawing I have shown one form of container in accordance with my invention as comprising a container part 10 and a closure or lid part 11 having a peripheral flange 12 adapted to closely engage a suitably recessed portion 13 at the upper periphery of the container 10. The engagement between the flange 12 and recessed portion 13 may be a simple telescoping or sliding engagement or, if desired, the parts may be provided with circumferential screw threads or other securing means to provide a positive locking engagement between the lid 11 and container 10.

The container 10 is provided centrally thereof with a hub 14 forming a socket or passage 15 adapted to receive a hub or stem part 16 arranged centrally of the top wall 17 of the lid 11. The socket 15 may extend through the container from top to bottom as shown in Fig. 1, or may terminate in a bottom wall continuous with the bottom of said container.

The inner surface of the socket 15 is of generally cylindrical contour having a plurality of inwardly extending bearing surfaces 18, three being shown merely for purpose of illustration, which are essentially flat and may be considered as planes peripherally traversing the socket 15 parallel to the axis thereof. The stem 16 of the lid or closure 11 is generally cylindrical in external contour, but has a plurality of circumferentially spaced bearing surfaces 19 corresponding in number with and adapted to engage the bearing surfaces 18 within the socket 15. The bearing surfaces 19 are of a dimension circumferentially of the stem 16 to permit the same to be aligned with walls of the passage 15 between the bearing surfaces 18, as indicated in Fig. 3 of the drawing, permitting free vertical sliding movement of the parts when in this position. The bearing surfaces 18 can comprise the outer surfaces of separate lugs 20, as shown in Fig. 2, or can be protruding portions on the stem or hub 16, as shown in Fig. 3. The engagement between the bearing surfaces 18 and 19 with a solid hub 16, as shown in Fig. 3, is primarily a wedging action; whereas with the separate lugs 20 forming the stem 16, as shown in Fig. 2, this action may be due to a combination of wedging of the parts and resiliency in the lugs 20.

With the form of construction as shown in Figs. 1 to 3 it will be apparent that the closure or cap 11 can be locked or clamped to the container 10 in any desired position of vertical adjustment by limited rotation of the lid to bring the bearing surfaces 18 and 19 into operative engagement. In addition it will be noted that the lid 11 can be completely removed and inserted through the bottom of the container 10, as shown in dot and dash lines in Fig. 1, for the purpose of restoring the lid 11 when full opening of the container 10 is desired. In facilitating insertion and removal of the stem 16 with respect to the socket 15, it will be noted that the lower end 21 of the stem 16 has curved contours adapted to register with outwardly curved surfaces 22 at the upper end of the socket 15 and similarly curved surfaces 23 at the lower end thereof where the hub 14 joins the bottom wall 24 of the container.

In Figs. 4 and 5 of the drawing I have shown a modified form of construction, generally similar to that shown in Fig. 3 but having in place of the bearing surfaces 18 and 19 groups of protruding lugs 25 on the stem 16 and other groups of protruding lugs 26 within the hub 14, the lugs 25 and 26 being circumferentially spaced, as shown in Fig. 4, to permit vertical sliding movement of the parts when in one position of rotary adjustment and locking engagement therebetween when in other positions of rotary adjustment. On both the stem 16 and hub 14 the lugs 25 and 26 respectively are vertically spaced.

within the several groups thereof in the manner shown in Fig. 5 of the drawing, providing a number of different positions of vertical adjustment of the lid 11 with respect to the container 10. The number and spacing of the lugs 25 and 26 can of course be varied in different uses and adaptations of the device to meet the particular need for different vertical adjustments of the lid with respect to the container.

With this form of construction it will be apparent that vertical adjustments can be made quickly and easily by partial rotation of the parts to bring the lugs 25 and 26 into the position of rotary orientation shown in Fig. 4. In this connection it will be noted that the inner surfaces 27 of the lugs 26 preferably conform closely to the curvature of the corresponding surfaces of the stem 16 so that the engagement between these surfaces provides for relative sliding movement of the parts without substantial clearance or play therebetween.

In Fig. 6 of the drawing I have shown a further modified construction, wherein the hub 14 and stem 16 are each provided with a plurality of coacting circumferential wedge surfaces. For purpose of illustration two such wedge surfaces 28 have been shown on the hub 14 and two registering wedge surfaces 29 have been shown on the stem 16, with shoulders 30 and 31 forming the end of each wedge surface on the respective parts. When the stem 16 is rotated in a direction to bring the shoulders 30 into engagement with the shoulders 31 on the hub 14, this acts to separate the wedge surfaces 28 and 29 to permit vertical sliding movement of the stem 16 with respect to the hub 14. When the stem 16 and the lid supported thereon is in the desired position of vertical adjustment, rotation of the stem 16 in a direction to move the shoulders 30 away from the shoulders 31 operates to bring the wedge surfaces 28 and 29 into clamping engagement, thereby locking the stem 16 in said position of vertical adjustment in the hub 14.

In the various forms of my improved container device as above described, it will be apparent that the container 10 and cover 11 can be fashioned from any suitable material such as metal, plastics and the like, and it is to be noted that the various modifications of the device are particularly suited to construction from plastics by simple and practical molding operations.

Various changes and modifications in the container devices herein disclosed may occur to those skilled in the art, and to the extent that such changes and modifications are embraced by the appended claims it is to be understood that they constitute part of my invention.

I claim:

1. A container device of the character described comprising a container part of relatively flat and circular contour having a central hub portion providing a socket therein, a closure member for said container having a central stem portion insertable in the socket of said container part, and registering surfaces extending substantially throughout the length of the socket and stem including means providing free vertical movement thereof in one position of rotary orientation and clamping engagement therebetween in other positions of rotary orientation whereby said closure member may be adjustably supported in different positions of elevation with respect to said container part.

2. A container device of the character described comprising a container part of relatively flat and circular contour having a central hub portion providing a socket therein, a closure member for said container having a central stem portion insertable in the socket of said container part, and registering surfaces extending substantially throughout the length of the socket and stem including means providing free vertical movement thereof in one position of rotary orientation and clamping engagement therebetween in other positions of rotary orientation whereby said closure member may be adjustably supported in different positions of elevation with

respect to said container part, said last named means comprising a plurality of circumferentially spaced bearing surfaces within said socket and correspondingly spaced bearing surfaces on said stem.

3. A container device of the character described comprising a container part of relatively flat and circular contour having a central hub portion providing a socket therein, a closure member for said container having a central stem portion insertable in the socket of said container part, registering surfaces extending substantially throughout the length of the socket and stem including means providing free vertical movement thereof in one position of rotary orientation and clamping engagement therebetween in other positions of rotary orientation whereby said closure member may be adjustably supported in different positions of elevation with respect to said container part, said last named means comprising a plurality of circumferentially spaced bearing surfaces within said socket and correspondingly spaced bearing surfaces on said stem, and the bearing surfaces on said stem comprising a plurality of separate members depending from said closure member and integral therewith providing a resilient wedging engagement with the bearing surfaces of said socket.

4. A container device of the character described comprising a container part of relatively flat and circular contour having a central hub portion providing a socket therein, a closure member for said container having a central stem portion insertable in the socket of said container part, and registering surfaces extending substantially throughout the length of the socket and stem including means providing free vertical movement thereof in one position of rotary orientation and clamping engagement therebetween in other positions of rotary orientation whereby said closure member may be adjustably supported in different positions of elevation with respect to said container part, said last named means comprising a plurality of circumferentially spaced bearing surfaces within said socket and correspondingly spaced bearing surfaces on said stem, the bearing surfaces within said socket comprising plane surfaces parallel to the axis of said hub portion and facilitating clamping engagement with said stem by rotation of said stem in either direction.

5. A container device of the character described comprising a container part of relatively flat and circular contour having a central hub portion providing a socket therein, a closure member for said container having a central stem portion insertable in the socket of said container part, and registering surfaces extending substantially throughout the length of the socket and stem including means providing free vertical movement thereof in one position of rotary orientation and clamping engagement therebetween in other positions of rotary orientation whereby said closure member may be adjustably supported in different positions of elevation with respect to said container part, said last named means comprising a plurality of circumferentially spaced bearing surfaces within said socket and correspondingly spaced bearing surfaces on said stem, the bearing surfaces on said socket and stem comprising circular wedges providing clamping engagement therebetween by rotation in one direction and disengagement by rotation in the opposite direction.

6. A container device of the character described comprising a container part of relatively flat and circular contour having a central hub portion providing a socket therein, a closure member for said container having a central stem portion insertable in the socket of said container part, and registering surfaces extending substantially throughout the length of the socket and stem including means providing free vertical movement thereof in one position of rotary orientation and clamping engagement therebetween in other positions of rotary orientation whereby said closure member may be adjust-

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ably supported in different positions of elevation with respect to said container part, said last named means comprising a plurality of vertically spaced lugs arranged in circumferentially spaced groups within said socket and correspondingly spaced groups of vertically spaced lugs protruding from said stem.

7. A container device of the character described comprising a container part of relatively flat and circular contour having a central hub portion providing a socket therein, and a closure member for said container having 10 a central stem portion insertable in the socket of said container part, and registering surfaces extending substantially throughout the length of the socket and stem including means providing free vertical movement thereof in one position of rotary orientation and clamping en- 15 gagement therebetween in other positions of rotary orientation whereby said closure member may be adjustably supported in different positions of elevation with respect to said container part, said last named means comprising a plurality of vertically spaced lugs arranged 20

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in circumferentially spaced groups within the said socket and correspondingly spaced groups of vertically spaced lugs protruding from said stem, and the inner surfaces of the lug swithin said socket conforming closely to the outer surfaces of said stem to provide close sliding engagement therebetween.

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