Sept. 29, 1942. E. H. TOMPKINS ET AL 2,297,178

INHALER CONTAINER

Filed March 21, 1940

Fig. 1.

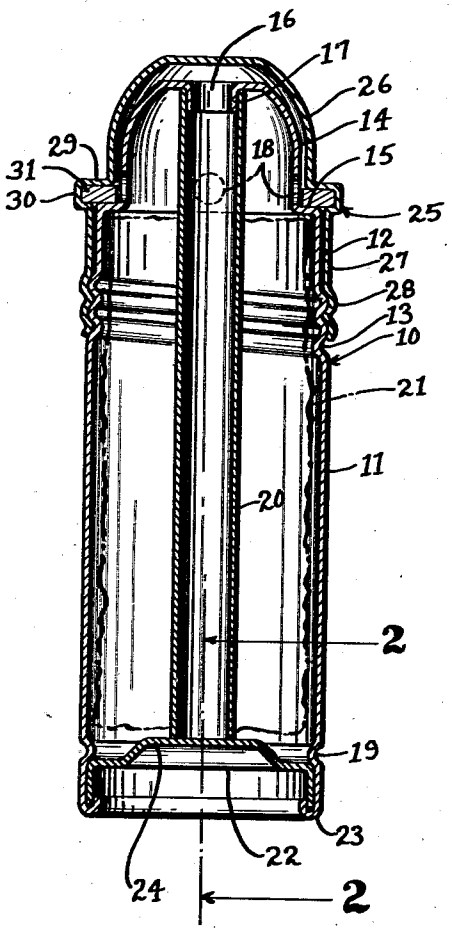


Fig. 2.

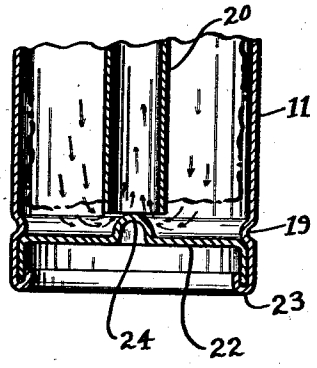
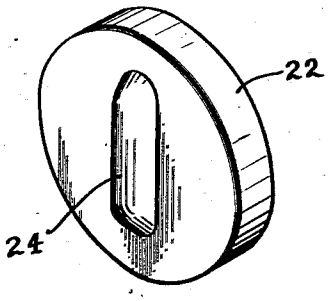


Fig. 3.



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INHALER CONTAINER

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Application March 21, 1940, Serial No. 325,176

5 Claims. (Cl. 128—200)

This invention relates to improvements in the construction of inhaler containers and particularly to an inhaler of the type using a volatile inhalent saturated in a wad, disposed within the container and adapted to be carried around in the user's pocket. This inhaler container is an improvement over a prior Patent No. 2,191,016 of Allen C. Hoffman as the sole inventor.

One of the objects of this invention is to provide an inhaler container having the air intake and outlet openings at the same end of the device, which construction requires only the use of a relatively short single cap for sealing the device.

A further object of the invention resides particularly in the manner in which an imperforated tube is assembled and retained within the body structure and serving as an exhaust means for the inhaler.

A still further object is to make an inhaler container of neat appearance, simple and inexpensive in construction, easily assembled and designed to be carried in the vest pocket or the handbag for immediate use.

The invention will be better understood from the detailed description which follows in conjunction with the accompanying drawing showing certain preferred embodiments of the invention, wherein:

Fig. 1 represents a longitudinal vertical sectional view through a container on an enlarged scale.

Fig. 2 is a fragmentary sectional view of the lower end of the container taken along lines 2—2 of Fig. 1 on a plane transverse to the sectional plane of Fig. 1, and

Fig. 3 is a prospective view of the sealing cap of the container.

Referring now to the drawing wherein like numerals designate like parts throughout the several views; the numeral 10 indicates generally a hollow container shell comprising an outside tubular body 11, a reduced shorter section 12, having an intermediate threaded portion 13 there between. The upper end of the container shell is formed with a reduced nozzle end 14 joined to the intermediate section 12 by a transverse shoulder 15. The apical end of the nozzle 14 is provided with an exit opening 16 surrounded by a sleeve 17 formed as an integral drifted portion of the nozzle end 14. Intake openings 18 are provided in the lower part of the nozzle end adjacent to the shoulder 15. The container shell 11 is initially formed with its lower end opened and is provided with an inwardly rolled stop bead 19 a short distance from the end thereof.

Assembled concentrically within the container shell and extending substantially the entire length thereof is a cylindrical imperforated longitudinal tube 20 serving as an exhaust means for the device. The upper end of the tube is telescopically fitted about the sleeve 17 of the nozzle 14 and before assembly in order to provide a means for holding a volatile substance, a wad of material such as cotton batting or the like, is wrapped around the tube 20 as shown in dot-and-dash outline in Fig. 1 and indicated by the numeral 21. The tube 20 and supported wad 21 are held in place by a cup-shaped end cap 22 forced into the open end of the body 11 in an inverted manner to a position where it engages the rib 19 as a stop. The cap 22 is permanently held in place by the inwardly rolled or beaded end 23 of the body 11. Attention is called to the fact that the inner extremity of the rolled bead 23 is extended a noticeable distance upwardly within the inside of the inverted cap 22. This construction is resorted to in order to permit the extremity of the cap wall to be tightly embraced within the confines of the bead 23 and is designed to create a leak-proof seal between the cap 22 and body 11 without the need of a compressible washer and to prevent loss of any volatile fumes when the device is not in use.

A supporting rib 24 is formed upwardly out of the crown portion of the end cap 22 and serves as a means for holding the tube 20 in assembled position. The rib 24 is preferably dome-shaped in cross section so that only the apical end of the rib bears at two points against the adjacent end of the tube 20; thus allowing for two opposed air passages entering into the tube from the lower end all as best shown in Fig. 2, and precludes the necessity of having to slot or pierce the walls of the tube to provide for an air intake passage.

For closing the container, when not in use, a closure cap 25 is provided having a reduced end 26 somewhat conforming in shape to the nozzle end 14 of the container shell. The lower part of the cap 25 is provided with an enlarged section 27 that is adapted to telescopically fit over the intermediate reduced section 12 of the container shell and terminates in a lower threaded portion 28 for detachable engagement with the threads 13 of the body 11.

Between the reduced end 26 of the cap and the enlarged section 27 provision is made for a transverse shoulder 29 and a bead 30 expanded

outwardly beyond the section 27 and providing for an interior recess within which is accommodated a sealing gasket 31. When the cap 25 is threaded home upon the body shell, it will be apparent that the sealing gasket will be compressed between the shoulders 29 and 15 in such a manner as to effect a single sealing medium for both the intake and outlet openings.

In the illustration of this inhaler device a cotton wad 21 is shown as the vehicle for the inhaler material which in this case would be of liquid form and applied by a dropper or similar means through any one of the intake openings 18. It is further conceivable that in place of a saturated cotton wad, an inhalent of a solid material of a granular or compact tubular form could be loaded into the container before the assembly of the end cap 22, if such is desired.

It will be apparent that, while there are employed certain details of construction for the purpose of adequately disclosing the invention, various changes or modifications of the construction herein shown and described may be made within the scope of the appended claims with out departing from the spirit of this invention or sacrificing its advantages.

What I claim is:

1. An inhaler device comprising a container shell having a reduced closed end and an open opposite end, the closed end having a discharge opening with an inwardly disposed sleeve surrounding said opening, a longitudinal tube having one end telescope over said sleeve to be held in central position within said shell, a cap closing the open end of said container, and a single longitudinal rib formed inwardly of said cap for engagement against the adjacent end of said tube to maintain the latter in assembled position and allow for the maximum intake passage into the adjacent end of the tube.

2. An inhaler device comprising a container shell having a reduced closed end and an open opposite end, the closed end having a discharge opening with an inwardly disposed sleeve surrounding said opening, a longitudinal tube having one end telescoped about said sleeve for holding the same in a substantially central position within said shell, a cup shaped cap secured in an inverted position in the open end of said shell as a sealing means, and a single longitudinal rib member formed inwardly from the crown portion of said cap and engaged transversally against the adjacent end of said tube as a means to retain the tube in assembled position within the shell, said rib member being of less width than the inner diameter of said tube, thus providing for a split ingress opening into said tube of maximum area.

3. An inhaler device comprising a container shell having a tapering closed end and an opposite open end, the closed end having a discharge opening formed with an inwardly drifted sleeve surrounding said opening, intake openings provided in said shell adjacent the tapering end, a longitudinal tube having one end frictionally telescoped about said sleeve for holding the same in a substantially central position within said shell, a cup shaped cap assembled in an inverted position within the open end of said shell, the open end of said shell being formed about the open end of said cap for anchoring the cap in assembled position and effecting an air tight seal there between, a single longitudinal rib formed inwardly of the crown portion of said cap and capacitated to transversally engage against the adjacent end of said tube and retain the same in assembled position relative to said sleeve, said rib being arcuate shape in cross section whereby the end of the tube will be supported at two opposite points and allow for a split opening into that end of said tube.

4. An inhaler device comprising a tubular container shell having a reduced section with a transverse shoulder there between, said reduced section having intake openings adjacent to said shoulder and terminating in a tapering nozzle end with a discharge opening, a sleeve member drifted inwardly from the nozzle end and surrounding said discharge opening, a longitudinal imperforate tube fitted about said sleeve as a means for retaining and centralizing said tube within said container shell, a circumferential rib formed inwardly in said shell adjacent its open end, a cap means assembled in an inverted manner into the open end of said shell and against said rib as a stop, and means formed in the crown portion of said cap for engaging against the adjacent end of said central tube and allowing for an open passageway into that end of the tube.

5. An inhaler device comprising a tubular container shell having a reduced section with a transverse shoulder there between, said reduced section having intake openings adjacent said shoulder and terminating in a tapering nozzle end with a discharge opening, a sleeve member drifted inwardly from the nozzle end and surrounding said discharge opening, a longitudinal imperforate tube fitted about said sleeve as a means for retaining and centralizing said tube within said container shell, a cup shaped cap assembled in an inverted manner into the open end of said container shell, the open end of said shell being formed or spun about the open end of said cap for permanent assembly and effecting an air tight seal there between, a projection formed outwardly of the crown portion of said cap and supporting the adjacent end of said tube without materially affecting the area of the opening into that end of said tube, a closure cover having detachable engagement with said tubular shell and provided with an intermediate shoulder and an expanded recess, and a sealing washer carried in said recess and adapted to be compressed between said container and cover shoulders to hermetically seal the device.

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