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H. B. FONDA

2,395,109

INHALER

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Fig. 1.



Fig. 2.



Fig. 3.

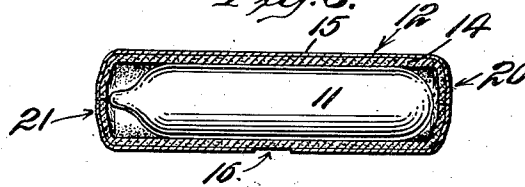


Fig. 4.



Fig. 5.

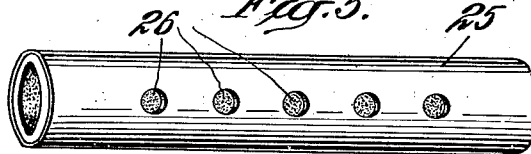
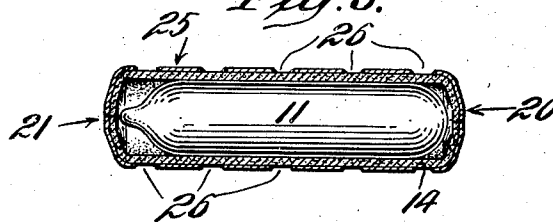


Fig. 6.



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3 Claims. (Cl. 128—200)

This invention relates to an inhaler and has for an object to provide a device of the above type having novel and improved characteristics.

Another object is to provide an inhaler which is suitable for quantity production.

Another object is to provide an inhaler of the type employing a breakable glass container having a suitable covering which protects the user from injury and also prevents leakage of the contents.

Various other objects and advantages will be apparent as the nature of the invention is more fully disclosed.

The invention will be better understood by referring to the following description taken in connection with the accompanying drawing in which two embodiments thereof have been set forth for purposes of illustration.

In the drawing:

Fig. 1 is a perspective view of the outer cartridge before the inner container has been inserted therein.

Fig. 2 is a side elevation, partly in section, of the inner container.

Fig. 3 is a longitudinal section through the assembled inhaler.

Fig. 4 is an end view thereof.

Fig. 5 is a perspective view similar to Fig. 1, showing a further embodiment of the invention and

Fig. 6 is a longitudinal section through the inhaler of Fig. 5.

In the following description certain specific terms are used for convenience in referring to various details of the invention, but these terms are not intended to limit the scope of the invention except as defined by the claims.

Referring to the drawing more in detail, the invention is shown as applied to an inhaler comprising an inner container or ampule 11 of frangible onion skin, glass or the like containing a liquid 10 such as aromatic spirits of ammonia, aromatic ammonia, amyl nitrite or other vaporizable substances. The ampule 11 is sufficiently thin so as to be readily frangible by the pressure of the fingers.

The sealed ampule 11 is placed within the outer cartridge 12 comprising an inner casing 14 of blotting paper, and an outer casing 15 of a denser paper, which may be moisture resistant.

In the embodiment shown in Fig. 1 the inner casing 14 is formed by a spirally wound, two ply white blotting paper strip with butted joint 13, and the outer casing 15 consists of a spirally wound strip of denser paper such as kraft paper

or parchment paper which is wound around the inner casing 14 in a manner to provide a spiral groove 16 between the adjacent side edges of the paper strip. The groove 16, which is shown exaggerated in Fig. 1, serves to expose a portion of the surface of the inner blotting paper casing 14 so as to permit and facilitate the escape of vapors after the ampule has been broken. It is to be understood that the outer strip may be wound in such a manner that its edges nearly abut but are still sufficiently spaced to permit escape of vapors. The helical joint line 13 of the inner casing 14 is preferably offset with respect to the spiral groove 16 of the outer casing 15.

All plies are secured together with a neutral vegetable adhesive, such as a starch glue which does not retard the absorption or evaporation of the liquid when the ampule is broken.

The inner layer 14 preferably contains an indicator such as manganese sulphate, phenolphthalein, litmus, or the like, for the detection of leakage of the ammonia in the ampule. If manganese sulphate is used, for example, escaping ammonia vapors turn the container a brownish color and thereby indicate a defective ampule.

The cartridge 12 is preformed in the shape of an open end cylinder as shown in Fig. 1. It is then closed at one end by crimping the material as indicated at 20 in Figs. 3 and 4. The sealed ampule 11 containing the vaporizable material 10 is then placed in the open cartridge and the other end is closed by crimping as at 21, Fig. 3. In this form the cartridge protects the ampule from accidental breakage, although it is sufficiently flexible to permit the ampule to be readily fractured by squeezing the sides of the cartridge between the fingers. When broken the liquid is absorbed in the blotting paper layer 14 and the vapors readily escape through the openings 16 and from the unsealed ends 20 and 21.

The embodiment shown in Figs. 5 and 6 is similar to that shown in Figs. 1 to 3, except that the outer layer 25 of Fig. 5 is continuous and is provided with a plurality of holes 26 which take the place of the openings 16 of Fig. 1. These holes 26 expose the underlying layer of blotting paper and permit the escape of vapors in the manner above described.

It will be noted that due to the simplicity of construction, the above device is well adapted to commercial production. The outer cartridge may be readily formed and the ends crimped in by suitable packaging machinery. Furthermore the completed inhaler is sufficiently stiff and rigid to permit shipment and comparatively rough han-

dling without danger of injury to the inner frangible container.

Although only two specific embodiments of the invention have been shown, it is to be understood that the invention is capable of various uses and that changes and modifications may be made therein as will be readily apparent to a person skilled in the art.

The invention is only to be restricted in accordance with the following claims.

What is claimed is:

1. An inhaler comprising a frangible ampule containing a vaporizable liquid and a composite cartridge tightly enclosing said ampule, said cartridge consisting of an inner casing formed of blotting paper and an outer casing formed of a strip of moisture resistant paper spirally wound

upon and being secured to said inner casing to stiffen and protect the same and having its adjacent edges spaced to expose a helical portion of the outer surface of said blotting paper casing.

5 2. An inhaler as claimed in claim 1, in which said inner casing consists of a spirally wound strip of blotting paper with abutting side edges.

3. An inhaler as claimed in claim 1, in which said inner casing consists of a spirally wound strip of blotting paper with abutting side edges, the spiral butt joint between the adjacent edges of the blotting paper strip being offset in axial direction relative to said helical exposed portion of the blotting paper casing surface.

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