PATENT SPECIFICATION

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COMPLETE SPECIFICATION

Improvement in Receptacle for Atomiser or the Like

We, ELIZABETH ARDEN LIMITED, a British Company, of 25, Old Bond Street, London, W.1, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The present invention relates to a container and more particularly to a dispensing container of a moulded, resiliently flexible synthetic plastic material particularly adapted to serve as a container for an atomiser or similar device for dispensing liquids and finely powdered solids in a thin spray.

Resiliently flexible containers of the same general character and for the same general purpose have heretofore been known and used. Such containers were made in various forms and shapes and were constructed to be operated by the squeezing together, between thumb and other fingers, the side wall of the container.

Such containers as heretofore made presented a number of difficulties and disadvantages and were short of being entirely suited for the purpose. Thus, the squeezing operation was physically clumsy and uncomfortable beyond a certain point, because, generally, the bottom and shoulders of the container which were generally perpendicular to the side wall, interfered with the complete flexibility of the side wall thereof. For the same reason, complete evacuation of the container, both of air and of contents, was not possible and its operation was limited to be accomplished only by short compressing strokes which were not effective to empty the container of residual portions of material.

It is an object of the present invention, therefore, to provide a dispensing container moulded of a resiliently flexible synthetic plastic material in which all of the foregoing disadvantages are eliminated, and which is as nearly perfect for use in atomising and similar other dispensing devices as possible.

It is another object of the present invention to provide a dispensing container of the character described which may be substantially completely compressed to thereby enable more prolonged and continuous discharging strokes as well as making possible the substantially complete evacuation of the contents of the container.

It is a further object of the present invention to provide a container of the character described which is of one piece and operates automatically and without the aid or presence of any extraneous resilient elements to return to normal shape and size after compression.

It is a still further object of the present invention to provide a dispensing container of the character described which is of innate and inherent attractive and ornamental appearance and which it is relatively simple, easy and economical to produce.

With the above objects in view there is provided according to the present invention a dispensing container formed of a flexibly resilient synthetic plastic material and comprising a bottom wall and a top wall, said top wall having an opening defined by an upstanding tubular neck and a side wall integrally formed with said top and bottom walls and comprising a plurality of tapering annular wall sections integrally connected to one another in alternately reversed position to form transversely extending accordion pleats between said top and bottom walls, the annular wall sections having a slope such that in their normal position the contained angle between adjacent wall sections is less than 90°.

In order that the present invention may be more clearly understood and readily carried into effect reference will now be had to the accompanying drawings illustrating the same and in which:—

Fig. 1 is a perspective view of a container of the present invention shown as held in a hand for a compressing and discharging movement, and;

Fig. 2 is an exploded, vertical, sectional view of the same shown as associated with an atomiser closure and cap.

Referring more specifically to the accompanying drawing, the container of the present invention comprises a bottom wall, generally designated as 10, which may be round, oval or other suitable shape, preferably including a central portion, 11, and a marginal portion, 12, which is offset outwardly at a slight angle to the central portion 11 to render the bottom wall 10 of generally concave shape.

The container also includes a top wall, 15, of preferably slightly concave shape having a central opening, 16, defined by an upstanding neck, 17, which is preferably externally threaded, as at 18.

The bottom wall 10 and the top wall 15 which may, but need not necessarily be of circular shape, are connected in spaced relation by a side wall, generally designated as 20, which is preferably integrally formed with the top and bottom walls 10 and 15, all of which are preferably formed of synthetic plastic material, as polyethylene.

The wall 20 is accordion pleated and is formed of a plurality of integrally joined oppositely directed frusto-conical ring sections, including alternate upwardly and outwardly widening sections, 21, and upwardly and inwardly tapering sections, 22, with the lowermost of the sections connected to the bottom wall 10 being of the upwardly widening type 21, and the uppermost of the sections connected to the top wall 15 being preferably of the upwardly tapering elements 22, so that the minimum diameter of the side wall, at the bottom thereof, is equal approximately to the diameter of the bottom wall 10 and the minimum diameter of the side wall at the top is equal approximately to the diameter of the top wall 15, it being understood that the top and bottom walls, 10 and 15, may but need not necessarily be of equal diameter.

It may here be stated that for most efficient and easy operation of the container, the sections 21 and 22 are formed with a slope that will provide an included angle between contiguous sections that is less than 90° and preferably of about 60°, more or less.

It will be seen that by this construction the container of the present invention may be vertically or longitudinally compressed to diminish or reduce its volume for the purpose of discharging its contents. It will be further apparent that because of the concave shapes of the top and bottom walls 10 and 15 and because their diameters do not exceed the minimum diameters of the adjacent portions of the side wall 20, the compressibility of the container is made possible to an extent greater than the thickness of the compressed side wall 20, to thereby obtain maximum discharge from the container by the compression.

The container may include a hollow plug, generally designated as 25, inserted into the neck 17. Where used for discharging solid material, the plug may comprise merely the annular wall, 26, fitting snugly within the neck and the top wall, 27, which may be of greater diameter than the annular wall and have its edge portions overlie the edges of the neck 17. The top wall 27 is formed with a discharge opening, 28, therethrough, through which the powdered material may be ejected in a fine stream upon compression of the bottle.

Where the bottle is used for discharge of liquids the plug 25 may be provided with a hollow, cylindrical stud or sleeve, 29, extending inwardly from its top wall and surrounding the opening 28, into which may be fitted, by one end, a flexible tube, 30. The stud 29 may be provided with inwardly formed longitudinal grooves, 31, forming air passages connected to the discharge opening 28, to thereby provide for the admission of air into the bottle for the atomising action, in a manner well known and readily understood by those skilled in the art.

This completes the description of the container of the present invention. It will be readily apparent that this container constitutes a dispensing container for liquid and powdered material which is most easy and convenient to use and most efficient and effective for maximum discharge of its contents. It will also be apparent that the dispensing container of the present invention is of inherent attractive and decorative appearance.

It will be further apparent that numerous modifications and variations in the dispensing container of the present invention may be made by anyone skilled in the art, in accordance with the principles of the invention hereinabove set forth, and without the use of any inventive ingenuity.

What we claim is:—

1. A dispensing container formed of a flexibly resilient synthetic plastic material and comprising a bottom wall and a top wall, said top wall having an opening defined by an upstanding tubular neck and a side wall integrally formed with said top and bottom walls and comprising a plurality of tapering annular wall sections integrally connected to one another in alternately reversed position to form transversely extending accordion pleats between said top and bottom walls the annular wall sections having a slope such that in their normal posi-

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The wall 20 is accordion pleated and is formed of a plurality of integrally joined oppositely directed frusto-conical ring sections, including alternate upwardly and outwardly widening sections, 21, and upwardly and inwardly tapering sections, 22, with the lowermost of the sections connected to the bottom wall 10 being of the upwardly widening type 21, and the uppermost of the sections connected to the top wall 15 being preferably of the upwardly tapering elements 22, so that the minimum diameter of the side wall, at the bottom thereof, is equal approximately to the diameter of the bottom wall 10 and the minimum diameter of the side wall at the top is equal approximately to the diameter of the top wall 15, it being understood that the top and bottom walls, 10 and 15, may but need not necessarily be of equal diameter.

It may here be stated that for most efficient and easy operation of the container, the sections 21 and 22 are formed with a slope that will provide an included angle between contiguous sections that is less than 90° and preferably of about 60°, more or less.

It will be seen that by this construction the container of the present invention may be vertically or longitudinally compressed to diminish or reduce its volume for the purpose of discharging its contents. It will be further apparent that because of the concave shapes of the top and bottom walls 10 and 15 and because their diameters do not exceed the minimum diameters of the adjacent portions of the side wall 20, the compressibility of the container is made possible to an extent greater than the thickness of the compressed side wall 20, to thereby obtain maximum discharge from the container by the compression.

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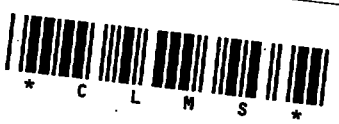

tion the contained angle between adjacent wall sections is less than 90°.

2. A dispensing container according to Claim 1 wherein the contained angle between adjacent sections is approximately 60°.

3. A dispensing container according to either of the preceding claims wherein the apices of the accordion pleats extend outwardly of the peripheries of the top and bottom walls of the container.

4. A dispensing container according to any preceding claim wherein the top wall and/or the bottom wall is slightly concave.

5. A dispensing container formed of flexibly resilient synthetic plastic material, such as polyethylene, constructed substantially as herein described and illustrated in the accompanying drawings.

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