

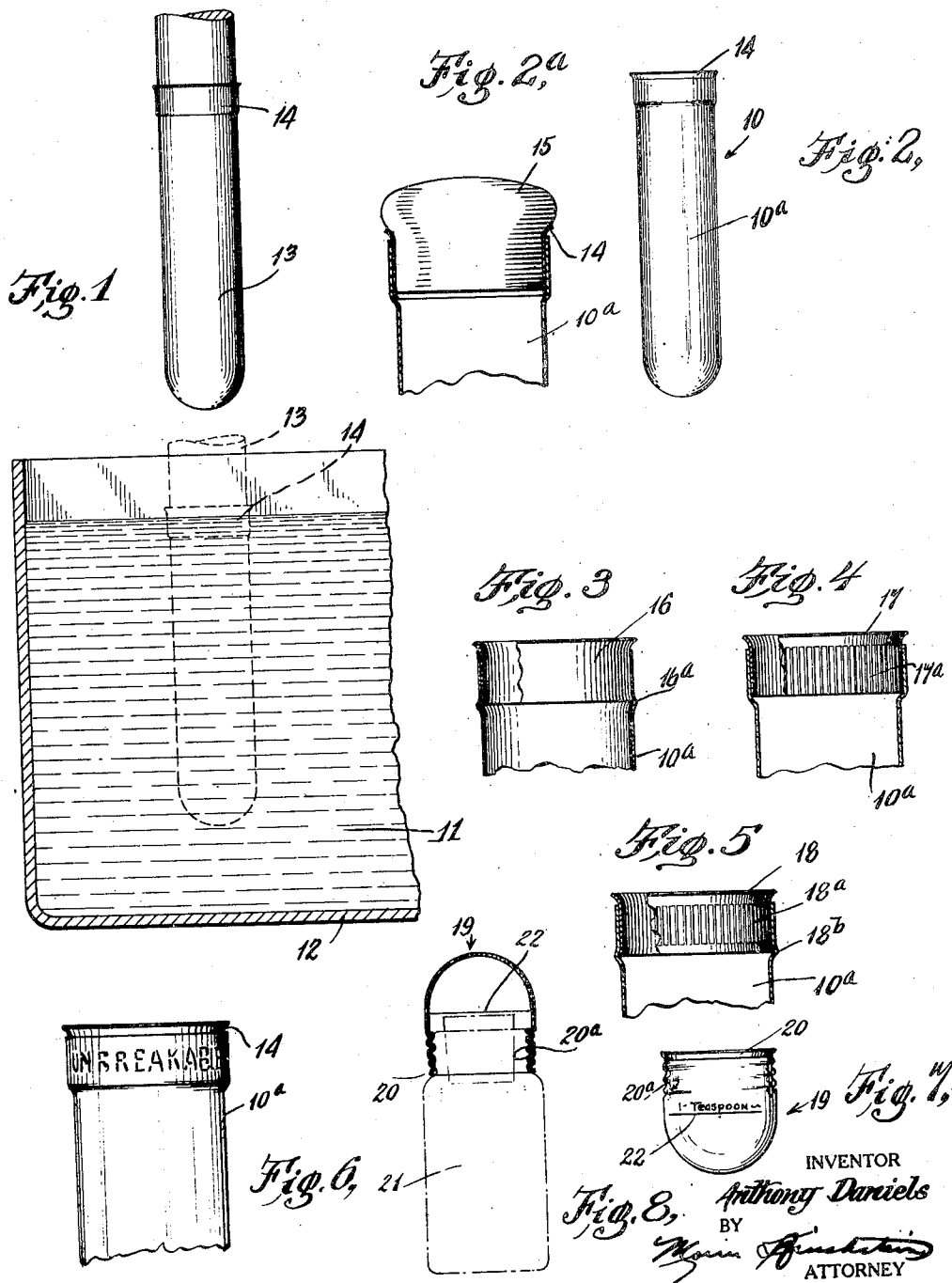
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RECEPTACLE AND PROCESS FOR MAKING SAME

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This invention relates to tubular receptacles and a process for making the same. More particularly, this invention is directed to the manufacture and provision of a container such as tubes formed from a thin, substantially water-proof non-metallic, flexible material.

To make clear some of the dominant features of the invention, it may be noted that where tubes are made by dipping or similar process like that hereinafter described, it is desirable to provide means for reinforcing the tubular body at the mouth thereof and to furnish a substantial neck or mouth portion to receive a closure member or to co-operate with an attaching member on a container to form a closure therefor.

One object, therefore, of the invention, contemplates incorporating, with the shaped tubular body, a ring member preferably metallic and make an integral part of the tube during the process of manufacture, said ring serving to provide a substantial neck or mouth for the container and at the same time giving the same a neat and finished appearance.

A further object is to provide a container of the character described which shall be exceedingly light and yet tough, practically unbreakable and impervious to water.

A still further object of the invention is to provide an article of the character described and a process for making the same, said article being adapted to form a closure for bottles or similar retainers and to serve as a graduate for measuring a predetermined quantity of liquid or fluid substance.

Another object of the invention is to provide an article of the character described which is comparatively simple and easy to make, inexpensive to manufacture, neat in appearance and practical and efficient to a high degree.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

The invention accordingly consists in the features of construction, combinations of elements and arrangement of parts which will be exemplified in the construction hereinafter

described and of which the scope of application will be indicated in the following claims.

In the accompanying drawing, in which is shown one of the various possible illustrative embodiments of this invention,

Fig. 1 is a fragmentary view of a portion of the apparatus used in carrying out the process for making articles embodying the invention;

Fig. 2 is a front elevational view of a finished container made by the process illustrated in Fig. 1;

Fig. 2^a is an enlarged fragmentary view of the container, partly in section, showing a cap engaging the annular ring for closing the container;

Figs. 3, 4 and 5 are enlarged fragmentary views of the container partly in section, each showing different modifications of the band structure for forming the mouth of the container;

Fig. 6 is a fragmentary view of a container showing a band having a legend formed thereon which is visible through the layer of the body portion covering the band;

Fig. 7 is a front elevational view of an adaptation of the invention in the form of a closure graduate; and

Fig. 8 is a sectional view of the closure graduate applied to a bottle, the latter being shown in dot and dash lines.

Referring in detail to the drawing, 10 represents a container embodying this invention. The body portion 10^a of the container is preferably composed largely of nitro-cellulose compounded with or without rubber, but preferably with a small percentage of rubber dissolved therein and may be made up of one layer intimately united to form a coherent sheet. The composition used to form said body portion 10^a, may be like that disclosed in the patent to Charles Weber, No. 1,350,533, issued August 24th, 1920, or any other suitable material or compound which when dry forms a non-porous, non-absorbent, water-proof and flexible film sheet.

The process of making the article will now be described. A solution 11 of nitro-cellulose or an equivalent substance prepared according to the usual and known methods is

placed in a tank or vessel 12. A form member or rod 13 is provided having an annular ring or band 14 snugly fitted thereon and spaced from the effective end thereof a distance substantially equal to the length of the desired article. This form is dipped into the solution 11 until a substantial portion of the ring 14 is submerged, as is clearly shown in Fig. 1. The form member 13 is then withdrawn to permit the surplus solution to drip back into the vessel and the adhering film sheet on the member 13 is allowed to harden and dry, which it readily does when exposed to the air. For all general purposes, a single dipping has been found sufficient to form a suitable and substantial container, but for special requirements, the form-member 13 with the hardened coating thereon may be repeatedly dipped into the solution 11 or into other equivalent solutions to increase the thickness of the body portion 10^a.

The formed container 10 after drying on member 13 is removed therefrom by subjecting it to heat, as for example applying steam or preferably by immersing same in hot water, thus causing the body portion 10^a and ring 14 to expand and loosen from said member.

The removal of the container from the form may be greatly facilitated by making the member 13 of a glass or like material which has a relatively low co-efficient of expansion as compared with the material forming the body portion 10^a. The band 14 may be formed of any suitable material but preferably of sheet metal such as aluminum or the like which readily slips off the member 13 with the portion 10^a when heated since its expansion is relatively greater than that of the member 13.

I have found it preferable to employ sheet metal for the band 14 since the latter then forms a strong adhesive band with the material of the body portion 10^a. Furthermore, the co-efficient of expansion of the material of the body portion being greater than that of the metal band, the material shrinks about the former and embraces the same tightly, thus forming a positive union of the band and body portion.

The interior wall of the band 14 may serve as a seat for a cap 15 as shown in Fig. 2^a or as an attachment means for a bottle as shown in Fig. 6.

In carrying out the above described process, it is to be understood that a large number of containers may be formed simultaneously, Fig. 1 illustrating a fragmentary portion of an apparatus for carrying out the process, of which the form-member 13, it will be understood, may be only one of a group of spaced similar members. Tubular containers of sizes and shapes other than is shown in the drawing may be formed by providing form

members of the required proportions as is well understood.

Ordinarily, the material comprising the body portion 10^a is substantially transparent and the outer surface of the band 14 may have a legend, symbol or an advertisement formed thereon which will be plainly visible through the layer of the body portion covering the band 14, as illustrated in Fig. 6. However, by adding a pigment to the solution from which the body portion 10^a is made various ornamental coloring effects may be produced in the container 10.

In Figs. 3, 4 and 5 are shown respectively modified forms 16, 17, and 18 of the band or ring. The band 16 has its inner rim edge 16^a outturned to form a ridge for reinforcing the connection of the body portion 10^a to the band 16. The band 17 is provided with ribs 17^a, and band 18 with ribs 18^a and an outturned inner rim edge 18^b for the same purposes.

Fig. 7 shows a sectional view of an adaptation of the invention forming a closure graduate 19. The band 20 thereof may be like any of those described above, or may be formed with a thread 20^a which in Fig. 8 is shown fitted on a bottle 21 having a correspondingly threaded neck. A line mark 22 for measuring a definite quantity of fluid, as for example, one teaspoon may be engraved or otherwise formed on the body portion 10^a.

Containers made in accordance with this invention are particularly adapted for holding medicinal preparations such as pills, tablets, fluids, and the like, which it is desirable usually to carry about the person. The container may also serve for shipping samples of material and for like purposes.

It will thus be seen that there is provided a device in which the several objects of this invention are achieved and which is well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above invention and as various changes might be made in the embodiment above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. An article of the character described comprising a seamless tubular body portion made of material composed principally of transparent nitro-cellulose and a metallic band secured at the interior of an end of the body portion.

2. An article of the character described comprising a seamless tubular body portion composed of flexible, non-metallic, tough and substantially waterproof transparent material, said portion having a closed end and a metallic band adhesively secured on the in-

terior side to the open end thereof, said band adapted to removably engage with an attachment.

5 3. An article of the character described comprising a seamless tubular body portion having a closed end made of material composed principally of nitro-cellulose and a band adhesively secured at the interior of the other end of the body portion, said band adapted to
10 removably engage with parts for closing said container.

4. An article of the character described comprising a seamless tubular body portion composed of flexible, tough and substantially
15 waterproof material having only one end opening and a metallic band secured to the inner rim of said opening, said rim portion being transparent to allow said band to be visible thru said rim, said band adapted to en-
20 gage a cover.

5. A container having a seamless body portion of light, transparent flexible material and a metallic band held in the interior of the mouth of said container by adhesion of the
25 material to the band.

In testimony whereof I affix my signature.
ANTHONY DANIELS.

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