Nov. 26, 1935. J. PHILBRICK 2,022,520

BOTTLE

Filed July 7, 1934

Fig. 1.

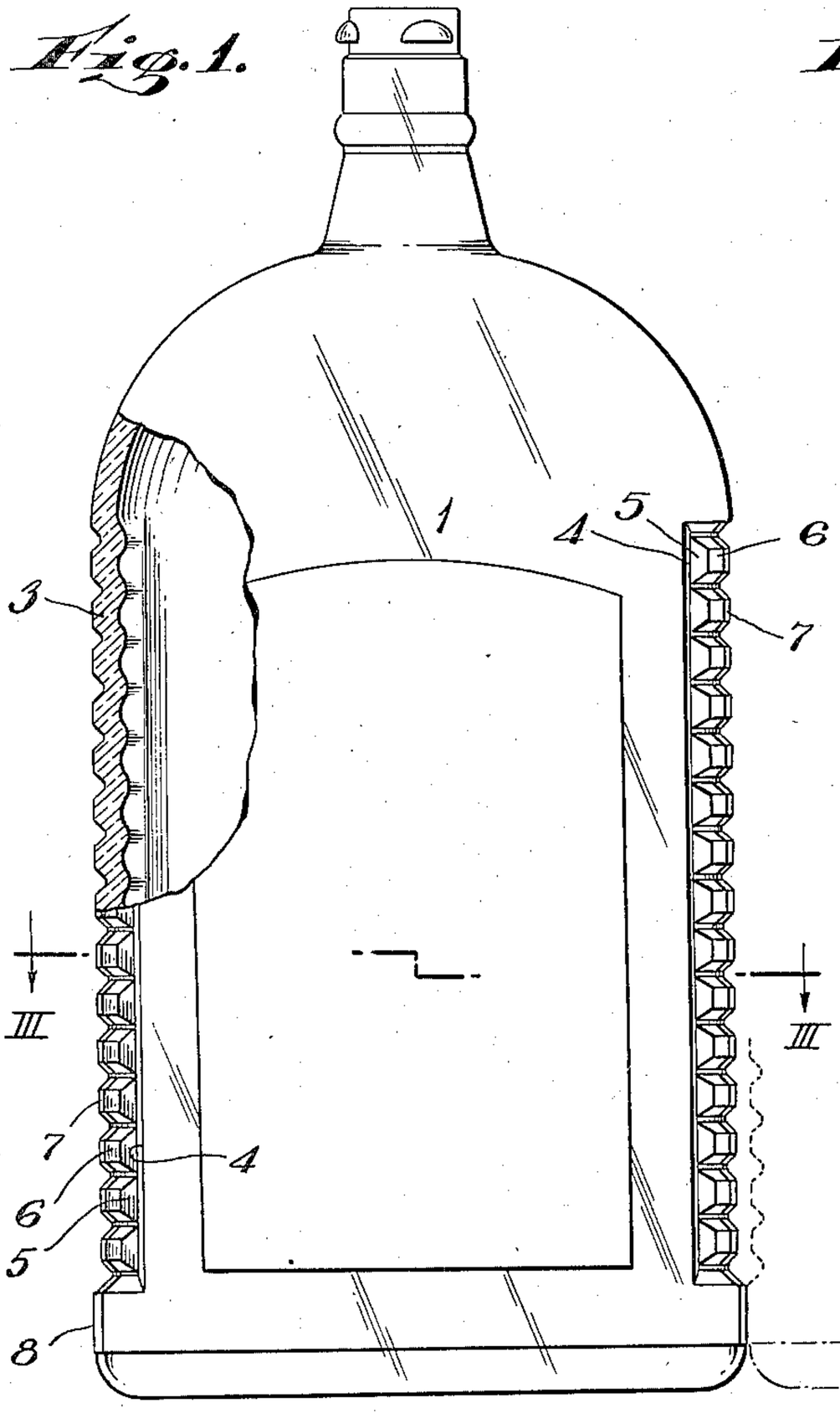


Fig. 2.

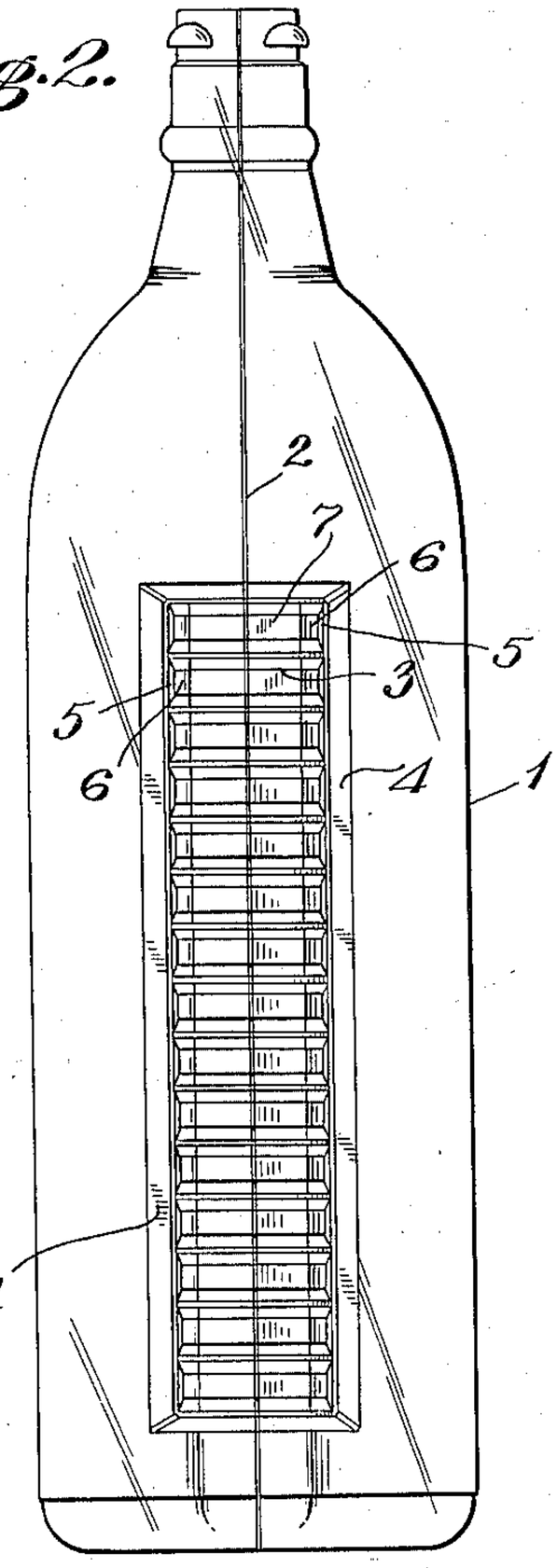
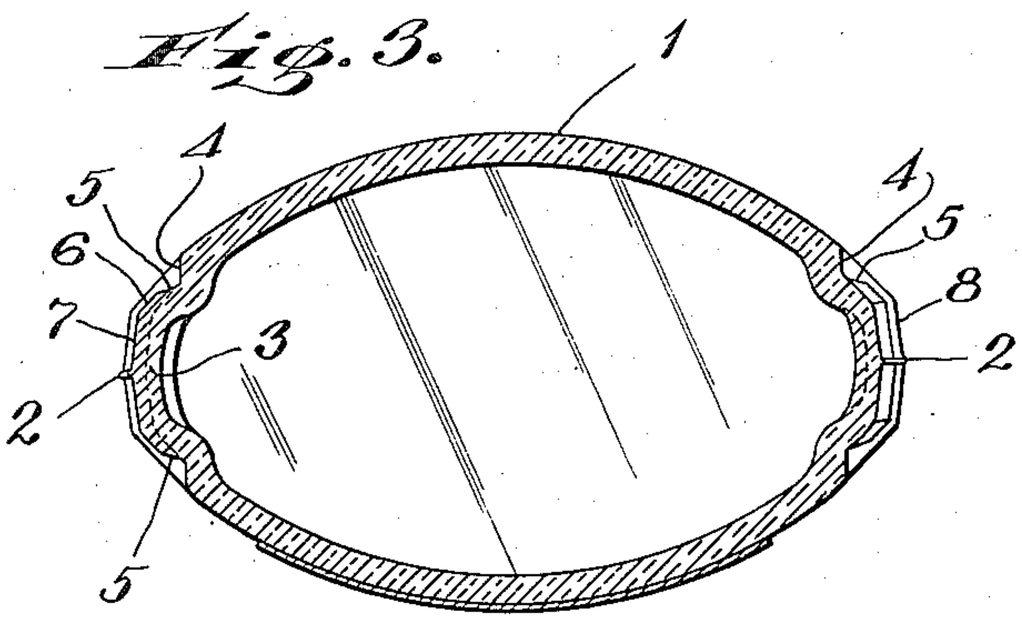


Fig. 3.



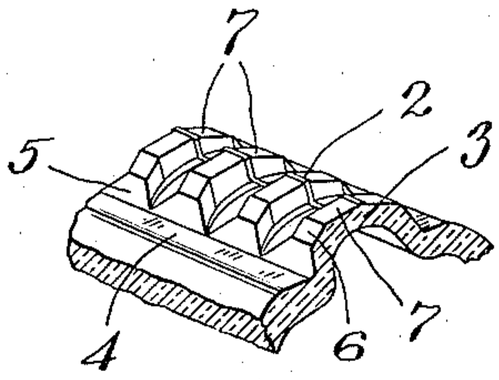


Fig. 4.

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BOTTLE

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Application July 7, 1934, Serial No. 734,121

3 Claims. (Cl. 215—1)

The invention is an improvement in glass bottles and consists in a novel conformation rendering the bottle less likely to slip when grasped in the hand, especially a wet or soapy hand, and having at the same time the further advantage that it can be produced on a quantity basis without extra cost for either labor or material, and particularly without increasing the weight of the bottle with reference to its liquid capacity. Various bottle configurations have been heretofore proposed for preventing slipping, but such designs are, for the most part open to the objection either that they are not capable of economic quantity production, generally because of the complication required in the molds therefor, or else the friction grip surface is not adequate for its purpose, or is produced only at the sacrifice of bottle capacity or lightness of weight. Many of the prior designs are objectionable in that the parting line of the mold sections occurs on the flat face of the bottle, leaving an irregular ridge which interferes with the application of labels thereto in the automatic label-applying machine; while others have the objection that the friction projections are subject to injury and chipping by collision with other bottles and others have still other objections rendering them impractical or undesirable for one reason or another.

The present invention provides a practical non-slipping bottle of attractive appearance which avoids these various objections and which can be produced in quantity at no increase of cost whatever and with the same weight-capacity ratio as if the bottle were made without the non-slipping features, and at the same time with unusually efficient security against slipping in a wet hand.

Fig. 1 represents a front elevation of the bottle, partly in section.

Fig. 2 a side elevation.

Fig. 3 a cross section.

Fig. 4 a perspective detail.

The bottle shown has the shape customary for bottles which contain aqua ammonia, which is the particular use for which the present invention is designed. It is generally elliptical in cross section and its wide sides, marked 1, carry the usual front and back labels, which are glued thereto, as customary, by an automatic labeller. For these reasons it is of utmost importance that these front and back walls be smooth and free of any irregularity, such as the ridge which is left by the parting line of the mold sections in which the bottle is blown. In the present case the parting line coincides with the major axis of the elliptical section of the bottle and the parting line ridge marked 2 is thus centered along the narrow sides of the bottle, as presently referred to.

The friction-grip surfaces are disposed respectively on the narrow sides of the bottle and each is constituted of a vertical series of horizontal or transverse ribs 3 with intervening transverse V-shaped grooves, all located within or between two vertical or longitudinal grooves or creases 4, recessed into the normal elliptical section contour of the bottle, as indicated in Fig. 3. The cross ribs terminate at these reentrant creases; their sloped end faces, marked 5, define and constitute the inner boundaries thereof. Their apices are truncated so as to present narrow substantially flat surfaces for finger contact and preferably these surfaces are divided into four flat sections or facets, of which the two marked 6 are substantially square and the two others, marked 7, are rectangles, meeting each other at the parting line ridge 2. These facets are formed at such angles, as shown in Fig. 3, that they are approximately continuous with the elliptical contour of the bottle section. The terminal facets 5 have the shape of equi-angular trapezoids and are also flat. With the others and on account of their different angular relations, they add to the appearance and brightness of the bottle, while the parting line ridge 2, which is usually objectionable in bottles, is made inconspicuous by them and at the same time becomes useful in contributing to the friction qualities of the formation.

The truncated apices of the ribs thus formed constitute in the aggregate an effective friction-grip surface. The combination of the cross ribs and the longitudinal grooves or reentrant creases 4, produce a surface which resists slipping in longitudinal as well as transverse directions; that is to say, the cross ribs resist longitudinal slipping and the creases, aided by the parting line ridge, resist lateral slipping. At the same time the finger contact faces of all of the ribs coincide with or at least do not project beyond the elliptical contour, as already stated, which fact and the further fact that they are truncated tends to protect them against chipping from collision with other bottles in the handling machinery. In order to further this protection the base of the bottle just below the friction grip surface is slightly extended to act as a bumper, as shown at 8, against the correspondingly extended bases of contiguous bottles (see dotted lines) not merely in the handling machinery, but also on the store shelf, thereby guarding against injury to the

projecting members which when chipped are likely to cut the fingers.

The bottle, as described, is susceptible of manufacture in a simple mold and it will be noted that the inner surface of the glass wall conforms to the ribbed and creased configuration, so that although some parts of the latter are reentrant, the total encroachment on the internal capacity is insignificant and the bottles can therefore be substituted for similar bottles not having the friction-grip features, thereby enabling the manufacturer (of the bottle contents) to adopt the friction-grip feature for his bottles without the expense of modifying his existing equipment.

Having described the invention, the following is claimed:

1. A bottle having a generally elliptical transverse cross section comprising arcuate relatively smooth front and rear faces and sides defined by longitudinally arranged grooves, the sides being provided with transverse ribs extending between the longitudinal grooves so that when the bottle is grasped in the hand of a user the transverse ribs will provide resistance against longitudinal slippage of the bottle while the side defining longitudinal grooves will provide resistance against circumferential slippage of the finger tips about the elliptical bottle surface beyond the respective side wall areas.

2. A bottle having a generally elliptical transverse cross section comprising arcuate relatively smooth front and rear faces, longitudinally arranged grooves defining narrow sides each of which sides is provided with a series of cross ribs and intervening cross grooves extending entirely between the respective side defining longitudinal grooves with the corresponding ends of the ribs being arranged at angles which form the inner sides of the respective longitudinal grooves so that the transverse ribs resist longitudinal slippage of the hand of a user while the longitudinal grooves resist circumferential slippage, and a base extending outwardly beyond the ribs on said narrow sides to provide bumper means for preventing similar bottles contacting against the ribs when a plurality of bottles are closely packed.

3. A bottle having a generally elliptical transverse cross section comprising arcuate relatively smooth front and rear faces, longitudinally arranged re-entrant grooves defining narrow sides each of which is provided with a series of cross ribs and intervening cross grooves extending between the respective re-entrant grooves, the opposite ends of the ribs being sloped to define the inner walls of the respective longitudinal grooves and the apices of the ribs being truncated to present narrow flat facets for finger contact, said ribs being formed to cause the facets to generally follow the elliptical surface of the bottle so that the ribs resist longitudinal slippage of the fingers of a user while the longitudinally arranged grooves resist circumferential slippage, and a base extending outwardly beyond the ribs on said narrow sides to provide bumper means for preventing similar bottles contacting against the ribs when a plurality of bottles are closely packed.

JOSEPH PHILBRICK.