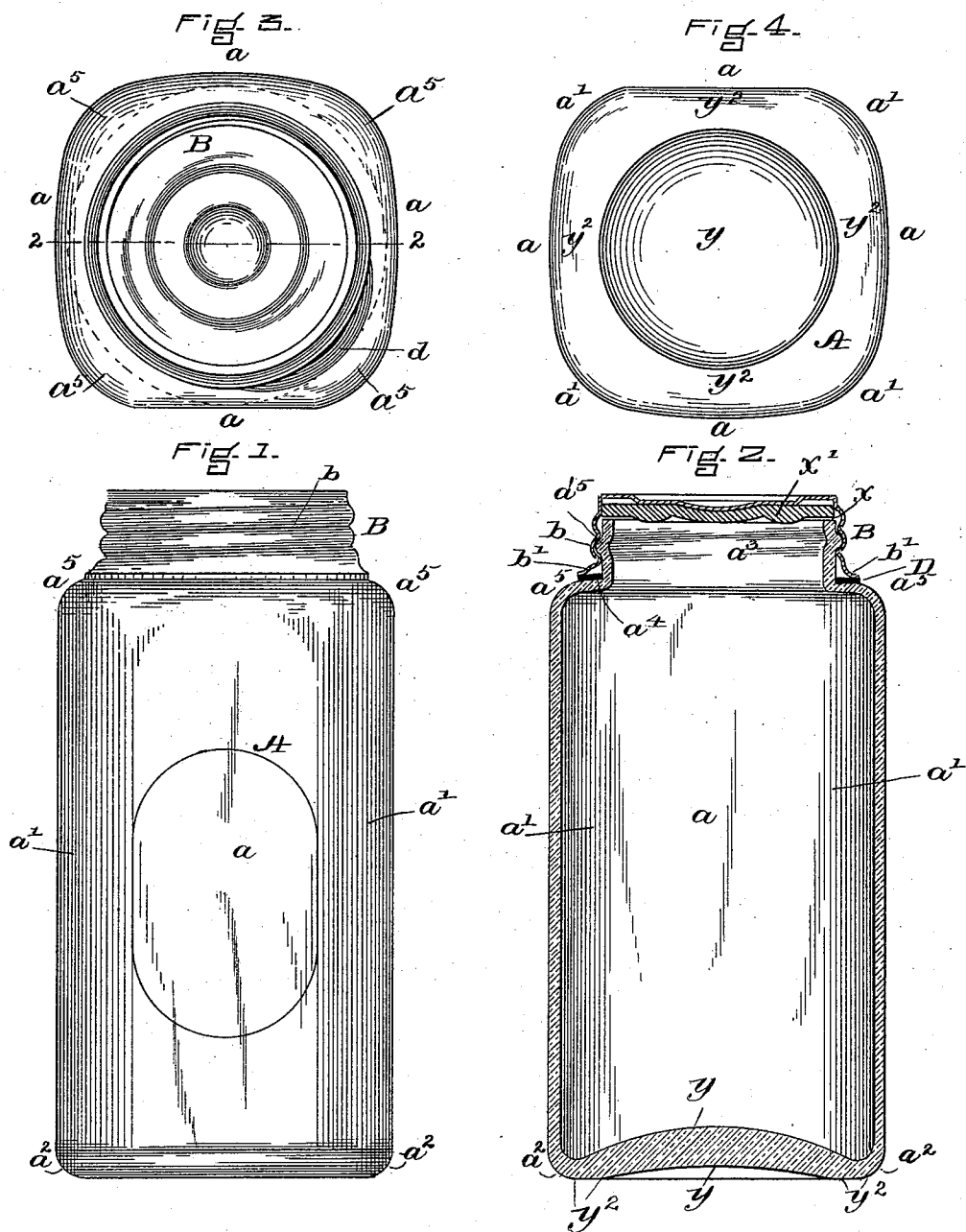


(No Model.)

A. G. SMALLEY.
FRUIT JAR.

No. 572,281.

Patented Dec. 1, 1896.



WITNESSES.

A. D. Smith
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UNITED STATES PATENT OFFICE.

ALBERT G. SMALLEY, OF CHELSEA, MASSACHUSETTS.

FRUIT-JAR.

SPECIFICATION forming part of Letters Patent No. 572,281, dated December 1, 1896.

Application filed February 24, 1896. Serial No. 580,596. (No model.)

To all whom it may concern:

Be it known that I, ALBERT G. SMALLEY, of Chelsea, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Fruit-Jars, of which the following is a specification.

Referring to the accompanying drawings, Figure 1 is a side elevation, Fig. 2 a vertical central section, Fig. 3 a top plan view, and Fig. 4 a bottom plan view, of a fruit-jar embodying my invention.

My invention relates to the class of fruit-jars that are provided with screw or analogous cover-caps; and the objects of my invention are to produce an air and gas tight fruit-jar that can be more easily opened than the fruit-jars of this class heretofore invented, and, secondly, to produce a many-sided jar combined with a screw-cover, the jar being of a novel construction whereby, although it is polygonal in cross-section rather than round in cross-section, it is yet sufficiently strong to withstand the pressures which have heretofore been found destructive of glass fruit-jars polygonal in cross-section.

The first feature of my invention consists in a jar and cover-cap combined with a gas-passing joint between opposed surfaces of the jar-neck and cover-cap and above the bottom edge of the cover-cap, and with, at the bottom edge of the cover-cap, a gas-tight joint which is destructible, without removing the cap to permit the escape of the imprisoned gases which bind the cap on the jar and make the cap difficult to start while the gases are imprisoned.

A second feature of my invention consists in the combination of a squarish jar having rounded vertical and horizontal bottom corners and a washer-supporting shoulder around and below its mouth, with an elastic washer and a screw or analogous cover-cap, the squarish form of the jar enabling one who is unscrewing the cover-cap to grasp the jar firmly and strongly in the hand at the opposed sides, which offer the best mechanical resistance to the fingers, while the rounded corners prevent injury to the hand. The idea is that the squarish jar-body is comparable to a nut, and the hand that grips is to a wrench, the vertical and horizontal bottom corners being rounded, so that there are no

angular portions of the jar-body to cut or bruise the hand. The main purpose, however, of making the vertical and horizontal corners of my fruit-jar rounded is to give the jar such constructional strength as enables it to resist pressures which have heretofore been found destructive of all many-sided fruit-jars. I have, through many experiments, found it to be a fact that it is necessary to round the vertical corners of my new fruit-jar and to round the top and bottom corners thereof substantially as illustrated in my drawings in order to make them strong enough to be practically useful as fruit-jars, strong enough to resist without danger to the hand the grip of the fingers on the bottom of the jar when the cover-cap is loosened for removal, and strong enough to resist the expansion and contraction to which glass fruit-jars are subjected, owing to the fact that the preserved fruit is put up hot.

As is well known to those skilled in the art, the class of jars, bottles, and the like which are polygonal in cross-section are exceedingly liable to fracture at or near their bottom, and in practice round fruit-jars have been employed because jar manufacturers have found no difficulty in producing round fruit-jars which were strong enough to be practical.

To give my fruit-jar A, which is polygonal in cross-section, sufficient structural strength at its top and bottom to withstand the ordinary pressures to which the lower portions of fruit-jars are subjected when the cover is loosened, I have discovered that it is essential to round the vertical corners a' both in the horizontal plane, as shown in all the figures of my drawings, and also to round the horizontal bottom corners a^2 from the jar sides downwardly and inwardly to the bottom of the jar, as plainly shown in Figs. 1 and 2, and also to round the top or upper corners a^5 upwardly and inwardly to the shoulder a^4 , these figures also clearly showing what is also an element of this newly-discovered strength, to wit: the rounding of the vertical corners, the rounding-in to the jar bottom of the horizontal corners a^2 where two contiguous bottle sides join at the bottom of the jar, and the rounding-in to the supporting-shoulder a^4 of the upper corners a^5 . This new construction

of the horizontal corners a^2 and a^5 and inter-running vertical rounded corners a' is clearly illustrated in the drawings. The jar is also formed, preferably, with a central circular depression y in the bottom of the bottle, opposite which the glass is greatly thickened at the arch y' . This construction forms an annular bearing-surface or true bottom y^2 around the depression y , and from the outer margin of this true bottom y^2 the glass rounds upwardly and outwardly at every point to the jar sides. Two facts observable in this connection may account for the great strength of my new jar: first, each of the four bottom and of the four top corners formed by the intersection of two contiguous flattish sides with a horizontal or approximately horizontal side is arch-like in contour, and the vertical corners also have this arch-like construction; second, the glass is very evenly distributed throughout the side and top walls of the jar, being herein of uniform thickness. In the course of my experiments I found it impossible to produce a sufficiently-strong fruit-jar polygonal in cross-section until I conceived and tried the symmetrical arching and rounding of the vertical and horizontal top and bottom corners already described.

It is well known that the cover-caps of fruit-jars are removed with great difficulty the first time after sealing, owing to the expansive pressure of the imprisoned gases and other causes.

In the drawings, A is my new jar, having four sides a . The jar is rounded at the vertical corners a' and also at the horizontal bottom corners a^2 , so as to be firmly gripped by the hand without danger of injury and without discomfort, the angular sides a , however, constituting opposed bearings for the fingers and enabling the jar to be turned out of the cover-cap B or the cover-cap to be unscrewed from the jar-neck a^3 , at the base of which is a washer-supporting shoulder a^4 , surrounding the neck. Cover-cap B is made with a neck-ring b , internally threaded to engage (but somewhat loosely, however) the exterior corresponding threads a^{15} on the neck of the jar.

By making the neck-ring a loose fit a gas-passing joint is formed above the lower edge b' of the neck-ring in accordance with my invention. An elastic washer D is placed on shoulder a^4 , and when the cover-cap is turned home its lower edge b' contacts with and compresses the elastic washer D, thereby forming a gas-tight joint at and around the bottom of the cover-cap and below the gas-passing joint already described. The gas-passing joint referred to is between the opposed walls of the cap and neck, and gas is admitted from within the jar into the space between said opposed walls by a supplementary gas-passing joint x between opposed surfaces of the neck and cover-piece x' .

Washer D is formed with a portion d , wider than the thickness of the neck-ring, so as to project outwardly from under the bottom of

the neck-ring. As the washer is elastic, an outward pull on the projection d stretches and thins the washer, permitting the washer at that point to be pulled from between the shoulder a^4 and the neck-ring b and allowing the imprisoned gases to rush out through the gas-passing joint and gas-escape thus temporarily formed in the gas-tight joint, the integrity of which is destroyed by a pull on the washer. The gases being thus released the cover-cap is removed with far greater ease than otherwise would be the case. The washer D projects all around the neck-ring, as indicated by dotted lines in Fig. 3, and the cover-cap hereinbefore described is so constructed, as shown in the drawings, that its lower edge b' alone contacts with the rubber washer. That is to say, the mouth of the cover-cap is not formed with a wide horizontal flange, as heretofore, but the gas-tight joint is formed by contact of the true edge of the cover-cap with the rubber washer rather than by contact of a flat horizontal flange with the rubber washer. The importance of this is due to the fact that where the gas-tight joint is formed, as heretofore, by contact of a horizontal flange with a rubber washer mounted on a flat bearing-surface around the jar-neck the rubber has been nipped to such an extent that a pull on a projecting portion sufficient to thin the washer and pull it out has been sufficient to tear the washer and make it useless. In accordance with my invention the area of frictional contact is so reduced that a slight pull upon the projecting rubber is sufficient to get it from under the thin edge of the cover-cap without injury to the washer, so that the washer can be readily replaced, if desired. I find in practice that it is highly desirable to have the washer project at all points around the cover-cap, so that the washer may be the more readily seized and more certainly withstand the pull which releases it from between the cap and supporting-shoulder. Another reason is that when the washer is wide enough to project all around it is strong enough to permit the finger to be run quickly around the cap within the washer to quickly pull it out from under the downwardly-pressing edge of the cap.

What I claim is—

1. The improved fruit-jar herein described having a squarish body with rounded vertical and rounded horizontal bottom corners to form a grip at the lower end of the jar; a screw-threaded neck and a washer-supporting surface contiguous to the base of the neck, in combination with an internally-threaded cover-cap comprising a neck-ring the bottom edge of which engages the washer on said shoulder when the imperforate and flangeless cover-cap is turned home, substantially as and for the purpose set forth.

2. In a fruit-jar, the combination of a squarish, round-cornered jar having an exteriorly-threaded neck and a washer-supporting surface at the base of the neck with an

elastic ring mounted on said surface and an imperforate screw cover-cap the lower edge of which engages said elastic ring to form a gas-tight joint while the opposed portions of the cap and neck, including the end wall of the neck, around the mouth of the jar, have a space between them to form a gas-passing joint, the elastic ring projecting outwardly at all points from the lower edge of the cap, substantially as and for the purpose set forth.

3. A fruit-jar which is polygonal in cross-section at right angles to its longer axis and has rounded vertical corners and rounded

horizontal or top and bottom corners, the glass of the sides and corners being uniformly distributed and the corners being of arch-like construction.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 4th day of February, A. D. 1896.

ALBERT G. SMALLEY.

Witnesses:

EDWARD S. BEACH,
E. A. ALLEN.