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PRESSURE SPRAY DISPENSING CONTAINER AND METHOD OF CLOSING SAME

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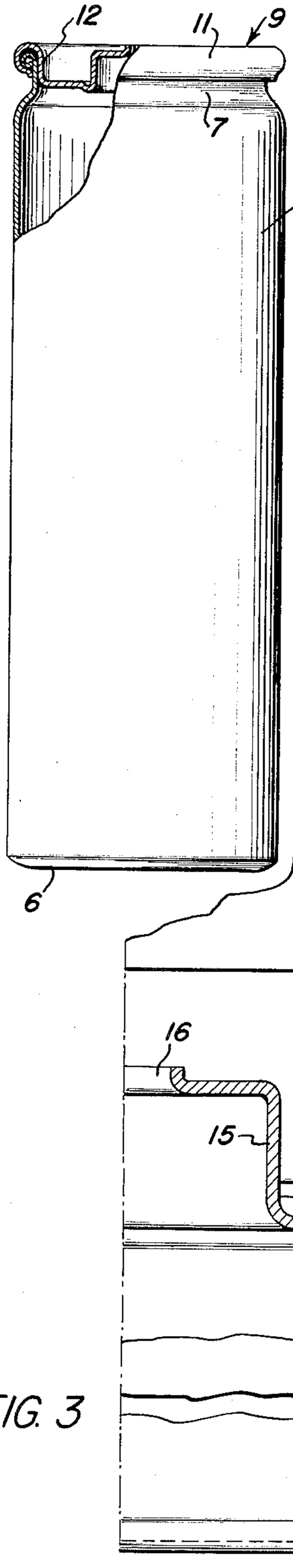

FIG. 1

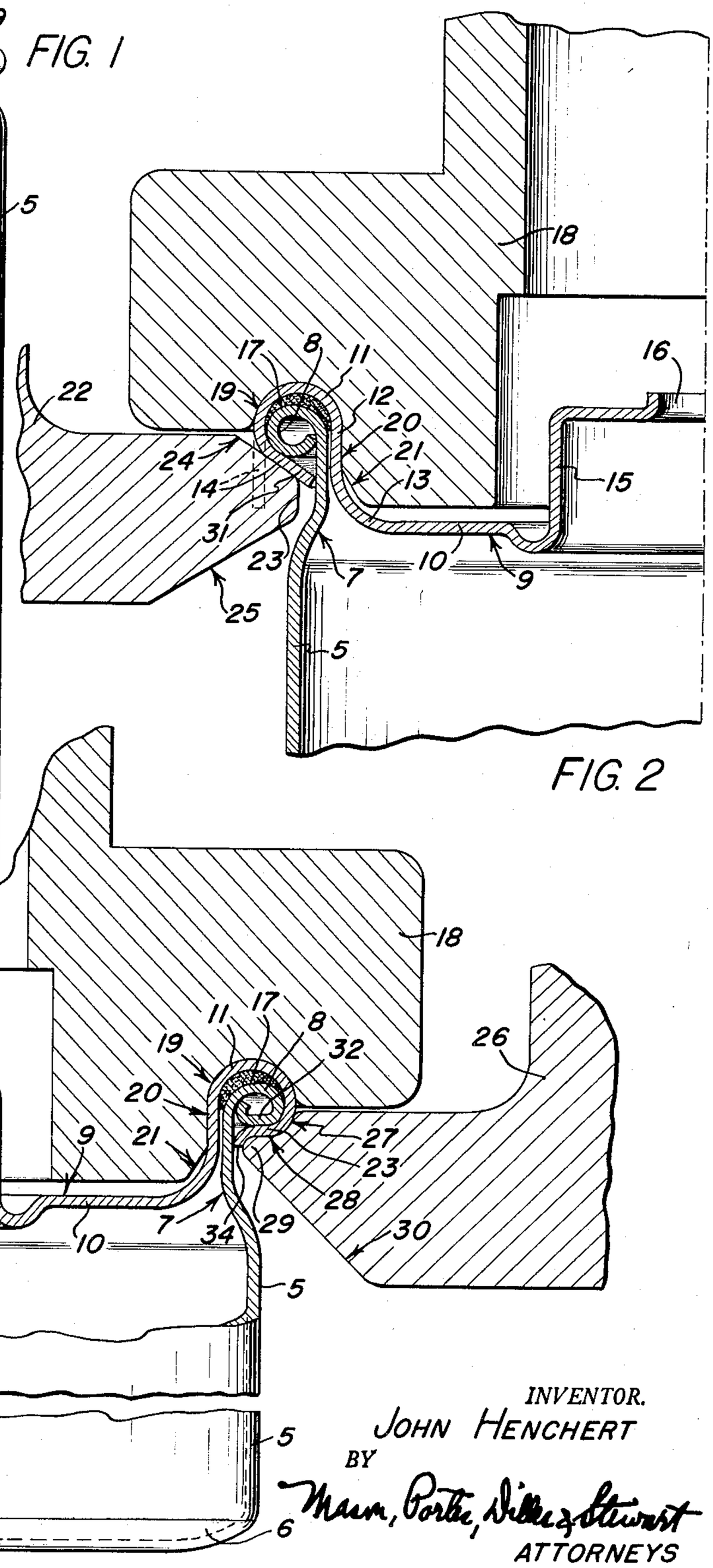

FIG. 2

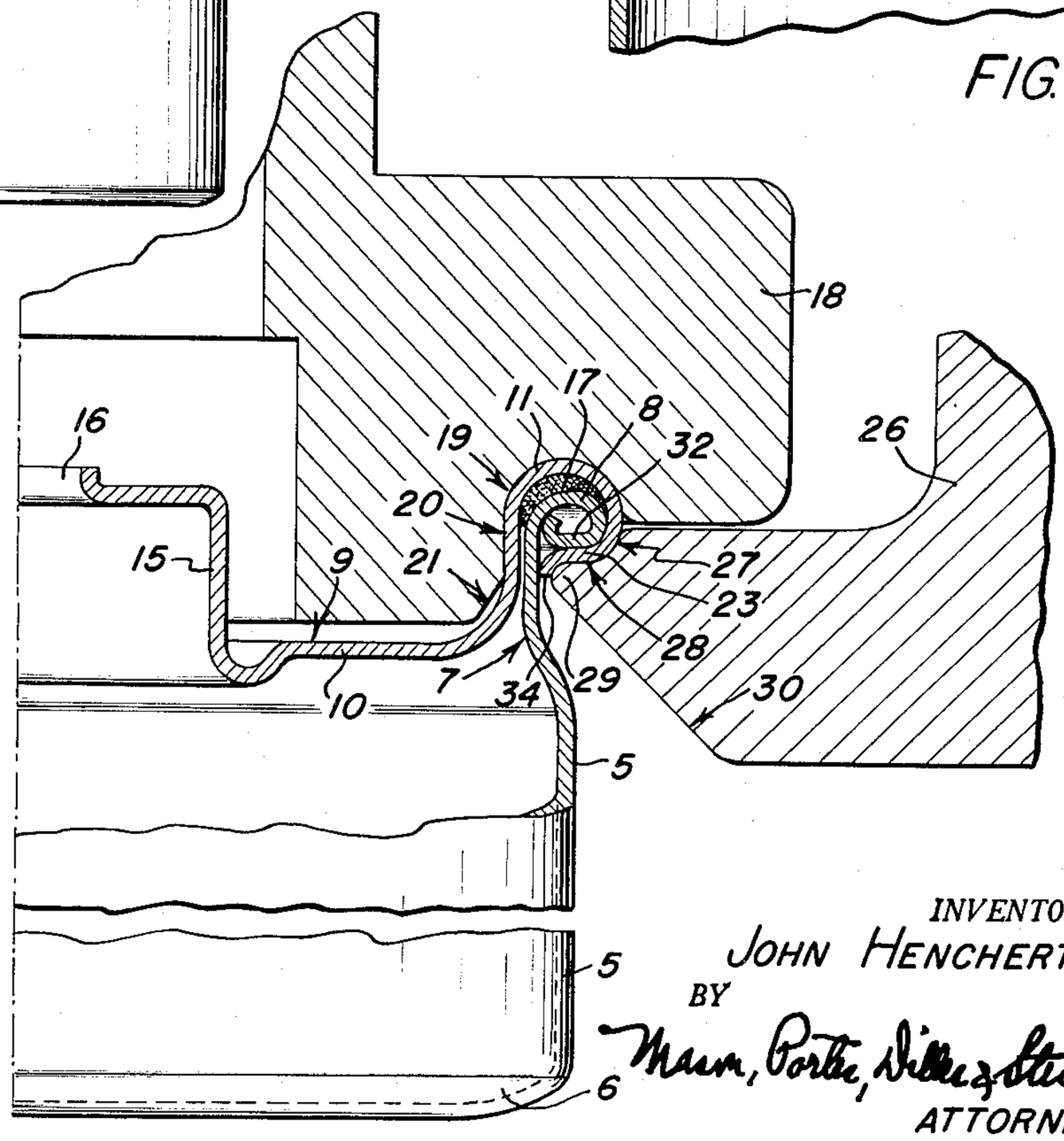

FIG. 3

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PRESSURE SPRAY DISPENSING CONTAINER AND METHOD OF CLOSING SAME

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4 Claims. (Cl. 220—67)

The invention relates generally to dispensing container structures, and more particularly to structures of this character which may be formed of aluminum and which are small enough to be carried in a ladies' pocketbook and yet are strong enough to safely retain internal pressures essential to provide for the pressure dispensing of contents therefrom.

In its more detailed nature the invention resides in the provision of a container structure of the character stated wherein the body has an outwardly turned bead at the open upper end thereof and a closure seam secured on the body and having a bead embracing channel defined in part by a skirt portion turned under the bead, engaging bead and turned skirt portions being flattened and bearing perpendicular relation to the body axis so as to provide greater than normal resistance to internal pressures tending to burst the container or open closure seam portions thereof.

An object of the invention is to provide a structure of the character stated wherein a sealing compound is provided in the closure channel over the bead and the inturned and flattened skirt portion holds the bead under compression with the sealing compound in tight sealing engagement over the body bead.

Another object of the invention is to provide a structure of the character stated wherein an upwardly turned terminal edge engaging the body is formed on the bead, and a downwardly turned terminal edge is formed on the skirt portion and firmly embracing the exterior surface of the body.

A further object is to provide a structure of the character stated wherein the body is drawn from aluminum and is necked in at its upper end beneath the closure securing seam to provide a groove beneath said seam and place the seam so as to minimize projection of the periphery thereof beyond the exterior of the main body.

A still further object of the invention is to provide a novel method of closing or sealing the container structure effective to bring about the features of part structure and arrangement stressed hereinabove.

With the above and other objects in view that will hereinafter appear, the nature of the invention will be more clearly understood by reference to the following detailed description, the appended claims and the several views illustrated in the accompanying drawing.

In the drawing:

FIGURE 1 is a side elevation showing the improved container structure, parts being broken away and in section.

FIGURE 2 is an enlarged fragmentary sectional view showing a chuck and a first operation seaming roll in the process of completing the first operation seaming function, the closure skirt being shown in dotted lines in its initial condition prior to the start of the first operation seaming function.

FIGURE 3 is a view similar to FIGURE 2 and showing the chuck and a second operation seaming roll in the process of completing the second operation seaming function.

In the practical development of the invention, the container body **5** preferably is drawn from an aluminum blank to provide an integral bottom closure **6** and an open upper end portion. The upper end portion is necked in at **7** and provided with an outwardly curled closed bead **8**, it being apparent by reference to FIGURE 2 that this bead constitutes a curl of approximately 300°, and that the inner terminal edge thereof contacts with the necked in portion of the body.

A closure generally designated **9** is provided, and the same is formed to include a countersunk closure body **10**, and an upstanding, downwardly opening channel **11**, the latter being defined by the inner cylindrical chuck wall **12** which merges into the countersunk body **10** through a well rounded curve **13**, and an outer cylindrical skirt portion **14** connected with the chuck wall through the connecting base of the inverted U formed by the channel **11**. The countersunk closure body **10** carries a central raised portion **15** having a central opening **16** therein in which to mount any suitable form of spraying nozzle structure (not shown). The channel **11** is equipped with a sealing compound **17** disposed to overlie and engage in sealing contact with the body bead **8** in the manner clearly illustrated in FIGURES 2 and 3 of the drawings.

In FIGURES 2 and 3, the manner of seam securing the closure onto the body is illustrated, fragments of cooperating chuck and seaming roller equipments being illustrated in these views. The chuck **18** has an annular groove **19** therein to receive and seat over the closure channel **11**, and a cylindrical wall portion **20** to snugly engage within the closure chuck wall **12** and which merges downwardly into a lead in chamfer **21**. The cooperating first operation seaming roll **22** shown in FIGURE 2 has a somewhat V-shaped periphery **23** positioned relatively to the chuck to engage the closure skirt portion **14** beneath the level of the container closure bead **8** and for projection into the container body groove provided immediately beneath the bead **8** by reason of the necking in of the container body at **7**. The V-shaped periphery **23** of the first operation seaming roll is defined in part by an outwardly and downwardly inclined upper wall portion **24**, and in part by an outwardly and upwardly inclined lower wall portion **25**. It will be apparent by reference to FIGURE 2 of the drawing that as the first operation seaming roll is moved inwardly with relation to the chuck **18** the V-shaped periphery **23** thereof will first engage the closure channel skirt portion **14**, and continued inward movement of the said roll will turn the lower skirt portion or draw the same under the bead from its initial cylindrical, depending and vertical position shown in dotted lines to the position illustrated in full lines in FIGURE 2. This turning under of the skirt portion serves to draw the channel downwardly onto the bead, firmly pressing the sealing compound **17** into tight sealing contact over the bead **8**.

The second operation seaming roll **26** has a curved annular recess **27** positioned to engage the turned portion of the closure skirt opposite the lower outer portion of the bead **8** in the manner clearly illustrated in FIGURE 3. The roll recess **27** merges into a horizontal bead and closure reshaping shelf **28** which terminates outwardly in a rounded shaping periphery **29**. The rounded periphery **29** in turn merges into an inward and downward slope or bevel **30**.

After the first operation seaming roll **22** has turned the closure skirt **14** under the bead **8** as at **31** in the manner previously described, the second operation seaming roll **26** reshapes or flattens the lower part of the bead as at **32** and similarly flattens the closure skirt portion at **33**, and this reshaping of said parts also is attended by the action of the rounded roller periphery **29** in turning the closure skirt edge extremity downwardly at **24** in position for firmly embracing the exterior surface of the necked in body portion in the manner clearly illustrated in FIGURE 3. This reshaping of the closure skirt and

body bead portions shapes and places the flattened portions **32** and **33** in position perpendicular to the axis of the container body and thus provides a seam structure having greater than normal resistance to internal pressures within the container and tending to burst the same or open seam portions. It will also be apparent that the reshaping of parts illustrated in FIGURE 3 additionally puts the bead **8** under compression and accentuates the drawing of the channel down over the bead and the compressing of the sealing compound **17** in tight sealing contact over said bead. It will also be apparent that the reshaping accentuates the upward turning of the inner terminal edge of the bead **8** and additionally imparts rigidity to said bead.

It has been found that the method of forming the closure seam described herein and the form of said seam not only provides a container structure which is very neat and attractive in appearance, but said seam structure has been found to be very practical in its use in containers from which fill such as hair spray or other cosmetics are to be expelled by internal pressure provided in any of the commonly used propellants. The particular form of the seam and the arrangement thereof on the necked in portion of the body enables the provision of a structure wherein projection of the closure bead beyond the outside diameter of the main body portion **5** is minimized.

While a preferred form of container and seam structure and a preferred method of assembling the parts thereof is disclosed in detail herein, it is to be understood that variations in the disclosure of these method steps and part arrangements may be provided without departing from the scope of the invention as defined in the appended claims.

I claim:

1. In a container of the type intended to be internally pressurized, a body having an open upper end defined by an integral outwardly turned closed bead, a closure for said end having a downwardly open channel embracing said bead, and sealing means interposed between the upper portion of said bead and the opposing portion of said closure channel, said closure including a continuous skirt portion turned under said bead and cooperating therewith in forming a closure sealing seam, said bead and said turned skirt portion having cooperatively engaging flattened portions disposed generally perpendicular to the axis of said body, said bead terminating in an upturned edge firmly embracing the exterior surface of said body and said skirt terminating in a downturned edge firmly embracing the exterior surface of said body, said bead being resilient and being held in compression by said turned skirt portion with the tendency of said bead to resume its original shape reacting on said closure to continuously tightly and resiliently clamp said sealing means between said bead and said closure.

2. The herein described method comprising providing a body having an open upper end and an outwardly turned closed bead, providing and placing on the body a closure having a downwardly opening channel for embracing the body bead and including a sealing compound therein in position for engaging over the body bead and a continuous skirt portion depending below the level of the bead, and turning said skirt portion under the bead while simultaneously reshaping said bead and skirt portion to permanently flatten parts thereof in perpendicular relation to the axis of the body and place and hold the bead under compression with the sealing compound in tight sealing contact over the bead.

3. The herein described method comprising providing a body having an open upper end and an outwardly turned closed bead, providing and placing on the body a closure having a downwardly opening channel for embracing the body bead and including a sealing compound therein in position for engaging over the body bead and a continuous flat skirt portion depending below the level of the bead, and turning said skirt portion under the bead while simultaneously reshaping said bead and skirt portion to permanently flatten parts thereof in perpendicular relation to the axis of the body and place and hold the bead under compression with the sealing compound in tight sealing contact over the bead and provide an upwardly turned terminal edge on the bead engaging the body and a downwardly turned terminal edge on the skirt portion firmly embracing the exterior surface of the body.

4. The herein described method comprising providing a body having an open upper end and an outwardly turned closed bead, providing and placing on the body a closure having a downwardly opening channel for embracing the body bead and including a continuous skirt portion depending below the level of the bead, turning the skirt portion inwardly and downwardly at an angle beneath the bead and into edge contact with the body below the bead, and then continuing the reshaping of the skirt and simultaneously reshaping the bead and skirt to permanently flatten parts thereof and hold the bead under compression and press the skirt portion terminal edge against the body and form on the skirt portion a downwardly turned terminal edge portion firmly embracing the exterior surface of the body.

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