

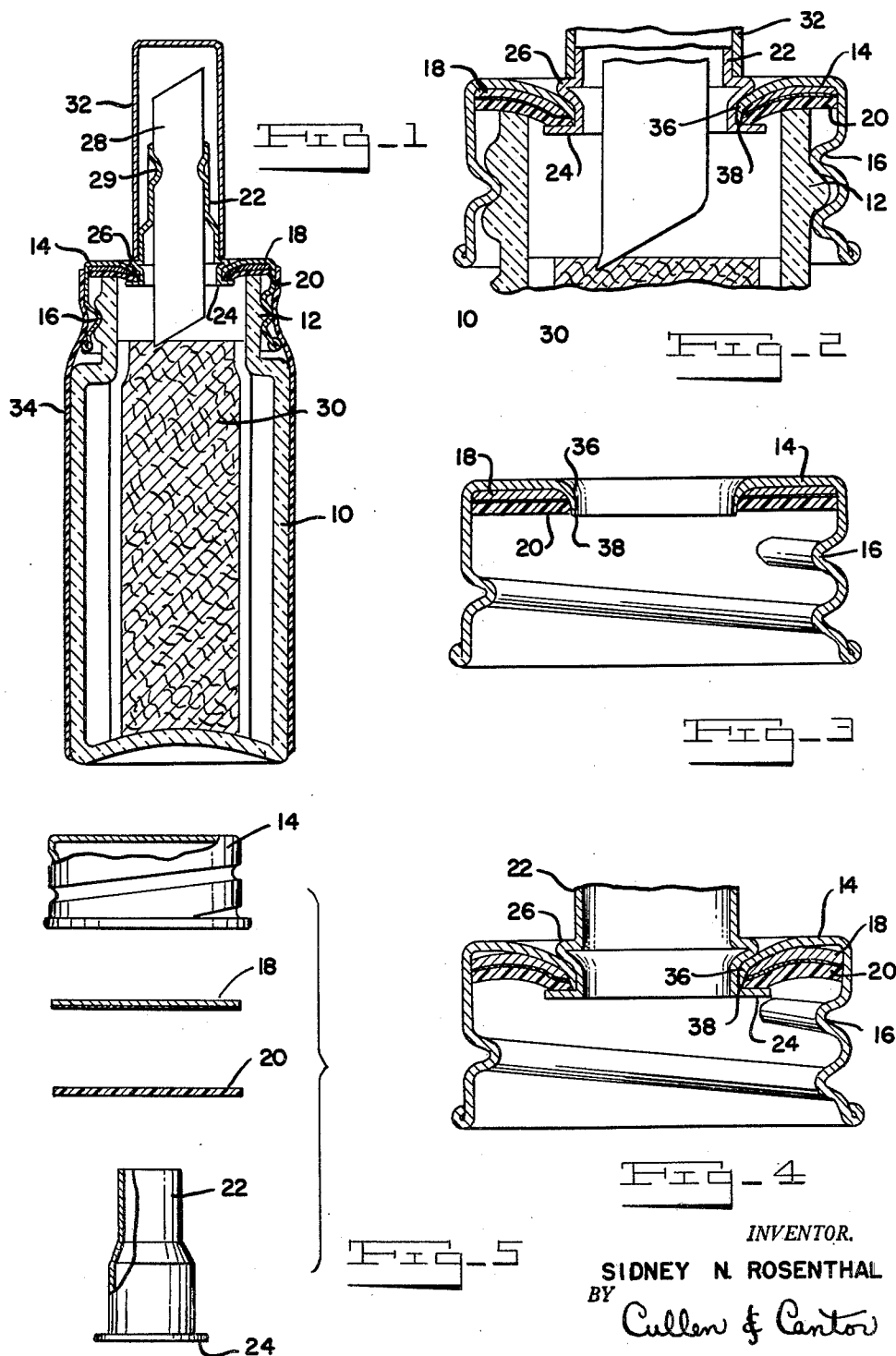
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METHOD OF MANUFACTURE OF TOP CAP ASSEMBLY FOR PENS

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3,069,767

METHOD OF MANUFACTURE OF TOP CAP ASSEMBLY FOR PENS

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Speedry Chemical Products, Inc., Richmond Hill, N.Y.
Original application Apr. 30, 1957, Ser. No. 656,138.
Divided and this application Jan. 5, 1961, Ser. No.
80,875

2 Claims. (Cl. 29—512)

This application relates to methods of manufacture of top cap assemblies for ink applicators or pens such as are disclosed in a copending application, Ser. No. 656,138, filed April 30, 1957, now abandoned, of which this application is a division, this application being directed solely to methods of manufacture of the top cap assemblies of such devices.

For an understanding of the method herein disclosed, reference should be had to the appended drawings.

In these drawings, which show a device produced by the method hereof, and which also show the steps of the method hereof,

FIG. 1 is an elevation view, in cross-section, of a device made according to the invention.

FIGS. 2-4 are fragmentary enlarged section views.

FIG. 5 is an exploded view of parts.

The device hereof comprises an ink containing glass bottle 10 having a reduced neck formed with external screw threads 12 mounting the top cap assembly, this including a metal cap 14 having internal threads 16. Inside cap 14 and compressed against bottle 10 is an upper gasket 18 and which is above a second gasket 20. The gaskets are also clamped against the cap, this being effected by a tubular metal upwardly tapered nib holder 22 carried by cap 14 and secured to the cap by a lower flange 24 and an upper flange or crimp or bead 26.

In nib holder 22 is a felt marking nib secured in place by detents 29 and projecting beyond the nib holder at both ends, with the lower end in contact with a felt pack or absorbent ink carrier 30 in bottle 10. A thin aluminum cover 32 seals the nib holder. A shrunken plastic shroud 34 tightly enshrouds cap 14 and bottle 10.

The cap 14 has a central hole whose edge is flanged at 36 (FIG. 3) with such flange having an edge 38 and in such central hole is seated the nib holder 22. As shown in FIG. 5, the top cap assembly of cap 14, nib holder 22, gaskets 18 and 20 is assembled as follows:

Gasket material in the form of disks not yet centrally apertured are assembled in cap 14. Thereupon cap 14 and the gasket disks are centrally punched together to form the central hole of the cap and central holes of the disks; and to form flange 36 and its edge 38. Then a tapered nib holder 22, in blank form, that is to say, formed with flange 24 but without crimp 26, is inserted upwardly through the aligned central holes of the cap 14 and the gaskets 18 and 20 with its flange 24 against gasket 20. The assembly of the cap and nib holder blank is then crimped or beaded at 26 to force the parts in intimate contact with one another and to complete the top assembly and to compress the gaskets as desired.

Now having described the method herein disclosed, reference should be had to the claims which follow.

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I claim:

1. A method of making a substantially vapor-tight marker wherein a volatile ink saturated carrier is enclosed in an open end reservoir, said method including the steps of arranging a screw cap blank having an end wall with a disk of sealing material covering the inner face of said end wall, punching a central opening through the cap end wall and the disc while deforming the edge portion of the end wall defining the opening inwardly around the edge of the opening in the disc to form an annular gasket of a size and shape to be retained in operative position between the edge of said central opening in the end wall and inner surface portions of the peripheral wall of the cap, inserting a tubular nib holder blank, having an inner end flange, through said openings in said gasket and cap and with said inner end flange overlapping annular portions of said gasket around its central opening, deforming an annular portion of said nib holder blank outwardly on the cap wall face remote from said gasket to expand it radially into the form of an outer flange to thereby compress edge portions of said opening in the cap end and said overlapped portion of the gasket between said inner flange and said outer flange of the deformed nib holder blank to secure the latter in sealed connection with the cap, and mounting a nib in said nib holder.

2. A method of making a substantially vapor-tight marker wherein a volatile ink saturated carrier is enclosed in an open end reservoir, said method including the steps of arranging a screw cap blank having an end wall with a disk of sealing material covering the inner face of said end wall, deforming said end wall inwardly while punching a central opening therethrough and punching a central opening through said disk to form an annular gasket of a size and shape to be retained in operative position between the edge of said central opening in the end wall and inner surface portions of the peripheral wall of the cap, inserting a tubular nib holder blank, having an inner end flange, through said openings in said gasket and cap and with said inner end flange overlapping annular portions of said gasket around its central opening, deforming an annular portion of said nib holder blank outwardly on the cap wall face remote from said gasket to expand it radially into the form of an outer flange to thereby compress edge portions of said opening in the cap end and said overlapped portion of the gasket between said inner flange and said outer flange of the deformed nib holder blank to secure the latter in sealed connection with the cap, mounting a nib in said nib holder, and screwing the cap onto the open end of the reservoir to bring an inner end portion of said nib into ink-receiving position and to clamp the peripheral edge portion of said gasket in sealing relation between said cap end and the open end of the reservoir.

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