July 31, 1962 C. BRAMMING 3,047,175

COLLAR AND JACKET CONSTRUCTION FOR VACUUM BOTTLES

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FIG. 1.

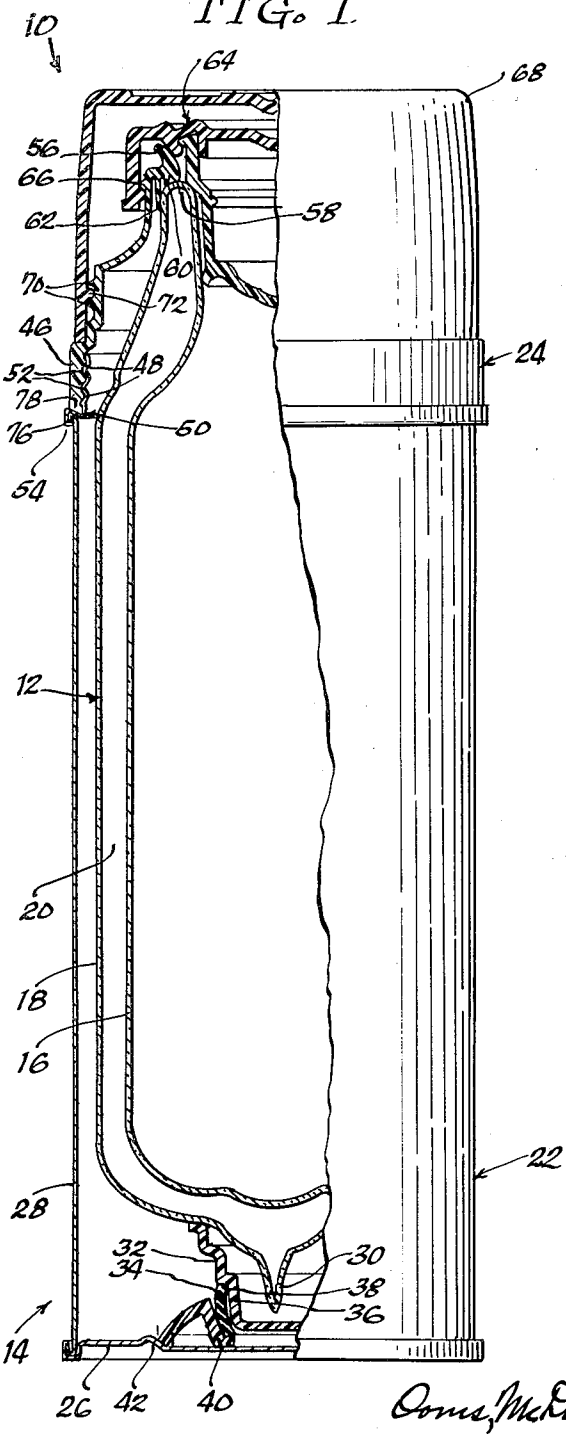
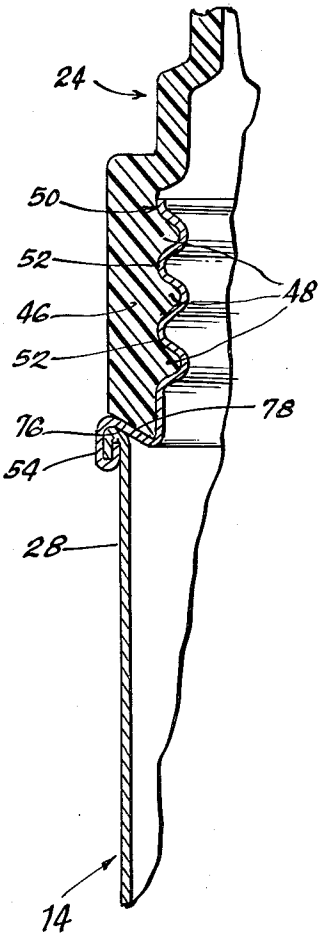



FIG. 2.




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3,047,175

# COLLAR AND JACKET CONSTRUCTION FOR VACUUM BOTTLES

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2 Claims. (Cl. 215—13)

This invention relates to vacuum bottles of the type having a vacuum insulated receptacle which is received within a protective jacket made of sheet metal, plastics or the like.

One object of the present invention is to provide a new and improved vacuum bottle construction which advantageously utilizes a jacket having a lower shell made of sheet metal and an upper collar made of plastic and adapted to be screwed onto the upper end of the shell.

A further object is to provide a new and improved jacket of the foregoing character, in which the collar and the shell are so arranged that the lower end of the collar will be compressed inwardly, so as to maintain the collar in threaded engagement with the jacket, even when the collar is screwed very tightly onto the shell.

Another object is to provide a collar and jacket construction which is easy to manufacture and low in cost.

Further objects and advantages will appear from the following description, taken with the accompanying drawings, in which:

FIG. 1 is an elevational view of a vacuum bottle to be described as an illustrative embodiment of the present invention, the view being partly in central longitudinal section.

FIG. 2 is a fragmentary enlarged sectional view showing details of the collar and jacket illustrated in FIG. 1.

It will be seen that the drawings illustrate a vacuum bottle 10 of a type having a vacuum insulated receptacle or filler 12, received within a protective jacket 14. The filler 12 is usually made of glass and is formed with inner and outer walls 16 and 18, with an evacuated space 20 therebetween.

The illustrated jacket 14 comprises a lower shell or can 22 and an upper portion or collar 24. It will be apparent that the collar 24 is received around the upper or neck portion of the filler 12. The illustrated shell or can 22 has a bottom wall 26 which is crimped or otherwise suitably secured to a substantially cylindrical side wall 28.

At its lower end, the illustrated filler 12 has a fragile tubulation or tip 30 which constitutes the remaining portion of the tube through which the filler was evacuated during the process of manufacture. The tip 30 is enclosed within a generally cup-shaped tip protector 32 which may be made of plastic or other suitable material, and may be cemented or otherwise secured to the lower end of the filler 12.

The filler 12 may be resiliently supported in the manner disclosed in my copending application, Serial Number 749,107, filed July 17, 1958, and entitled Filler Support for Vacuum Bottles. Thus, a rubber or rubber-like sleeve 34 is received around a reduced lower portion 36 which is formed on the tip protector 32. The upper end of the sleeve 34 engages a downwardly facing shoulder 38 formed on the tip protector, while the lower end of the sleeve is supported within an annular socket member or ring 40, resting upon the lower wall 26. An upwardly projecting annular flange or bead 42 is formed on the lower wall 26 to center the supporting ring 40 within the shell or casing 14. It will be apparent that the sleeve 34 is adapted to yield in a resilient manner, when the filler 12 is pushed downwardly.

The illustrated side wall 28 is preferably made of sheet metal, but the illustrated collar 24 is preferably made of plastic. Thus, the collar may readily be formed by molding the plastic. It is preferred to employ a plastic material which is tasteless, odorless, tough, and virtually unbreakable. Plastics such as polyethylene and polypropylene are advantageous, although other plastics may be employed.



In this case, the collar 24 is adapted to be screwed onto the casing 14. Thus, the collar 24 is formed with a substantially cylindrical lower portion 46 having internal threads 48 thereon. A ring or member 50, with external threads 52 thereon, is formed or mounted on the upper end of the side wall 28 to receive the internally threaded lower portion 46 of the collar 24. The externally threaded ring 50 may be formed integrally with the side wall 28, but it is usually more convenient to form the member 50 as a separate ring, suitably secured to the upper end of the side wall. In this case, a crimped or rolled joint 54 is formed between the ring 50 and the side wall 28.

The upper end of the collar 24 is preferably formed with an annular, overhanging pouring lip 56 which projects upwardly and outwardly from the mouth of the filler 12. The lip 56 makes it easy to pour out the liquid contents of the filler, without any substantial tendency for the liquid to drip or run down the side of the collar.

Below the pouring lip 56, the illustrated collar is formed with three depending annular sealing lips or flanges 58, 60 and 62, adapted to engage the upper end of the filler 12 so as to prevent leakage of liquid between the filler and the collar 24.

Any suitable closure 64 may be provided to close the mouth of the filler 12. The illustrated closure 64 is of the construction disclosed and claimed in my copending application Serial Number 715,025, filed February 13, 1958, and entitled Closure for Vacuum Bottles. It will be seen that threads 66 are formed on the upper portion of the collar to secure the closure 64 to the vacuum bottle.

It is convenient to cover the top of the vacuum bottle with an inverted drinking cup 68. As shown, the collar 24 is formed with external threads 70 adapted to receive internal threads 72 formed on the cup 68.

When the collar 24 is screwed tightly onto the externally threaded member 50, the wedging action between the rounded internal and external threads 48 and 52 produces an outward force on the lower portion 46 of the collar, and tends to stretch the collar. Inasmuch as the plastic material of the collar is fairly stretchy or elastic, relative to the stretchiness of the sheet metal parts 28 and 50, there is some possibility that the internal threads 48 will slip or snap past the external threads 52, if the collar 24 is screwed tightly enough onto the ring 50. There is also a possibility that the stretching of the collar will crack the plastic wall. To eliminate these possibilities, the collar 24 and the casing 14 are arranged to compress the lower end of the collar in a radially inward direction. This compression of the collar counterbalances the wedging action of the threads 48 and 52, so that the collar will be retained on the externally threaded member 50, even when screwed down very tightly.

Thus, the lower end of the collar 24 is formed with an annular bevelled downwardly facing surface 76 which slants downwardly and inwardly. This bevelled surface 76 is adapted to engage an upwardly facing shoulder 78, which is formed on the lower end of the ring 50, around the externally threaded portion thereof. The shoulder 78 slants downwardly and inwardly at the same angle as the bevelled surface 76. The bevelled surface 76 is engageable with the shoulder 78. Due to the inclination of the surfaces 76 and 78, there is a wedging action therebetween which pushes the lower end of the collar inwardly and thereby maintains the internal threads 48 firmly engaged

with the external threads 52, despite the wedging action between the threads.

It will be apparent that the illustrated collar and jacket construction is highly advantageous. At the same time, it is easy to manufacture and low in cost.

Various modifications, alternative constructions and equivalents may be employed without departing from the true spirit and scope of the invention, as exemplified in the foregoing description and defined in the following claims.

I claim:

1. In a vacuum bottle, the combination comprising a vacuum insulated receptacle, a protective jacket received around said receptacle, said jacket having a lower generally cylindrical sheet metal shell and an upper collar received around the upper portion of said receptacle, said collar being made of a plastic material which is substantially stretchier than said sheet metal shell, a continuous circular one-piece sheet metal ring secured to the upper end of said shell and extending upwardly therefrom, said ring having an externally threaded portion extending upwardly from said shell, said externally threaded portion being substantially reduced in diameter relative to said shell, said ring having an upwardly facing annular shoulder extending around the lower end of said externally threaded portion, said shoulder slanting downwardly in an inward direction, said collar having an internally threaded lower portion screwed onto said externally threaded portion of said ring, said collar having an annular bevelled lower surface slanting downwardly and inwardly for wedging action with said shoulder to compress the lower end of said collar inwardly and thereby maintain said collar in threaded engagement with said



ring when said collar is screwed very tightly onto said ring.

2. In a vacuum bottle, the combination comprising a vacuum insulated receptacle, a protective jacket received around said receptacle, said jacket having a lower generally cylindrical shell and an upper collar received around the upper portion of said receptacle, said collar being made of a material which is substantially stretchier than said shell, a continuous circular one-piece ring secured to the upper end of said shell and extending upwardly therefrom, said ring having an externally threaded portion extending upwardly from said shell, said externally threaded portion being substantially reduced in diameter relative to said shell, said ring having an upwardly facing annular shoulder extending around the lower end of said externally threaded portion, said shoulder slanting downwardly in an inward direction, said collar having an internally threaded lower portion screwed onto said externally threaded portion of said ring, said collar having an annular bevelled lower surface slanting downwardly and inwardly for wedging action with said shoulder to compress the lower end of said collar inwardly and thereby maintain said collar in threaded engagement with said ring when said collar is screwed very tightly onto said ring.

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