Jan. 6, 1959 L. W. FLECKENSTEIN 2,867,350

CLOSURE CAPS

Filed July 19, 1956

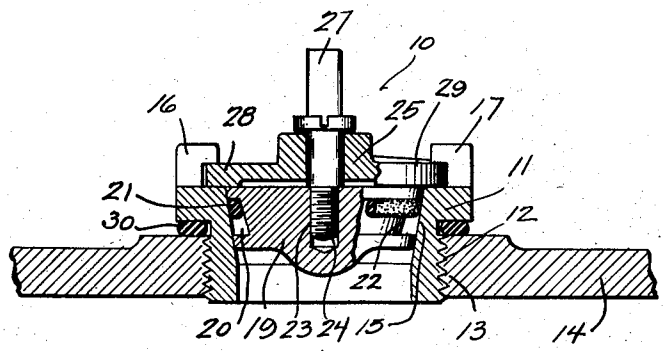

Fig. 1

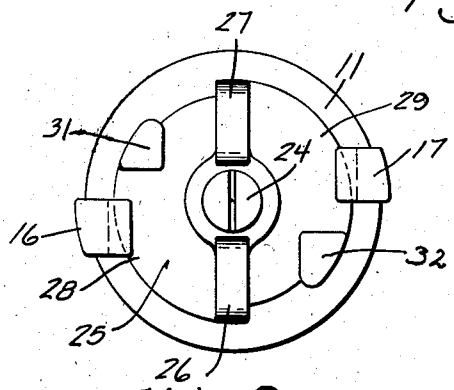

Fig. 2

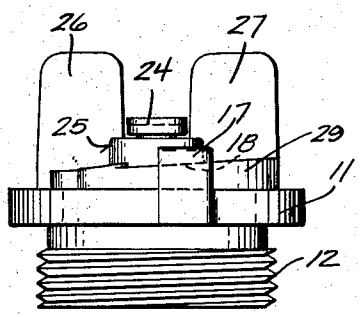

Fig. 3

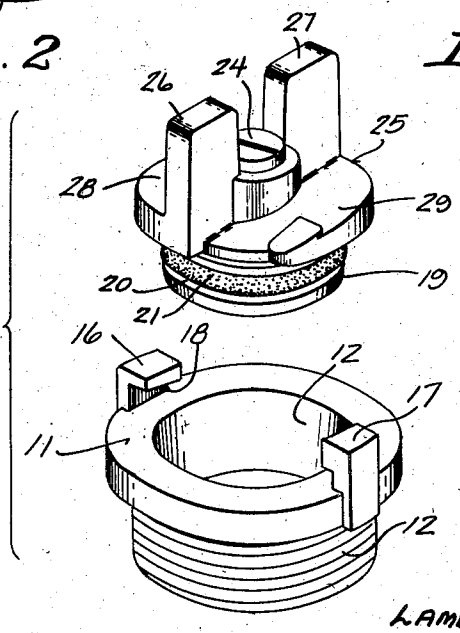

Fig. 4

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CLOSURE CAPS

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1 Claim. (Cl. 220—40)

This invention relates to improvements in closure caps and more particularly to a novel cap of the threaded neck ring type.

An object of the invention is to provide a device of the type in which the inside of the neck ring and the outside of the plug will be inclined at different pitches to facilitate the binding of the parts against an O ring held about the plug.

Another object of the invention is to provide a device of the type with tightening means on which effective purchase may be had for the purpose of tightening the same, said means being embodied within a restricted compass.

Other and further objects of the invention will appear as the description proceeds, reference being had to the accompaning drawing, in which:

Fig. 1 is a vertical sectional view of a closure cap embodying the invention.

Fig. 2 is a plan view of the same.

Fig. 3 is a side view in elevation closure cap and neck ring.

Fig. 4 is a view in perspective from above, of the capped plug and the neck ring in exploded position.

Referring more particularly to the drawing, the numeral **10** refers to the device generally, comprising a neck ring **11**, exteriorly threaded at **12** thereof to engage a thread **13** in a tank or other vessel **14**. The neck ring **11** has an inclined internal bore at **15** for a portion of its length, and has a pair of upwardly disposed blocks or cam plate keepers **16** and **17**. Each keeper **16** and **17** has an inclined plane **18** for a purpose to be later described. A plug **19** has a circular horizontal slot at **20** accommodating the O ring **21**. The inner surface of the slot **20** or the wall **22** is inclined more from the vertical than is the surface **18** of the neck ring **11**.

The plug **19** has a central vertical tapped bore at **23** to accommodate the bolt **24** which secures the rotative cap **25** provided with the vertical wings **26** and **27** and the integral cam plates **28** and **29** and stop bosses **31** and **32**.

In use, the neck ring **11** is screwed into the tank **14** compressing the O ring **30** to form a seal. The plug **19** and cap **25** as a unit are inserted into the neck ring **11**, and the wings **26** and **27** are manipulated to turn the cap to the right thus engaging the cam plates **28** and **29** under the keeper blocks **16** and **17** against the inclined surfaces **18** thereof to tighten the assembly.

It will be understood that the device is capable of many modifications in structure and design, without departing from the spirit of the invention, within the scope of the appended claim.

Having thus described the invention, what is claimed and desired to be secured by Letters Patent of the United States, is:

A closure cap assembly comprising a neck ring, an inclined interior surface in said neck ring, a plug having a wide peripheral depression to accommodate an O ring, said depression being trapezoidal in cross-section whereby the inner wall of said depression is pitched at an inclination varying from the inclination of the neck ring to effect tightening of said plug by compression of the O ring therebetween, a cap rotatably secured to said plug, vertical wings on said cap for manual rotation thereof, integral cam plates on the cap, a stop boss on the upper surface of the lower end of each cam plate, vertical upstanding keeper blocks surmounting the neck ring, and short inclined lower surfaces on said keeper blocks co-acting with the cam plates on said cap for tightening or releasing the assembly.

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