Aug. 18, 1959 C. O. SCHMIDT, JR 2,900,104

CLOSURE MEANS.

Filed Nov. 8, 1955

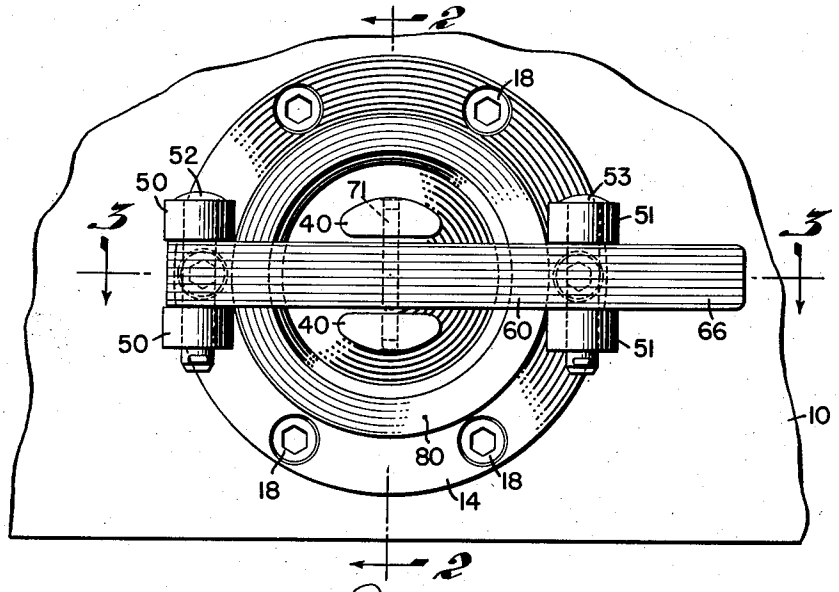


Fig. 1

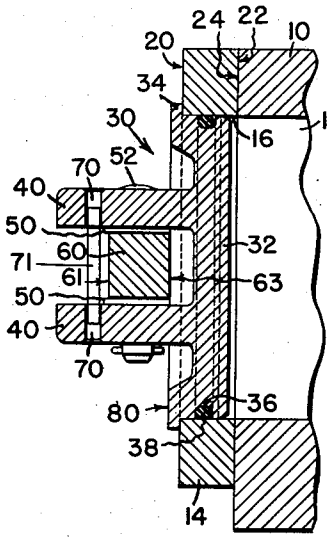


Fig. 2

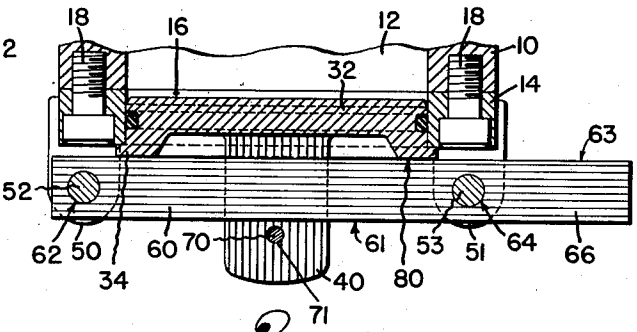


Fig. 3

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CLOSURE MEANS

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1 Claim. (Cl. 220—57)

This invention relates to a closure assembly for an opening in the wall of a pressure vessel, and more particularly to a closure of the type which may be readily opened or securely though releasably closed.

An object of the invention is to provide a closure assembly for the clean-out ports of a pressure vessel, such as, by way of example, a sausage stuffer, or the like.

Another object of the invention is to provide a closure assembly for the clean-out port of a pressure vessel, which assembly comprises a yoke which is adapted to be securely and fixedly mounted to the manifold or clean-out ports of a pressure vessel, for providing a secondary port selectively engageable by a removable cap securely though releasably secured to the yoke by means of a locking bar.

A further object of the invention is to provide a closure assembly having the hereinabove described characteristics, wherein the locking bar is securely though releasably secured to the yoke in a cap-closing position, by means of removable pivot pins, thereby facilitating the ease of opening of closing said cap.

These and other objects are attained by the means described herein and as disclosed in the accompanying drawings, in which:

Fig. 1 is a front elevational view of a closure assembly, embodying the teachings of the present invention, associated with the wall of a pressure vessel.

Fig. 2 is a sectional view taken on line 2—2 of Fig. 1.

Fig. 3 is a sectional view taken on line 3—3 of Fig. 1.

For ease of understanding and solely by way of example, the subject closure has been illustrated in conjunction with the clean-out port of a sausage stuffer such as illustrated in the Van Hooydonk Patent No. 1,880,182. In Fig. 1 of this patent the clean-out ports are illustrated on opposite sides of the lower portion of cylindrical housing 10, said ports being closed by conventional bolt-secured manhole covers.

With reference now to the drawings, the numeral 10 denotes generally the wall of a pressure vessel provided with one or more ports or openings 12.

The numeral 14 denotes a yoke provided with a port 16 of a dimension and area corresponding with port 12 in wall 10. Yoke 14 is fixedly secured to wall 10 with port 16 in axial alignment and in open communication with port or opening 12 such as, by means of bolts 18.

Yoke 14 includes a continuous outer axial face 20 which completely circumscribes port 16, it being further understood that the yoke includes a continuous inner or forward flat axial face 22 adapted to engage flat axial face 24 of the vessel wall 10, whereby to provide a pressure and fluid-tight joint.

The numeral 30 denotes generally a cap member which includes a substantially cylindrical plug portion 32 dimensioned to be received within yoke port 16. As best illustrated in Figs. 2 and 3, plug portion 32 projects forwardly from a peripheral flange 34 which is adapted to abuttingly engage outer axial face 20 of yoke 14. The side faces of plug 32 are undercut as to provide a continuous annular groove 36 for the reception of packing means 38 which,

in the preferred embodiment of the invention, may comprise an O-ring.

Cap 30 is provided with a pair of laterally spaced, upstanding abutments 40 which extend away from plug portion 32.

As best illustrated in Figs. 1 and 3, yoke 14 is provided with two pairs of upstanding, laterally spaced bosses or ears 50 and 51, preferably integral with the yoke. Each pair of bosses is provided with an axial bore for the reception of a pivot pin 52 or 53.

The numeral 60 denotes generally a locking bar, one end of which is provided with a pivot pin-receptive bore 62, and with a second pivot pin-receptive bore 64, bores 62 and 64 being laterally spaced whereby to be simultaneously aligned with the bores of bosses 50 and 51 to receive pivot pins 52 and 53 as illustrated in Figs. 1 and 3.

That end 66 of locking bar 60 remote from bore 62 extends forwardly of, or beyond bosses 51 for providing a hand-grip portion.

In the preferred embodiment of the invention the upstanding abutments 40 of the cap are spaced apart by a dimension whereby to loosely receive the locking bar, said abutments being provided with an axial bore 70 to accommodate a rod, pin or the like 71, against which the upper surface 61 of the locking bar may abuttingly engage for exerting a plug-withdrawing action to the cap incident to opening of the closure.

The outer face 80 of flange 34 provides a bearing surface engageable by the under-surface 63 of the locking bar, it being noted that when the locking bar has been secured to the yoke by means of pivot pins 52 and 53, the plug portion 32 of the yoke will be entirely received within bore 16 with flange 34 engaging axial face 20 of the yoke for thereby providing a highly effective pressure and fluid resistant seal.

The cap may be removed by removing pivot pin 53 from bore 64 of boss 51, thereby enabling the free end 66 of the bar to be pivoted about pivot pin 52, thereby releasing the cap.

Conversely, when it is desired to close port 16, bar 60 may be lowered about pin 52 for forcing the plug portion of the cap into bore 16 of the yoke. From the foregoing it will be noted that I have thus provided simple yet highly effective closure means for the wall of a pressure vessel.

It should be understood that various changes and modifications may be made, within the scope of the appended claim, without departing from the spirit of the invention.

What is claimed is:

A closure for a port in the wall of a pressure vessel, comprising a circular yoke including inner and outer faces and having a port therethrough, means securing the yoke to the vessel wall with the yoke port coinciding with the port in said wall, extending perforate ears on the outer face of the yoke, located at opposite ends of a diameter thereof, said ears being spaced from one another a distance exceeding the distance across the yoke port, a locking bar having a pivot end and an apertured handle end, means pivoting the pivot end of the bar to one of the perforate ears aforesaid, for movement of said bar toward and from the other perforate ear, the bar spanning the yoke diametrically when swung to proximity with said other ear, a cap including a plug portion dimensioned to fit slidingly within the port of the yoke, a pair of spaced parallel abutments disposed substantially centrally of the cap and extending outwardly therefrom to provide a channel of greater width than the bar receptive of the locking bar, said abutments having aligned openings formed therethrough, a pin being mounted in fixed position within said openings and spanning said channel,

said pin being disposed outwardly of said locking bar for loosely and slidably maintaining the locking bar within the channel and adapted to engage a surface of the locking bar for exerting a plug withdrawing action to the cap upon outward pivotal movement of said locking bar, whereby the cap may be slid bodily along the locking bar toward and from the handle end thereof, a circumferential flange on the cap to abut and overlap the outer face of the yoke marginally of the yoke port, said flange having bearing contact upon the locking bar adjacent to the pivot end and the handle end thereof, whereby the cap is forced against the yoke at points on the cap periphery as the locking bar is swung into registry with both yoke ears.

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