April 7, 1953 J. J. KOJAN 2,634,094

CLOSING TOOL FOR METAL CONTAINERS

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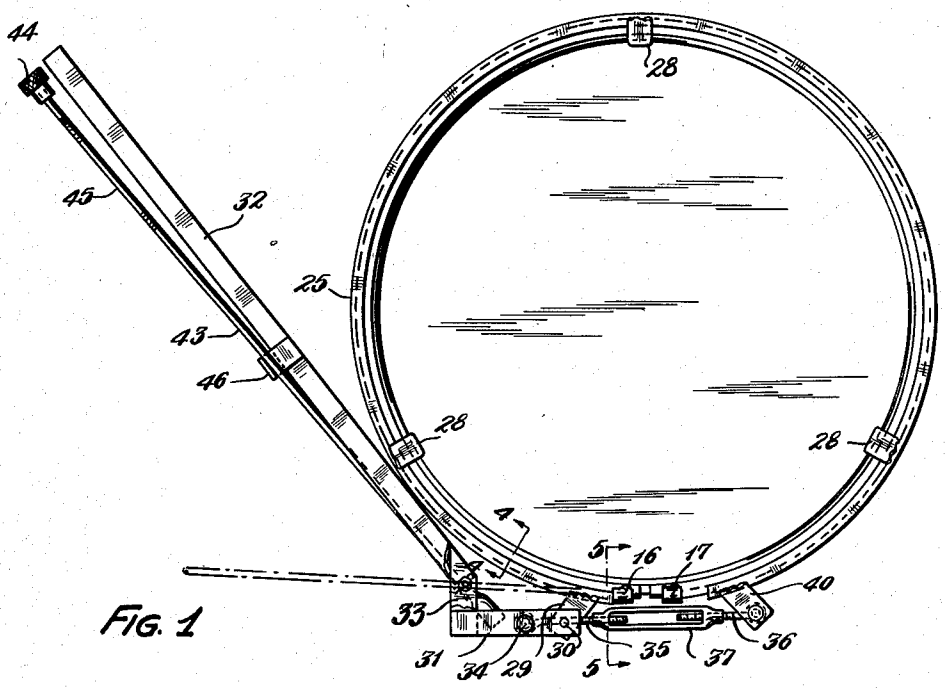


FIG. 1

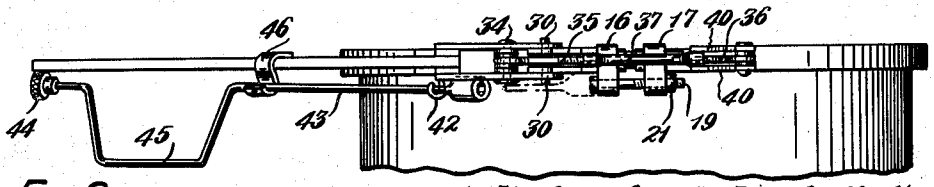


FIG. 2

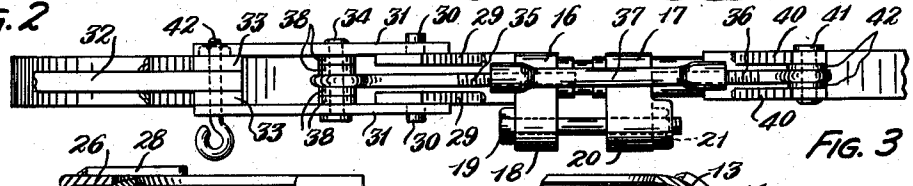


FIG. 3

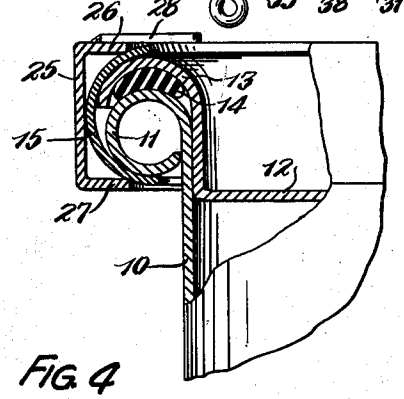


FIG. 4

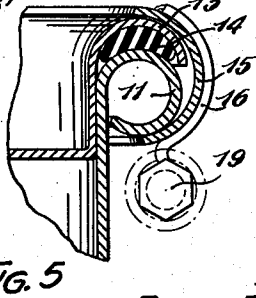


FIG. 5

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CLOSING TOOL FOR METAL CONTAINERS

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1 Claim. (Cl. 254—79)

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This invention relates to improvements in closing tools for metal containers. The tool is intended for use in setting ring clamps of the general character of that disclosed in Patent No. 2,486,565, issued to Leo A. Witucky and myself, dated November 1, 1949. In certain respects this invention constitutes an improvement over the closing tool described and claimed in Patent No. 2,555,194, issued May 29, 1951, to the said Witucky and myself.

Due to variations in the containers and in the rim beads at the open ends thereof and due to variations in the cross-sectional dimensions of the gaskets employed for sealing the containers, the effective length of the link of the closing tool should be adjustable in order that the desired compression of the clamping ring and gasket may be attained. Heretofore any adjustment of the length of the link has required at least partial disassembly of the link before the adjustment could be effected. The first attempt at adjustment was not always successful and a second disassembly, second adjustment and second reconnection were required. This was a time consuming procedure.

One of the objects of the present invention is the provision of means permitting adjustment of the tool link without disconnecting it from either of its pivots.

Another object of the invention is the provision of means permitting the employment of a link the center line of which is straight and therefore lends itself to the use of a turnbuckle as an adjusting means.

Other objects and features of novelty will appear as I proceed with the description of that embodiment of the invention which, for the purposes of the present application, I have illustrated in the accompanying drawing, in which:

Fig. 1 is a plan view of a drum type container with my closing tool mounted thereon and disposed in ring closing position.

Fig. 2 is an elevational view of the same, a fragment only of the drum being shown.

Fig. 3 is a fragmental elevational view of the closing tool on a larger scale.

Fig. 4 is a fragmental cross-sectional view taken substantially on the line 4—4 of Fig. 1, and

Fig. 5 is a similar cross-sectional view of the closed container taken substantially on the line 5—5 of Fig. 1, with the closing tool removed.

In the drawing the open end of a metal drum 10 is shown provided with the conventional rim bead 11. A lid 12 having the usual out-turned

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rim 13 is adapted to rest upon the bead 11 of the drum with a soft rubber gasket 14 interposed. In order to seal the drum this gasket must be firmly compressed, and this compression is effected by a metal clamping ring 15 which is semi-cylindrical in cross-section so that when contracted it exerts pressure against the under side of the bead and the upper side of the curved rim 13.

When the ring 15 has been contracted by the tool of this invention as hereinafter explained, the ends of the ring must be secured together by suitable means. In the illustrated case lugs or brackets having arcuate portions 16 and 17 are welded to the ring on opposite sides of the split therein. Lug 16 has a depending loop 18 of cylindrical contour adapted to receive the shank of a bolt 19 with the head of the bolt bearing against one side of the loop. The other lug 17 has a similar loop 20 formed with an extension to provide a housing for a nut 21 which is held thereby against rotation. When the bolt is threaded into the nut and drawn up tightly the ends of the ring are secured together.

The tool of this invention comprises a split ring 25 of channel shaped cross-section, the upper and lower flanges 26 and 27 of the channel being adapted to embrace and engage the ring clamp 15. A plurality of flat lugs 28 are welded to the upper flange 26 and extend inwardly far enough to support the split ring 25 and hold it in proper relation with the ring clamp 15 when the tool is open and is put in position.

On one side of the split in ring 25 and near that end of the ring two lugs 29 are welded to the ring one above the other in spaced relation. These lugs carry aligned pivots 30, and upon these pivots are mounted bifurcations 31 constituting part of the operating lever of the tool. This lever comprises also a relatively long handle 32 which may be connected with the bifurcations 31 by means of spaced plates 33, all of these parts of the lever being preferably welded together in order to make a rigid unit.

The lever 31, 32, 33 is connected with the opposite end of the split ring 25 by an adjustable link. As illustrated herein this link comprises two threaded rods 35 and 36 with eyes at their outer ends, and a turnbuckle 37. A bolt or rivet 34 extends through the eye of rod 35 and through aligned holes in the bifurcations 31, the eye being spaced evenly from the bifurcations by washers 38. On the right hand side of the split in ring 25, as viewed in the drawing, two lugs 40 are welded to the ring one

above the other in spaced relation. Aligned holes are formed in these lugs to receive a bolt or rivet 41 which projects through the eye of rod 36 to form a pivot therefor, the rod 36 being disposed midway between lugs 40 by means of spacing washers 42. The center line of the link 35, 36, 37 is therefore straight, and being disposed half way between the lugs 29 and the pivots 30 the link is adapted to pass the axis of those pivots as the link swings inwardly when the lever 31, 32, 33 is moved from inoperative position to the operative position of Fig. 1.

In any given case, if the operation of the lever exerts either too little or too great pressure, the lever may be swung to open position in order to relieve tension on the link, after which the turnbuckle may be turned through a given angle estimated by the operator and the lever again thrown to operative position. If the adjustment thus made proves unsatisfactory a second one will usually correct the difficulty. The connections at the ends of the link are thus undisturbed, and the loss of time avoided.

An eye-bolt 42 is loosely mounted in the lever. It supports the shank 43 of a socket wrench which includes a rotatable knob 44 and a crank portion 45. Normally the shank 43 rests in a hook 46 that is welded to the lever handle 32. When the bolt 19 is to be tightened the operator lifts the wrench out of the hook 46, swings it around on the eye-bolt 42 to the position indicated by broken lines in Fig. 1 and causes the socket to engage the head of the bolt, whereupon the wrench is operated to quickly thread the bolt through the nut 21 to locking position.

It will be noted that in the operative position of the lever illustrated in Fig. 1 the center line of the link passes through the axis of the pivots 30, and hence the strain exerted upon the link by the ring 25 does not tend to open the tool.

When the split ring has been brought to closing position, thereby bringing the ends of the ring clamp 15 close together as illustrated in the drawing, the operator inserts the bolt 19 through the loops 18 and 20 and starts it in the nut 21. He then brings the wrench into operative position and completes the setting of the bolt, after which the lever is swung around to open the tool and the latter is removed and placed on the next drum to be closed.

Having thus described my invention, I claim:

A closing tool for a cylindrical sheet metal container of the type which has an open end, a lid therefor and a ring clamp for locking the lid to the container, said tool comprising a split ring having upper and lower inwardly directed portions adapted to embrace said ring clamp, a pair of brackets on said ring on one side of the split therein, said brackets being spaced apart in a vertical direction transversely of the ring, a lever having spaced bifurcations at one end thereof embracing said brackets, spaced aligned pivots for connecting said brackets and the bifurcations of said lever and leaving the space between said brackets free, a link one end of which is pivotally connected with the split ring on the opposite side of the split therein, said link extending across said split through the free space between said brackets and pivotally connected at its opposite extremity with said lever at a point spaced from the pivotal mounting of the lever, whereby the link may pass between the brackets as the lever moves from inoperative to operative position, said link being straight and comprising a turnbuckle by means of which its effective length may be adjusted.

JOHN J. KOJAN.

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