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2,555,194

LEVER AND WRENCH OPERATED CLOSING TOOL FOR METAL
CONTAINERS HAVING A SPLIT RING LOCKING CLAMP

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2 Sheets-Sheet 1

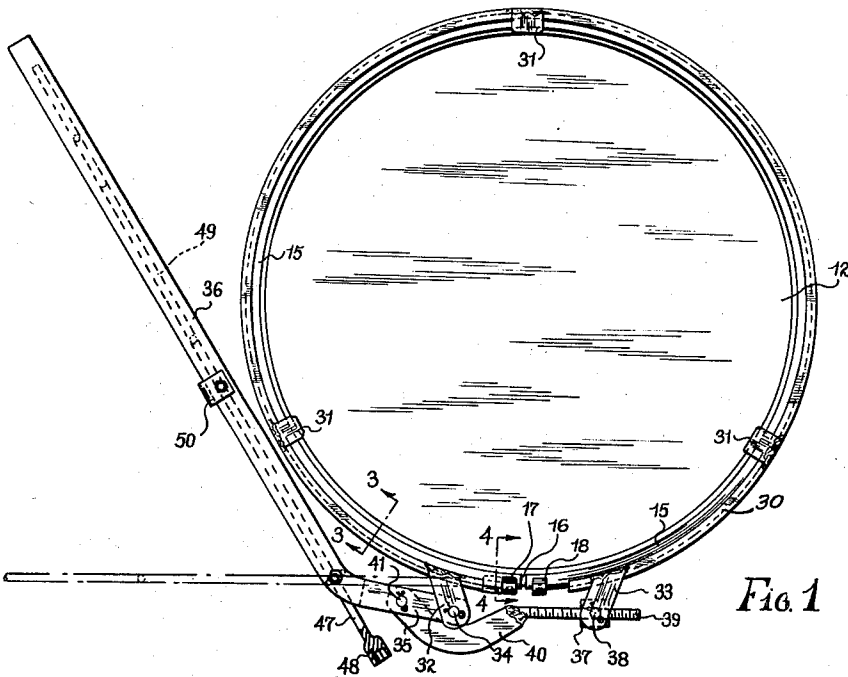


Fig. 1

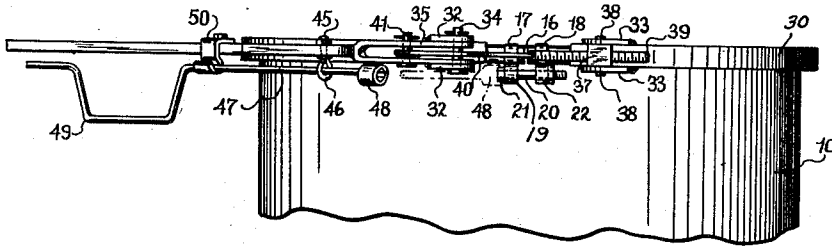


Fig. 2

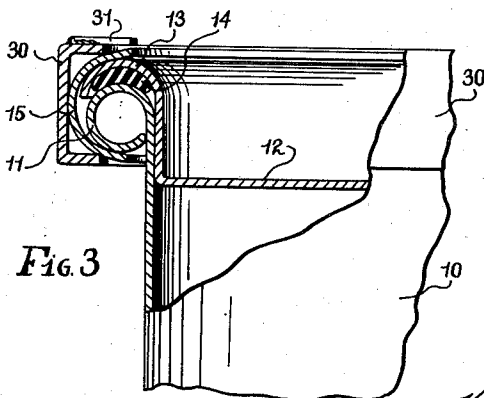


Fig. 3

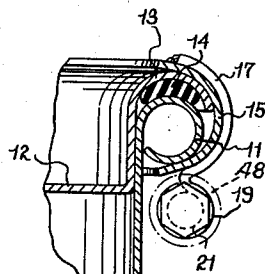


Fig. 4

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2 Sheets-Sheet 2

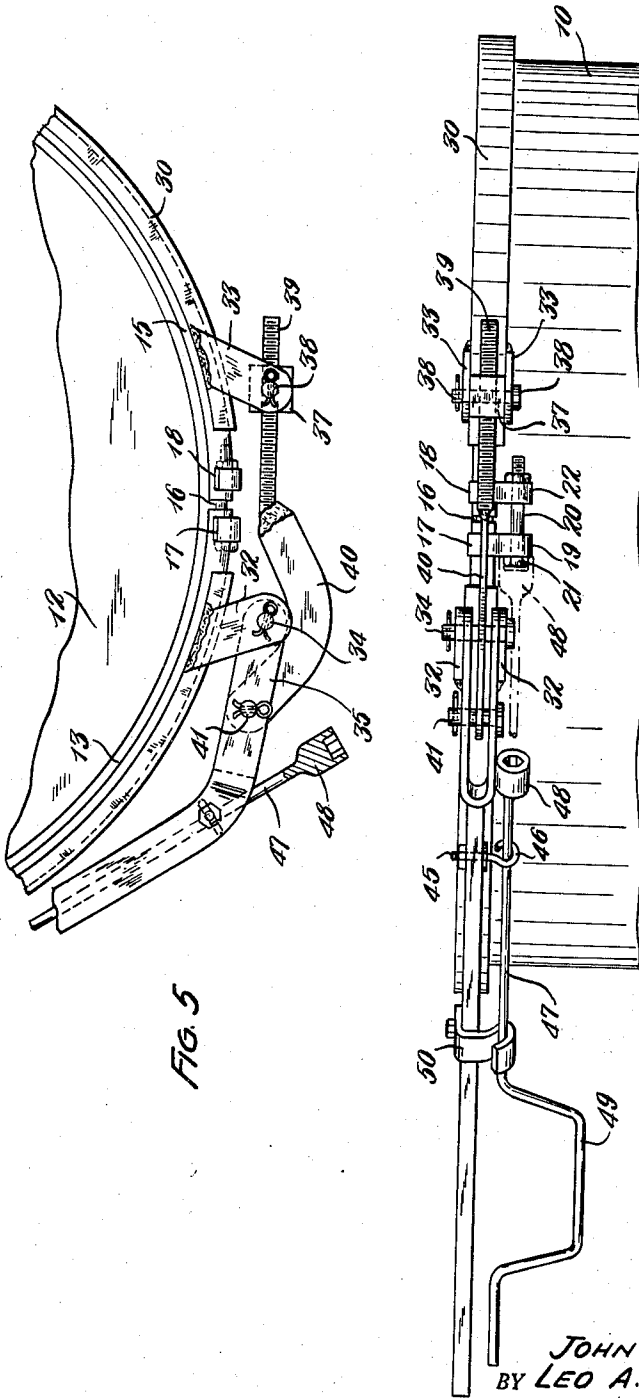


FIG. 5

FIG. 6

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LEVER AND WRENCH OPERATED CLOSING TOOL FOR METAL CONTAINERS HAVING A SPLIT RING LOCKING CLAMP

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2 Claims. (Cl. 7-1)

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This invention relates to improvements in closing tools for metal containers, that is to say sheet metal containers of cylindrical form having an open end, a lid for closing that end and a contractible ring clamp for locking the lid in closed position. As an aid to the contraction of such a clamp and the drawing of its ends together into a position such that a threaded fastening may be employed to lock those ends together, it is common in the art to employ a closing tool which comprises a split ring that may be caused to surround the clamping ring temporarily and has a lever and link mechanism for conveniently and quickly contracting the clamp ring. Thereafter the operator inserts a bolt through a loop carried on one end of the clamping ring and threads it into a nut on the opposite end of the ring, using a wrench or a screwdriver for manipulating the bolt and in some cases an additional wrench for manipulating the nut. In any event the use of at least one separate hand tool is required.

The present invention is designed for use with a ring clamp in which the nut is rigid with one end of the ring. It embodies a closing tool which is complete in itself, that is it carries a wrench permanently so that when the link and lever mechanism of the tool has been operated to draw the ends of the clamping ring together the wrench is substantially in position to perform its duty, thus facilitating the closing of the container and conserving the time of the operator.

An object of the invention therefore is to provide an improved tool which may be operated conveniently and rapidly to effect the closing of a container of the kind described.

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

Fig. 1 is a plan view of a metal drum in the process of being closed and sealed.

Fig. 2 is a fragmental elevational view of the same.

Figs. 3 and 4 are fragmental sectional views taken substantially on the lines 3-3 and 4-4 of Fig. 1.

Fig. 5 is a fragmentary plan view on a larger scale, and

Fig. 6 is an elevational view corresponding to Fig. 2 but on a larger scale.

In the drawing 10 represents a sheet metal drum which is open at one end and provided with a rolled edge forming a bead 11, as is common in

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containers of this character. A lid 12 projects into the open end of the container. It has a curved rim 13 within the concavity of which there is mounted a soft rubber gasket 14 that engages the top of the bead 11, as clearly shown in Figs. 3 and 4.

15 is a clamping ring which may be in one piece with a split indicated at 16 in Figs. 1 and 2. The ring is approximately semicircular in cross-section and embraces the bead 11 and the flange 13, and thus when contracted exerts force compressing the gasket 14 and sealing the container. An arcuate lug or bracket 17 is welded to one end of the ring and a similar lug or bracket 18 to the other end thereof. The lower end of lug 17 is rolled into a loop 19 which receives loosely the shank of a bolt 20, the head 21 of which bears against the edge of this loop. Lug 18 may be rolled to provide a similar loop 22 which may be internally threaded to take the threaded shank of the bolt or may have a nut fixedly mounted therein, as in our application Serial No. 739,192 filed of even date herewith, now Patent Number 2,486,565. When the ring 15 is contracted and the bolt 20 is threaded up tightly the ring is clamped upon the container and a firm tight joint results.

The closing tool for this clamping ring also embodies a split ring illustrated at 30, which may be of channel shape in cross section and may have several ears 31 welded thereto to assist in supporting the tool upon ring 15 while the tool is being put in place. The tool is so disposed angularly that its split is centered with respect to the split of the ring. Pairs of lugs 32 and 33 are welded to the flanges of the channel near the ends thereof. A pin 34 is projected through aligned holes in the two lugs 32, and between those lugs it serves as the fulcrum for a bifurcated lever 35. A continuation of this lever forms a long handle 36 which is preferably disposed at an angle to the lever proper, as indicated in Fig. 1.

A wobble block 37 has trunnions 38 which turn in aligned holes in the two lugs 33. This block is provided with a transverse bore which is threaded to receive a threaded rod 39. The inner end of the latter is welded to one end of a curved metal strap 40, the opposite end of which is mounted on a pivot 41 that extends through aligned holes in the bifurcations of lever 35 intermediate the ends of those bifurcations. Parts 39 and 40 together constitute a link which cooperates with the lever 35 to open or close the tool. As will be obvious the length of the link may be adjusted by removing the pin 41 and turning the

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link one way or the other in the block 37. Before the closing tool is put in position the lever 35 is of course swung counterclockwise on the pin 34 as a fulcrum, thereby expanding the tool ring. When the lever has been swung back to the illustrated position the clamping ring is contracted sufficiently to enable the operator to insert bolt 20 through the loop 19 and into the threaded loop 22.

At the bend between the lever 35 and the handle 36 there is mounted a swivel 45 which carries an eye 46 on its lower end. The round shank 47 of a wrench is rotatably mounted in eye 46. It carries a socket 48 provided with a hole to fit the head 21 of the bolt, and near its opposite end it has an offset part 49 constituting a handle which provides leverage for rotation of the shank 47. In some cases the bolt 20 may have a head provided with a screwdriver slot, in which case of course the end of shank 47 will be finished as a screwdriver. Intermediate the ends of the handle 36 there is mounted a clip 50 terminating in a hook that is adapted to receive and retain the shank 47 near its offset 49.

When the tool has been put in position on the container and the link and lever mechanism operated to bring the ends of the clamp together and the bolt 20 has been started by hand, as previously explained, the operator unhooks the wrench from the clip 50 and swings it around on the swivel 45 to the dotted line position of Fig. 1, which brings it into line with the bolt. It is then the work of a moment only to advance the wrench until the socket 48 fits over the head of the bolt, whereupon the operator supporting the free end of the wrench in one hand and grasping the offset 49 in the other can quickly rotate the wrench to thread the bolt into the threaded loop 22 far enough to pull the clamp up tight. The operator then retracts the wrench, swings it around into line with the handle 36 and hooks it into the clip 50, whereupon it becomes in effect a part of the handle and presents no obstacle to the manipulation of the tool, but is always ready for immediate use when needed. The bend between the lever 35 and the handle 36 positions the handle close to the container when the tool is in closed position. Thus, when the wrench is swung around to operative position there is an angle of 45° or more between it and handle 36, and the operator can turn the wrench with complete freedom from interference with the handle.

Having thus described our invention, we claim:

1. A closing tool for a cylindrical sheet metal container of the type which has an open end, a

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lid therefor and a split ring clamp for locking the lid to the container, and wherein the ends of the clamp are detachably joined by a bolt rotatably mounted in one end of the split ring clamp and an internally threaded element is mounted in and held against rotation by the other end of the split ring clamp, said tool comprising a split ring adapted to embrace said clamp and comprising also a link and lever mechanism connected with the ends of said split ring for drawing said ends together, a swivel mounting for a wrench carried by the lever part of said mechanism, and a wrench slidable as well as rotatable in said swivel mounting and having an end socket adapted to be removably applied to the head of said bolt for turning the latter in said internally threaded element.

2. A closing tool for a cylindrical sheet metal container of the type which has an open end, a lid therefor and a split ring clamp for locking the lid to the container, and wherein the ends of the clamp are detachably joined by two threaded members one of which is mounted at one end of the ring and held against rotation and the other of which is mounted in the remaining end of the ring and turnable therein, said tool comprising a split ring adapted to embrace said clamp and comprising also a link and lever mechanism connected with the ends of said split ring for drawing said ends together, a swivel mounting carried by the lever part of said mechanism, and a manually rotatable member slidable as well as rotatable in said swivel mounting, said rotatable member having means at one end adapted to be removably connected to the turnable threaded member for accomplishing relative rotation of said two threaded members.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
633,780	Burgher	Sept. 26, 1899
937,636	Niemann	Oct. 19, 1909
1,148,472	Adams	July 27, 1915
1,226,911	Riesenberg	May 22, 1917
1,357,870	Hume	Nov. 2, 1920
1,598,561	Coomer	Aug. 31, 1926
1,889,152	Phillips	Nov. 29, 1932
2,155,705	Gottweld	Apr. 25, 1939
2,257,454	Brouhon	Sept. 30, 1941