Nov. 8, 1966 J. A. BLASKE, SR., ET AL 3,284,125

MEANS OF LIFTING CONTAINERS OR VESSELS

Filed April 16, 1965 3 Sheets-Sheet 1

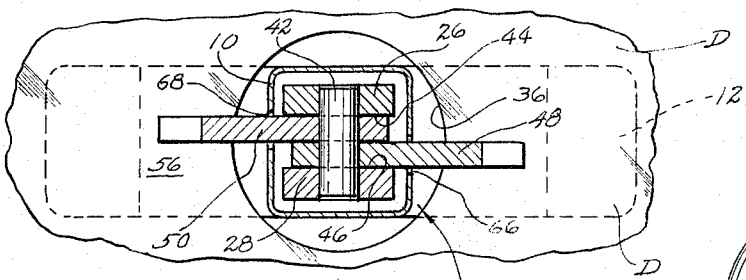



FIG. 2

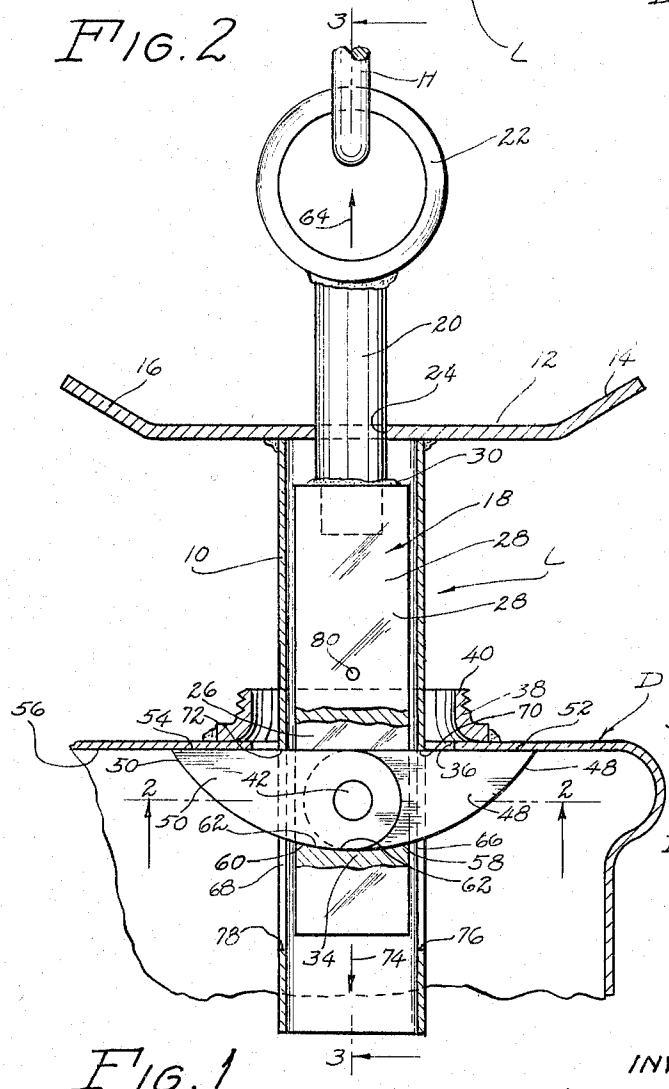



FIG. 1

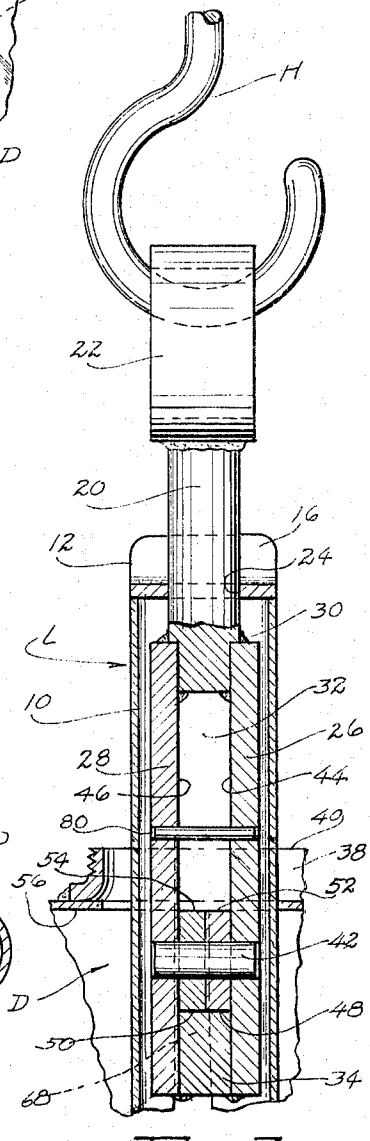



FIG. 3

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MEANS OF LIFTING CONTAINERS OR VESSELS

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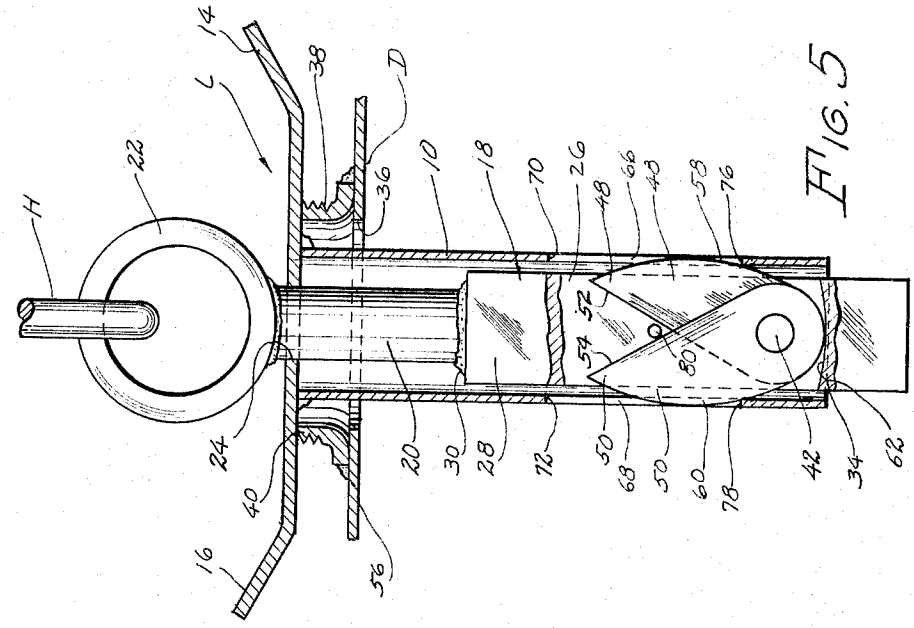



FIG. 5

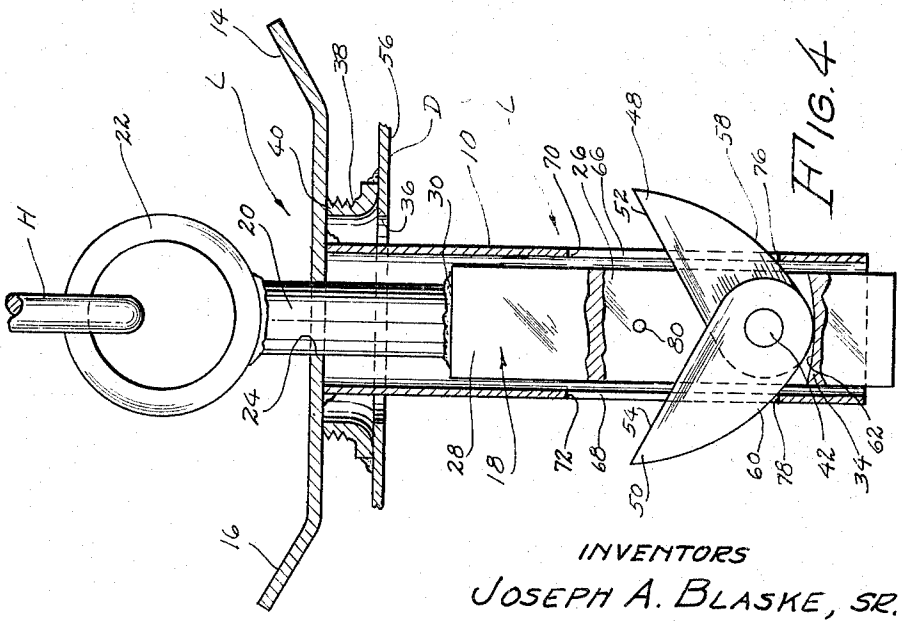



FIG. 4

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MEANS OF LIFTING CONTAINERS OR VESSELS

Filed April 16, 1965 3 Sheets-Sheet 3

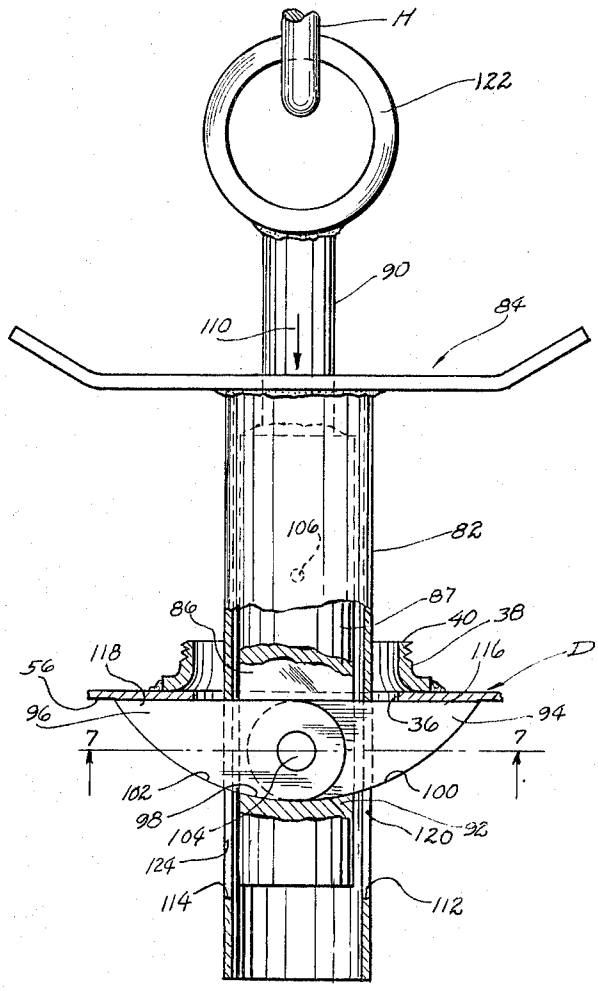



FIG. 6

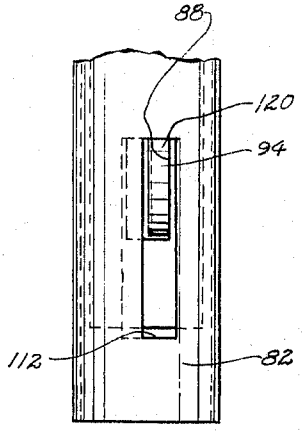



FIG. 8

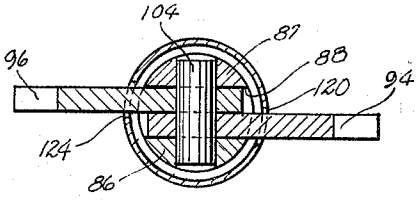



FIG. 7

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United States Patent Office 3,284,125
Patented Nov. 8, 1966



3,284,125

# MEANS OF LIFTING CONTAINERS OR VESSELS

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Filed Apr. 16, 1965, Ser. No. 448,614
5 Claims. (Cl. 294—86)

This invention relates to a device to permit the safe and convenient lifting of containers such as empty oil drums and similar vessels, which are provided with relatively small openings.

An object of this invention is to provide a lifting means that requires merely suspending it from a crane or other lifting device having a hook, and when so suspended, insert the means into the opening of the vessel until it comes to rest thereon and then merely operate the crane to lift the vessel.

Another object is to provide a lifting means that, when suspended by a crane hook is "triggered" for lifting by merely inserting the means into the bung hole of the vessel, permitting the handle of the means to engage the upper surface of the vessel, and then proceed to lift.

Another object is to provide a lifting device that can be removed from the vessel or container by merely disengaging the device from the crane hook and grasping the outwardly-extending handles after the latter have come to rest upon the container.

Another object is to provide a means of lifting a container or vessel having a comparatively small opening by inserting the device in the bung hole and then engaging the device by a crane hook, and then proceeding to lift.

Further objects and advantages of the invention will become apparent from a consideration of the following detailed description taken in connection with the accompanying drawings, wherein an embodiment of the invention is shown. However, it is to be understood that the invention is not limited to the details disclosed, but includes all such variations and modifications as fall within the spirit of the invention.

FIG. 1 is a fragmentary view of the invention, partially in section, and in the process of lifting a container or vessel.

FIG. 2 is a section taken at 2—2 of FIG. 1.

FIG. 3 is a partial section taken at 3—3 of FIG. 1.

FIG. 4 is a partial sectional view, similar to FIG. 1, but showing a partially open or closed position, with the plunger partially raised.

FIG. 5 shows the lifting means inserted in the bung hole and resting on the container, having the plunger fully released and the dogs retracted.

FIG. 6 is a fragmentary view of a modification of the disclosure of FIG. 1, but showing the body and plunger made in a cylindrical form, rather than rectangular, as in FIG. 1.

FIG. 7 is a section taken at 7—7 of FIG. 6, and FIG. 8 is a fragmentary projection of FIG. 6.

Referring again to FIG. 1, the container or vessel D is being lifted by means of the device of this invention indicated as L, a crane being employed having a hook H. The preferred form of the invention comprises a rectangular tube 10 of suitable length, a handle 12 or transverse member, in this instance, equal in width to tubing 10 as shown in FIGS. 2 and 3 is secured to tubing 10 as by welding. Handle 12 is provided with upturned handle portions 14 and 16 to be engaged by the fingers when the device is being removed from the container or vessel. This removal is accomplished by merely disengaging the hook H from the lifting device and lifting the latter by the handle 12.



A plunger 18 is provided having a free fit within the bore of tube 10, and comprises a shank 20 having affixed at the upper end thereof a ring 22 to be engaged by the crane hook H. Shank 20 passes freely through aperture 24 of handle 12, so as to permit tubing 10 to slide relative to shank 20, and to terminate within tubing 10, in a bifurcation comprising portions 26 and 28. Portions 26 and 28 are secured to shank 20 as by welding, as at 30. Portions 26 and 28 are spaced apart, leaving a space 32. A spacer 34, in this instance is secured as by welding, at the lower end of space 32 as shown in FIG. 3.

Container or drum D, in this instance, or other vessel has welded or otherwise secured thereto a ring 38 having an external thread to receive a cap, not shown. Ring 38 has an upper face 40. Opening 36 through ring 38 and the vessel D is sufficiently large to permit insertion of tube 10.

A fulcrum pin 42 is supported by portions 26 and 28, the axis of pin 42 being normal to the inner surfaces 44 and 46 of portions 26 and 28.

A pair of dogs 48 and 50 are journalled on pin 42 substantially filling the space between surfaces 44 and 46, but being free to pivot about pin 42. Dogs 48 and 50 are of the contour shown in FIG. 1, in which they are shown in the lifting position.

When the container or vessel is being lifted, surfaces 52 and 54 of dogs 48 and 50 engage the inner surface 56 of the container or vessel D. When so positioned, the lower edges 58 and 60 of dogs 48 and 50 rest upon the surface 62 of spacer 34 as shown in FIG. 1, thus preventing the dogs from rotating clock-wise and counter-clockwise respectively, thereby supporting the container, when the crane exerts an upward force on hook H, as indicated by the arrow 64 of FIG. 1.

Dogs 48 and 50 extend through slots 66 and 68 of tube 10, which slots align with the opening of the bifurcation space 32. In view of the free fit between aperture 24 and shank 20, tubing assembly 10 will be free to assume the position as in FIG. 1 when lifting a container, with the upper faces of slots 66 and 68, 70 and 72 respectively, resting upon the surfaces 52 and 54 of dogs 48 and 50.

When a container or vessel D is to be lifted, and the device L is in place in opening 36, it will be obvious that when hook H is pulled upwardly in the direction of arrow 64 of FIG. 1, the upper surfaces 52 and 54 will engage the inner surface 56 of the vessel D. When the vessel or container is to be released, contact therewith a solid surface will relax the crane chain or cable so that the handle 12 will come to rest upon surface 40, and dogs 48 and 50 will take the position shown in FIG. 5, by virtue of the attendant movement of plunger 18 in the direction of arrow 74 of FIG. 1. As this movement continues, lower faces 76 and 78 of slots 66 and 68 will engage edges 58 and 60 of dogs 48 and 50, pivoting the latter upwardly until faces 52 and 54 engage a stop pin 80. This position of the dogs 48 and 50 will continue while the handle 12 is grasped and lifted upwardly. Pin 80 has another function, that of preventing dogs 48 and 50 from "crossing" each other, in that the law of gravity is relied upon to maintain the dogs in position ready to function. The lifting device can then be removed from the opening by grasping the handle 12, and merely lifting the latter from the hole or opening.

FIGS. 6 through 8 show a modification of the construction shown in FIG. 1, and employs a cylindrical tube rather than the rectangular tube 10 of FIGS. 1 through 5. The general construction of the modification, however, being similar, for example:

A handle 84 is integral with tubing 82. The bifurcated portions 86 and 87 as a unit are cylindrical and are pro-

vided with a longitudinal space **88**, and a shank **90** is made an integral part of the portions **86** and **87**.

A spacer or terminal portion **92** is secured in space **88** and forms the stop means for dogs **94** and **96**, by engagement with surface **98** by making contact with edges **100** and **102** and the latter surface. Dogs **94** and **96** are pivoted on a pin **104** as shown in FIGS. 6 and 7. A stop pin **106** is also provided, similar to pin **80** of FIG. 1, and for the same purpose.

When plunger **90** is permitted to drop freely into tubing **82** in the direction of arrow **110**, in a non-lifting position, edges **100** and **102** engage edges **112** and **114**. Upper edges **116** and **118** of dogs **94** and **96** then pivot upwardly and engage pin **106** shown in FIG. 6: Thus permitting the modified lifting device to be lifted from the aperture or opening of the vessel or container, in the same manner as set forth with respect to FIGS. 1 and 5.

Slots **120** and **124** are similar in function to slots **66** and **68** of FIG. 1. The hook ring **122** is integral with shank **90** in a manner similar to ring **22** and shank **20** of FIG. 1.

The above being a complete description of an illustrative embodiment of the invention, what is claimed as new and desired to be secured by Letters Patent of the United States is:

**1.** A means, for lifting a vessel having an outer and an inner surface and a substantially-small opening, said means comprising, in combination a longitudinal rectangular tubular portion having an outer and an inner extremity and a longitudinal axis, and adapted to freely enter said opening, the inner extremity first, a transverse member integral with said tubular portion at said outer extremity, a rectangular plunger slidably-extending axially into said tubular portion and having an upper and a lower end, said plunger having an axially-extending bifurcation adjacent said lower end, said bifurcation terminating in an abutment surface adjacent said lower end, a pair of dogs having a common pivot in said bifurcation normal to the walls of said bifurcation, said dogs having upper and lower edges, said pivot so positioned relative to the mass of said dogs that the center of gravity of the dogs will tend to pivot away from said axis in mutually-opposed directions, and longitudinal apertures on opposed sides of said tubular portion aligned with said bifurcation to permit said dogs to pivot freely through said apertures, said apertures having upper and lower faces, said plunger



terminating at said upper end in a lift-engaging means, when said lift-engaging means is engaged by an upwardly-directed lifting device and said lifting device proceeds to lift said vessel, said plunger is displaced axially and upwardly relative to said tubular portion, permitting pivoting of said dogs outwardly through said apertures relative to said axis until said pivoting causes the said upper edges of said dogs to engage said inner surface resulting in said tubular portion shifting axially inwardly so that said upper faces engage said upper edges, and when said vessel is to be released from said lifting means, said hook-engaging means is disengaged so as to gravitationally shift said tubular portion axially inwardly to cause said outer surface to engage said transverse portion and also permit simultaneous axial displacement of said plunger until said lower faces engage said lower edges of said dogs and pivot the latter upwardly and into said bifurcation, and means in said bifurcation to limit the inward travel of said dogs toward said axis and into said bifurcation to permit removal of said means from said opening.

**2.** A means for lifting a vessel as set forth in claim **1**, in which said tubular portion is cylindrical.

**3.** A means for lifting a vessel as set forth in claim **1**, in which said tubular portion is provided with a means at the extremity thereof and integral therewith to limit the inward travel of said tubular portion relative to said vessel.

**4.** A means for lifting a vessel as set forth in claim **1**, in which said plunger is substantially cylindrical.

**5.** A means for lifting a vessel as set forth in claim **1**, in which said means provided to limit the inward pivoting of said dogs toward said axis, comprises a pin in said bifurcation normal to said axis and spaced from said common pivot.


**References Cited by the Examiner**

UNITED STATES PATENTS

| | | | |
|---|---|---|---|
| 1,363,226 | 12/1920 | Bonawitt | 294—86.24 |
| 1,735,713 | 11/1929 | Alltop | 294—97 |
| 2,759,757 | 8/1956 | Pace | 294—93 |

FOREIGN PATENTS

| | | |
|---|---|---|
| 685,790 | 1/1953 | Great Britain. |


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