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LIFTING AND CARRYING DEVICE

Filed June 10, 1926

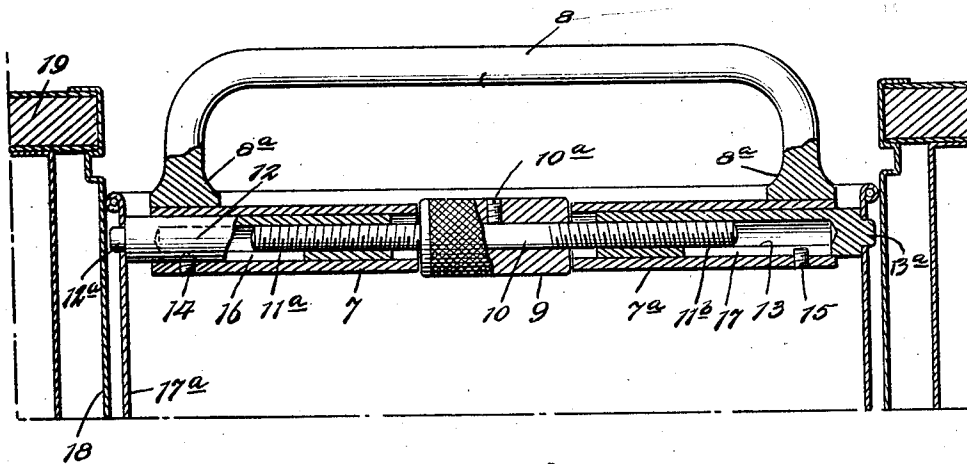


Fig. 1.

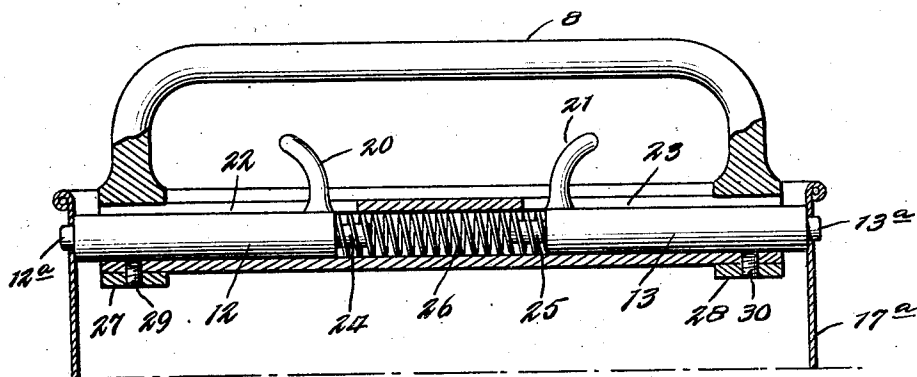


Fig. 2.

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ADOLPH MEYER, OF WOODHAVEN, NEW YORK, ASSIGNOR OF ONE-THIRD TO HARRY A. ELFLEIN AND ONE-THIRD TO FREDERICK C. ELFLEIN, BOTH OF WOODHAVEN, NEW YORK.

LIFTING AND CARRYING DEVICE.

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The present invention relates generally to handles for receptacles and is more especially directed to the provision of a detachable handle or bail for containers and the like, which, owing to the conditions under which they are used, do not embody handles or other forms of gripping surfaces in their construction.

While my invention has a wide range of applicability, I shall describe it, and the method of utilizing the same, in connection with handling containers for ice cream and similar receptacles. However, I would have it understood that this is not to be construed as a limitation of my invention, which, as will be manifest from this disclosure, may be used in connection with vessels of different types and for various purposes. For example, containers as used in some types of fireless cookers, or tanks in cooling systems, which are generally without grips or bails, may be readily handled by means of my invention, as well as other devices to which my invention may be conveniently applied.

As is well known, ice cream cans or containers are usually stored within a cabinet containing a refrigerant or within which a refrigerant is circulated, the cans being set or supported in cylindrical sleeves of a diameter which provides a very small clearance between the inner walls of the sleeves and the outer walls of the cans positioned therein, this being necessary to obtain the most satisfactory results from the refrigerant. This small tolerance does not admit of locating a handle or other gripping surface upon the can and consequently some means must be provided for inserting the can in the sleeve or removing it therefrom. Heretofore, it has been the practice to perforate the wall of the can at diametrically opposite points adjacent its mouth, these holes being designed to receive the ends of hooks held in the hand of the one manipulating the cans. The cans, when filled, are bulky and heavy and the insecure gripping surface afforded by the tips or nibs of the hooks in engagement with the thin metal of the wall of the can has been productive of many accidents induced generally by the wall of the can yielding under pressure, so that the hook ends become disengaged therefrom. A greater number of accidents result in the removal of the cans from their sleeves, owing to the fact that a film of ice forms between the abutting surfaces and the

cans are virtually frozen to the sleeves. Manifestly, it must be possible to exert a sufficient pull in a substantially vertical plane, to break this ice lock, and, many times, in the effort to do so, the hooks become dislodged from the can openings, by the yielding of the wall of the can, or by the bending of the hooks, or the manner in which the hooks are manipulated. This possibility will be readily apparent from the fact that the small clearance between the walls of the can and its sleeve, together with the small openings in the can, do not admit of the use of a deeply curved hook, and, at best, the entrance of the hook in the can openings is limited to about one-eighth of an inch or less, so that the supporting or bearing surface is practically negligible. As the attendant usually must assume a stance upon the top of the cabinet, in order to exert a vertical pull, to separate the can from the sleeve, it will be evident that the disengagement of the hook from the can under his effort, will have disastrous results. In fact, in many cases, serious personal injuries have followed the sudden releasing of the hook, while property damage is common.

From the foregoing, it will be manifest that the present methods of handling containers of the types specified are extremely unsatisfactory and the general object of the present invention is to provide a means for handling ice cream cans and similar types of containers or the like, which will eliminate or overcome the disadvantages which are inherent to such existing methods.

A further object of my invention is to provide a simple and economical as well as durable medium, whereby ice cream cans and other containers of the kind, may be expeditiously and safely handled with less effort than is now required.

My invention also comprehends the provision of a means for attaining the aforesaid objects which is designed and adapted for use with many existing types of containers, and especially ice cream cans, without alteration thereof, and which may also be satisfactorily employed in conjunction with other receptacles whose walls may be perforated in the manner of ice cream cans.

More specifically, my invention is directed to the provision of a portable or detachable handle or bail which may be positively or spring-actuated into engagement with the

wall of the container or the like, so as to embody all of the advantages of a permanently attached handle, my invention affording a substantial and convenient gripping surface, whereby an ice cream can, for instance, may be readily manipulated within the sleeve to separate it therefrom, and removed without distorting the wall of the can or otherwise affecting the usefulness of the same or of the sleeve.

Other objects and advantages flowing from the practicing of my invention will present themselves as the description proceeds, and I would have it clearly understood that I reserve unto myself all rights to the full range of equivalents, both in structure and in use, to which I may be entitled under my invention in its broadest aspect.

For the purposes of this disclosure, I have elected to illustrate and describe certain preferred embodiments of my invention. My invention may take other forms however, without departing from the spirit and scope thereof, as defined by the appended claims.

In the accompanying drawings:

Figure 1 is a view, partly in section, of a preferred embodiment of my invention, wherein the can engaging means are positively actuated into and out of engaging position.

Figure 2 is a view, similar to Figure 1, of a modified form of my invention, in which the can engaging elements are spring-actuated in one direction.

Referring now to the drawings in detail, in which like characters of reference are employed to designate similar parts in the several views, and more particularly to the structure shown in Figure 1, the body or bearing-portion of the device is composed of two equal lengths of metal tubing 7 and 7^a which are connected adjacent their outer ends by a preferably tubular handle or grip 8, which may be of the configuration shown, or of any other suitable shape. The ends of the grip or handle 8 may be extruded and shaped to provide supporting surfaces generally conforming to the contour of the bearing-portion, as indicated at 8^a, the meeting parts being united, as by welding. Of course, in lieu of employing tubing for the formation of the handle or grip 8, it may be cast in the desired shape and suitably joined to the body portion, or the latter and the handle may be cast as a unit.

As will be observed, the inner opposed ends of the tubing 7 and 7^a are spaced to provide for the reception of a barrel 9 which is mounted upon a shaft 10 and locked thereto by means of a set screw 10^a.

The ends of said shaft extend on each side of said barrel and are threaded, as indicated at 11^a and 11^b with right and left threads which are adapted to mesh with similar threads in the bores of the respective reciprocal elements or plungers 12 and 13. These elements or plungers are cylindrical, to conform to the bearing surfaces afforded by the inner walls of the tubing 7 and 7^a, the outer ends of said members terminating in reduced portions or lugs 12^a and 13^a which are sized to enter the usual openings provided in the walls of the receptacles with which my invention is employed, as hereinafter described.

From the foregoing, it will be evident that as the barrel 9, which is preferably knurled as shown, is rotated in one or the other direction, the shaft, similarly rotating within the elements or plungers 12 and 13, will urge them in opposite directions, rotary movement of said members or elements, in response to the torque created by the meshing of the threads being prevented by the set screws 14 and 15 which ride within the slots 16 and 17 extending longitudinally of said elements. As is obvious, these screws also function as stops which engage the inner ends of the slots and limit the outward movement of said members.

In use, the barrel 9 is rotated to withdraw the elements 12 and 13 sufficiently to permit their lugs to be readily aligned with the openings in the can, the rotation of the barrel in the opposite direction expanding said elements so that the lugs will enter said openings with their shoulders abutting upon the inner wall of the receptacle. Thus, the wall is rigidly braced diametrically and the respective lugs are securely restrained against displacement, irrespective of the direction of the pull upon the handle 8. The relative positions of the can 17, its sleeve 18 and the top of the cabinet 19, are clearly shown in Figure 1.

In the modification shown in Figure 2, the plungers 12 and 13 are formed with triggers 20 and 21, projecting through the slots 22 and 23 in the wall of the tubular body-portion of the device, the opposed ends of said plungers being shouldered, as at 24 and 25, to provide supports or seats for the expansion spring 26. It will be apparent that the plungers may be refracted against the tension of the spring 26 by means of the triggers, the release of the latter permitting the spring to expel the plungers into engagement with the can wall. In this form of my invention, the ends of the handle or grip 8 may be in the form of collars 27 and 28, which, when located on the body-portion of the device and fixed thereto by the set screws 29 and 30, also function as stops which close the slots 22 and 23 and limit the expanding movement of the plungers.

As will be manifest from the description of my invention, a positive and strong interlock between the plungers 12 and 13 and the wall of the receptacle is effected, which will be maintained regardless of the leverage applied to the handle, so that the danger of the latter becoming detached from the container, with

the results heretofore mentioned, is entirely eliminated.

The screw-actuated plungers are desirable where strong resistance is likely to be encountered, while the structure shown in Figure 2 is preferably designed for handling relatively light loads, although with a spring of the proper tension, it may be satisfactorily used for any purpose to which my invention may be applied.

I claim:

1. A detachable handle for receptacles and the like having openings located in the walls thereof, comprising a support, a hand grip associated therewith, elements embodying surfaces adapted to enter said openings mounted therein, a shaft having threaded engagement with each of said elements and means for rotating said shaft to simultaneously move said elements in opposite directions.

2. A detachable handle for receptacles having openings located in their walls, comprising a support, a hand grip associated therewith, elements embodying surfaces adapted to enter the openings in the wall of a receptacle mounted for reciprocable movement within said support, a shaft having threaded engagement with each of said elements, a member fixed to said shaft intermediate its ends whereby said shaft may be manually rotated to move said elements in opposite directions to bring said surfaces into or out of engagement with the openings in the wall of a receptacle and means for rendering said elements non-rotatable relatively to said shaft.

3. A detachable grip or handle for ice cream cans having holes provided in their walls, comprising a base, a hand grip associated therewith, elements supported from said base formed with surfaces adapted to enter the openings in the wall of a can, a member movable in either of two directions for simultaneously actuating said elements in opposite directions to engage said surfaces with and disengage them from the openings in the wall of the can and means for limiting the movement of said elements with respect to said base.

4. A detachable handle for a receptacle,

having diametrically opposite apertures in the wall thereof, adjacent its open end, comprising a tubular support having a handle connected thereto, a pair of cylindrical members mounted within said support in bearing contact with the wall thereof, each of said cylindrical members having an integral lug at its outer end formed to enter an aperture of the receptacle, means located between said cylindrical members and manually controllable for simultaneously moving said cylindrical members in opposite directions and means associated with said support for engaging said cylindrical members to limit the movement thereof.

5. A detachable handle for a receptacle having apertures provided in its wall adjacent one end, comprising a tubular support having a handle fixed thereto, a pair of cylindrical members located within said support and in bearing contact with the wall thereof, each of said cylindrical members having an integral lug at its outer end formed to enter a receptacle aperture, a shaft in threaded engagement with each of said members, an element mounted on said shaft for rotation therewith, whereby said members may be positively actuated in opposite directions into and out of engagement with the wall of a receptacle, and means for limiting the movement of said members.

6. A detachable handle for a receptacle embodying apertures in its wall adjacent one end, comprising a tubular member, a hand grip spaced therefrom and connected thereto at its ends, a pair of slotted cylindrical members having bearings in said tubular member, each of said cylindrical members terminating in a lug of reduced diameter adapted to enter an aperture in the receptacle, means whereby said cylindrical members may be moved in opposite directions within said tubular member to expel and retract said lugs for engagement with and disengagement from the apertures of the receptacle and stops carried by said tubular member projecting within the slots of said cylindrical members for limiting the movement of the latter in either direction.

ADOLPH MEYER.