Aug. 11, 1925. 1,548,820

T. BRAY

CAN CONSTRUCTION

Filed Dec. 5, 1921

Fig. 1

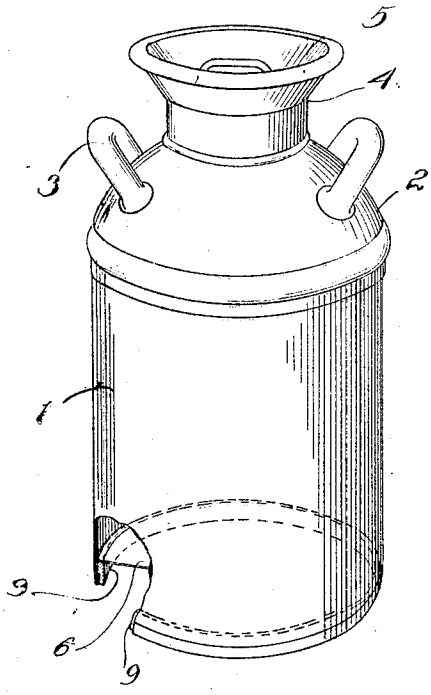


Fig. 2

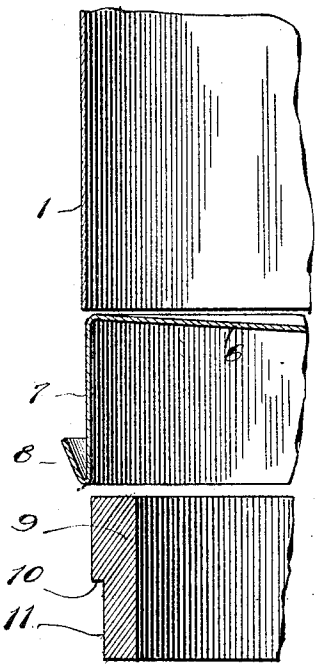


Fig. 3

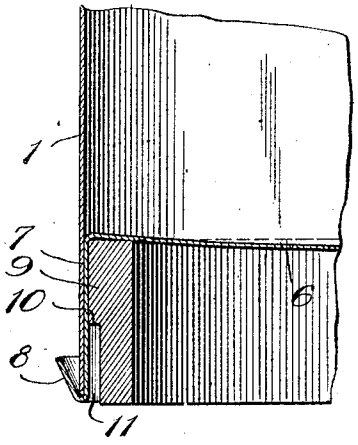
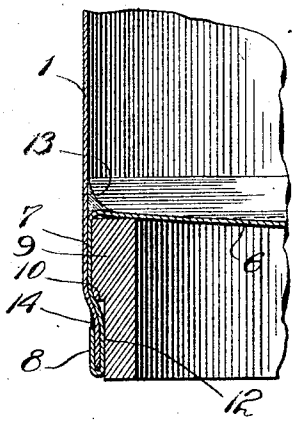


Fig. 4



Witness:
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UNITED STATES PATENT OFFICE.

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CAN CONSTRUCTION.

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To all whom it may concern:

Be it known that I, THOMAS BRAY, a citizen of the United States, residing at Arlington Heights, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Can Construction, of which the following is a specification.

The invention relates to cans of the type employed in the handling and shipping of liquids, such as milk, and more particularly relates to an improved end or bottom construction for such cans.

Cans of the type mentioned are subjected to extreme wear and rough handling under the ordinary conditions of transportation. Strength and durability, within practicable limits of weight, are prime essentials in their construction for the prevention of loss of their contents from opened seams or broken joints.

When employed in the handling of liquids intended for food, such as milk, the sanitary condition of the cans becomes very important. Joints may be sprung, perhaps not enough to permit noticeable leakage, but sufficient to form recesses which may not be cleansed by the ordinary cleaning and sterilizing processes, thus promoting the development of bacteria and the contamination of subsequent shipments in the damaged cans. Jammed corners may crumple the walls of the can with similar results.

The bottom ends of the cans obviously receive the most severe shocks consequent upon their being dropped in moving them in and out of conveyances. It has in part been the practice to construct reinforced rims about the bottoms of the cans, as by overlapping the joints between the extended bottom and side walls. Such rims alone rapidly wear through by abrasion, permitting separation of the walls, and are of insufficient strength to sustain severe shocks.

Hoops have been placed without and also within the extended rim portions of the joined walls and secured thereto by rivets. It will be apparent that in such construction the rivets tend to shear from blows upon the hoop, and that the walls are laterally secured only at the vicinity of the rivets.

Any end rim structure which includes laterally projecting portions at the bottom of the can, such as outer hoops, outwardly overlapped walls, or projecting fastening devices, is objectionable in cans used for packing in ice, as ice cream cans. The ice usually forms a solid mass around the body of the can, and the lateral projections about its bottom end prevent its ready withdrawal from the ice pack.

It is the principal object of this invention to provide a can having an extended end or bottom rim portion within which a reinforcing hoop of novel structure is rigidly locked at all points without the use of rivets or other extraneous fastening means, and capable of sustaining extreme shocks without distortion of the rim or walls of the can.

Another object is to provide a simple inexpensive method of constructing a rigidly interlocked rim and hoop structure for such cans.

A further object is to provide a reinforced rim structure of great strength and durability positioned wholly within the extended lateral contour of the can body.

Other objects and advantages will be apparent in the following description of a preferred embodiment of my invention, which I have illustrated in the accompanying drawings, selecting therefor a milk can of conventional type.

Fig. 1 of the drawings illustrates the application of my invention in the bottom end of a milk can, a portion of the bottom being broken away to show the rim structure in section.

Figs. 2, 3 and 4 illustrate in cross section the form and the successive steps of constructing the rim structure.

In the drawings, the numeral 1 indicates the body portion of a milk can, preferably cylindrical in form and constructed of sheet metal. A breast portion 2 supports a pair of handles 3 and a neck 4 forming the can opening which accommodates a cover 5.

The lower end of the can is closed by a bottom wall 6, spaced inwardly from the end of the can. The bottom wall 6 is preferably made of sheet metal, and shaped with a peripheral flange 7 adapted to fit snugly within the body of the can and extending downwardly along the inner surface of the end portion of the body wall. An extended end section 8 of the flange preferably is turned back over the end of the side wall and pressed into close contact therewith, thus forming a rigid joint between the side and bottom walls.

The upper portion of the bottom rim so formed is of double thickness immediately below the bottom wall, and of three thicknesses in the lower portion.

A reinforcing ring or hoop 9, snugly fitted within the rim and in contact along its upper edge with the bottom wall 6, is formed with the lower portion of its outer periphery substantially reduced in diameter. As illustrated herein, the shoulder 10 defines the upper wall of a circumferential recess or channel 11 extending to the lower edge of the hoop, the latter extending slightly below the edge of the rim and forming the contacting base of the can.

The portion of the rim overlying the channel is pressed inwardly in close contact with the surface of the channelled portion of the hoop, as shown at 12, the upset portion of the rim being forced into rigid interlocking relation with the shoulder 10 continuously around the reinforcing hoop.

It will here be apparent that the hoop is rigidly and permanently secured in its position within the bottom rim, forming therewith a substantially unitary structure throughout. Strain at any point upon the hoop will be widely distributed over the rim and bottom wall structure due to their continuously interlocked relation, and the danger of crumpling of the wall, shearing of rivets or breaking of the joint by corner blows is practically obviated.

While the joint thus formed between the side and bottom walls of the can is liquid tight, particularly after such minute crevices as might exist have been filled with molten tin in the tinning process to which such cans are usually subjected, it may be nevertheless desirable to fill the margins of the joint with solder, as indicated at 13 on the inside of the can, and at 14 where the upturned portion of the flange terminates. The placement of solder as illustrated assures the smooth rounded contour of the finished inner surface of the can, thus facilitating thorough cleansing, and the solder also adds to the rigidity of the rim structure.

In the construction of the can, according to the principles of my invention, the body portion or cylinder 1 may be made in any suitable manner. The flange 7 preferably is formed with the bottom wall 6 from a single piece of metal, by an appropriate drawing or swaging process, the section 8 being turned back upon the flange somewhat short of its final position. The hoop 9, preferably a continuous band of steel, may be machined or struck into the shape described.

The separately formed parts are then assembled by pressing the hoop within the snugly fitting flange 7 until the upper edge of the thicker portion of the hoop firmly abuts the bottom 6 at all points, and similarly pressing the bottom member with its flange 7 into the cylinder 1 until the end of the latter is firmly seated in the angle formed by the flange and its portion 8.

Thereafter the assembled parts are suitably processed by a turning or pressure rolling operation to close the portion 8 upon the side wall 1 and force the lower portion of the rim firmly into continuous contact with the channelled portion of the hoop in interlocking relation with the shoulder 10, thereby permanently securing the several parts in rigid unitary relation throughout.

I claim as my invention:

A can having, in combination, a cylindrical body portion, a bottom wall positioned within said body portion having a downwardly extending annular flange lying against said body portion, the end section of said flange being outwardly reverted and overlapping the end section of said body portion, an annular hoop positioned in abutment with said end wall and extending downwardly beyond the reverted section of said flange, said hoop being formed with a cylindrical upper portion snugly fitted within said flange and with a cylindrical lower terminal portion of substantially less external diameter forming a shoulder between said portions, the reverted end section of said flange and the end of said body portion thereby enclosed being inset against the lower cylindrical portion of said hoop and in rigid engagement with said shoulder, the inset sections of said flange and body portion being finally positioned with their outer periphery within a continuation of the line of the outer periphery of the main body portion of said can.

In testimony whereof I have hereunto set my hand.

THOMAS BRAY.