

Aug. 1, 1944.

W. W. McCULLOCH

2,355,004

BOTTLE HANDLING DEVICE

Filed June 13, 1942

2 Sheets-Sheet 1

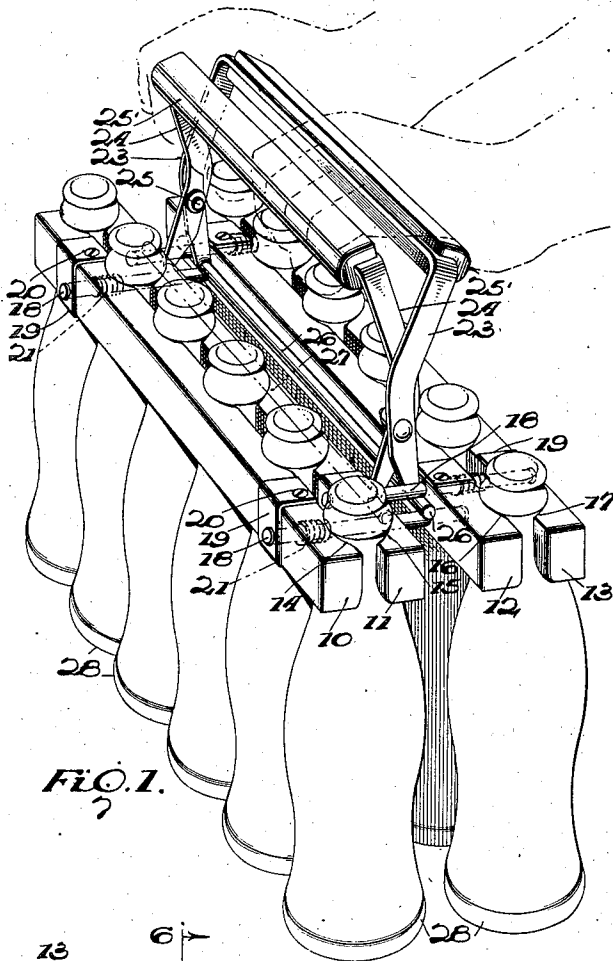


FIG. 1.

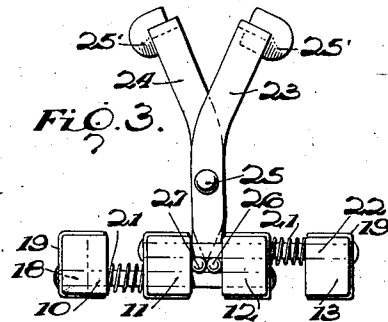


FIG. 3.

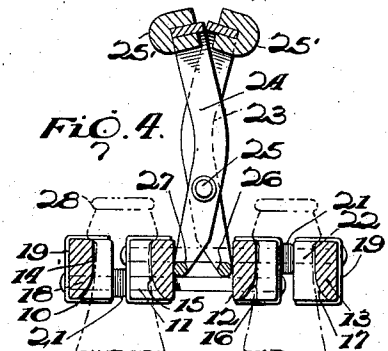


FIG. 4.

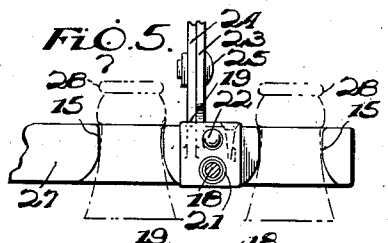


FIG. 5.

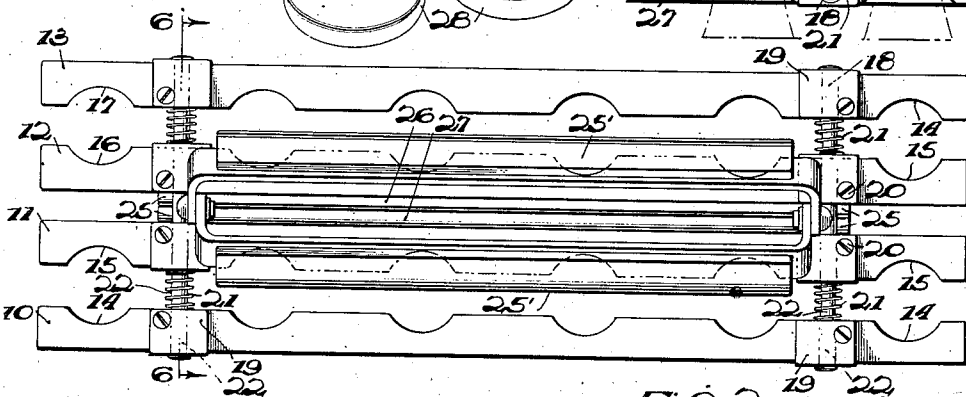


FIG. 2.

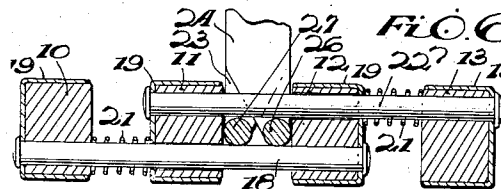


FIG. 6.

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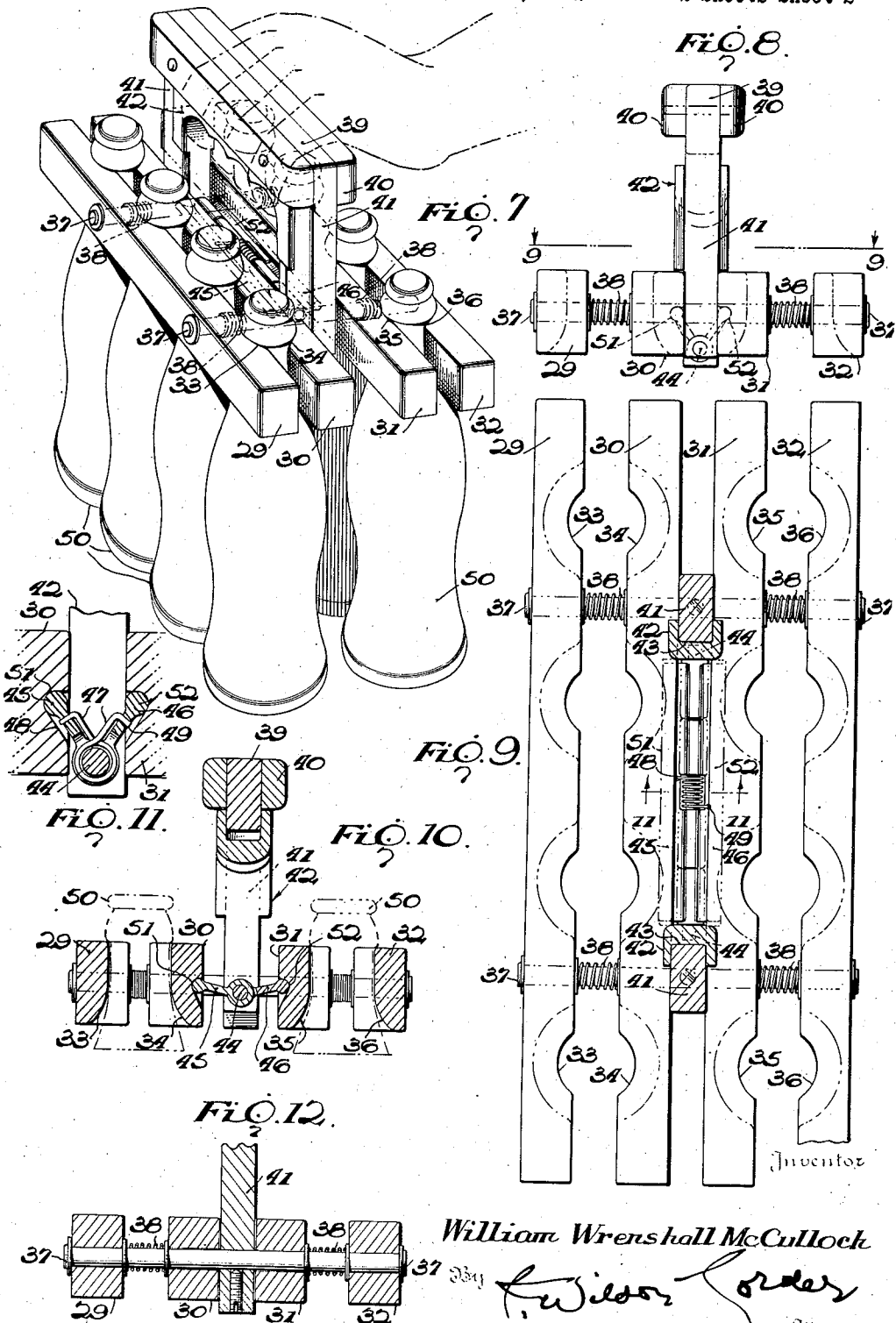
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2 Sheets-Sheet 2



UNITED STATES PATENT OFFICE

2,355,004

BOTTLE HANDLING DEVICE

William Wrenshall McCulloch, Baltimore, Md.

Application June 13, 1942; Serial No. 446,880

2 Claims. (Cl. 294—87)

This invention relates to the handling of bottles and similar containers, and has specific application in the beverage industry.

It is the usual custom for bottlers of soft drinks, beer, and other potable beverages to merchandise same in glass containers which are susceptible of being used a number of times, such containers usually being picked up by salesmen or drivers as they deliver new stock, and returned to the plant in wooden cases—sometimes called shells. At the plant, said bottles are removed from their cases, straws and other foreign material cleaned from the interior and exterior thereof; and the bottles are then "fed" to or placed in devices known as soakers, where they are subjected to a sterilizing process usually involving the use of repeated sprays of water, and exposure to a caustic, chlorine, or other suitable germicidal solution, after which they are washed with clean water and removed from the soaker, they then being prepared to again be filled with a beverage intended for human consumption.

It is apparent that in modern bottling plants, turning out hundreds of thousands of units each day, the speed at which many containers must thus be sterilized is a factor that must be continuously reckoned with, and so-called "soaker feeders" often find themselves taxed to the utmost in handling incoming bottles and keeping a suitable flow of clean containers moving to the filling machines. A dexterous feeder uses both of his hands in rapidly handling six bottles at a time, but even this is often not sufficient, and of course there is considerable strain to the operator, and potential damage to his hands in this proceeding.

An object of this invention is to provide a bottle handling device whereby a soaker feeder may handle a plurality of bottles in a single movement, and without giving each container individual attention as is required in the case of completely manual feeding.

Another object is to provide a device of the foregoing type which is simple in operation.

A still further object is to provide a feeder which is economical to construct and which has a minimum of moving parts to get out of order.

Another object is to provide efficiency in operation of such a device.

These and other objects made apparent throughout the further progress of this specification are accomplished by means of my improved bottle handling device, a full and complete understanding of which is facilitated by reference to the drawings herein, in which

Fig. 1 is a view in perspective of my invention in operation,

Fig. 2 is an enlarged top plan view of the structure illustrated in Fig. 1, the bottles and operator's hands not appearing,

Fig. 3 is an end view of the structure shown in Fig. 2,

Fig. 4 is a view similar to Fig. 3 in which the device has been actuated to grasp the necks of bottles,

Fig. 5 is a fragmentary side view illustrating the specific mechanism whereby my bottle handling device is operated; and

Fig. 6 is an enlarged horizontal sectional view taken along the line 6—6 of Fig. 2, and further clarifying the structure of said operating mechanism.

Fig. 7 is a view in perspective of a modified form of my invention.

Fig. 8 is an enlarged end view of the structure shown in Fig. 7.

Fig. 9 is a top view of the device shown in Fig. 8, same being taken along the line 9—9 of said figure.

Fig. 10 is an enlarged vertical cross sectional view, showing in detail certain elements of this modification of my invention.

Fig. 11 is a further enlarged vertical cross sectional view taken along the line 11—11 of Fig. 9, looking in the direction of the arrows; and

Fig. 12 is an enlarged fragmentary vertical cross sectional view, illustrating certain features of the instant structure.

Referring now to the drawings, Fig. 1:

It will be apparent that the instant device consists of four bars, 10, 11, 12 and 13, fabricated from any suitable material, and having a series of curved indentations therein, such as 14, 15, 16 and 17, said indentations being oppositely disposed, and formed on a radius corresponding to or slightly larger than the neck of a conventional bottle intended to be handled. Said notches or indentations are likewise preferably spaced in a manner corresponding to the usual compartments of cases used in carrying beverages, this spacing usually corresponding to the maximum over-all thickness of the container plus what additional space may be consumed by the partition separating such from the next adjacent compartment in the shell.

It will be noted that bars 10 and 12 are rigidly mounted together through the agency of rods 18 which are fixedly anchored in retaining and reinforcing U-shaped metal straps 19, which in turn are associated with their respective bars as

by means of screws 20. Springs 21 normally keep said bars spaced apart, see for example Fig. 3.

Bars 11 and 13 are mounted in the same manner as are bars 10 and 12, it being apparent, however, that rod 22 in passing through bar 12, is on a higher plane than rod 18 which similarly passes through bar 11 in reaching its anchorage on the opposite side of 12.

A pair of operating and handle members 23 and 24 are pivoted as at 25, so that upon pressure being exerted on cushioning members 25, so as to bring the tops of said handles together, the lower portions thereof will be spread outwardly. Said lower portions may be connected by a pair of horizontally extending reinforcing bars 26 and 27; and as said members are thus pushed or forced apart, they in turn cause bars 10 and 11, and 12 and 13, to be brought together, said bars sliding easily on rods 18 and 22, the resistance of springs 21 being overcome in such movement.

From the foregoing it is believed that the operation of my device will be obvious to those skilled in the art, it being apparent that it is only necessary to place the feeder, in its normal or open state, over the necks of a series of bottles such as 28, and then bring handles 23 and 24 together, to cause bars 10 et al., in conjunction with notches 14, 15, 16 and 17, to securely and firmly grasp the necks of said containers, whereupon it is possible for an operator to handle a multiplicity of receptacles, as for example in feeding a soaker, without giving each individual attention. In the drawings twelve bottles are illustrated thus being handled, but a greater, or a lesser, number of containers is obviously susceptible to like manipulation.

A modification of the instant device is shown in Figs. 7, 8, 9, 10, 11 and 12, in which a series of bars 29, 30, 31 and 32, having oppositely disposed notches or indentations 33, 34, 35 and 36 are slideably mounted upon transverse rods 37, said bars being normally held apart through the action of springs 38.

A handle member 39, having holding elements 40, is fixedly mounted on rods 37 through downwardly extending members 41.

An actuating member 42 slideably engages 41 on its inner sides, through the agency of a track-like structure 43, formed by oppositely extending segments on said element 42, and a rod 44 is anchored in the two lower ends of 42. A plurality of hinge-like elements 45 and 46 are rotatably mounted on rod 44, and are held in a normally vertical position through spring 47, opposite ends of which engage elements 45 and 46, as at 48 and 49, the resulting structure representing in me-

chanics what is known as a "toggle"; principles of lever inherent in which are well known to those skilled in the art.

In operation it will be apparent that upon placing the device over the necks of a series of bottles 50 and moving element 42 upwardly, that elements 45 and 46, nesting in indentations 51 and 52 (Fig. 11) of bars 30 and 31, will be forced outwardly, and in so moving, will spread or separate said bars in such a manner as to bring them securely into engagement with the necks of bottles 50, whereupon the containers may be simultaneously handled in any desired manner. Once the toggle has thus been actuated, a firm grasp is retained upon the bottles with little effort on the part of the operator, the mechanical principle present insuring this result.

From the foregoing it will be apparent that I have shown and described a labor-saving device and a modification thereof, which is simple to operate, economical to manufacture, and thoroughly desirable for its intended purpose. That the capacity of a worker feeding a soaker is approximately doubled in employing my invention. That said structure is substantially "fool proof," and represents a material contribution to the art.

It will be further apparent that while I have described a preferred form of my invention, and a modification thereof, that I do not intend to limit myself thereby, but contemplate that the appended claims shall be given a construction, interpretation, and scope, fairly in keeping with my contribution.

I claim:

1. In a device of the character described, a plurality of bars, oppositely disposed indentations therein, adjacent pairs of said bars being slideably mounted on transverse rods, spring means normally holding said bars in spaced relationship and expansible handle means for forcing said bars outwardly along said rods whereby to engage the necks of bottles adjacent said indentations.

2. In a device of the character described, a plurality of bars having oppositely disposed indentations therein, transverse rods passed through said bars, said rods holding alternate bars in fixed relationship to each other and other alternate bars being slideably mounted on said rods, spring means normally holding said bars apart, means for forcing said bars together whereby to engage necks of bottles, and carrying means associated with said rods and bars whereby bottles thus engaged may be transported adjacent said indentations.

WILLIAM WRENSHALL McCULLOCH.