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2,544,501 3/1951 Johnson 221/279 X

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[54] **BOTTLE STORAGE AND DISPENSING UNIT**
8 Claims, 5 Drawing Figs.

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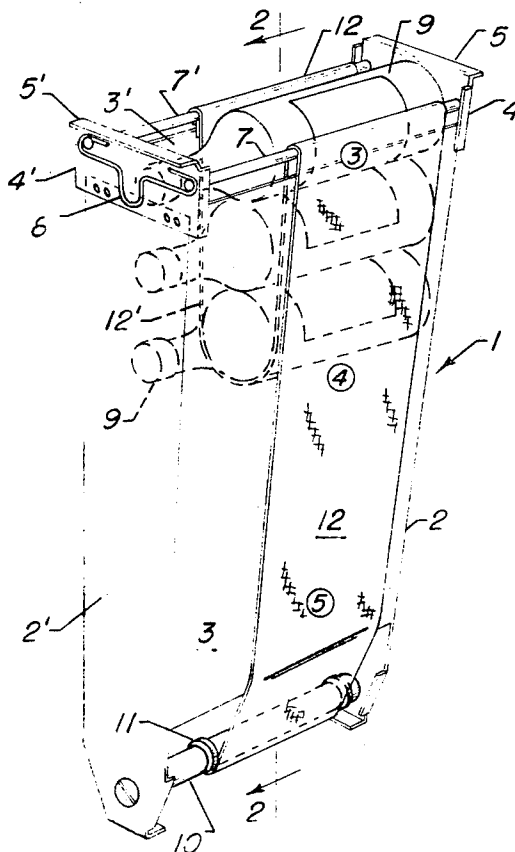
[50] Field of Search. 221/303,
307, 260, 279

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ABSTRACT: A bottle storage and dispensing unit utilizing a frame adapted to be suspended from below a cart or counter work surface. The frame in turn holds a looped belt which is supported over spaced upper roller surfaces and attaches at one end to a lower positioned spring loaded roller so as to provide a means for holding and counterbalancing the weight of a plurality of bottles stacked horizontally therein. A preferred construction provides that the upper roller supports for the belt will be spring biased in a lateral direction to hold the top bottle, as well as the stack, from being lifted up and out of the frame; however, the supports are such that they can be spread apart laterally by a lifter means to permit the bottles to be removed one at a time. Also, a preferred lifter means construction has a dual function in being designed to be lockable to prevent bottle removal as well as being usable to assist in lifting an uppermost bottle.



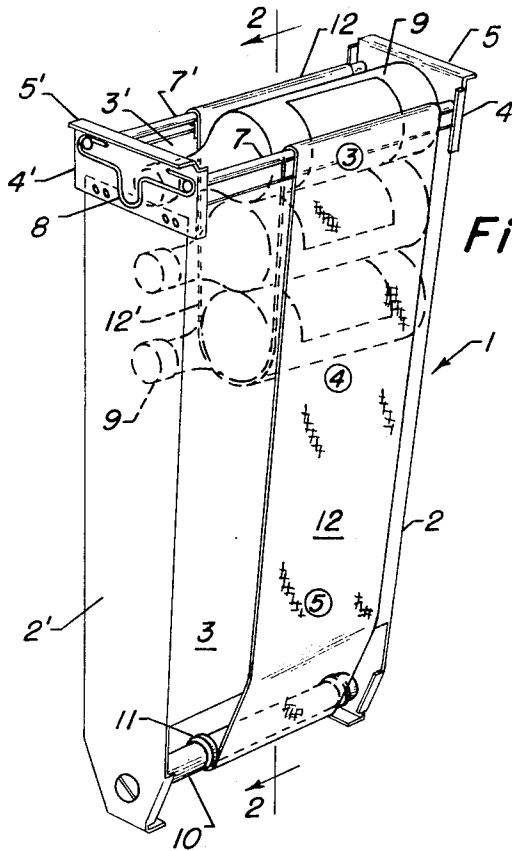


Figure 1

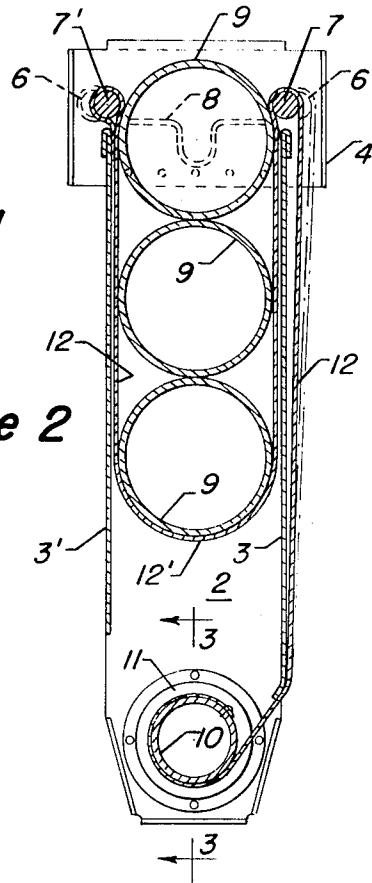


Figure 2

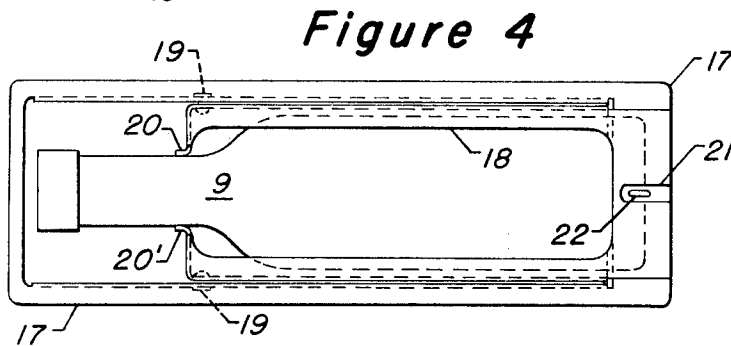


Figure 4

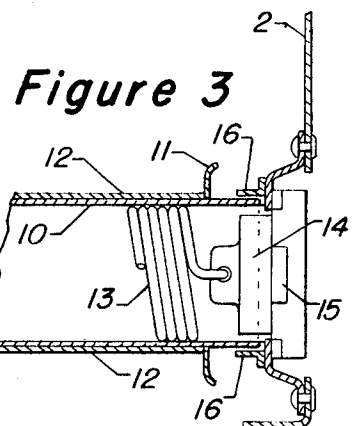


Figure 3

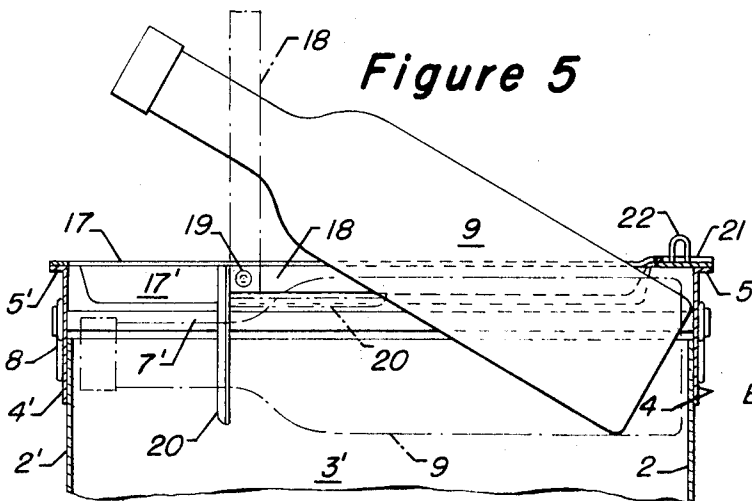


Figure 5

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BOTTLE STORAGE AND DISPENSING UNIT

The present invention relates to an improved form of elongated container storage and dispensing unit. More particularly, there is provided a storage and dispensing apparatus which is adapted to hold a plurality of bottles below a counter, serving cart top, or other work surface, in a manner whereby one bottle at a time may be conveniently lifted up from below the work surface.

In lunch counter, bar and airline operations it is especially desirable to provide convenience and compactness with respect to drink dispensing duties for the serving personnel. For example, in airplanes it is of advantage to use small serving carts which can move up and down an aisle and, of course, hold as much food and drink supplies as possible.

Thus, it may be considered a principal object of the present invention to provide a novel and convenient form of storing and dispensing device for bottles which can be entirely suspended below the top of a serving cart or other work surface.

It is a further object of the invention to provide a special top construction and bottle stop means which serves to hold the bottles in place against a spring-loaded bottle support means, as well as provide a movable bottle remover means to assist in lifting out the top bottle of the stack.

Although the present invention is of particular advantage to bottle storage and dispensing, it is noted that it is also usable for elongated cans and/or tubular packages.

In a broad aspect, the present invention provides for a container storage and dispensing unit particularly adapted for the handling of bottles stacked in a horizontal positioning below a work surface, which comprises in combination, a belt supporting frame adapted to depend vertically from a work surface and having a first belt supporting rod member connecting to and extending along one upper side portion of said frame and a second belt supporting rod member connecting to and extending parallel to the first said belt supporting member along the opposing upper portion thereof in a manner whereby containers may be lifted and removed from between the rod members, a spring-biased rotatable belt holding spool connecting to and positioned at the lower portion of said frame in a longitudinal manner parallel to said belt supporting rod members, an extended container supporting belt having one end connected to said rotatable belt spool and the opposing end connected to first said supporting rod, while intermediately such rod and belt spool are looped over said second belt supporting rod member and downwardly in said frame between said rod members whereby a plurality of stacked containers may be held therein below the work surface, and a movable container lifter means connecting at the top of said frame effecting at least the partial movement of a top container, whereby an uppermost container is removable from the stack thereof in said frame.

A preferred arrangement utilizes a spring rod roller to in turn hold the rotatable spool for the belt which will have spring adjustment means. In other words, a suitable winding arrangement may be used for a coil spring within the roller or tubular portion of the rotatable belt spool so that there may be proper tensioning or adjusting to accommodate a varying number of bottles or containers to be held in a stacked arrangement within the supporting belt. Also, the rotatable belt spool on a hollow tubular means around the spring will generally have suitable spaced flange or guide means so as to keep the wide supporting belt in a proper location on the spool.

A simplified and preferred design of the dispensing device also incorporates the positioning of the upper spaced apart rod members in lateral slot arrangements on the framing and spring biasing connecting between the two spaced belt supporting rod members such that they are normally urged to a spaced apart distance which will hold the uppermost bottle or container of the stack thereof against an upward movement or

lift being caused by the supporting belt from the lower spring-loaded rotatable belt spool. This arrangement thus requires that suitable access means or movable lifter means be provided so that an uppermost bottle or container may be pulled from between the spring-biased spaced apart upper rod members.

A pushbutton operated movable member may well be used at the top of the storage and dispensing device in lieu of spring-biased laterally movable belt supporting rod members; however, the aforesaid described biasing of these members effects a simplified manner of holding the stack of containers in the stored position within the framing of the unit. One preferred design for the upper portion of the present dispensing unit makes use of a partially open removable cover plate member which is pivotally connected to the top of the dispensing unit, or to other framing directly above the unit, such that the containers or bottles may be readily locked into their stored positioning below the top of the work surface. At the same time, the movable plate member may well serve a dual function by having one end provided with one or more projecting members that can reach under a lower surface or portion of an uppermost bottle to assist in the dislodgement of such bottle upwardly and between the spring-biased holding means, whereby the bottle may be manually removed by an operator's hand.

Reference to the accompanying drawing and the following description thereof will serve to illustrate one of the preferred embodiments of the present improved storage and dispensing unit, as well as point out additional advantageous features which are provided in the construction of the unit or which may be combined therewith to enhance its operation.

DESCRIPTION OF THE DRAWING

FIG. 1 of the drawing is an isometric type pictorial view showing the assembly of one embodiment of a bottle storage-dispensing unit in accordance with the present invention, except for the deletion of the top cover and a bottle lifter means.

FIG. 2 of the drawing is a sectional elevational view through the unit, as indicated by the line 2-2 in FIG. 1.

FIG. 3 is a partial sectional view through the end portion of the lower spring-loaded rotatable belt spool, as indicated by line 3-3 in FIG. 2 of the drawing.

FIG. 4 shows a plan view for an upper escutcheon plate and a pivoted bottle lifter-lock member.

FIG. 5 illustrates in a partial sectional elevational view the operation of the upper pivoted bottle lifter-lock plate in assisting the removal of an uppermost bottle from the stack being maintained in the belt loop of the storage-dispensing unit.

Referring now particularly to FIGS. 1, 2 and 3 of the drawing, there is shown a storage-dispensing unit having a generally vertically elongated frame 1 which has end plate sections 2 and 2' and side plate portions 3 and 3'. At the upper end portions of the end plate sections 2 and 2' are transverse end support plates 4 and 4' which have flanged top sections 5 and 5' that may be used to support the entire frame 1 within the opening of a suitable work surface (not shown). The upper end plates 4 and 4' are also provided with suitable transverse slot means 6 which will serve to hold the ends of longitudinally extending rod members 7 and 7'. The latter, in this embodiment, have their ends extend through the openings 6 and on beyond the outer face portions of end plates 4 and 4' such that they may be encompassed by spring members 8. Thus, the entire lengths of rods 7 and 7' will be urged toward one another to the extent permitted by the slot means 6, to in turn provide a spaced apart distance that will be slightly less than the diameter of the stacked bottles or containers being stored in the dispensing unit. As best shown in FIG. 2 of the drawing, it will be noted that the spaced rod members 7 and 7' are urged to a slight degree over the upper portion of the uppermost bottle 9, so as to preclude the upward movement of such topmost stored bottle 9, or of the stack of bottles.

At the lower end portion of the frame unit 1, between the lower portions of end plate members 2 and 2', there is provided the connection and positioning of a rotatable belt spool 10 which has guide flange 11 to, in turn, accommodate an elongated belt used as bottle supporting member 12. As shown in both FIGS. 1 and 2, the belt 12 has one end connected to the lower spool 10, which is spring loaded, and the other end connected to an uppermost belt supporting rod member 7'. Intermediately, the belt loops down into an internal storage zone with a catenary portion 12' and thence upwardly and over the other upper belt support rod member 7 to carry down along the outside of the unit. Thus, it will be seen that there is a takeup or payout of the length of the belt 12 around the lower roller 10 depending upon whether bottles are being removed from internal loop section 12' or being replaced for a subsequent dispensing operation. The upper spaced apart belt supporting rod members 7 and 7' may be nonrotating members with smooth surfaces so as to permit the back and forth movement of the belt with a minimum of friction. Alternately, at least the upper support rod member 7 will be of a rotatable design and construction such that the movement of belt member 12 over the roller will be made as friction-free as possible. Various methods of providing the support rod 7 to be rotatable from end bearings or end connection means may be utilized and it is not believed necessary to show any one type of construction in connection with the present invention.

As to operation of the embodiment shown, the storage-dispensing unit will generally be top loaded and bottles or other cylindrical form containers will be pushed down one by one into the internal portion of the frame within the looped belt section 12' with the number of bottles being placed in the unit determinable by the vertical depth of the entire frame section 1. After the unit has been loaded, the entire stack of the horizontally positioned bottles will be lifted by virtue of the spring tensioning on the lower end of the belt number 12 and, in addition, held in place by the inward spring biasing of rod members 7 and 7' by spring means 8 so that such rods with covering portions of belt 12 will come into contact with an upper surface portion of the uppermost bottle 9 in the stack of bottles. However, as an uppermost bottle 9 is lifted or pulled from between spaced rod members 7 and 7' then the next uppermost bottle 9 will be raised to the top position by the tension of roller spool 10 on belt 12 and on its inner loop portion 12'.

With reference to FIG. 3 of the drawing, there is shown a sectional view of the end of rotatable spool member 10, a coil spring means 13 positioned internally within the latter, and a movable end winder member 14 which is connected to the spring 13. The winder 14 is rotatable in either direction to in turn place a greater or lesser tensioning force into the spring member 13. In order to hold a given adjusted level of tensioning, a movable latch means 15 is provided to extend from the end plate member 2 and engage winder 14 to preclude its movement after adjustment. Suitable collar means 16 is provided as a circumscribing guide for the end of the rotatable tube 10. As best shown in FIG. 2, the end of the belt 12 will be clamped or otherwise attached to the periphery of roller 10 so that it may wind and unwind therearound as bottles are dispensed or replaced. The other end of the roller 10 has not been shown in detail inasmuch as it will be connected to end plate 2' by suitable conventional bearing means permitting the rotation of the roller 10. In addition, internal convection means can be provided from the end plate 2' such that the fixed end of spring 13 will be clamped or otherwise held in spool tube 10 whereby all adjustment of tensioning is effected from the winder end 14 as shown by FIG. 3.

With particular reference to FIGS. 4 and 5 of the drawing, there is shown an upper escutcheon plate 17 which is adapted to encompass the periphery of the top portion of the frame 1 of the dispensing unit and rest above the flanged end portions 5 and 5' for end plate sections 4 and 4'. Also, in accordance with the present embodiment, there is shown a movable top bottle lifter-lock plate member 18 which is pivotally con-

nected to downwardly projecting side portions 17' of the escutcheon plate by means of pivot pins 19. Also, as best shown in FIGS. 4 and 5, the pivoted lifter plate member 18 is provided with downwardly projecting leg portions 20 and 20' which are spaced apart so as to straddle the neck of a bottle, for those instances where a plurality of bottles are being stored in the dispensing unit. In operation, the lifter member 18 can be moved from the dashed line positioning in FIG. 5 to the angular positioning indicated and, at the same time, effect a lifting of the end of the bottle 9 from the horizontal position between the spaced spring-biased rod means 7 and 7' to the angular positioning indicated. From this position, the operator of the unit can manually complete the removal of the uppermost bottle 9 from the stack. It is to be noted that the pivoted lifter-plate member 18 has an open internal area so that the operator can see down into the storage unit and, at the same time, such open area permits a neck portion of a bottle or other container to move therein as the lifter member 18 is raised about pivot pins 19 in the positioning of FIG. 5. After one bottle has been removed the lifter member 18 may be lowered to be flush with the escutcheon plate 17 whereby the leg members 20 return to a normal vertical position to be again ready for lifting the uppermost bottle of the then resulting stacked arrangement of bottles.

As an enhanced feature of the present embodiment, it is to be noted that end portion of the lifter-lock plate member 18 is slotted at 20' in order to pass around a projecting loop or staple member 22 which is attached to the upper end surface of escutcheon plate 17 whereby a suitable locking member, such as a padlock, could be used through the staple means 22 and preclude the lifting of the plate member 18 and, in turn, preclude unauthorized activation of the dispensing unit. Various forms of clamps or locking means with respect to the pivoted plate member 18 may, of course, be utilized; however, a staple and hasp and lock arrangement provides a simple method of precluding any unauthorized removal of a bottle, except by allowed movement of lifter-plate member 18.

It is not intended to limit the materials of construction to any one metal or to any one type of material, inasmuch as the entire unit with respect to the frame may be of metal or plastic or partly of metal and partly of plastic as long as the various sections of the unit are suitably designed to withstand desired loading and handling conditions. Also, it is not intended to limit the fabrication of the belt member 12 to be from any one type of material although, preferably, this wide support belt should be of a strong, generally nonstretchable material such as a coated or impregnated fabric which is made to withstand wetting, tearing, etc.

As a still further feature of the present device, there may be a series of inventory numbers or code designation positioned on the face of belt 12 or on a strip moving proportionately therewith, whereby at a given reference point, such as the upper end of the unit where the belt passes over support rod member 7, there may be a number or other designating means to provide an inventory of the number of bottles or containers still remaining within the dispensing unit. For example, in FIG. 1 of the drawing, the numerals in circles, i.e. 3, 4 and 5 etc., may be placed on the face of belt 12 and provide an indication of the bottle inventory within the dispensing unit.

Various structural modifications may be made to the unit within the scope of the present invention, as for example, the lifter-plate member 18 may be pivoted from the framing 3 and 3' rather than from the top escutcheon plate 17 which is separately positioned on the top of the flanges 5 and 5' of the framing.

I claim as my invention:

1. A container storage and dispensing unit particularly adapted for the handling of bottles stacked in a horizontal positioning below a work surface, which comprises in combination, a belt supporting frame adapted to depend vertically from a work surface and having a first belt supporting rod member connecting to and extending along one upper side portion of said frame and a second belt supporting rod

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member connecting to and extending parallel to the first said belt supporting member along the opposing upper portion thereof in a manner whereby containers may be lifted and removed from between the rod members, a spring-biased rotatable belt holding spool connecting to and positioned at the lower portion of said frame in a longitudinal manner parallel to said belt supporting rod members, an extended container supporting belt having one end connected to said rotatable belt spool and the opposing end connected to first said supporting rod, while intermediately such rod and the belt spool said belt is looped over said second belt supporting rod member and downwardly in said frame between said rod members whereby a plurality of stacked containers may be held therein below the work surface, and movable container lifter means connecting at the top of said unit effecting at least the partial movement of a top container, whereby an uppermost container is removable from the stack thereof in said frame.

2. The container storage-dispensing unit of claim 1 further characterized in that said supporting rod members are spaced apart within end slot support means in said frame and are biased by spring means toward one another in the slots at the ends of said frame whereby such rod members are in a spaced positioning to hold an uppermost container in said dispensing unit while at the same time said slot support means and said spring-biasing means will permit the spreading apart of said rod members such that an uppermost container may be removed from the space therebetween.

3. The container storage-dispensing unit of claim 2 further characterized in that said supporting rod members are connected to each other at each end of the belt supporting frame of said unit with tension spring members as said spring means, whereby the rod members are normally urged toward one another in said end slot support means.

4. The container storage-dispensing unit of claim 1 further characterized in that said lifter means comprises a slotted plate member with at least one depending leg means extending for a distance capable of reaching under an uppermost con-

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tainer, and said slotted plate is pivotally connected to the upper portion of said unit whereby the portion of the plate away from the depending leg means will be lifted and provide for the latter means to project under an uppermost container and lift such container at least partially through the slotted portion of the plate for subsequent manual removal.

5. The container storage-dispensing unit of claim 4 further characterized in that a peripheral top positioned escutcheon plate is provided around the top portion of said unit and said slotted plate member provided as said lifter means is pivotally connected to side portions of said escutcheon plate.

6. The container storage-dispensing unit of claim 5 further characterized in that said plate member as said lifter means is provided with an additional end portion overlapping an end portion of said escutcheon plate and such end portion thereof is provided with a small slot sized to fit over and be in alignment with an open loop member connecting to said escutcheon plate, whereby locking means may be provided through said loop in a manner to preclude movement of the plate member and any undesired container removal.

7. The container storage-dispensing unit of claim 1 further characterized in that said rotatable belt holding spool is provided with an elongated coiled spring member to provide the spring biasing for such spool, a rotatable external winding means connects through one end of said spool to said spring member, and a locking member from said support frame engageable with said winder means holds the latter in place to provide a desired tensioning adjustment for the spring biasing of said rotatable belt holding spool.

8. The container storage-dispensing unit of claim 1 further characterized in that inventory marks are provided on said container-supporting belt at spaced distances which correspond to the movement of the belt for the addition or removal of a container into the loop portion of the belt in said frame and such marks are movable past a reference point on said supporting frame whereby the number of containers stored within said frame may be observed externally of the unit.

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