

[54] CONTAINER DISPENSER

[75] Inventor: Robert A. Nordskog, Tarzana, Calif.

[73] Assignee: Nordskog Company, Inc., Van Nuys, Calif.

[22] Filed: Oct. 5, 1970

[21] Appl. No.: 77,933

Primary Examiner—Robert B. Reeves
Assistant Examiner—Francis Bartuska
Attorney—Robert E. Geauque

[57] ABSTRACT

[52] U.S. Cl. 221/279
[51] Int. Cl. A47f 1/06
[58] Field of Search 221/307, 308, 309, 310, 226,
221/279, 280; 312/71, 45; 222/227

Dispenser apparatus having a cylindrical housing to loose fittingly retain a plurality of stacked beverage containers, an axial biasing means to locate the uppermost container of a stack of containers adjacent a stop lip at the open end of the apparatus, a lateral bias to cause the uppermost container to be located under the lip thereby normally preventing removal thereof.

[56] References Cited

UNITED STATES PATENTS

3,625,397	12/1971	Shelly et al.	221/279 X
2,598,156	5/1952	Brill et al.	221/280

1 Claim, 5 Drawing Figures

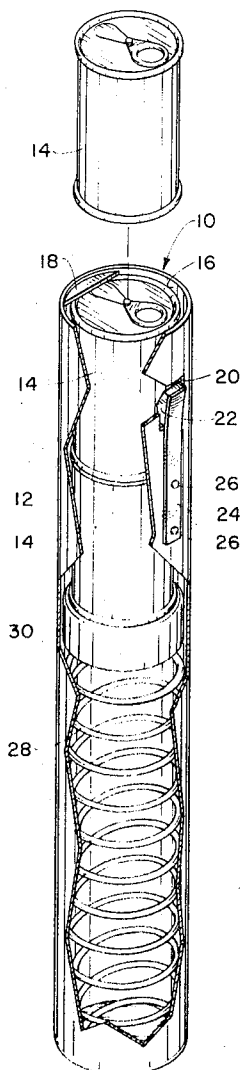


FIG. 1.

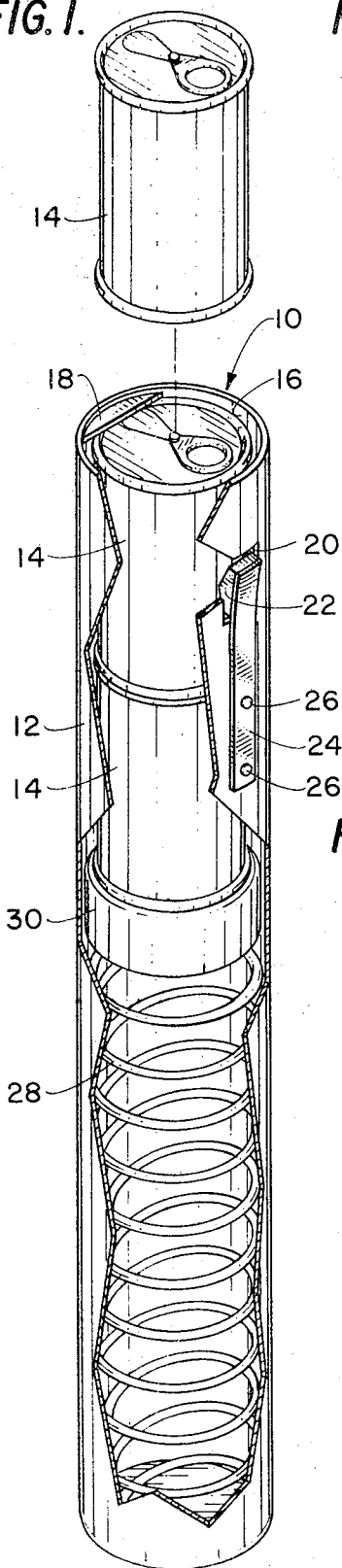


FIG. 2.

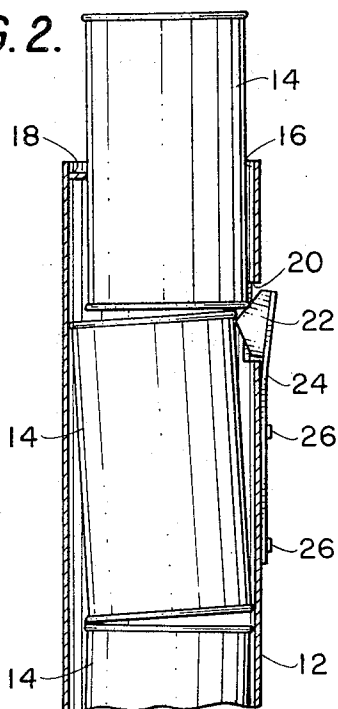


FIG. 3.

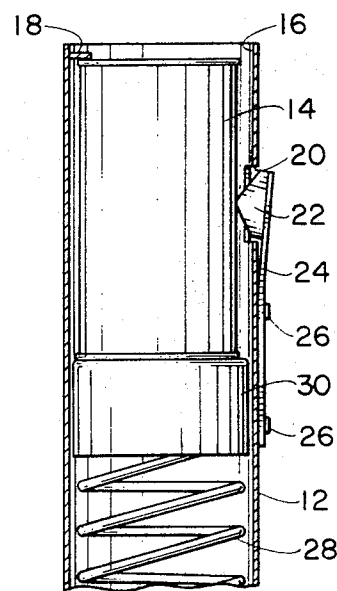


FIG. 4.

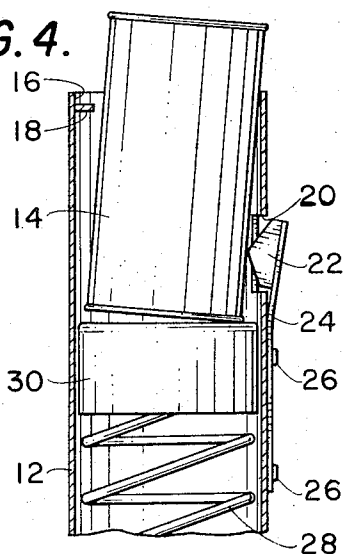
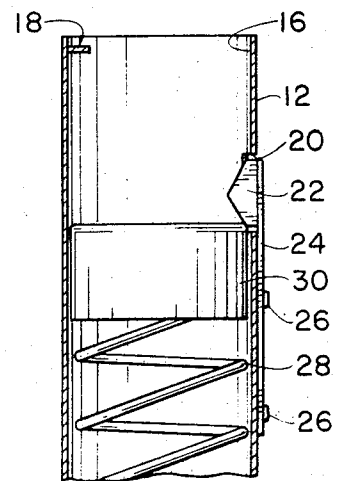


FIG. 5.



INVENTOR.
ROBERT A. NORDSKOG
BY *R. E. Seavigne*
ATTORNEY

CONTAINER DISPENSER

BACKGROUND OF THE INVENTION

Individual beverage containers for human beings are in extremely widespread use. In recent years the tendency has been to employ cylindrical shaped beverage containers which are commonly referred to as cans. Such can-type containers have proved to be most desirable since such do not break as does glass. Cooling of the liquid contained within the cans is facilitated as the metallic cans facilitate heat transfer, and such cans facilitate portability and storage thereof. Also, with the advent in recent years of the snap top opener employed in combination with a can, the use of such cans has greatly increased because of the need for a separate opening apparatus has been eliminated. The use of such can containers facilitates the distributing of beverages at public gatherings. For example, where beverages are sold to the public at places of entertainment such as sports events, the use of such can containers substantially decreases the serving time for each individual.

It is the normal procedure in the serving of beverages to people for the people to move to and from the serving location, the serving location remaining stationary. However, in aircraft the situation is just the reverse. The stewardesses are required to move down the aisles of the aircraft and serve the passengers who remain in their seats. Heretofore, it has been common for the stewardess to move progressively down the aisle asking the passengers what type of beverage he would prefer, with the stewardess then walking back to the galley, securing the particular desired beverage, and then walking back to the particular individual to serve the person. Obviously, such a procedure is quite time consuming.

Within recent years, the flight time of aircraft has been steadily diminishing. Also, the number of passengers within each particular aircraft has been steadily increasing. Therefore, some means must be employed to facilitate the dispensing of canned beverages which would permit the stewardess to serve the passengers over a much shorter period of time.

Recently, stewardesses have started to employ the use of carts wherein the cart can be moved progressively down the aisle within the aircraft with the cart carrying a plurality of can-type beverage containers. Because of the wide choice available to the passenger of different types of beverages, the stewardess must carry within the cart a plurality of different types of beverages as well as a plurality of individual cans within each type of beverage. As a result, the stewardess is required to have at her disposal within the cart a substantial number of beverage cans, many of which will not be selected. In an effort to facilitate the dispensing of such can containers, lever actuated types of dispensing devices have been employed. Frequently, such devices rely on the fact of using the bead portion of the containers, it being common for most can containers to have an upper or lower bead. However, in recent years can-type containers are being made without such a bead. Therefore, such bead-type dispensing devices have been proved to be not usable. Also, such lever systems employ linkages which frequently require maintenance and repair.

It would be desirable to employ the use of a dispensing mechanism for can-type beverage containers in combination with a removable cart within an aircraft, wherein a substantial variety of types of beverages are made available, a plurality of cans of each type of beverage is carried by the cart, and the dispensing of such cans by the stewardess is accomplished with ease.

SUMMARY OF THE INVENTION

The dispensing apparatus of this invention is designed to be employed in combination with a movable cart mounted at a substantially vertical manner. A plurality of beverage containers are to be stacked, one on top of the other within the housing of the dispensing apparatus. An axial spring biasing means is to be located within the lower end of the housing, the upper end of which is secured to a movable platform which is snugly movable within the housing. The open end of the housing has a stop lip which is adapted to cooperate with the uppermost container of the stack to prevent such from being removed from the housing. A lateral spring cooperates with an aperture within the housing adjacent to the open end and functions to insure that the uppermost container cooperates with the stop lip. The diameter of the housing is to be a predetermined amount larger than the diameter of each of the containers. Thereby, the uppermost container is manually movable against the bias of the side spring and is capable of being moved past the stop lip. At the same time of the tilting of the uppermost container, the container located directly under the uppermost container is tilted in the opposite direction permitting such to easily pass the side spring. The movable platform which cooperates with the axial spring bias is not capable of passing the side spring.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a longitudinal cut-away view of the dispensing apparatus of this invention showing clearly the overall construction of the dispensing apparatus;

FIG. 2 is a sectional view of the dispensing apparatus of this invention as it would be employed in removing the uppermost container from the apparatus;

FIG. 3 is a view similar to FIG. 2 but showing the uppermost container in cooperation with the stop lip thereby preventing removal of such;

FIG. 4 is a view similar to FIG. 3 but showing the uppermost container during an intermediate removal position; and

FIG. 5 is a view similar to FIG. 4 but showing the spring platform in cooperation with the side spring.

DETAILED DESCRIPTION OF THE SHOWN EMBODIMENT

Referring particularly to the drawings there is shown in FIG. 1 a dispensing apparatus 10 of this invention having a cylindrical shaped housing 12 which is to be employed to retain a plurality of beverage containers 14 stacked on top of each other. It is to be understood that the length of housing 12 is to be strictly a matter of choice or design. It is considered that the length of housing 12 will be of sufficient length to retain four or five containers 14. However, the length could be easily

increased to retain as many as 10 or 12 containers 14 or could be of a lesser length to contain only two or three containers. It is also envisioned that a plurality of such dispensing apparatuses 10 will be employed within a single element such as a movable cart. The movable cart would be employed within an aircraft and movable down the aisles thereof between the passengers' seats. It is envisioned that four such dispensing apparatuses 10 will be employed in combination with each cart, each dispensing apparatus 10 to be employed to dispense a different type of beverage container 14. However, again the number of dispensing apparatuses 10 to be employed within each cart will be strictly a matter of choice or design.

The uppermost end of housing 12 is open at 16. A stop lip 18 extends across a portion of opening 16 and is secured to housing 12. An aperture 20 is formed within the side of housing 12 and spaced from opening 16 approximately the distance equal to one-half the length of container 14. Also, the aperture 20 is located substantially diametrically opposite stop lip 18. A friction element 22 is movable within aperture 20 with the friction element being secured to side spring 24. Side spring 24 is attached by rivets 26 to a housing 12. It is to be seen within FIG. 1 of the drawings that rivet 26 is located relatively close to friction element 22. As a result, initial movement against the bias of side spring 24 is accomplished with ease and upon continued movement, the bias becomes substantially greater. The reason for this will be explained further along in the specification.

The material of construction for friction element 22 is to be considered a matter of choice or design. However, a satisfactory form of material would be a form of plastic material and actually the form of plastic which is commonly referred to as under the trade name of Teflon. Also, although friction element 22 is shown to have a pointed end which will come into contact with container 14, it has been found that such a point contact relationship with the container 14 facilitates its movement past friction element 22. However, other configurations of element 22 may be employed.

Spring 28 is axially located within housing 12 and fixedly secured at the lower end thereof. Spring 28 is secured to a platform 30 at its upper end thereof. Platform 30 is of such a diameter so as to be snugly, but easily movably retained within housing 12. This arrangement is particularly important to the operation of this invention. The diameter of housing 12, as is shown in FIG. 2 of the drawings, is such as to retain containers 14 in rather loose fitting arrangement. Again, this feature is an important aspect to the operation of this invention.

The operation of the dispensing apparatus of this invention is as follows: It will be assumed that the dispensing apparatus 10 of this invention is located within a movable cart which is positioned within an aircraft. It also will be assumed that the dispensing apparatus 10 is empty as shown in FIG. 5 of the drawings. In this empty position, the upper edge of the platform 30 is in contactual relationship with friction element 22. It therefore is prevented from further upward movement by means of the biasing action of spring 28. To load the apparatus 10, the stewardess then grasps an individual container 14 and inserts it within housing 12,

past stop lip 18. As a result, platform 30 is moved downwardly against the bias of spring 28. Once the first container 14 is so located as shown in FIG. 3 of the drawings, the friction element 22, by means of side spring 24, exerts a lateral bias against the container 14 tending to maintain the upper edge thereof in contact with stop lip 18. A Stewardess will then grasp another container 14 and insert such in the same manner as was described for the first container. This procedure is again repeated until the desired number of containers 14 are located within the apparatus 10. It is envisioned that the apparatus 10 can be mounted in a vertical direction with removal of the containers 14 being effective against the pull of gravity. As the spring 28 is compressed further upon inserting of an additional container 14, the spring assumes a greater biasing action. However, a greater load, because of the weight of each additional container 14, is placed upon the spring 28. As a result, a self-compensating action is achieved wherein the uppermost container 14 is retained against lip 18 with approximately the same degree of force at all times. Such a constant spring force facilitates the removal of the containers 14.

With the container 14 so located within the dispensing apparatus 10, the stewardess can then move her cart down the aisle of the aircraft adjacent a particular passenger location. Upon obtaining the particular beverage choice from the passenger, the stewardess then exerts a manual force against the uppermost container 14, tilting the container 14 until it is unassociated with the lower surface of stop lip 18. The spring 28 then biases the uppermost container 14 effecting disassociation from the dispensing apparatus 10 as shown in FIG. 1 of the drawings. Also, upon the tilting action of the uppermost container 14 to remove such, the container located directly beneath the uppermost container is tilted in the opposite direction as shown in FIG. 2 of the drawings. This opposite directional tilt facilitates the passage of such past the friction element 22. Upon the uppermost container 14 having been removed, the spring bias from spring 28 pushes all the containers in the stack in an upward direction until the container now at the top of the stack comes into contact with stop lip 18. Contact with stop lip 18 is assured because of the lateral bias caused by side spring 24 through friction element 22 upon the upper container 14. The arrangement of side spring 24 is such that during movement of the containers 14 in the upward direction into contact with the stop lip 18, a quite small amount of biasing force is exerted against the container 14 so as to not significantly hinder movement thereof. However, during tilting of the uppermost can 14 to remove such from contact with stop lip 18, the lateral biasing force of the spring 24 increases rapidly. Such a force is not great enough as to hinder removal of the uppermost container 14, but does ensure that in all instances the next succeeding container 14 will come into contactual relationship with stop lip 18 and not be accidentally discharged through opening 16 exteriorly of the dispensing apparatus 10. In other words, upon employment of the apparatus 10 of this invention, absolute dispensing of beverage containers 14 on an individual basis is ensured.

Upon the last container 14 being removed from the housing 12 of the apparatus 10, the platform 30 comes

into contact with the lower edge of the friction element 22. Therefore, further movement of the platform 30 by the action of the spring 28 is prevented into the upper area of the housing 12 adjacent open end 16. By the platform being displaced from open end 16, relocating of containers 14 is facilitated within the apparatus 10.

The apparatus 10 of this invention does not rely upon beaded edges of the containers 14 to effect their retention thereof within the apparatus 10. Dispensing apparatuses of the prior art do so rely upon the beaded portions of the container 14. In actual practice, a greater number of containers do not have upper and lower beaded edges; therefore, the dispensing apparatuses of the prior art are not capable of being employed with such beaded containers. The dispensing apparatus of this invention does not in any way rely upon beaded edges of the container 14 and actually may be employed in combination with containers with beaded edges or without beaded edges.

What is claimed as new in support of Letters Patent is:

1. A container dispensing apparatus to be employed in combination with a cylindrical beverage container of constant cross-sectional area, said apparatus comprising:

- a tubular cylindrical shaped housing, said housing having an open upper end, said housing being of a predetermined greater diameter than said container, whereby said container is capable of being tilted from axial alignment within said housing;
- a stop lip secured to said housing at said open end

and blocking off a portion of the cross-sectional area of said open end;

- a lateral biasing means to contact said container located adjacent said open end thereby defined as said uppermost container, said lateral biasing means located within said housing and spaced from said open end a distance substantially equal to one-half of the length of a said beverage container, said lateral biasing means being secured to said housing and a portion thereof being radially movable with respect thereto, said lateral biasing means being located substantially diametrically opposite said stop lip and acting to laterally displace said uppermost container to engage said stop lip, said lateral biasing means includes a friction element, said friction element to low frictionally contact said uppermost container and establish substantially a point contact with said container;
- an axial biasing means located within said housing tending to move said container toward said open end, said axial biasing means to be capable of contacting said friction element to prevent further movement of such toward said open end; and
- upon manual movement of the uppermost container out of contact with said stop lip, said uppermost container is removable from said apparatus, as the uppermost container is tilted to be removed the next container is tilted in the opposite direction to facilitate passage of the next container past said friction element and into contact with said stop lip.

* * * * *