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LOCK AND SEAL FOR VENDING MACHINES

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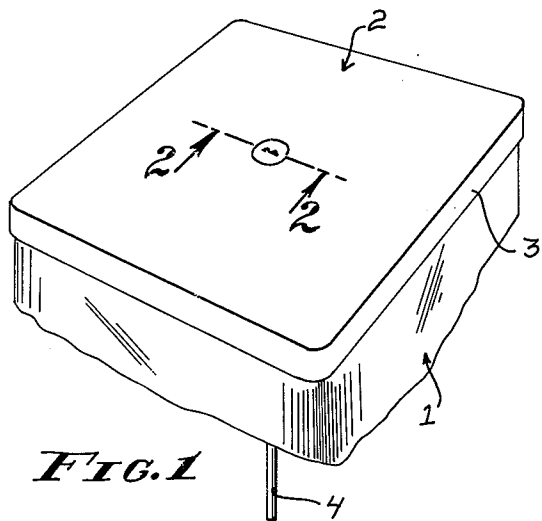


FIG. 1

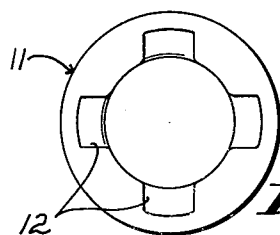


FIG. 4

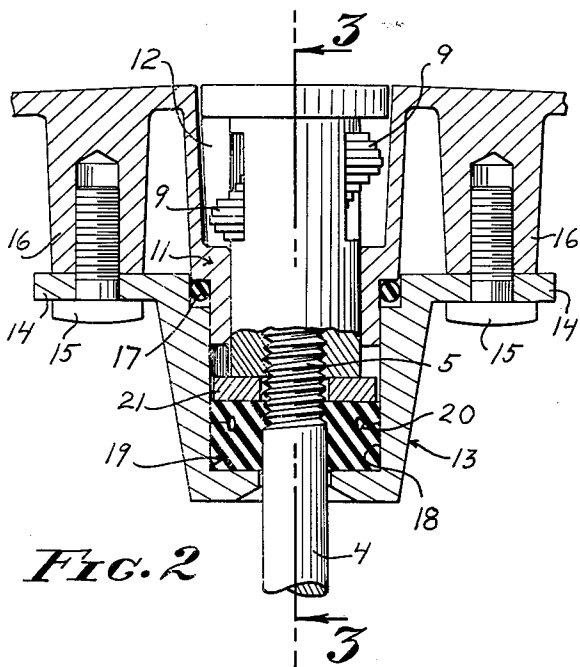
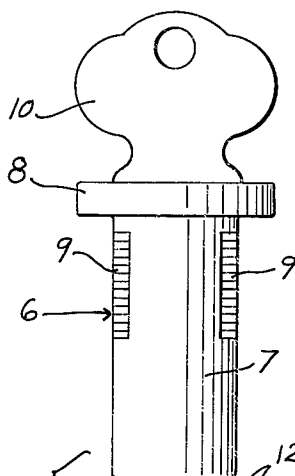


FIG. 2

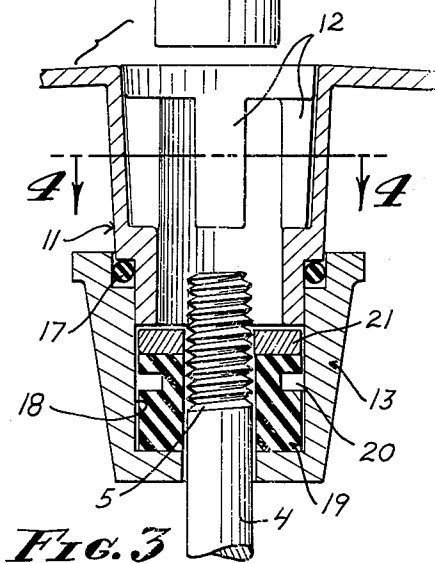


FIG. 3

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1

2

3,213,653

LOCK AND SEAL FOR VENDING MACHINES
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4 Claims. (Cl. 70-166)

This invention relates to locks and seals for vending machines. One widely used type of vending machine involves a transparent container for merchandise to be vended, a coin operated vending mechanism below the container, and a cover for the container. A tie rod extends upward through the container and is removably attached to a locking unit. The locking unit is fitted in the cover and is connected to the tie rod to hold the components of the machine together.

Often, vending machines are exposed to the weather; as a consequence, water may seep into the container and damage the contents.

An object of this invention is to provide a seal means associated with the lock unit which is compressed to form a seal when the parts of the vending machine are secured together, and which is released when the lock unit is withdrawn to permit disassembly of the vending machine.

With the above and other objects in view as may appear hereinafter, reference is directed to the accompanying drawings in which:

FIGURE 1 is a perspective view showing the top portion of a vending machine and indicating the location of the lock which secures the components of the vending machine together;

FIGURE 2 is an enlarged fragmentary sectional view taken through 2-2 of FIGURE 1 showing the lock and seal means in its locked and sealed condition;

FIGURE 3 is a fragmentary sectional view taken through 3-3 of FIGURE 2 showing the lock removed from the vending machine;

FIGURE 4 is a transverse sectional view taken through 4-4 of FIGURE 3 showing the lock receiving sleeve.

A standard or conventional vending machine for merchandise such as nuts, gum, or candy includes a transparent container 1 for the merchandise. The container may be circular or square or otherwise shaped and is provided with an open upper end which receives a mating cover 2, the side margins 3 of which overlie and close the upper end of the container.

It is customary to provide a tie bar 4 which is fastened to the base portion of the vending machine and which extends upwardly along the central axis of the container. The tie bar is provided with a screw threaded upper end 5.

A lock unit 6 is employed which includes a cylindrical barrel 7 having an internally screw threaded lower end and a flanged upper end 8. The cylindrical barrel is provided with transverse openings which receive a stack of locking slides 9 which move radially from the surface of the barrel by spring means not shown. The locking slides are movable into coincidence with the surface of the cylindrical barrel by means of a key 10. The locking unit per se is conventional; however, as will be brought out hereinafter, it is employed in a unique manner with other elements to effect a seal.

In the exercise of the present invention, the cover 2 is provided with a lock receiving sleeve 11 which extends downwardly into the container 1. The walls of the sleeve are provided with longitudinally extending internal locking grooves 12 adapted to receive the extremities of the locking slides 9 when the key 10 is removed so as to lock the cylindrical barrel 7 against rotation.

The lower or inner end of the sleeve 11 fits into the end of a cup shaped cap 13 which is provided with lateral lugs 14 for securing the cap by means of screws 15 to a

pair of bosses 16 depending from the cover 2 at opposite sides of the sleeve 11.

The axially overlapping portions of the sleeve 11 and the cap 13 define an annular channel which receives an O-ring 17.

The lower end of the cap 13 is apertured to admit the upper screw threaded end of the tie bar 4 which projects into the sleeve 11. The cap 13 forms with the sleeve 11 a seal receiving cavity 18. The cavity 18 receives a cylindrical sealing member 19 which may have one or more grooves 20 in its periphery and which is so arranged that when axially compressed, the sealing cylinder presses into sealing engagement with the tie bar as well as in engagement with the surrounding walls of the cavity 18. A washer 21 which functions as a piston overlies the sealing cylinder 19.

Operation of the lock and seal means is as follows:

When the key 10 is inserted in the lock unit 6, the locking slides 9 are retracted until flush with the barrel 7, as shown in FIGURE 3. This permits the barrel to be inserted into the sleeve 11 for screw threaded engagement with the upper end of the tie bar 4. Rotation of the lock unit draws the lock unit downward into engagement with the washer 21 which, in turn, compresses the sealing cylinder 19 from the condition shown in FIGURE 3 to the condition shown in FIGURE 2 so as to form a watertight seal around the tie bar.

When the flanged end 8 of the barrel has been seated flush into the upper end of the sleeve 11 and the locking slides aligned with a pair of opposed grooves 12, the key is withdrawn so that the locking slides enter the grooves and prevent rotation of the locking unit and removal from the tie bar.

While particular embodiment of this invention have been shown and described, it is not intended to limit the same to the exact details of the constructions set forth, and it embraces such changes, modifications, and equivalents of the parts and their formation and arrangement as come within the purview of the appended claims.

What is claimed is:

1. A lock and seal for vending machines, comprising:

(a) a container for merchandise;

(b) a cover fitted over said container, said cover having a lock unit receiving sleeve including locking grooves;

(c) a cap covering the inner end of said sleeve and defining therewith a seal receiving cavity;

(d) a distortable seal element in said cavity;

(e) a tie rod extending through said container and terminating in a screw threaded end projecting into said sleeve through said cavity and seal element therein;

(f) and a lock unit adapted to fit within said sleeve and including locking means engageable with said locking grooves to secure said lock unit against rotation, a key for releasing said locking means, and a screw threaded inner end engageable with said tie rod to draw said lock unit into said cavity and force said seal element into sealing engagement with said tie rod and the walls of said cavity.

2. A lock and seal for vending machines, comprising:

(a) a container for merchandise;

(b) a cover fitted over said container, said cover having a depending sleeve at its underside, said sleeve having lacking grooves;

(c) a cup shaped cap telescopably fitting covering extended inner end of said sleeve and defining an O-ring groove around said sleeve, and a seal element cavity beyond the extended inner end of said sleeve;

(d) a distortable seal element in said cavity and a distortable O-ring in said O-ring groove;

3

- (e) a compression disk overlying said sealing element;
 (f) a tie rod extending through said container and terminating in a screw threaded end projecting into said sleeve through said cavity and seal element therein;
 (g) and a lock unit adapted to fit within said sleeve and including locking means engageable with said locking grooves to secure said lock unit against rotation, a key for releasing said locking means, and a screw threaded inner end engageable with said tie rod to draw said lock unit into said cavity and force said seal element into sealing engagement with said tie rod and the walls of said cavity.
3. The combination with a vending machine having a container for merchandise, a screw threaded tie rod extending upwardly therethrough, a cover fitted over said container, having a lock receiving sleeve, a lock having a screw threaded end to receive said tie rod for axial movement in said sleeve on rotation of said lock, and key released means for securing said lock against rotation, of a sealing means, comprising:
- (a) a cap slidably receiving said tie rod and forming with said sleeve a cavity adapted to receive a seal and the inner end of said lock;
 (b) and a seal in said cavity axially compressible into sealing contact with said tie rod and walls of said cavity, on axial movement of said lock therein.
4. The combination with a vending machine having a container for merchandise, a screw threaded tie rod ex-

4

tending upwardly therethrough, a cover fitted over said container, having a lock receiving sleeve, a lock having a screwthreaded end to receive said tie rod for axial movement in said sleeve on rotation of said lock, and key released means for securing said lock against rotation, of a sealing means, comprising:

- (a) a socket cap secured over the inner end of said sleeve;
 (b) a first seal therebetween;
 (c) said cap defining a cavity beyond the inner end of said sleeve and said cap being apertured to receive said tie rod for engagement by said lock; and movement of said lock into said cavity;
 (d) and a second seal disposed in said cavity and adapted to be compressed by said lock into sealing engagement with said tie rod and the walls of said cavity.

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