Feb. 5, 1952 L. W. McOMBER 2,584,726

DISPENSING APPARATUS FOR VENDING MACHINES

Filed May 26, 1948

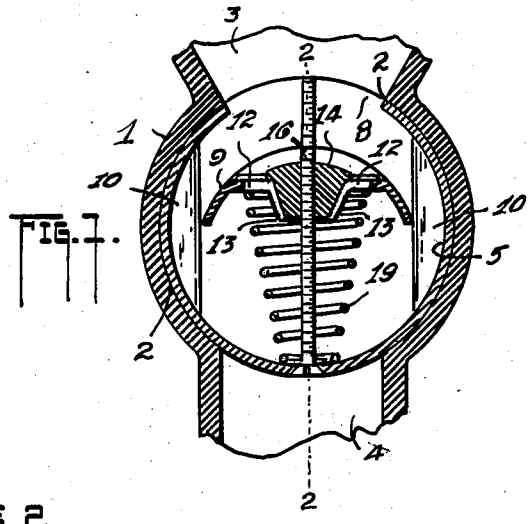


FIG. 1.

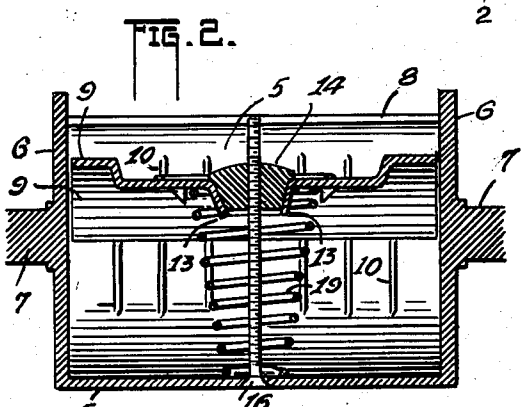


FIG. 2.

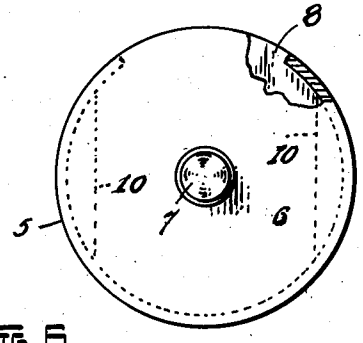


FIG. 3.

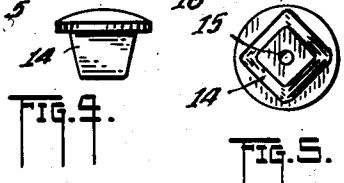


FIG. 4.

FIG. 5.

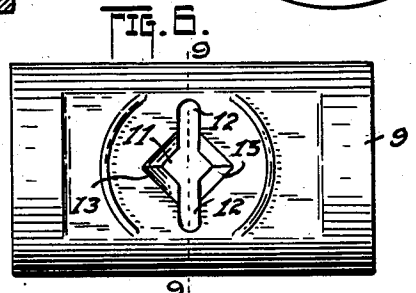


FIG. 6.

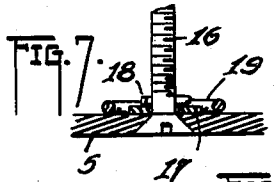


FIG. 7.

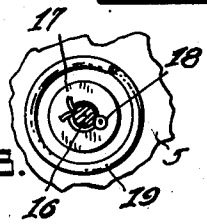


FIG. 8.

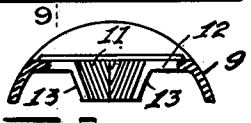


FIG. 9.

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DISPENSING APPARATUS FOR VENDING MACHINES

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4 Claims. (Cl. 222—306)

1

This invention pertains to improvements in vending machines. More particularly, the invention has to do with an improvement in a member for measuring and vending nut kernels and the like, employed in such machines.

The object of the invention is to provide a type of cylindrical member for measuring or portioning a commodity, such as bulks of nut kernels or hard candies, for example, that will always be free to be rotated by the purchaser of any such commodity.

Still another object is the provision of a cylindrical member for receiving a commodity from which no part can be projected from its peripheral surface to prevent free rotation as said member lies in the bore in which it is seated.

Another object is to provide a nut vending machine wherein is mounted a rotary cavitied member from which to dispense a commodity, and provide therein a plate, which while serving to vary the quantities or bulks of the commodity to be dispensed, is so mounted and arranged that it is capable of tilting to bring about the dislodgement of a unit of said commodity that might otherwise result in preventing rotation of said member.

That the invention may be understood the accompanying drawing is provided to form part hereof, and wherein

Figure 1 is a transverse section, in elevation, of part of a vending machine showing the parts entering into the invention.

Figure 2 is a longitudinal sectional elevation of a cylinder with parts shown in Figure 1, produced on line 2—2 of the latter.

Figure 3 is an end elevation of the cylinder shown in both Figures 1 and 2.

Figure 4 is a side elevation of a nut shown in Figures 1 and 2.

Figure 5 illustrates the nut of Figure 4 as viewed at its under surface.

Figure 6 is a plan of a plate illustrated in two of the earlier figures.

Figure 7 is an elevation in part section of certain members appearing in Figures 1 and 2, produced on a larger scale.

Figure 8 is a plan of what is shown in Figure 7, and

Figure 9 is a transverse section in elevation of the plate shown in Figure 6 produced on lines 9—9 of that figure.

In Figure 1 the character 1 denotes a portion of a vending machine, this including a cylindrically curved bore 2 communicating with which is a passage 3 through which the flowable commodity, such as nut kernels, is supplied to a member to be described. Also communicating with the bore 2 is a second passage 4 through which to dispense the commodity as will appear.

2

Within and snugly fitting the bore 2 is a cavitied cylindrical member 5 from each end 6 of which extends a shaft portion 7 for supporting said member and for permitting rotation thereof, the shaft ends being carried in another part of the machine, not shown, it being observed that said member 5 has an opening 8 in a part thereof which during rotation may communicate with one or the other of the named passages 3, 4.

Enterable into the cavity of the member 5 is a plate 9 of arcuate form as seen endwise in Figures 1 and 9. This plate in its length normally parallels the axis of member-rotation, as in Figure 2 and is adapted to be shifted toward or away from the described opening 8 in a direction at right angles to said axis, and in such movements is guided by contact of its longitudinal edges with a series of fins 10 as parts of the opposite curved walls of said member 5, see Figure 1.

Thus far described the structure is not unlike that in machines now in general use, except as to the form of the plate 9 herein. The parts now to be described are believed to be novel in arrangement and purpose, and of considerable advantage as will be made known.

The plate 9 central thereof is provided with an opening 11 which is extended into a slot 12 extending laterally of said plate, the latter having a depending wall portion at each side of said opening 11 and said slot. As at 13, these wall portions are angular in form and opposed to each other, jointly forming a recess or socket, wherein to seat a flanged nut 14, Figures 4 and 5, of complementary form. Said nut has a threaded bore 15 to engage a screw 16, the head of said screw being let into the wall of the member 5, flush therewith by countersinking, see particularly Figure 7, wherein it may be rotated.

Within the said member 5 and encircling the screw 16 is a washer 17 which is held upon the inner surface of said wall of the member by any suitable means, such, for example, as a small cotter pin 18 extending through said screw. By this arrangement it is clear that the screw may be rotated but can have no endwise movement, its head, also, being positively held flush with or even inward from the peripheral surface of said member. Compressed between the plate 9 and the wall of the member 5 adjacent the head of the screw is a spring 19 which tends at all times

to force said plate yieldingly toward the named opening 8 of the said member.

In practice the adjustment of the screw 16 in respect to the nut 14 will, of course, vary the capacity of the space above the plate 9 within the member 5, i. e., depending upon the quantity of the commodity to be dispensed through the passage 4 to the patron. Supposing, now, that while rotating the member 5 a unit of the commodity, such as a nut, for example, were to lodge between the body 1 at the passage 3 and the advancing edge of the said member which would tend to halt the advance of the latter. Since the plate 9 is yieldingly held against the nut 14 it will yield downwardly as said member advances due to the fact that the latter will engage the unit and draw it into the commodity space above said plate, increasing the bulk of the commodity in accordance with the size of such unit. Thus the obstruction is automatically displaced and no perceptible halting of member rotation. In such an event the plate 9 shifts with respect to the nut and screw, in opposition to the spring, by moving away from said nut 14. The screw having no pressure thereon, of course, remains fixed and its head is not unseated and cannot be forced into the bore 2 as contrasted to certain types of devices now employed.

Although the nut and the socket arrangement at the plate 9 is shown of a particular type herein, there are, of course, other ways of preventing rotation of said nut with respect to said plate. In any event it is required that an arrangement be provided so that the nut cannot turn in respect to said plate.

In the present instance the plate may shift in a line perpendicular to its own plane downwardly away from the nut, or may tilt laterally with respect to said nut.

Of incidental interest is the fact that the width of the plate is greater in measurement than the width of the opening 8 of the member 5, requiring that said plate be tipped in order to introduce it into the cavity of said member. To permit introduction therein, the slot 12 is provided in order that there will be no hindrance by the screw either during manipulations, or during the vending act.

In assembling the parts to working positions, the nut not yet in place on the screw, the plate is tilted edgewise into the cavity of the member 5, while receiving the erected screw through it. Upon being thus entered, the plate is allowed to take its normal working position shown in Figure 1, whereupon the nut is placed on the screw, the plate at this time being held downwardly, manually, free of the nut so that the same may be adjusted to any position desired. Upon releasing the plate the socket portion thereof engages the nut, due to the spring, the whole now being ready for the dispensing act.

It may be stated that in viewing Figure 1, supposing during operation the member 5 in the dispensing act is being turned toward the right, and that the wall thereof at the left of the opening 8 is therefore approaching the body member 1 at the right of said opening. A hard nut or hard candy descending from the passage 3 if caught between the wall and said body member it will be forced back into said passage in the event the said wall meets the obstruction below its center. On the other hand, if said wall engages such obstruction above its center it will be drawn into the cavity of the member, the plate downwardly tilting to accommodate the

added bulk, as already stated. It may be further stated that since the plate normally lies in abutment with the flange of the nut 14, as shown, that portion of said plate at the left of the latter, during tilting, coacts with the flange of the nut as a fulcruming point, the plate at the right of the nut dropping away therefrom, the spring 19 serving meanwhile to maintain said plate at the fulcruming position.

I claim:

1. In a vending machine, the combination of a body portion having a bore whose walls are cylindrically curved, and provided with an inlet passage and an outlet passage communicating with said bore, a cavitied cylindrical member fitting said bore, rotatable therein, and having an opening in its wall communicating with the cavity, said opening adapted to register with one or the other of the named passages during rotation, a screw rotatably mounted on the cylindrical member and extending at one end into the cavity of the member toward said opening, means to prevent the screw shifting in one direction longitudinally toward said opening while permitting rotation thereof about its longitudinal axis, a nut threaded on the screws, a plate in said cavity of the member adapted to engage upon said nut, one of the two last named parts having a socket to receive the other therein, and both having a measurement in one direction greater than in another direction in a plane perpendicular to the longitudinal axis of said screw, and a mounted spring in the cylindrical member abutting the said plate and constantly tending to hold the same in engagement with the nut, said plate having a position in the said cylindrical member to receive thereon a commodity to be dispensed and adapted to tilt in opposition to the spring by an overcharge of said commodity forced thereupon.

2. A vending machine including in its construction a cavitied rotatable member, a rotatable screw and a nut thereon erected in the cavity of the member perpendicular to the axis of member rotation, means in the member to prevent longitudinal movement of the screw in one direction while permitting rotation thereof about its longitudinal axis, a plate in said cavity provided with an opening therethrough through which to receive the screw freely, the nut receiving the plate thereon, one of the two last named parts having a socket to receive the other therein, and both having a measurement in one direction greater than in another direction in a plane perpendicular to the longitudinal axis of said screw, and a mounted spring interposed between the wall of the rotatable member and the said plate for urging the latter toward and into engagement with said nut.

3. A vending machine including in its construction a cavitied rotatable member, a rotatable screw having a nut thereon erected in said cavity upon the member perpendicular to the axis of rotation of the latter, means for preventing longitudinal movement of the screw in one direction while permitting rotation thereof about its longitudinal axis, a plate in said cavity provided with an opening to receive an end of the screw freely therethrough, there being a slot in said plate communicating with said opening of the same and paralleling the direction of rotation of the member, the said screw extending through said slot, and a mounted spring in the cavity of said member bearing upon the plate for urging the same into engagement with said nut.

4. A nut vending machine including in its construction a cavitied rotatable member, a rotatable screw having a nut thereon erected in the cavity of said member perpendicular to the axis of rotation of the latter, said member including means for preventing longitudinal shifting of the screw in one direction while permitting it to be rotated about its longitudinal axis, a relatively long and narrow plate in said cavity provided with an opening to receive the screw freely therethrough, said plate adapted to normally abut the nut, the said opening of the plate including a communicating slot extending transversely of the plate and paralleling the direction of rotation of the member, said plate having a socket therein to receive the said nut, and a spring mounted in the member and abutting the plate for maintaining the latter in engagement with said nut,

both the plate, at its socket, and the nut having greater measurement in one direction than in another direction in a plane perpendicular to the longitudinal axis of the screw to prevent rotation of those members relatively around the latter.

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