June 8, 1954

H. T. PROBASCO

2,680,540

VENDING MACHINE

Filed Dec. 26, 1950

Fig. 1

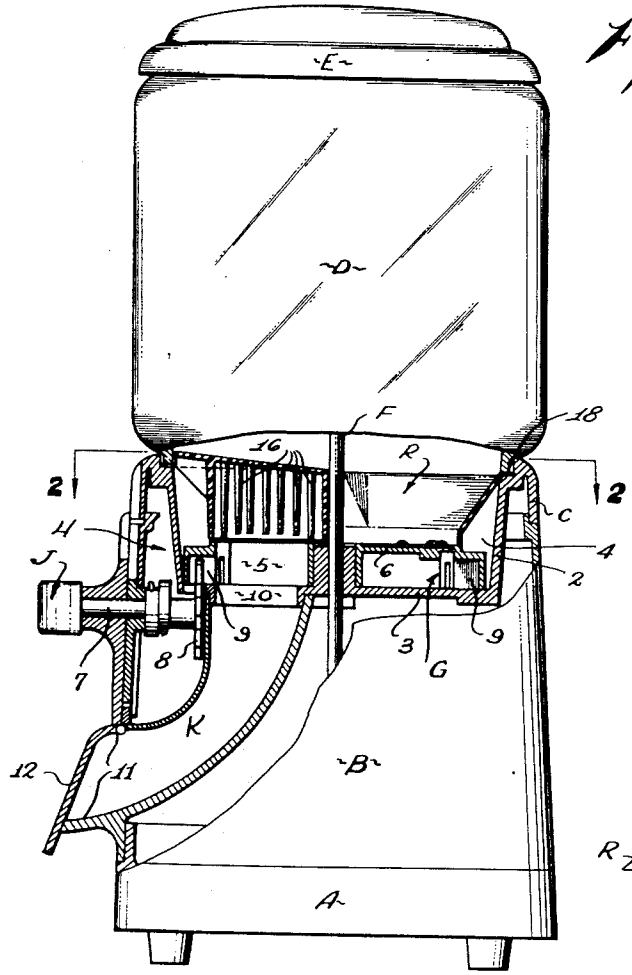


Fig. 3

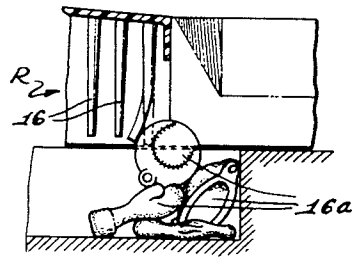


Fig. 4

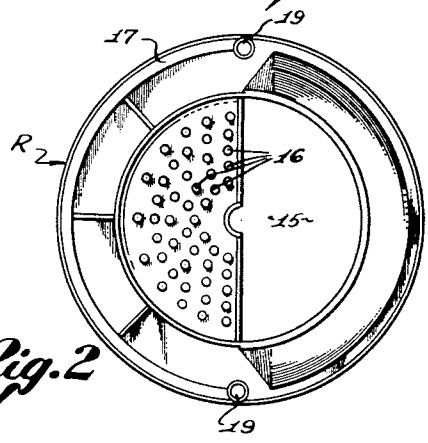
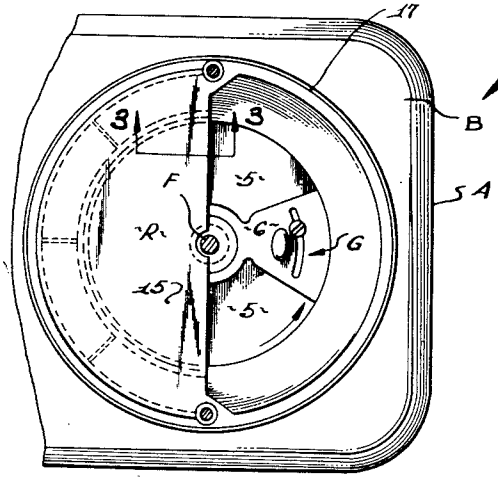


Fig. 2



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VENDING MACHINE

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Application December 26, 1950, Serial No. 202,775

4 Claims. (Cl. 222—349)

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This invention relates in general to vending machines for dispensing small articles of food, or otherwise in measured quantities, and of the same character as the apparatus described in my pending application, Serial No. 158,468, filed April 27, 1950, of which this application is a continuation in part.

In the consideration of this invention it may be understood that coin controlled dispensers of various types have heretofore been used for dispensing small articles of novelty and food value, and many expedients have been employed to assure a purchaser of a product of a unit or full measure of return for the deposited coin, for value received, when the unit is properly operated.

It is apparent that a given machine tested and constructed for dispensing measured quantities of hard articles such as footballs, or other miniature objects or representations of naturally larger articles, might and frequently does fail in the dispensation of predetermined quantities of articles of food value such as nuts, candies, gum, etc., because of the difficulty in providing a dispenser which is self adapting to different types of articles of varying solidity and firmness.

Dispensers of well known type have employed a more or less rigid bottom for the article container and a multiple pocketed rotatable dispenser thereunder which, as the dispenser is rotated presents successive pockets therein for registration with an outlet in said bottom, whereby the pockets are successively charged with material from the container for later delivery to a customer. In such machines means in the form of brushes or wipers are borne by the container bottom, the lower ends of which closely overlie the dispenser pockets, for preventing more than a predetermined quantity of articles being retained in the pockets for delivery to a customer.

A customary expedient for such purpose is to provide a plurality of yieldable brushes in the path of oncoming article laden pockets, which level the contents of the pockets and retard the surplus articles and prevent their delivery to a customer.

As in the case of my said previous application, said brushes are in the form of closely wound helical springs suspended from the container bottom on a radial line to the common plane of the dispenser top. Said springs yield individually or together to permit passage thereunder of articles of different size, form or character. Occasionally a single row of such springs fails to prevent overloading of a pocket and, there being no subsequent deterrent, one customer may receive an excessive quantity of articles while a succeeding patron receives less than a normal quantity.

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Hence, it is an object to provide means, preferably integral with the container bottom, or at least between the article container and the dispenser, which consists of an integrally formed member, preferably molded of plastic material with several rows, or at least a large number of depending yieldable teats, rods, bristles, or clusters thereof having their lower ends in a common plane coincident with or closely adjacent the upper side of the pocketed dispenser, and individually or collectively yieldable to permit passage thereunder of articles of varying size and character, but effective for preventing overloading of the dispenser pockets.

Another object is to provide the aforesaid means for uniformly dispensing measured quantities of dispensable articles which is self adapting in principle if not in structure and size to other dispensers for similar articles and purposes.

Other objects may appear as the description progresses.

I have shown a preferred form of apparatus embodying my present invention in the accompanying drawing in which:

Fig. 1 is an elevational view, partly in section, of a vending machine showing my present improvements in association with other elements of a machine including well known and special devices originated by me;

Fig. 2 is a sectional plan, on line 2—2 of Fig. 1 on or adjacent to the upper side of a regulator unit contemplated by the present invention to be mounted between a container and a dispenser for regulating and limiting the quantities of articles or material borne to successive pockets of the dispenser for delivery to a customer;

Fig. 3 is a cross sectional view of the regulating unit on line 3—3 of Fig. 2; and

Fig. 4 is a bottom plan view of the regulator.

It may be understood that my instant improvements are adapted for use in various types of vending machines. I have shown and will describe the same in connection with a machine of my invention, for which I filed application for patent on November 13, 1948, Serial No. 59,798, now Patent No. 2,537,317, issued January 9, 1951, to which reference is made in the consideration of this invention and additionally, I refer to a copending application filed April 27, 1950, Serial No. 158,468, of which this application is a continuation in part.

In vending machines for dispensing uniform

quantities of soft or hard articles and novelties from a container usually superposed on a multiple pocketed dispenser it is necessary to provide means between the container and the dispenser for limiting the successive charges to the pockets as the dispenser is rotated beneath an opening at the bottom of the container, so as to level the contents of the pockets and retard or prevent excessive filling of the pockets which would tend to clog the machine or damage its products. Various and different devices have been employed for such a purpose, with but more or less satisfactory results. One such expedient is disclosed in my said application, Serial No. 59,798, which employed a row of helically wound springs with their lowest coils disposed in a common plane at the top of the dispenser pockets and in which said springs were anchored to the regulator body while their lower and free portions would yield to oversized or surplus articles as the dispenser rotated past said radially disposed row of springs. In such device it was ascertained the bodily yielding springs could not either yield sufficiently or would damage soft articles of food such as candy, nuts and gum.

I sought to correct said difficulty in my pending application, Serial No. 158,468, by mounting the spring brushes of the previous application on tensioned levers or arms so that in cases when the springs could not bodily yield without damage to the dispensable articles or to the machine, an excess yieldability was afforded both individually and collectively because in some cases the springs would be both rearwardly and upwardly yieldable to permit passage thereunder of extra large articles.

Both of said previous expedients, however, while effective and satisfactory for some dispensable articles, failed of satisfactory results on articles of different character, hardness and size. Moreover, there having been but a single row of springs under which the articles moved, if an oversize article or an over-filled pocket moved beneath the springs in a dispensing operation, there was no further deterrent to prevent dispensing of an oversize quantity. Hence, my present invention provides a regulator having a maximum number of detents depending from a 180 degree segment thereto to a common plane at or adjacent the common top plane of the dispenser pockets either arranged in regular rows or irregularly spaced so as to afford maximum assurance that oversized articles or overfilled pockets cannot discharge excessive materials or articles for delivery to a customer, and articles borne by the dispenser are reasonably free from liability of damage.

A machine especially adapted to use my improved regulator includes a base A, a housing B, a dispenser support C, a container D, a top cover E and a central rod F which is secured at its lower end to base A, extends through members B, C, D and E and at its upper end is suitably affixed to a key operated lock, for detachably supporting all of said members together.

Member C is formed with an annular wall 2 and a bottom 3 which provide a well 4 adapted to rotatably support a dispenser G having a plurality of pockets 5, 5, etc., alternating with segments 6, 7, etc. Dispenser G is operatively connected with a coin controlled operating mechanism H including an operating handle J fixed to a shaft 7 on the inner end of which is a gear 8 meshing with gear teeth 9 on the bottom of dispenser G.

A chute K is formed in member B with an inlet

10 with which successive pockets 5 of the dispenser G register as the dispenser is rotated. Hence, each charged pocket 5 drops its load into chute K and the articles fall by gravity to an outlet 11 at the bottom of the chute and may be withdrawn by a customer by raising a closure 12 which retains the dispensed articles until taken by the customer.

Container D is open at its bottom and the regulator R of my invention is stationarily held between the container and dispenser G and, as shown in Fig. 2, has a semi-circular web 15 forming a partial bottom for the container while the ramaining semi-circular portion thereof is open to the container so that articles as at 16 (Fig. 3), may fall therethrough into the pockets 5 of dispenser G which immediately underlies the regulator.

Web 15 is horizontally disposed and is formed with a plurality of depending teats 16 with their lower ends terminating in a common horizontal plane immediately above the segments 6 and pockets 5 of dispenser G. Said regulator is integrally formed of plastic material preferably because it is less likely to damage the articles 16 than when made of metal, and, moreover, the teats 16 afford sufficient yieldability and yet sufficient resistance to the movement of oversized articles 16 or overloaded pockets to assure the dispensing of uniform quantities of the articles at each operation because surplus articles are wiped out of the pockets 5 onto web 15. Ordinarily the leading teats 16 will retard movement of surplus articles beyond the diametrical edge of web 15, but if not, succeeding teats will delay or prevent oversize or surplus articles from further progress toward the inlet 10 of chute K, and thereby prevent delivery of more than a normal quantity of articles to a customer.

The unit R is molded to provide an integral structure including the teats 16 and is free from small and numerous small parts, and, therefore may be quickly removed and replaced bodily by merely unlocking the rod F and removing and replacing members C, D and E.

Regulator R is supported in operative position as by means of a flange 17 seated on a shoulder 18 of member B beneath container C and screws (not shown) extended through holes 19 of the regulator and into shoulder 18. The regulator is positioned with the web 15 at the front and the semi-circular opening at the rear. Thus, the articles 16 drop from the container through said opening into pockets 5 and as the dispenser rotates in a clockwise direction as shown in Fig. 2, the surplus articles in pockets 5 will be prevented from forward movement beyond the teats 16.

I claim:

1. In an article vending machine including a container, a mounting therefor, a pocketed dispenser rotatable on said mounting below said dispenser, and a dispensing chute: a regulator stationarily held on said mounting between said container and said dispenser and formed with a top plate under and partly closing the opening in said container and a shallow receptacle in the remaining area thereof open to said container and to the pockets of said dispenser so that articles from the container may be deposited in successive pockets of the dispenser as the dispenser is rotated, and a plurality of elongated yieldable detents integral with and depending from said top plate to a common plane adjacent said dispenser and engageable with and to prevent excess quantities of articles in said pocket from

delivery to said dispensing chute, said regulator being integrally formed of moldable and flexible material so as to afford yieldability to said detents.

2. In an article vending machine including a base having an internal chamber open at its top and an outlet in the bottom of said chamber, and a rotatable pocketed dispenser in the bottom of said chamber: a container on said base above said chamber, and a regulator having semi-circular closed and open sections disposed between the container and the dispenser by means of which articles from the container may drop by gravity through the open section of the regulator into successive pockets of the dispenser as the dispenser is rotated for moving said pockets successively into registration with said outlet for use, the closed section of said regulator being formed with a top web inclined upwardly from the diametrical margin of said open section, and a plurality of elongated yieldable detents integral with and depending from said top plate to a common plane adjacent said dispenser, said detents engaging and adapted to prevent delivery of excess articles in said pockets to said outlet for use, said regulator having an annular frusto-conical wall enclosing said detents and inclined around said open section so as to direct movement of articles from said container into said pockets.

3. In a vending machine of the character described: a regulating unit adapted to prevent

dispensing of excessive quantities of dispensible articles at each operation of the dispenser and embodying a plastic body of annular form having a semi-circular top web and a semi-circular opening therethrough, said web being inclined upwardly from a diametrical margin to its arcuate outer margin, and a plurality of yieldable teats integral with and depending from said web to a common plane.

4. In a vending machine embodying a rotatable pocketed dispenser disposed with the pockets therein open to an outlet for the contents, an annular mounting therefor, and a nonmetallic regulator for controlling the output of the dispenser from said pockets through said mounting, said regulator having an annular wall adapted to rest on said mounting, a horizontal semi-circular web integral with said wall and having a diametrical inner margin, and a plurality of yieldable teats depending from said web to a common plane above and adjacent the pockets of said dispenser for preventing excessive accumulation of articles in the pockets of said dispenser as the dispenser revolves beneath said teats.

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