Nov. 8, 1938. F. W. HOBAN 2,135,665

DISPENSING APPARATUS FOR VENDING MACHINES

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Fig. 1.

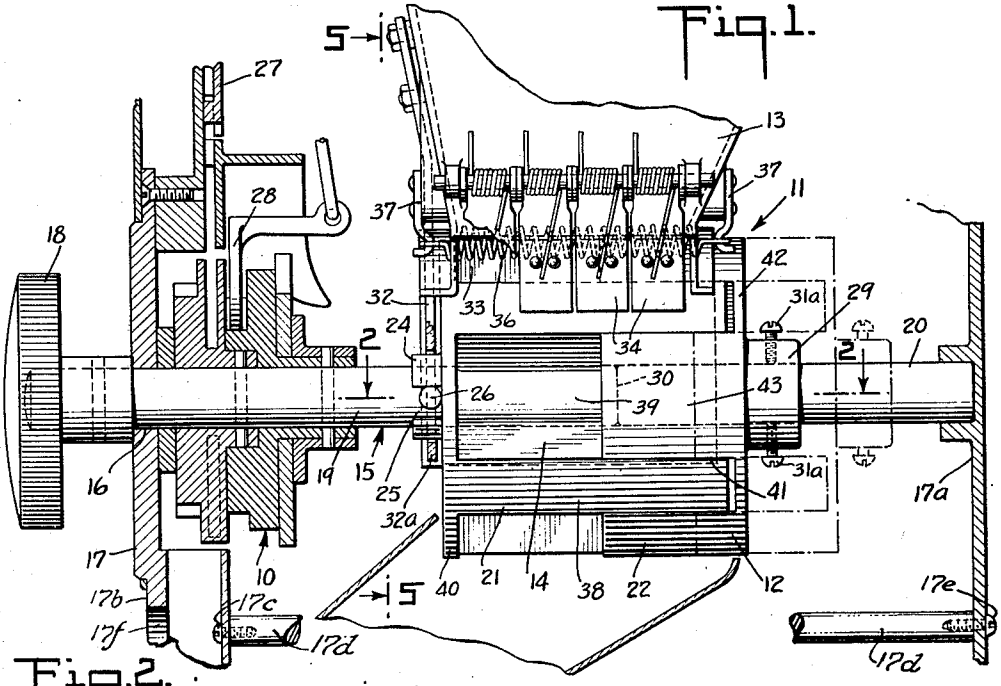
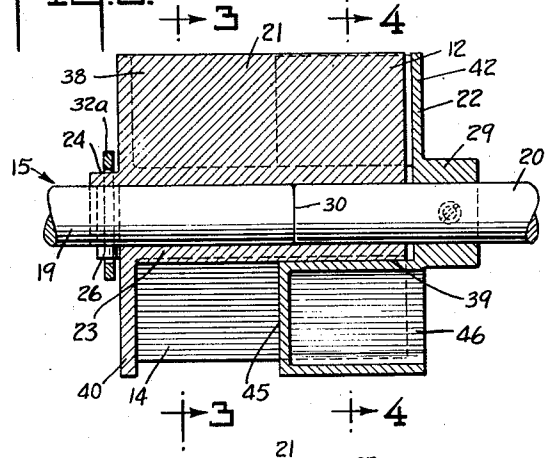


Fig. 2.



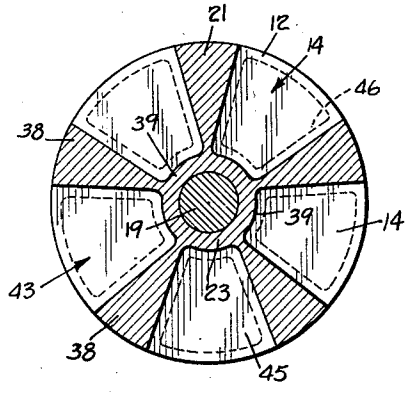


Fig. 3.

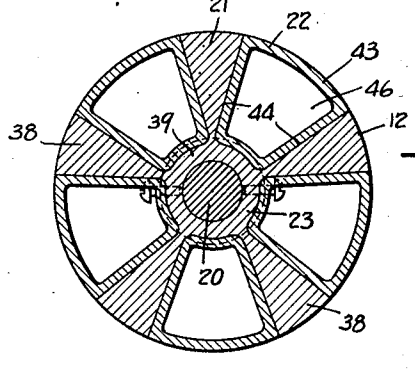


Fig. 4.

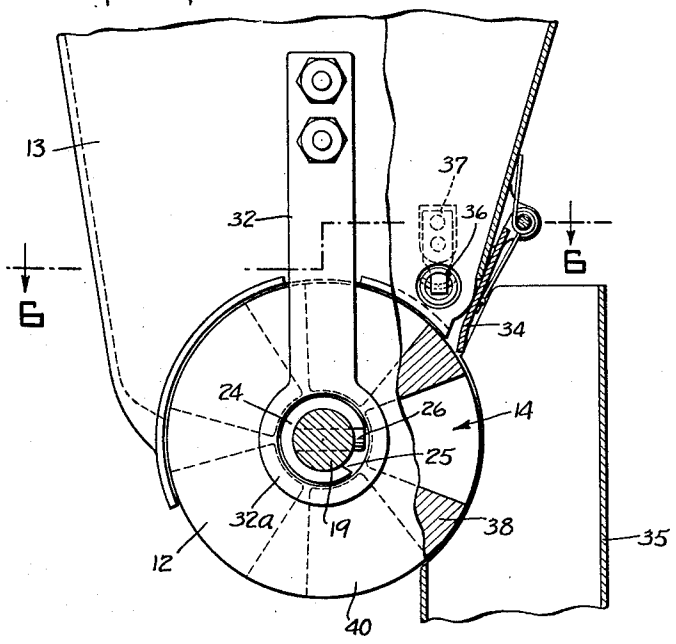
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DISPENSING APPARATUS FOR VENDING MACHINES

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Fig. 5.



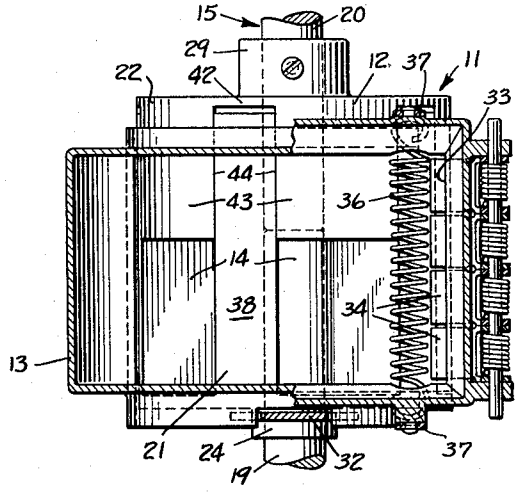


Fig. 6.

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DISPENSING APPARATUS FOR VENDING MACHINES

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Fig. 7.

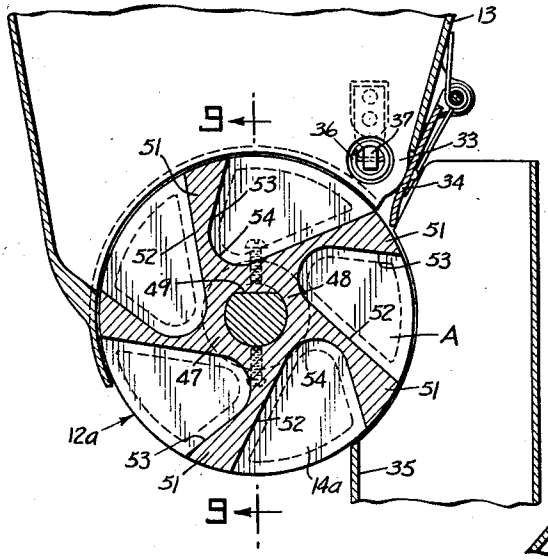
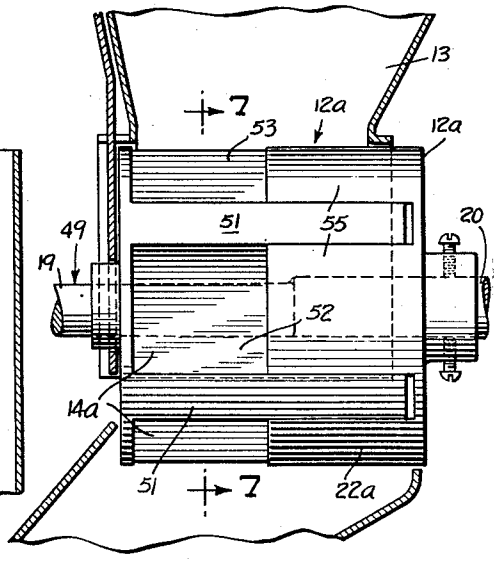


Fig. 8.



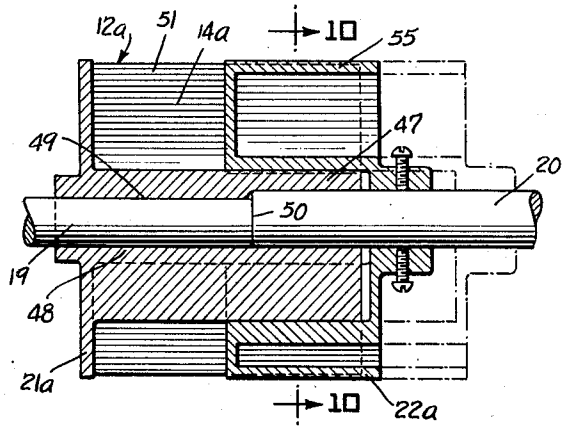


Fig. 9.

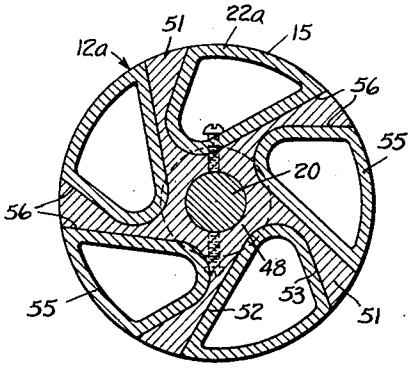


Fig. 10.

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UNITED STATES PATENT OFFICE

2,135,665

DISPENSING APPARATUS FOR VENDING MACHINES

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Application May 25, 1936, Serial No. 81,594

10 Claims. (Cl. 221—107)

My invention relates to means for dispensing commodities or merchandise, such as nuts or the like, and the same has for its object to provide a simple, reliable and efficient apparatus which is capable of being rotated when released by suitable coin controlled mechanism for dispensing or delivering one or more measured quantities of the commodity, depending upon the value of the coin inserted.

Further, said invention has for its object to provide an apparatus of the character specified in which the coin controlled mechanism may be readily disengaged or separated from the dispensing mechanism to allow the independent removal of the former for repairs or the like.

Further, said invention has for its object to provide an apparatus of the character specified in which the carrier thereof comprises relatively adjustable parts for regulating the size of the commodity receiving pockets therein and controlling the quantity of commodity to be dispensed.

Further, said invention has for its object to provide an apparatus of the character specified in which a dispensing drum includes pockets shaped to cause the complete discharge of the commodity therefrom by gravity upon rotation of the drum about its horizontal axis.

Further, said invention has for its object to provide a device of the character specified in which the dispensing drum or carrier thereof is mounted to allow limited movement of the actuating shaft back and forth relatively thereto for controlling a scavenger.

Other objects will in part be obvious, and in part be pointed out hereinafter.

To the attainment of the aforesaid objects and ends, my invention consists in the novel features of construction, and in the combination, connection and arrangement of parts hereinafter more fully described and then pointed out in the claims.

In the accompanying drawings:

Figure 1 is a side elevation with parts in section of one form of apparatus constructed in accordance with and embodying my said invention;

Fig. 2 is a horizontal section thereof through the dispensing drum on the line 2—2 of Fig. 1;

Fig. 3 is a transverse section thereof on the line 3—3 of Fig. 2;

Fig. 4 is a transverse section thereof on the line 4—4 of Fig. 2;

Fig. 5 is a front elevation thereof with parts in section taken on the line 5—5 of Fig. 1;

Fig. 6 is a sectional plan thereof taken on the line 6—6 of Fig. 5;

Fig. 7 is a transverse section of a modified form of dispensing carrier or drum taken on the line 7—7 of Fig. 8;

Fig. 8 is a side elevation thereof;

Fig. 9 is a longitudinal section thereof; and

Fig. 10 is a transverse section thereof on the line 10—10 of Fig. 9.

Referring to the drawings, Figs. 1 to 6, the coin controlled mechanism 10 is shown applied to a vending or dispensing means for dispensing or delivering merchandise, such as candy, nuts or similar articles in loose form and in measured quantities in accordance with the value of the coin inserted. The apparatus controlled by the mechanism 10 comprises rotatable means 11 including a carrier or drum 12 mounted for rotation about a horizontal axis below the open discharge end of a hopper 13 for receiving the commodities, the drum 12 being provided with pockets 14 adapted to successively register with the hopper for receiving the commodity therefrom. The drum 12 is preferably secured for rotation upon suitable shafting 15 having a bearing 16 at the front in a support or bridge 17, the rear end of the shafting 15 being journaled in a suitable support, such as the rear wall of the casing 17a employed to enclose the mechanism or apparatus. The shafting 15 has an actuating member or knob 18 at the front end thereof adapted to be rotated in a clockwise direction.

To facilitate the assembly of the apparatus within its usual casing, and its removal therefrom, the shafting 15 preferably consists of alined sections 19 and 20 while the drum 12 carried thereby preferably consists of two telescoping sections 21 and 22 in adjustable sliding engagement with each other to allow adjustment of the size of the pockets. The forward shaft section 19 carries the coin controlled mechanism 10 and is rotatably supported in the bridging member 17 and retained against axial movement therein by said mechanism 10 and the knob 18. The rear end of the shaft section 19 receives the forward section 21 of the drum 12 which is provided for this purpose with an axial sleeve or hub 23.

The drum section 21, in the form of the invention disclosed in Figs. 1 to 6, is provided with a collar 24 having a slot 25 therein receiving the pin 26 secured to the shaft section 19, whereby to provide a slight loss-motion between the actuating shaft 19 and the drum 12.

The control mechanism 10 is preferably of the type disclosed and claimed in my copending ap-

plication, Serial No. 56,558, filed December 28, 1935, and includes a movable scavenger 27 supported upon the member 17 and actuated by the dog 28 upon the initial rotation of the actuating member 18. During this initial movement of the shaft 19 the pin 26 rides in the slot 25 without moving the drum 12, but upon continued movement of the actuator 18, provided a good coin has released the locking mechanism, the pin 26 engages the collar 24 to initiate the rotation of the drum. The construction above described insures full quantity dispensation of the commodity from the successive pockets 14 without causing clogging or jamming of the apparatus because of the particles or pieces of the commodity becoming caught between the relatively rotatable parts of the apparatus during the scavenging operation.

The member 17 disposed transversely of and upon the shaft section 19 together with said shaft section, said mechanism 10 and said scavenger 27 as a unit is secured in place within the casing 17*a* in any suitable manner, such as by securing the member 17 at the lower portion 17*b* thereof forming a passage for the coins, by means of a screw 17*c* to the forward end of a shaft 17*d* secured at the rear end thereof by a screw 17*e* to the casing 17*a*. Upon removing the screw 17*c*, which is accessible through an opening 17*f* in the passage portion 17*b*, the shaft section 19 may be readily disengaged from the drum section 21 and the unit withdrawn from the casing of the vending machine.

The rear drum section 22 interfits the front drum section 21 in complementary relation thereto and is provided with an axial collar 29 at the rear thereof adapted to receive the forward end of the shaft section 20 which is secured in the sleeve 23 of the forward drum section 21 and forms an abutment 30 for locating the inner end of the shaft 19. The drum section 22 is capable of being slid along the shaft section 20 to vary the length of the pockets 14 and is secured in any adjusted position by means of the set screws 31*a*.

The intermediate portion of the operating means or shafting 15 is also preferably supported by a member or hanger 32 attached to the hopper 13 and depending therefrom, said member 32 having an annular end portion 32*a* receiving the collar 24 formed on the forward end of the drum 14.

In the embodiment of the invention disclosed herein the lower end of the hopper 13 is arcuately shaped to correspond in outline with that of the drum 14 which interfits the same. As shown in Figs. 1 to 3, the lateral wall of the hopper at the side towards which the drum rotates at its lower end has a clearance or opening 33 therein closed by spring members or gates 34 which wipe over the periphery of the drum as the successive pockets 14 are brought into discharging relation to the lateral chute 35 for delivering the commodity to the purchaser. The gates 34 prevent clogging or jamming during rotation of the drum because of the projection of pieces of the commodity above the drum, and cause excess pieces of the commodity to be swept back into the hopper.

Efficiency in the operation of the drum is also enhanced by the provision of means 36 within the hopper 13 contiguous to the drum 14 and directly in advance of the gates 34 for yieldably holding the head of nuts or other commodity within the hopper from crowding against the gates, and thus interfering with the discharging operation. Such means 36 preferably consists of a coil spring stretched across the hopper in advance of the gates and secured at the ends to suitable brackets 37 upon the hopper.

The axially adjustable telescopic drum sections 21 and 22 (Figs. 1 to 6) each consists of an integrally formed die casting. The member 21 comprises a central hub forming the sleeve 23 and the longitudinal radial vanes or partitions 38 forming the pockets 14 therebetween. The vanes 38 are substantially triangular in cross-section, progressively decreasing in cross-section towards the hub or sleeve 23 to form correspondingly tapering pockets 14 having relatively wide floors or bases 39. The forward end of the member 21 is closed by an integrally formed wall portion 40 while the rear ends of the pockets 14 are open, as indicated at 41, in order to receive the complementary member 22.

The member 22 comprises the hub 28 having the end web 42 provided with the circumferentially arranged forwardly directed hollow portions 43 shaped to be received into and fit the open ends of the tapering pockets 14 in the member 21 and having the inwardly tapering spaces 44 therebetween for receiving and fitting the rear portions of the tapering partitions 38. The axial ends 45 of the portions 43 form an interrupted annulus for clearing the hub portion 23 and fitting snugly against the floors or bases 39 of the pockets 14. The transverse vertical end walls 45 of the several portions 43 form the rear walls of the pockets 14. The several hollow portions 43 are open, as shown at 46, at the rear thereof through the web 42 for facilitating the casting and minimizing the weight thereof.

In Figs. 7 to 10 I have illustrated a modified form of telescopic drum 12*a* in which the pockets 14*a* are shaped to facilitate the complete discharge of the commodity therefrom when the pockets are brought into dumping or discharging positions. In this construction the forward telescopic member 21*a* includes the hub portion 47 providing the central or axial sleeve 48 having the flat 49 for receiving the rear end of the correspondingly shaped shaft 19 whereby the drum 12*a* is keyed to said shaft. The rear end of the sleeve 48 receives the forward end of the shaft 20 which is sweated in place therein and forms an abutment at 50 for locating the inner end of the shaft 19. This construction allows the shaft 19 together with the control mechanism thereon to be readily removed from the drum 12*a* as in the case of the construction illustrated in Figs. 1 to 6.

The integrally formed casting 21*a* comprises a plurality of longitudinal vanes or partitions 51 projecting outwardly from the hub 47 and forming the pockets 14*a* therebetween. The vanes 51 each has at one side thereof a substantially flat following surface 52 disposed substantially tangential to the hub 47 and at the opposite side thereof has a substantially flat advancing surface 53 of less depth than the surface 52 and extending inwardly at an acute angle to the opposite surface 52. The relatively deep flat surface 52 of each vane 51 merges with the contiguous or opposing surface 53 of the following vane through a radius 54, the pocket 14*a* between succeeding vanes 51 being defined by the surfaces 52 and 53 and the intervening radius 54 at the juncture thereof.

The successive pockets 14*a* as thus formed comprise a relatively deep flat, advance or lower wall portion 52 which extends downwardly and out-

wardly in the discharging position of the pocket as indicated at A, Fig. 7, and an upper side 53 having an angular relation to the surface 52 such that it extends outwardly substantially horizontal in said discharging position A.

The co-operating integrally formed telescoping member 22a is similar to the corresponding member 22 described in connection with Figs. 1 to 6, except that the interfitting portions 55 and the intervening recesses 56 therebetween correspond respectively in shape with the pockets 14a and partitions 51 and interfit therewith to complete the pockets. The member 21a may be secured in various adjusted positions along the shaft 20 to vary the size of the pockets 14a.

By my invention I provide a novel form of rotary drum or carrier for dispensing commodities such as nuts, candy and the like adapted to be rotated by an actuator when the same is released by the coin, the control mechanism being readily removable or disengageable from the carrier or drum.

Further, the drum structure embodying my said invention consists of pocket forming parts interfitting for joint rotation and capable of being relatively adjusted axially to vary the capacity or size of the several pockets in the drum.

Further, the relationship between the opposing surfaces of each pocket is such that the commodity is effectively dumped out or discharged by gravity when the pocket attains its discharging position as shown at A (Fig. 7) to minimize the possibility of some of the commodity remaining lodged in or sticking to the walls of the pockets particularly when the commodity consists of salted nuts or the like liable to otherwise adhere to the surfaces of the pockets.

Having thus described my invention what I claim and desire to secure by Letters Patent is:

1. Apparatus of the character described comprising a support including a hopper, a dispensing drum below said hopper having an axial sleeve extending therethrough and terminating in a projecting collar at the front thereof, a shaft secured within the rear portion of said sleeve and projecting rearwardly from said drum, a bearing on the support for said shaft, control means carried by said support for removal therefrom including an actuating shaft removably disposed and keyed within said sleeve in abutting relation to the inner end of said first named shaft for rotating said drum, and means on the support extending under said collar for supporting the forward end of the drum upon the removal of said actuating shaft therefrom.

2. Apparatus of the character described comprising a support including a hopper, a dispensing drum below said hopper having an axial sleeve extending therethrough, a shaft secured within the rear portions of said sleeve and projecting rearwardly from said drum, a bearing on the support for said shaft, and control means carried by said support including an actuating shaft extending into said sleeve at the front of the drum, said sleeve and said shaft including interengaging portions constituting a loss motion means allowing limited rotation of said actuating shaft relative to said drum.

3. Apparatus of the character described comprising a support, a hopper thereon, a dispensing drum therebelow having an axial sleeve including a collar having a slot therein, an actuating shaft having coin controlled locking mechanism thereon allowing a limited initial rotary movement of said shaft and inserted in said sleeve, means on said support for journalling said shaft, and a pin on said shaft disposed in said slot for actuating said drum with said shaft, said slot allowing said limited movement of said actuating shaft relative to said drum.

4. Apparatus of the character described comprising a support including a hopper, a dispensing drum below said hopper having an axial sleeve including a projecting collar, shafts received in said sleeve at opposite ends thereof, the shaft at the collared end of said sleeve constituting a drum actuating member axially removable from said sleeve, means on the support for supporting said shafts, and a depending member on the support having an annular portion receiving said collar for supporting the forward end of the drum upon removal of said last-mentioned shaft.

5. Apparatus of the character described comprising a support including a hopper, a horizontally disposed dispensing drum below said hopper having an axial sleeve including a projecting collar, an actuating shaft removably keyed to said drum within said sleeve at the collared end thereof, a shaft secured in said sleeve at the opposite end thereof, means for journalling the shafts on the support, and a depending supporting member on the support having an annular portion at the lower end thereof receiving said collar for supporting the forward end of the drum upon removal of the actuating shaft.

6. Apparatus of the character described comprising a support including a hopper, a dispensing drum below said hopper having an axial sleeve extending therethrough, a shaft secured within the rear portion of said sleeve and having a bearing on said support, an actuating shaft removably disposed within said sleeve at the forward portion thereof, a transverse member connected to said support and providing a bearing for said last named shaft and retained thereon for removal therewith as a unit, control means including co-operating parts disposed upon the last-named shaft and said transverse member for removal therewith, and means engageable with the forward end of said drum for supporting the same upon removal of said unit.

7. Apparatus of the character described comprising a frame, a hopper mounted thereon, a dispensing drum having an axial sleeve below said hopper, a shaft secured within said sleeve at one end and forming an abutment at the inner end thereof, a bearing for said shaft on the frame, an actuating shaft disposed within said sleeve at the opposite end in abutting relation to said first named shaft, said actuating shaft being keyed to said drum and axially removable therefrom, a transverse member having a bearing for said actuating shaft and retained thereon for removal therewith as a unit, means for detachably securing said member to said frame, and mechanism including co-operating parts disposed upon said actuating shaft and said member for removal therewith.

8. Apparatus of the character described comprising a frame, a hopper thereon, a dispensing drum having an axial sleeve disposed below said hopper, a shaft secured within said sleeve at one end, a bearing for said shaft on the frame, an actuating shaft keyed within said sleeve at the other end thereof and axially removable therefrom, a bearing on the frame for said actuating shaft, and means co-operating with said drum at the last mentioned end thereof for supporting

said end upon the disengagement of the actuating shaft therefrom.

9. Apparatus of the character described comprising a support including a hopper, a dispensing drum having an axial sleeve disposed below said hopper, a shaft projecting from one end of said sleeve, a bearing therefor on the support, an actuating shaft detachably inserted within said sleeve at the opposite end thereof and keyed thereto, a transverse member retained upon said actuating shaft and providing a bearing therefor, means for detachably securing said member to the support, control mechanism on said actuating shaft and said member for removal therewith as a unit, and means upon the support cooperating with said drum at the last mentioned end thereof for supporting said end upon the detachment of said actuating shaft therefrom.

10. Apparatus of the character described comprising a support including a hopper, a dispensing drum disposed below said hopper including interfitting, axially adjustable members, one of said members having an axial sleeve open at its opposite ends and a shaft secured within said sleeve at one end, and the other of said members including a collar receiving said shaft and adjustably secured thereto, an actuating shaft removably inserted within said sleeve at the opposite end thereof and connected thereto for rotating said drum, and means for journalling said shafts upon said support.

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