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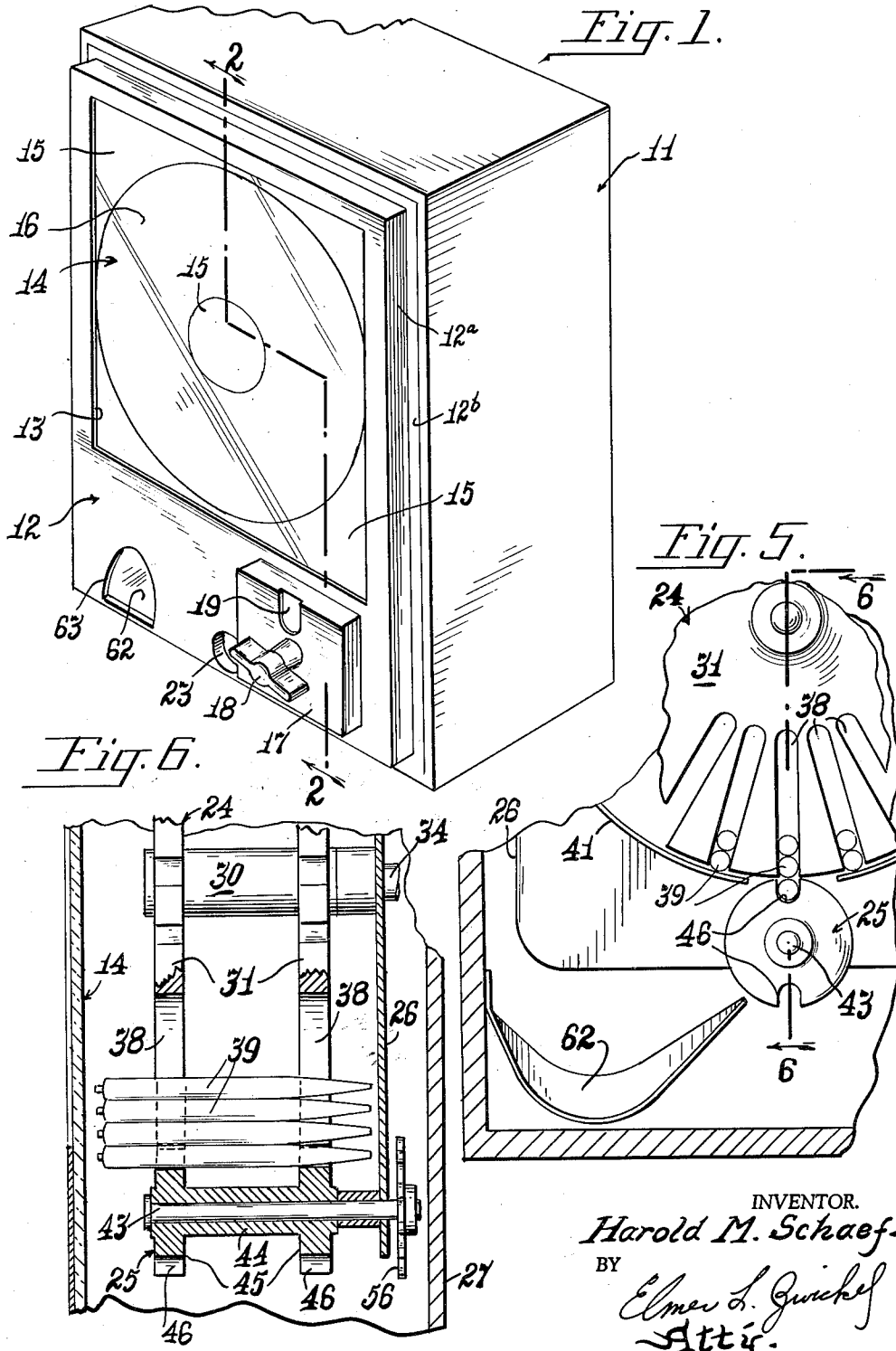
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MERCHANDISE VENDING MACHINE

Filed Oct. 5, 1959

4 Sheets-Sheet 1



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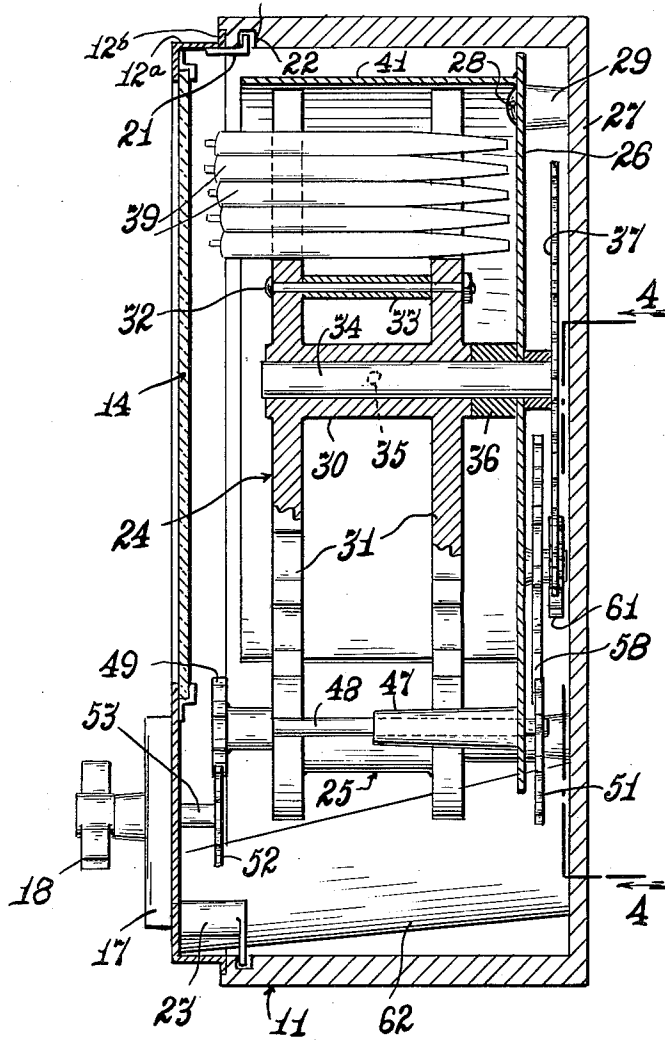


Fig. 2.

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MERCHANDISE VENDING MACHINE

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The invention relates to improvements in merchandise vending machines and more particularly to coin controlled vending machines of a type wherein pens, pencils or other items of merchandise are stored for selective or random vending.

Vending machines of many types have been used for vending individual pieces of merchandise, packaged or unpackaged. Heretofore, many such machines have stored the merchandise in bulk form. However, in the dispensing of items of merchandise having uniform dimensions such as pens, pencils, combs and packaged toothbrushes, cigars or candies, it is very often feasible to store the items in a manner so that they are incrementally fed at random to the vending mechanism for vending. In other instances, it is often desirable to arrange the supply in a manner to enable the customers to select a specific item of merchandise prior to operation of the vending mechanism. Storing of like items of merchandise in a predetermined manner for incremental random or selective vending is made practical by the novel structure of the vending machines herein disclosed. The present structures are inexpensive to manufacture, are simple to operate and are positive in their operation.

It is therefore an object of the invention to provide a merchandise vending machine which will have all of the advantages hereinabove mentioned.

Another object is to provide a vending machine which will store and dispense elongated items of merchandise without their becoming entangled one with the other.

Another object is to provide a vending machine of a character wherein the articles of merchandise are stored in an orderly fashion and may be viewed by the customer prior to selection and/or vending.

Another object is to provide novel storage and vending means of a character that will prevent pilfering or "milking" of the machine.

Another object is to provide a novel rotatable storage member having individual compartments in each of which is located a number of items of merchandise, all or some of which are exposed to the view of the operator who, in one embodiment of the machine herein disclosed, may select the article to be purchased.

Another object is to afford novel normally locked vending means so associated with the storage member as to be properly positioned for receiving and vending one item each time the machine is operated.

Another object is to provide a machine of the character recited herein with a minimum number of moving parts, and one which is simple to operate and service, easy and positive in its operation and sturdily constructed.

With the foregoing and other objects in view which will appear as the description proceeds, the invention consists of certain novel features of construction, arrangement and combination of parts hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportion, size and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

For the purpose of facilitating an understanding of the invention, I have illustrated in the accompanying drawings preferred embodiments thereof, from an inspection of which, when considered in connection with the following description, the invention, its mode of construction, as-

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sembly and operation, and many of its advantages should be readily understood and appreciated.

Referring to the drawings in which the same characters of reference are employed to indicate corresponding or similar parts throughout the several figures of the drawings:

FIG. 1 is a perspective view of a vending machine embodying features of the invention.

FIG. 2 is a vertical sectional view taken substantially on line 2-2 of FIG. 1.

FIG. 3 is a front elevational view of the machine, with the cover plate removed and the lower end broken away, and showing the storage and vending mechanism in an intermediate position assumed during a vending operation.

FIG. 4 is a fragmentary rear elevational view of the vending and storage drive mechanism, taken substantially on line 4-4 of FIG. 2.

FIG. 5 is a fragmentary front elevational view of the storage and vending mechanism, showing it in a position of rest.

FIG. 6 is a fragmentary vertical central sectional view taken substantially on line 6-6 of FIG. 5.

FIG. 7 is a front elevational view of a selective vending machine, showing parts of the front panel broken away.

FIG. 8 is a rear elevational view of the mechanism shown in FIG. 7.

Referring to the exemplary embodiment of the invention disclosed in FIGS. 1 through 6, and particularly to FIG. 1 thereof, the merchandise vending machine comprises a substantially rectangular box-like housing 11 having a removable front panel 12. The panel 12 is formed with a large rectangular opening 13 in which is mounted a transparent pane 14 preferably having areas 15 thereof rendered opaque and a generally circular transparent area 16 through which merchandise to be vended may be viewed by the operator. The lower region of the front panel 12 has a coin controlled mechanism enclosed in a substantially square forwardly protruding box-like offset 17. The coin controlled mechanism is of conventional construction and it includes a turn handle 18 manually operable, upon insertion of a coin of proper denomination in a receptacle 19 (FIG. 1) to actuate the vending mechanism to be described presently.

Preferably front panel 12 has rearwardly extending side and end walls 12a that terminate in outwardly extending flanges 12b seated on the recessed forward edges of housing 11. Front panel 12 may be secured in place by a lug 21 at its upper end engaged in a recess 22 in the related end wall of the housing and a key operated lock mechanism 23 that coacts with a recess in the opposed related end wall of said housing.

Mounted within housing 11 is a merchandise storage member, generally indicated at 24, and a dispensing member 25, both mounted for rotation on a substantially rectangular plate 26 secured to and spaced forwardly of the rear housing wall 27 as by means of screws 28 and spacer bosses 29. As is perhaps best shown in FIG. 2, the merchandise storage member 24 is comprised of a hub 30 having large circular flanges 31 preferably integral therewith. If desired the flanges 31 and hub 30 may be separate, in which event they are held rigidly connected by tie rods 32 having spacer sleeves 33 thereon.

A mounting shaft 34 extends through hub 30 and may be secured thereto as by a lock screw 35 and projects freely through a spacer sleeve 36 and through the plate 26. Shaft 34 carries firmly on its rearwardly projecting end a large gear 37.

Each flange 31 of said storage member has a multiplicity of mutually spaced circumferentially arranged radial slots 38 (FIG. 3) which open onto the peripheral edges of said flanges and which align one with the other to afford support and retaining means for a supply of

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items of merchandise to be vended. In the present instance these items are shown as ball-pointed pens 39 which lie one upon another in each aligned pair of slots and extend longitudinally of the axis of merchandise storage member 24. In order to prevent inadvertent displacement of said items of merchandise from their supporting slots, the storage member 24 is surrounded by a circular wall 41 open at its lower region, as at 42 to accommodate the dispensing member 25 now to be described.

The dispensing member 25, best shown in FIGS. 3, 5 and 6, is mounted firmly on a shaft 43 journaled for free rotation in plate 26 beneath and in vertical alignment with shaft 34. It includes a hub 44 having external circular end flanges 45 each formed in its peripheral edge with diametrically opposed notches 46 of a size to receive an item of merchandise seated therein during a vending operation. Flanges 45 are in registering alignment with and are in substantial peripheral contact with flanges 31 on storage member 24. During a vending operation, the dispensing member 25 is rotated one-half of a revolution each time the coin controlled mechanism is operated. A suitable gear train, now to be described, connects the dispensing member 25 with said coin controlled mechanism and with storage member 24.

As best shown in FIGS. 2 and 4, the plate 26 has a journal boss 47 extending forwardly therefrom in which is mounted, for free rotation, a stud shaft 48 carrying a pinion 49 on its forward end and a pinion 51 on its rearwardly projecting end. The pinion 49 is meshed at all times with a pinion 52 carried on the turn handle shaft 53 of the coin control mechanism. Pinion 51 meshes with an idler gear 54 journaled on a stud shaft 55 which in turn is meshed with a gear 56 carried firmly on the rearwardly projecting end of the dispensing member shaft 43. The gear ratio is such that when the turn handle 18 is rotated one complete revolution, the dispensing member 25 is rotated one-half of a revolution.

Gear 56 also is meshed with an idler pinion 57 which meshes with a large idler gear 58 journaled on an idler shaft 59 which shaft also carries firmly thereon a pinion 61 that is engaged with large gear 37 on the storage member shaft 34. The relative ratios of gears and pinions in this gear train is such that when dispensing member 25 is rotated one-half of a revolution, the storage member 24 is rotated a distance equal to the circumferential spacing of two adjacent radial slots 38.

In operation, a customer places a coin of proper denomination in the receptacle 19 of the coin-control mechanism thus conditioning said mechanism for unlocking to permit manual rotation of turn handle 18. At this time, storage member 24 and dispensing member 25 are in the positions of rest best shown in FIG. 5. As illustrated, the notches 46 in said member 25 are disposed in vertical alignment, with the lowermost radial slot 38 of the storage member located in vertical register with the upper one of said recesses. When the members are in this relation, an item of merchandise is seated in the upper one of said recesses 46, as shown in FIGS. 5 and 6. Rotation of turn-handle 18 causes dispensing member 25 to rotate in a counter-clockwise direction one-half of a revolution, during which rotation the item of merchandise seated in said recess 46 is carried from beneath the storage member and is allowed to drop out of said recess into a chute 62 located in the bottom region of the housing from where it may be removed by the operator reaching through an aperture 63 in front panel 12. The storage member 24 is simultaneously rotated in a clockwise direction, carrying the previously aligned slot 38 out of its vertical position and advancing the next adjacent slot into register with the companion recess 46 on the vending member 25. Upon completion of the vending operation, the coin falls from the coin controlled mechanism into the interior of housing 11 which may contain a cash box (not shown) to

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receive such coins. The vending mechanism is now locked and additional vending operations can be effected only by successive deposit of additional coins.

Referring now to the exemplary embodiment of the invention shown in FIGS. 7 and 8, the merchandise vending machine illustrated is constructed substantially like the one previously described and like numerals are used to identify corresponding parts. This machine is constructed to permit the operator to select the item of merchandise to be vended and it includes a pair of like storage members 24 and 24a arranged in vertical alignment and operably connected for rotation in unison by meshed gears 37 and 37a arranged rearwardly of mounting plate 26. A selector knob 64 is carried on the front face of front panel 12a and its shaft 65 that extends through said panel and carries firmly thereon a pinion 66 that is meshed with storage member gear 37. In use, an operator rotates knob 64 while viewing the items of merchandise through transparent areas 16 of panel 12 until a selected item is carried into vertical alignment with the dispensing member 25. During such rotation any space present in the uppermost vertical slot 38 of storage member 24 will be filled by the dropping thereinto of an item of merchandise from the registering slot in the companion storage member 24a. There is thus provided adequate storage facilities for a considerable number of items of merchandise, all of which can ultimately be dispensed during repeated machine operation.

Accurate positioning of the storage members during operation of the selector knob and retention of said members in a selected position is obtained by providing suitable latch means which may comprise a lever 67, pivoted at 68 on the rear face of plate 26 and carrying at one end a stud or roller 69 for selective engagement between circumferentially spaced lugs 71 carried on the rear face of gear 37. The other end of said lever 67 is connected to a spring 72 that tends at all times to urge the stud or roller into latching engagement with lugs 71.

The machine is equipped with the coin-controlled mechanism turn handle 18 and pinion 52, the latter being meshed with a pinion 49 (not shown in FIGS. 7 and 8) on an idler shaft 48 carrying pinion 51 which in turn meshes with idler gear 54 meshed with pinion 56 for driving the dispensing member 25.

In operation, the operator will first rotate the selector knob 64 until the selected item of merchandise is positioned directly above the dispensing member 25, in which position it is held by the retention means described hereinabove. The dispensing member 25 is adapted to have a normal rest position with its recesses 46 in horizontal alignment so as to present a smooth peripheral surface beneath the storage member 24 over which the items of merchandise may ride freely during selective adjustment of said storage member.

When a coin is placed in the coin-controlled mechanism and turn-lever 18 is rotated, the vending member is likewise rotated. During each such rotation, one of the recesses 46 is carried beneath the selected item of merchandise which then drops thereinto and is discharged in dispensing chute 62 upon completion of the vending operation. In order to insure the free fall of the item of merchandise from the recess in which it is seated, one side of said recess is flared as at 46a to present a downwardly sloping surface which assists movement of the item out of the recess.

It is believed that the invention, its mode of construction and assembly, and many of its advantages should be readily understood from the foregoing without further description, and it should also be manifest that while preferred embodiments of the invention have been shown and described for illustrative purposes, the structural details are nevertheless capable of wide variation within the purview of the invention as defined in the appended claims.

What I claim and desire to secure by Letters Patent of the United States is:

1. A coin-controlled vending machine including a housing, a dispensing chute and dispensing actuating means, a circular merchandise storage member, said merchandise storage member having a plurality of radial compartments opening onto its peripheral edge each adapted to contain at least one item of merchandise, a transparent area in said housing through which the items of merchandise can be viewed, said merchandise storage member being mounted for rotation on a horizontal axis, a circular dispensing member arranged beneath and in vertical alignment with said storage member, said dispensing member being rotatable on a horizontal axis, diametrically opposed merchandise receiving recesses in the peripheral edge of said dispensing member adapted for selective reception of an item of merchandise from the radial compartments, means operably connecting the dispensing member with the storage member for simultaneous rotation, and means operable to rotate said members for discharging an item seated in a recess into the dispensing chute.

2. A coin-controlled vending machine including a housing, a dispensing chute and dispensing actuating means, a circular merchandise storage member, said merchandise storage member having a plurality of radial compartments opening onto its periphery each adapted to contain at least one item of merchandise, a transparent area in said housing through which the items of merchandise can be viewed, said merchandise storage member being mounted for rotation on a horizontal axis, a circular dispensing member arranged beneath and in vertical alignment with said storage member, said dispensing member being rotatable on a horizontal axis, diametrically opposed merchandise receiving recesses in the peripheral edge of said dispensing member, means operably connecting the dispensing member with the storage member for rotating the storage member a distance equal to the circumferential spacing between said compartments when the dispensing member is rotated one-half of a revolution so as to successively align the recesses with said compartments, and means operable to rotate said members for discharging an item of merchandise seated in one of said recesses into the dispensing chute.

3. The vending machine of claim 2, in which the merchandise storage member comprises a pair of spaced discs interconnected for uniform rotation and each having radial compartments in axial register to receive elongated items of merchandise disposed to bridge the gap between said discs.

4. The vending machine of claim 2, in which the merchandise storage member and the dispensing member each comprise spaced apart discs and wherein one disc of each is in planular alignment with one disc of the other.

5. The vending machine of claim 2, in which the dispensing member comprises a pair of spaced discs rigidly connected one to the other and each having diametrically opposed aligned peripheral recesses to receive elongated items of merchandise disposed to bridge the gap between said discs.

6. The vending machine of claim 2, in which said dispensing actuating means comprises a coin-controlled mechanism mounted in the front wall of said housing, a shaft journaled through said mechanism and housing wall, a turn-handle mounted on the outer end of said shaft, a pinion mounted on the other end of said shaft, and a gear train connecting said pinion with the dispensing member.

7. A coin-controlled vending machine including a housing and a dispensing chute, a mounting plate mounted within said housing, a circular merchandise storage member mounted for rotation on a horizontal axis on said plate, said merchandise storage member having a plurality of radial compartments opening onto its peripheral edge each adapted to contain at least one item of mer-

chandise, a transparent area in said housing through which items of merchandise can be viewed, a circular dispensing member mounted for rotation on a horizontal axis on said plate, said dispensing member having its peripheral edge closely adjacent to the peripheral edge of the merchandise storage member and being positioned in vertical alignment beneath said merchandise storage member, a pair of diametrically opposed merchandise receiving recesses in the peripheral edge of said dispensing member, said recesses normally being aligned in a vertical plane and with the uppermost of said recesses in registering alignment with one of the storage member compartments so as to receive an item of merchandise therein, means operably connecting the dispensing member with the storage member for rotating the storage member a distance equal to the circumferential spacing between said compartments when the dispensing member is rotated one-half of a revolution, and means operable to rotate said members to cause the item seated in said one recess to be discharged into the dispensing chute.

8. A coin-controlled vending machine, a housing, a dispensing chute, a peripherally slotted cylindrical merchandise storage member rotatably mounted on a horizontal axis in said housing, said slots being adapted to contain items of merchandise, a peripherally recessed cylindrical merchandise dispensing member rotatably mounted on a horizontal axis below said storage member, said members being in substantially peripheral contact with a slot in the storage member in register with a recess in the dispensing member so as to locate an item of merchandise in said recess, means operable to rotate the dispensing member a distance to carry the said recess beyond the point of peripheral contact with said storage member and for discharging said item into the dispensing chute, and means connecting the dispensing member with the storage member for rotating the storage member when the dispensing member is rotated so as to carry the next adjacent slot in the storage member into position to register with the other of said recesses for transferring an item of merchandise from said adjacent slot to said other recess.

9. A coin controlled vending machine including a housing, a dispensing chute and dispensing means, a first cylindrical merchandise storage member rotatable on a horizontal axis in said housing, a second cylindrical merchandise storage member rotatable on a horizontal axis in said housing below and in vertical alignment with said first merchandise storage member, gear means operably connecting said members for rotation in unison, each of said members having radial compartments opening onto their peripheral surfaces each adapted to contain items of merchandise, the radial compartments in one member being adapted to be aligned successively with successive radial compartments in the other member when said members are rotated so as to deliver items of merchandise by gravity from the first member to the second member, manual means to rotate said members to position any selected compartment of the second member over the dispensing means, a transparent area in said housing through which at least the items of merchandise in said selected compartment may be viewed, means in said dispensing means to receive an item of merchandise from said selected compartment, and actuating means for said dispensing means operable to discharge the item of merchandise received therein into the dispensing chute.

10. The vending machine of claim 9 in which locator means for locating the selected compartment in dispensing position is provided.

11. The vending machine of claim 9 in which the manual means to rotate the merchandise storage members includes a pinion meshed with one of the gears in said connecting gear means.

12. The vending machine of claim 9 in which the radial compartments are slots and said slots are mutually spaced circumferentially.

13. The vending machine of claim 9 in which the mer-

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chandise storage members and the dispensing member are mounted on a mounting plate removably secured within said housing.

14. The vending machine of claim 9 in which one of the merchandise storage members has a series of mutually spaced stop lugs firmly attached thereto selectively engageable by spring controlled latch means for locating and retaining the selected compartment in dispensing position.

15. A coin-controlled vending machine including a housing, a dispensing chute and dispensing actuating means, a circular merchandise storage member, said storage member having a plurality of radial compartments opening onto its peripheral edge each adapted to contain items of merchandise, a transparent area in said housing through which the items of merchandise can be viewed, said storage member being mounted for rotation on a horizontal axis, means to rotate said storage member, a circular dispensing member arranged beneath and in sub-

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stantial peripheral contact with the peripheral edge of said storage member, said dispensing member being rotatable on an axis parallel with the axis of the storage member, merchandise receiving recesses in the peripheral edge of said dispensing member each adapted for reception of an item of merchandise from a radial compartment when such compartment is in register therewith, and means operable by said dispensing actuating means to rotate the dispensing member for discharging an item seated in one of its recesses into the dispensing chute.

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