June 28, 1938. J. PRENDES 2,122,265

COIN OPERATED VENDING DEVICE

Filed Nov. 3, 1936 3 Sheets-Sheet 1

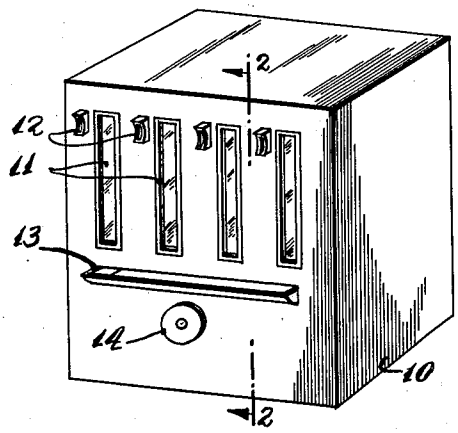


Fig. 1.

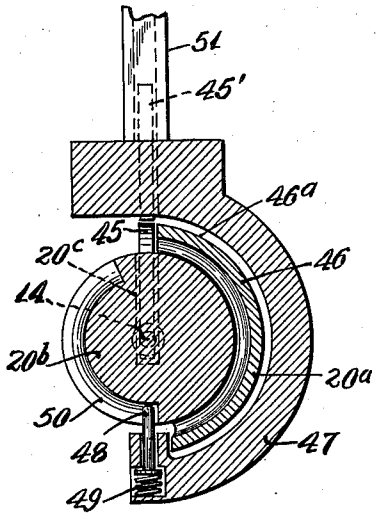


Fig. 4.

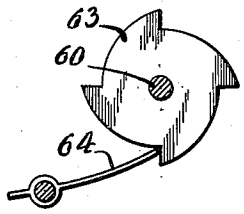


Fig. 6.

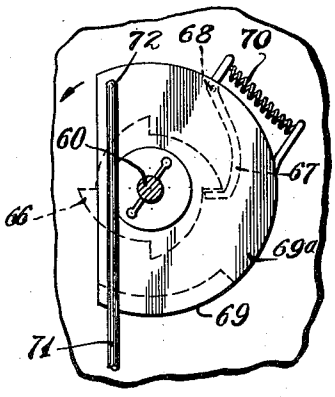


Fig. 5.

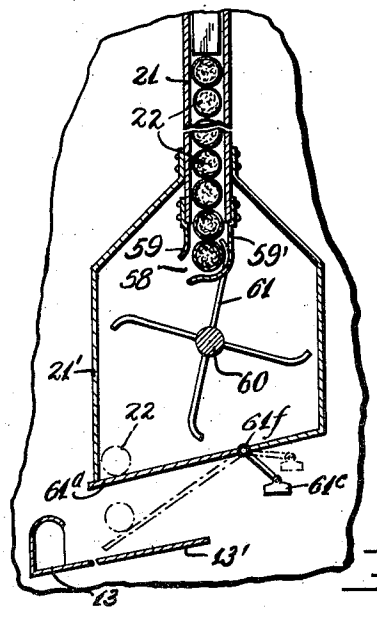


Fig. 7.

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COIN OPERATED VENDING DEVICE

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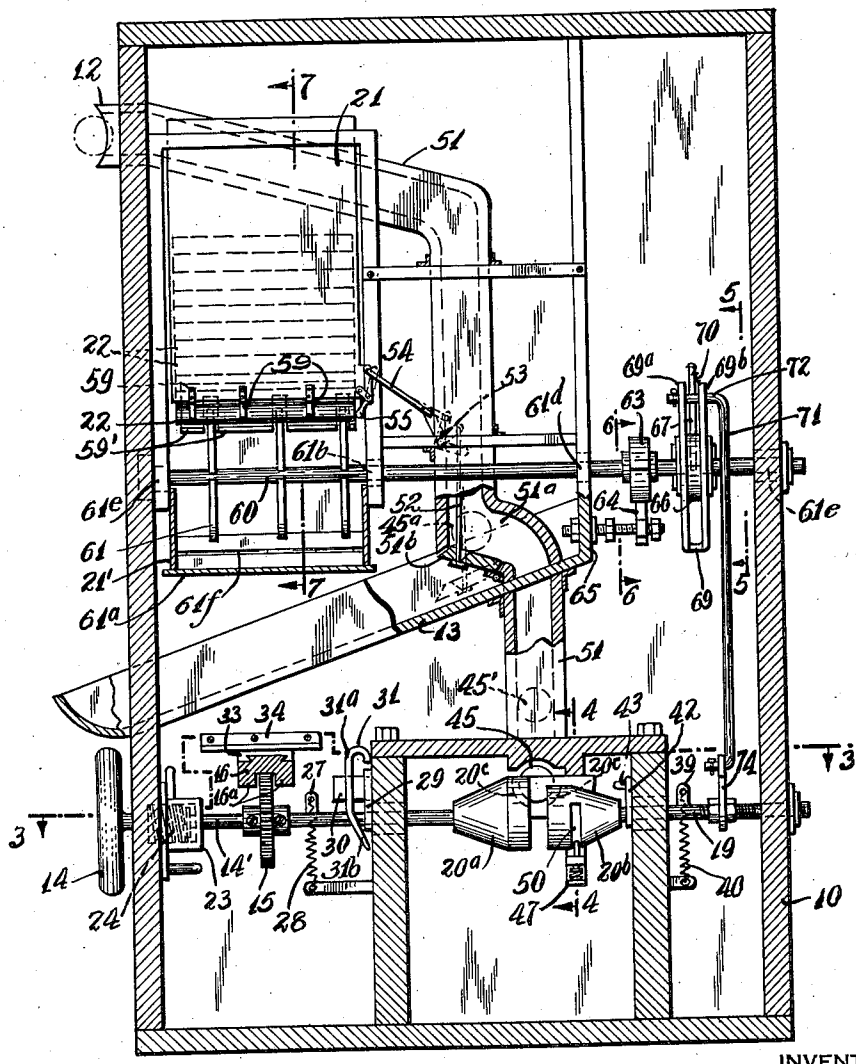


Fig. 2.

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COIN OPERATED VENDING DEVICE

Filed Nov. 3, 1936 3 Sheets-Sheet 3

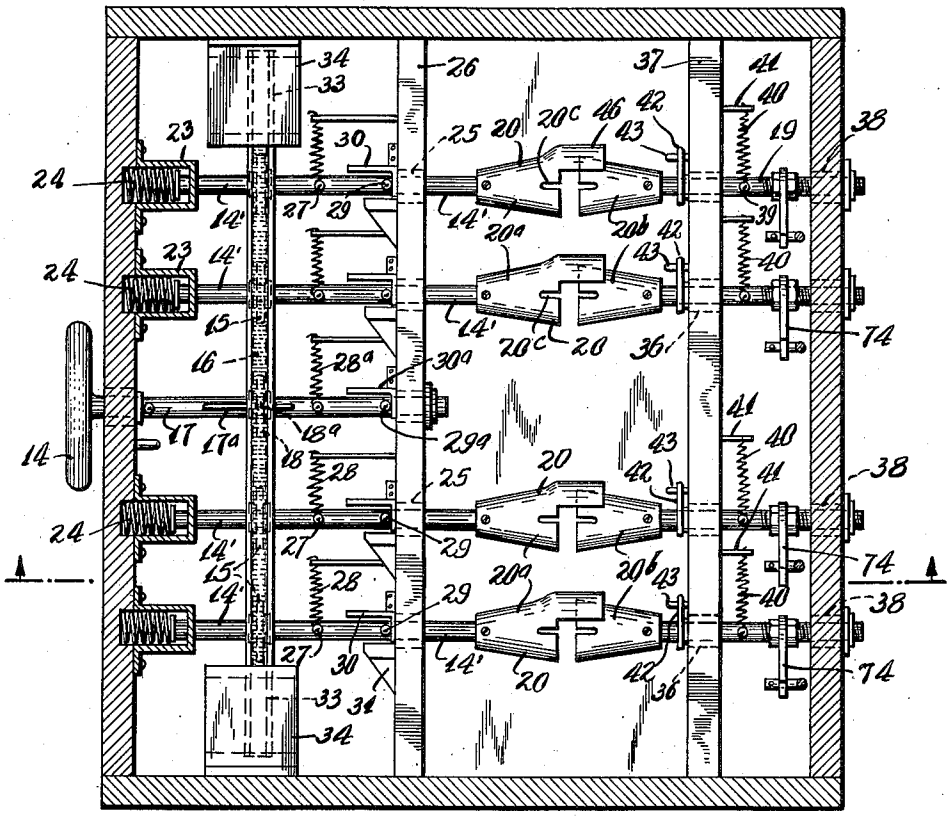


Fig. 3.

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2,122,265

COIN OPERATED VENDING DEVICE

Joaquina Prendes, New York, N. Y.

Application November 3, 1936, Serial No. 108,934

5 Claims. (Cl. 194—85)

This invention relates to new and useful improvements in an automatic coin operated vending device.

The invention has for an object the construction of a device as mentioned which is characterized by a plurality of secondary shafts slidably mounted and each provided with a gear associated with a rack arranged to mesh with said gear in all positions of the shafts, and a main manually operable shaft with a gear for moving said rack.

Still further the invention contemplates the provision of a transmission shaft for each secondary shaft and a coin operated coupling for connecting each pair of transmission and secondary shafts together when a coin is dropped into the device.

Still further the invention contemplates the association of an object dispensing means with each transmission shaft, and a container to hold a plurality of objects for each of the dispensing means.

In review, the invention contemplates the construction of a simple and efficient means for dispensing objects, particularly small objects such as individual cigarettes and candies, or small packages of these or other articles.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawings forming a material part of this disclosure:—

Fig. 1 is a perspective view of a device constructed according to this invention.

Fig. 2 is a transverse sectional view taken on the line 2—2 of Fig. 1.

Fig. 3 is a horizontal sectional view taken on the line 3—3 of Fig. 2.

Fig. 4 is a fragmentary sectional view taken on the line 4—4 of Fig. 2.

Fig. 5 is a fragmentary sectional view taken on the line 5—5 of Fig. 2.

Fig. 6 is a fragmentary sectional view taken on the line 6—6 of Fig. 2.

Fig. 7 is a fragmentary sectional view taken on the line 7—7 of Fig. 2.

The automatic coin operated vending device comprises a body portion 10 within which the mechanism is housed. This body portion is formed at the front with a plurality of windows 11 behind which merchandise and articles are displayed. Adjacent each of the window openings there is a slot 12 into which a coin may be deposited. At the bottom of the window opening there is a discharge chute 13 from which discharged articles may be removed and from which coins may be returned in the event that the device has discharged all of its articles. There is a main operating handle 14 at the front of the body which may be turned for causing the discharge of the articles for which coins have been placed into the device. As will hereinafter become clear, the one handle 14 controls the simultaneous discharge of all of the various separate dispensing units so that if coins are placed in each, one article from each will be discharged. If coins are omitted from any of the coin receiving openings the particular unit will not discharge. Furthermore, as this description proceeds, it will be noticed that a plurality of coins may be placed at one time into each of the slots and the handle 14 turned a number of times to discharge a number of articles.

A plurality of parallel secondary shafts 14' are slidably mounted and each of these shafts is provided with a gear 15. A rack 16 meshes with the gears 15 in all positions of sliding of the shafts 14'. A main manually operable shaft 17 is provided with a gear 18 meshing with the rack 16. This main shaft 17 extends to the exterior of the body and is provided with the operating handle 14.

For each shaft 14' there is a transmission shaft 19 arranged substantially in line therewith. Interposed between the adjacent ends of each pair of shafts 14' and 19 there is a coin operated coupling 20 arranged to connect the shafts together when the coupling receives a coin as hereinafter further described. An object dispensing means is associated with each transmission shaft 19 and operates in conjunction with a container 21 for holding objects such as the cigarettes 22. The lower portion of container 21 is formed with a housing 21' to keep the cigarettes, or other objects, moisture-proof.

Each shaft 14' is rotatively supported at one end in a bracket 23 which is mounted on the inner face of the front wall of the body 10. Within each bracket 23 there is an expansion spring 24 which acts against the end of the shaft 14' for urging the shaft outwards. Each shaft 14' is slidably supported in a bearing 25 mounted upon a partition 26 within the body 10. A radial pin 27 projects from each shaft 14' and holds one end of a spring 28, the other end of which is attached on the body and serves to urge the shaft 14' into a normal position. This normal position is one

in which a stop pin 29 on each shaft acts against a stationary stop element 30 mounted on the partition 26. On the remote side of the stop 30 of each shaft 14' there is a resilient hollow cam element 31.

This cam element 31 comprises a flexible strip of metal having a raised central portion 31a and a bent end portion 31b which engages against the side of the partition 26. The arrangement is such that when each of the shafts 14' are turned so that the pins 29 move towards the cams 31, the pins first pass beneath the raised portions of the cams as clearly shown in Fig. 2, until they reach the end portions 31b and then these end portions flex outwards to permit the pins to pass. On the return turn of each shaft 14' the pin 29 will be forced up upon the outside of the cam 31 and so cause the shaft 14' to move longitudinally. As each shaft turns back to its normal position the pin 29 will ride off the cam and the spring 24 will urge the shaft 14' back to its initial normal position.

The rack 16 is slidably mounted in a pair of end support elements 33 which are transversely slidably supported in a pair of spaced tracks 34 mounted on the side walls of the body 10. The arrangement is such that the rack 16 may slide upon the end support element 33 at right angles to the sliding of these elements on the tracks 34. The rack 16 is provided with overhanging side portions 16a which engage against the side sections of the gears 15 and 18 so that the rack will be shifted and move along with the shafts 14', while at all times the gears mesh, control and move the rack.

The shaft 17 is merely rotatively mounted (not slidable) and for this reason the gear 18 is splined on the shaft. The shaft 17 is formed with a feather or key 17a which engages a corresponding key slot 18a of the gear 18, so that the gear is caused to turn with the shaft but may slide along with the shaft. The shaft 17 is also urged into a normal position by a spring 28a. The shaft 17 is provided with a pin 29a which acts against a stop 30a.

Each transmission shaft 19 is rotatively mounted in a bearing 36 secured on a partition 37 mounted within the body 10. Each shaft 19 is also rotatively supported in a second bearing 38 mounted upon the back wall of the body 10. Each shaft 19 is provided with a radially projecting pin 39 connected with a spring 40 secured at its other end on a post 41 mounted on the partition 37. Each shaft 19 is provided with another radial pin 42 which acts against a stop 43 projecting from the partition 37. The spring 40 normally urges the shaft 19 into a normal position in which the pin 42 engages the stop 43.

Each coin operated coupling 20 comprises adjacent and aligned coupling jaws 20a and 20b. Each coupling jaw 20a is attached upon one of the shafts 14'. Each coupling jaw 20b is attached on one of the shafts 19. The adjacent faces of the coupling jaws 20a and 20b are formed with aligned grooves 20c forming a coin receiving slot for receiving a coin such as indicated by reference numeral 45 in Fig. 2. When a coin is within these slots 20c the jaws are connected and will operate together. The jaw 20a has an overhanging lip portion 46 which extends over a portion of the jaw 20b. This lip portion is slightly less than 180° in angular measurement as may be seen from Fig. 4. It forms a shield against which a second coin 45' may rest upon when the coupling is being turned. This second coin 45' will ride over the outer face 46a of the overhanging flange.

For each coupling there is a support arm 47 which carries a pin 48 pressed outwards by a spring 49. The pin 48 operates in a groove 50 in the coupling jaw 20b and limits the possible turning of this jaw. For each coupling 20 there is a coin chute 51. At the top, each coin chute connects with one of the coin openings 12. Each coin chute 51 has an intermediate offset portion 51a formed with a movable bottom wall portion 51b.

Each wall portion 51b is supported by a rod 52 connected with a pivotally mounted bell crank 53 which connects with a link 54 connected with a pivotally mounted feeling element 55. The cigarettes 22 or other objects within the container 21 hold the feeling element 55 in a normal position. When the articles are exhausted from the container 21 the feeler 55 becomes free and the wall portion 51b moves downwards and rests upon the supporting chute 13. Thus a coin 45a traveling down the chute 51 will pass along the discharge 13, in the event the merchandise is exhausted, but in the event there is merchandise within the container 21 it will pass down completely through the chute and into the grooves 20c of the coin coupling.

Each container 21 is formed at the bottom with a lateral opening 58 which communicates with the chute 13. Several flexible metal strips 59 extend across the openings 58 and normally hold the article 22 in position together with a slotted backing metal strip 59'. An object dispensing device is associated with each container and includes a shaft 60 provided with several radially projecting fingers 61 adapted to engage against the lowermost object 22 and force it past the flexible metal strips 59 and down into the housing 21'. At the bottom of the housing 21' a trap door 61a is hinged at 61f and is kept closed normally by a suitable counterweight 61c. When the cigarette 22 or other object falls upon door 61a, it opens and permits the said object to fall on inclined platform 13' which is a continuation of discharge chute 13.

Each shaft 60 is rotatively supported by several bearings, such as the bearings 61b, 61d and 61e. Each shaft 60 is provided with a one way ratchet which consists of a toothed ratchet wheel 63 fixed on the shaft and engaged by a resilient pawl 64 supported on a partition 65 formed in the body 10.

Each shaft 60 is also provided with a second ratchet wheel 66 which is firmly fixed thereon and which is engaged by a rigid finger 67 pivotally mounted intermediate of its ends by a pintle 68 upon a pair of spaced wall portions 69a and 69b of a bracket 69 which is rotative on the shaft 60. A spring 70 acts between the outer end of the fingers 67 and one of the wall portions of the bracket 69 to normally urge the inner end of the fingers into operative position against the teeth of the ratchet 66. A rod 71 is formed with a top bent portion 72 which engages eccentrically through the walls 69a and 69b in a manner so that when the rod 71 is moved downwards the bracket 69 will turn and the fingers 67 will move the ratchet 66 and turn the shaft 60. When the bracket 69 moves back to its original position the fingers 67 will merely idle over the ratchet 66. At the bottom end each rod 71 connects with a radial arm 74. These radial arms are singularly fixed on shafts 19.

The operation of the device is as follows:—

One or more coins may be deposited in one or more of the coin openings 12. These coins pass through the chutes 51 and if any of the merchandise units are bare of merchandise, will discharge through the chutes 13 and so be returned. Otherwise, the coins continue, the lowermost one of each unit depositing into the groove 20c of the associated coupling. The other coins merely stack one upon the other.

The handle 14 may then be turned to turn the main shaft 17 and by reason of the gears 15 and 18 turn the secondary shafts 14'. Each shaft 14' which is associated with a coupling 20 devoid of a coin will merely idle, and the other shafts will turn and transmit, via the couplings 20 to the shafts 19. A turn on the shaft 19 is transmitted by the radial arm 74, the rod 71, to the bracket 69, and by the finger 67 to the ratchet 66 and the shaft 60. The fingers 61 of the shaft 60 will force one of the objects from the wall 21 through trap door 61a to the discharge chute 13.

When the handle 14 is released it will be returned to normal position by the spring 28a. The shafts 14' will move longitudinally to separate the jaws of the couplings 20 to drop the coin or coins. The springs 28 will return all of the shafts 14' to their normal positions. The springs 40 will return all of the shafts 19 to their normal positions.

It is to be understood that this device may be used for vending any other cylindrical or like articles of various sizes, besides cigarettes, and that the shape and design of the casing or body portion 10 may be changed as desired.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise constructions herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claims.

Having thus described my invention, what I claim as new, and desire to secure by United States Letters Patent is:—

1. In a vending device, a casing, a support element mounted in said casing and slidable transversely of the casing, a rack slidably mounted on the underside of said support element movable longitudinal of said support element, a manually operable main shaft rotatively mounted in said casing and at right angles to said rack, a gear mounted on said main shaft and meshing with said rack in all of the positions of said rack to move said rack when said main shaft is turned, a plurality of secondary shafts slidably mounted in said casing and disposed parallel to said main shaft, gears on said secondary shafts and meshing with said rack to turn said secondary shafts as said rack is moved longitudinally and said gears being interengaged with the rack in a manner to move said rack and support member transversely of the casing, a transmission shaft for each of said secondary shafts rotatively mounted in said casing and having one of its ends operating a means for dispensing small articles, a coin coupling mounted on the other end of each of said transmission shafts and on said secondary shafts and being formed with a slot into which a coin may be engaged to lock said coupling together, resilient elements urging said secondary shafts towards said transmission shafts to hold said coin coupling in a position in which said coin will remain therein, and means for moving said secondary shafts against the normal action of said resilient elements to separate said coupling to permit said coin to be released.

2. In a vending device, a casing, a support element mounted in said casing and slidable transversely of the casing, a rack slidably mounted on the underside of said support element movable longitudinal of said support element, a manually operable main shaft rotatively mounted in said casing and at right angles to said rack, a gear mounted on said main shaft and meshing with said rack in all of the positions of said rack to move said rack when said main shaft is turned, a plurality of secondary shafts slidably mounted in said casing and disposed parallel to said main shaft, gears on said secondary shafts and meshing with said rack to turn said secondary shafts as said rack is moved longitudinally and said gears being interengaged with the rack in a manner to move said rack and support member transversely of the casing, a transmission shaft for each of said secondary shafts rotatively mounted in said casing and having one of its ends operating a means for dispensing small articles, a coin coupling mounted on the other end of each of said transmission shafts and on said secondary shafts and being formed with a slot into which a coin may be engaged to lock said coupling together, resilient elements urging said secondary shafts towards said transmission shafts to hold said coin coupling in a position in which said coin will remain therein, and means for moving said secondary shafts against the normal action of said resilient elements to separate said coupling to permit said coin to be released, said means comprising a cam element fixedly mounted within the casing, and a pin extending from one side of said secondary shafts and capable of riding over said cam element when said secondary shaft is returning to its normal position after an article has been dispensed by said device to separate said coupling.

3. In a vending device, a casing, a support element mounted in said casing and slidable transversely of the casing, a rack slidably mounted on the underside of said support element movable longitudinal of said support element, a manually operable main shaft rotatively mounted in said casing and at right angles to said rack, a gear mounted on said main shaft and meshing with said rack in all of the positions of said rack to move said rack when said main shaft is turned, a plurality of secondary shafts slidably mounted in said casing and disposed parallel to said main shaft, gears on said secondary shafts and meshing with said rack to turn said secondary shafts as said rack is moved longitudinally and said gears being interengaged with the rack in a manner to move said rack and support member transversely of the casing, a transmission shaft for each of said secondary shafts rotatively mounted in said casing and having one of its ends operating a means for dispensing small articles, a coin coupling mounted on the other end of each of said transmission shafts and on said secondary shafts and being formed with a slot into which a coin may be engaged to lock said coupling together, resilient elements urging said secondary shafts towards said transmission shafts to hold said coin coupling in a position in which said coin will remain therein, and means for moving said secondary shafts against the normal action of said resilient elements to separate said coupling to permit said coin to be released, said means comprising a cam element fixedly mounted within the casing, and a pin ex-

tending from one side of said secondary shafts and engaging said cam element, said cam comprising a strip of spring material attached at one end upon a support member and being bent intermediate of its ends forming loop portions with its other end engaging against said support member so that said pin will pass beneath said bent portion on its forward movement and over said bent portion on its return movement to separate said coupling.

4. In a vending device, a casing, a support element mounted in said casing and slidable transversely of the casing, a rack slidably mounted on the underside of said support element movable longitudinal of said support element, a manually operable main shaft rotatively mounted in said casing and at right angles to said rack, a gear mounted on said main shaft and meshing with said rack in all of the positions of said rack to move said rack when said main shaft is turned, a plurality of secondary shafts slidably mounted in said casing and disposed parallel to said main shaft, gears on said secondary shafts and meshing with said rack to turn said secondary shafts as said rack is moved longitudinally and said gears being interengaged with the rack in a manner to move said rack and support member transversely of the casing, a transmission shaft for each of said secondary shafts rotatively mounted in said casing and having one of its ends operating a means for dispensing small articles, a coin coupling mounted on the other end of each of said transmission shafts and on said secondary shafts and being formed with a slot into which a coin may be engaged to lock said coupling together, resilient elements urging said secondary shafts towards said transmission shafts to hold said coin coupling in a position in which said coin will remain therein, and means for moving said secondary shafts against the normal action of said resilient elements to separate said coupling to permit said coin to be released, track elements mounted in said casing at right angles to said support member and engaging the ends thereof so that said support member may move with said rack and shafts when said latter-mentioned means urges said shafts against the holding action of said resilient elements.

5. In a vending device, a casing, a support element mounted in said casing and slidable transversely of the casing, a rack slidably mounted on the underside of said support element movable longitudinal of said support element, a manually operable main shaft rotatively mounted in said casing and at right angles to said rack, a gear mounted on said main shaft and meshing with said rack in all of the positions of said rack to move said rack when said main shaft is turned, a plurality of secondary shafts slidably mounted in said casing and disposed parallel to said main shaft, gears on said secondary shafts and meshing with said rack to turn said secondary shafts as said rack is moved longitudinally and said gears being interengaged with the rack in a manner to move said rack and support member transversely of the casing, a transmission shaft for each of said secondary shafts rotatively mounted in said casing and having one of its ends operating a means for dispensing small articles, a coin coupling mounted on the other end of each of said transmission shafts and on said secondary shafts and being formed with a slot into which a coin may be engaged to lock said coupling together, resilient elements urging said secondary shafts towards said transmission shafts to hold said coin coupling in a position in which said coin will remain therein, and means for moving said secondary shafts against the normal action of said resilient elements to separate said coupling to permit said coin to be released, said resilient elements comprising a bracket mounted in said casing and supporting the said end of said secondary shafts, and springs acting between the said casing and the end of said secondary shafts to urge said secondary shafts into normal position.

JOAQUINA PRENDES.