

Aug. 19, 1952

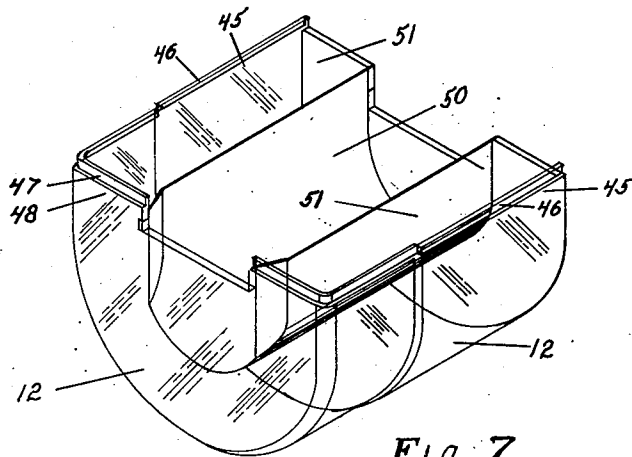
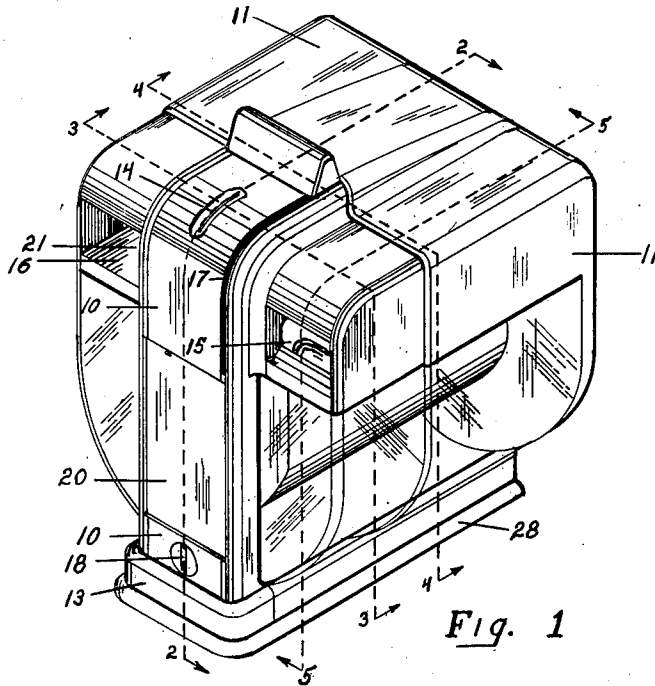
S. B. PALMER ET AL

2,607,652

MERCHANDISE VENDING OR DISPENSING MACHINE

Filed Dec. 7, 1946

4 Sheets-Sheet 1



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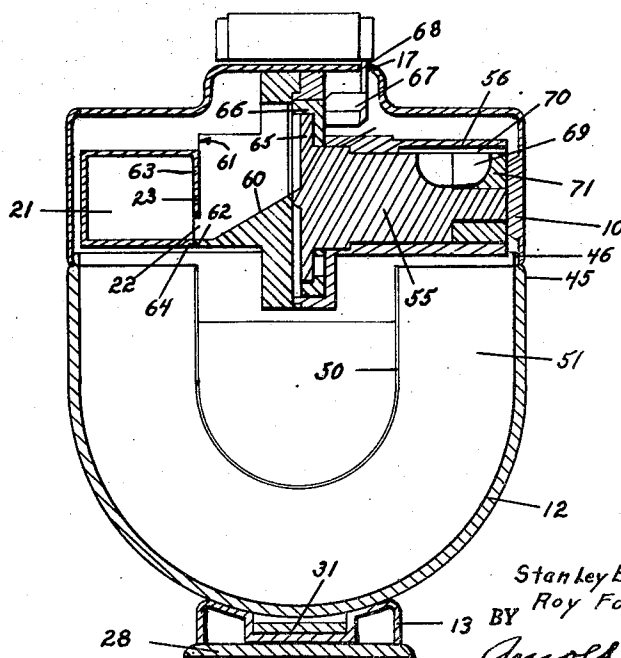
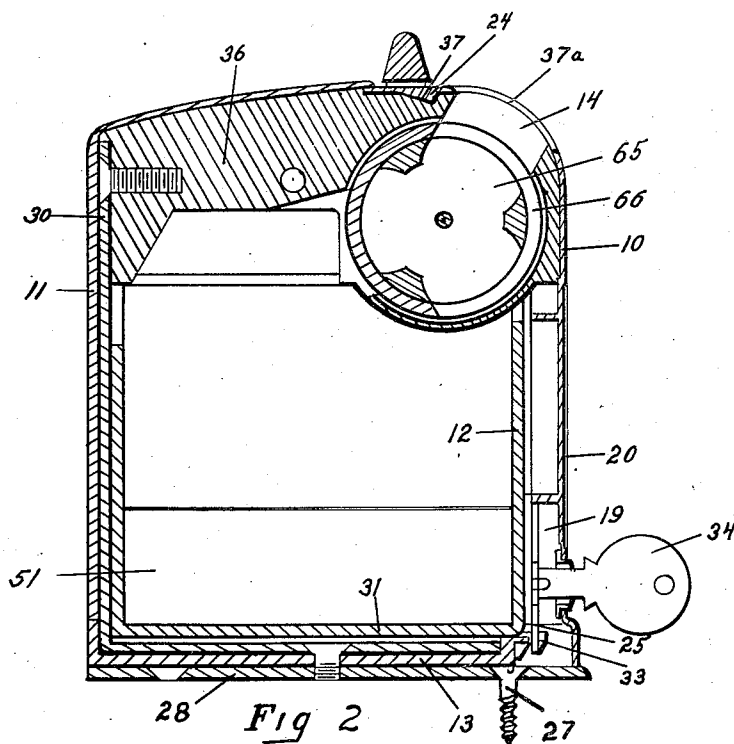
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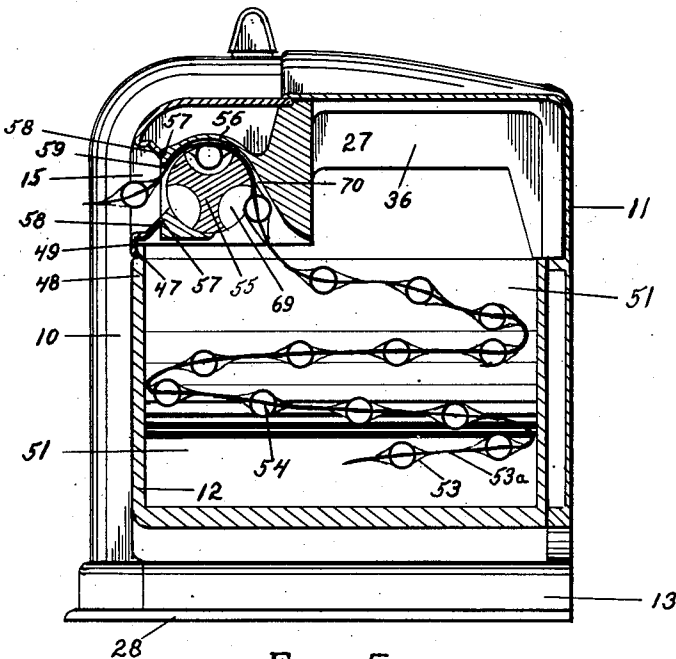


Fig 5

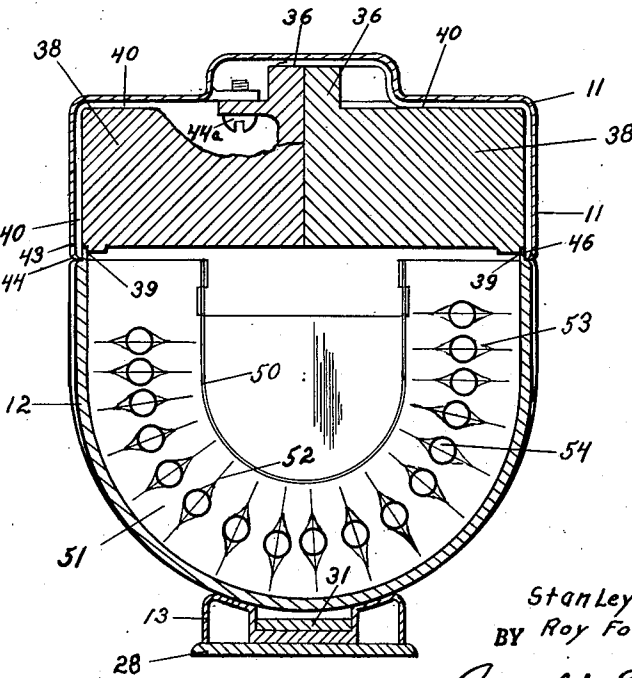


Fig 4

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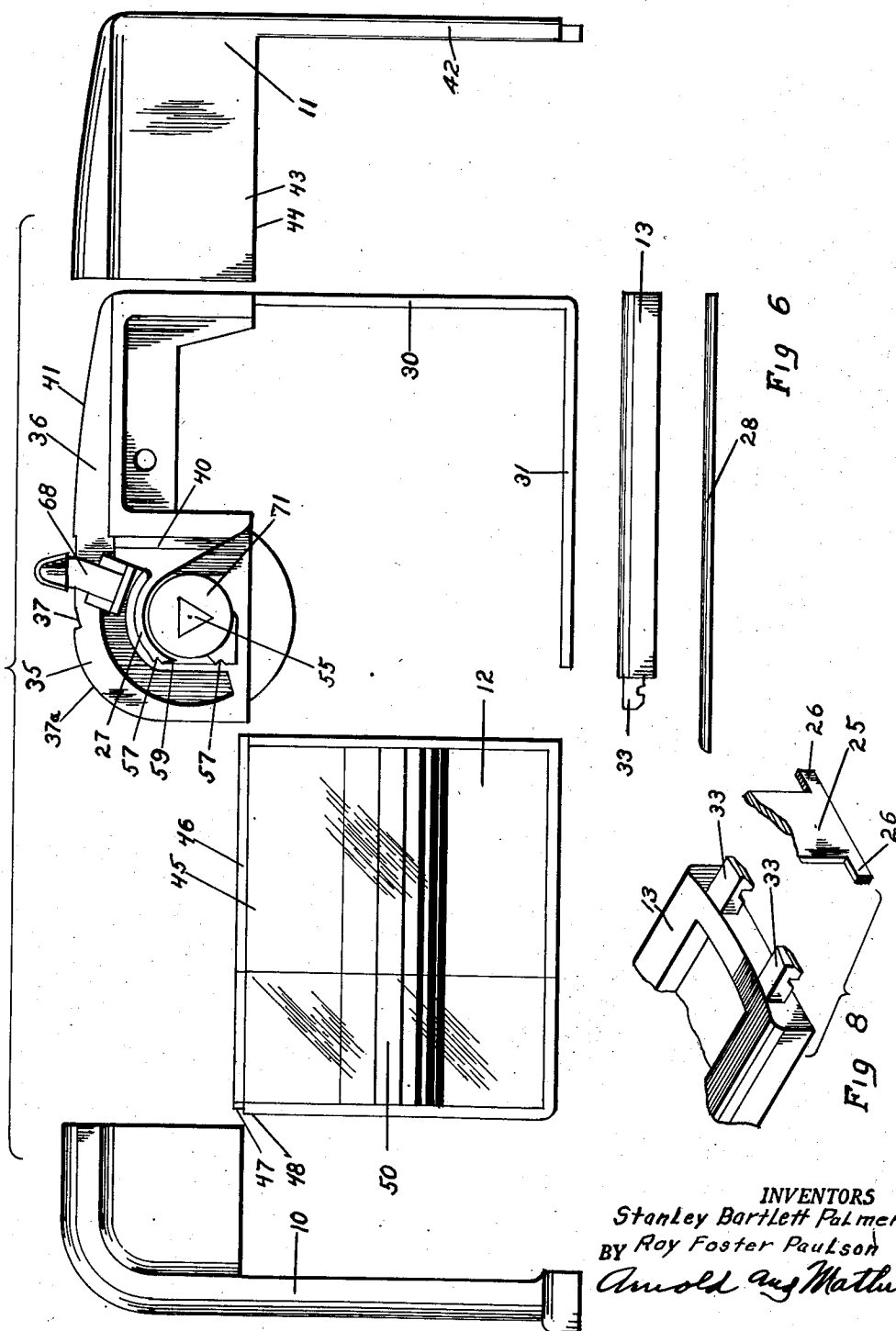
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4 Sheets-Sheet 4



UNITED STATES PATENT OFFICE

2,607,652

MERCHANDISE VENDING OR DISPENSING MACHINE

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7 Claims. (Cl. 312—39)

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Our invention relates to the art of merchandise vending or dispensing machines. More particularly does it relate to vending or dispensing machines adapted to dispense merchandise units which are disposed in spaced relation and are carried by and sanitarily enclosed in a flexible tape or ribbon means which preferably may be of transparent plastic material as cellophane or the like.

More specifically, our invention is for dispensing vitamin capsules or other like articles. Dispensing such products presents certain difficulties. This product at a drugstore is sold in bottles with a mass of absorbent cotton disposed on top of the bottle contents and the bottle closed with a cork or stopper. Thus, protection against moisture and delivery of a sanitary product is assured. A fundamental and primary purpose of our invention is to provide a vending or dispensing machine characterized in all its features by its sanitary and moisture resisting construction, such characterizing features being provided not only as respects the sealing of each capsule or tablet within a plastic ribbon material, but also as respects the enclosure provided by the machine and the reloading of the machine so that all this may be done without the capsule contacting any operator's hands from the manufacturing of the ribbon with the enclosed capsules to the time when the consumer tears open the dispensed ribbon encased unit. Encasing the unit capsule in the ribbon plastic material provides for its sanitary protection and also protects against the gelatin coating of the capsule from becoming softened by the absorption of moisture in the air and infected by any bacterial or fungus cultures. It must be remembered that the lapsed time before dispensing is uncertain, so that all such sealing protection is important. Such protection features as stated above are also provided by our invention by the tight sealing of the housing in which the merchandise is stored while being dispensed or offered for sale. Also both of such protection features for the capsule is important because the degree of humidity may vary greatly according to the season of the year and the geographical location.

Moreover, there must be a sufficiently large supply of the capsules in the magazine of the machine to provide for the ordinary demand without unreasonable shortness of time between refilling. Obviously if the machine is found empty or "out of goods" frequently, the purchasing public will not be able to rely upon it and loss of confidence will be directly reflected by

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loss of sales of the product which involves regularity of use to derive its full benefit. At the same time, the size of the machine must be small and compact so as not to be unduly conspicuous in view of its location for the maximum convenience of those who will desire its service. Also this location for a large part will be on counters, walls, in restaurant booths, on dining tables of airplanes, trains, and the like, all of which may often have desirable locations for such occupied by other necessary devices so that the space available is positively limited. Accordingly, a primary object of our invention is to provide a dispensing mechanism characterized by its smallness of size and compactness and yet have a relatively large capacity of the units to be dispensed.

From the above it will be manifest that readiness of refilling is essential. Also, that this should be done without the machine refilling operator contacting the merchandise or even the encasing ribbon more than is necessary to thread the ribbon end portion through the dispensing mechanism. A primary purpose of our invention is to meet these requirements and is achieved, in general, by providing a previously loaded cartridge to be substituted for an empty cartridge, which is of a U-like form to multiply its capacity and which cartridge in addition to being a magazine will also function, first, as a portion of the housing, second, as a display means where the character of the goods permits, and third, as a mounting means for the coin receptacle, all of which features combine in function to provide compactness as well as other advantages. Furthermore, a primary purpose is also to provide a dispensing machine which for its operation does not depend upon precise leveling and also so that it may be operable on a wall as well as on a table mounting.

The above mentioned general objects of our invention, together with others inherent in the same, are attained by the mechanism illustrated in the following drawings, the same being preferred exemplary forms of our invention:

Figure 1 is a view in perspective of the dispensing machine embodying our invention;

Fig. 2 is a view in longitudinal vertical section of the same substantially on line 2—2 of Fig. 1;

Fig. 3 is a view in cross section of the same substantially on line 3—3 of Fig. 1;

Fig. 4 is a view in cross section of the same substantially on line 4—4 of Fig. 1;

Fig. 5 is a view in longitudinal vertical section of the same substantially on line 5—5 of Fig. 1;

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Fig. 6 is an exploded view in side elevation with front and rear housing members removed and cartridge withdrawn from the coin controlled mechanism, upright bracket, and base member;

Fig. 7 is a detached view in perspective of the U-form cartridge magazine member and coin receptacle; and

Fig. 8 is a view in perspective and in exploded form of the locking hooks and locking sliding plate.

A housing is formed with a front housing member 10, Figs. 1 and 6, rear housing member 11, cartridge-magazine member 12 (perspective view Fig. 7) and base plate 13.

The front housing member 10 is preferably provided with a coin receiving slot 14, a merchandise delivery opening 15, a coin return opening 16 for coins of wrong denomination, an operating lever slot 17, a key hole 18 for lock mechanism 19 (Fig. 2), a recess 20 for directions of operation of the device and statement describing the goods, and a return coin pocket 21, Fig. 3, having coin return slot 22, at the base of protecting plate 23. At the top of the front housing member 10 engages shoulder 24, Fig. 2, for means in conjunction with notch 37 of frame 36 to hold the front housing member 10 in place at the top of the device.

The lock mechanism 19 has a moving plate member 25 with laterally disposed projecting arms 26. A mounting or bearing means 56 is provided for a merchandise dispensing drum 55. A mounting base plate 28 may be fixedly secured to the table or like supporting means as by internally disposed screws 27 (Fig. 2). This plate 28 also functions as a protecting or underside covering means for the lock 19. The base plate 13 forms a mounting means for the bracket base 31 of the upright bracket 30. The base plate 13 has locking hooks 33 (Figs. 2, 6 and 8), which hooks are engageable by moving plate 25 when the same is moved upwardly by a key 34.

A merchandise dispensing mechanism 35 has a frame 36 mounted upon upright bracket 30. Frame 36 functions as a support for the front housing member 10 and has notch 37 engageable by shoulder 24 of the front housing member 10 and preferably has a curved portion 37a to support and put under tension front housing member 10 in assembled position to provide a rigid construction. The frame 36 also has laterally disposed mounting shoulders 38 which function as supports and guides for cartridge-magazine housing member of U-like form 12 and rear housing member 11. Mounting shoulders 38 have grooves 39 for receiving the upper edge of cartridge-magazine 12. Shoulders 38 also have groove 40 for receiving the interlocking rear edge of the front housing member 10. The frame 36 preferably has an inclined curved top ridge 41 which functions as a supporting means and as a means for putting under tension the rear housing member 11. The lateral edges 44 of the top portion 43 provide lateral and vertical support for the upper edge portion of the cartridge-magazine member 12. This rear member 11 is suitably held to the bracket member 30 as by screws 44a (see Fig. 4 where screw on one side is shown in broken away part of housing).

The rear housing member 11 preferably has a rear portion 42 and an overhanging top portion 43, said rear housing member 11 being put under tension by top ridge 41 to provide rigid construction of the assembled device.

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The cartridge-magazine housing member and coin receptacle mounting means 12 of U-like form is preferably made of transparent substance, for example, glass or plastic. The cartridge 12 may have along its outer longitudinal lateral edges 45 an offset groove 46 and likewise offset groove 47 along its uppermost front edge portions 48 to engage the lower edge portion 44 of the top portion 43 and the lower edge portion 49 of the front housing member 10 respectively. In the central portion of the cartridge member 12 is disposed a preferably insertable and removable independent plate of U-form constituting coin receiving container 50 of suitable material and preferably of opaque walls. This container 50 also functions as a bracing means and the innermost wall of the U-shaped cartridge merchandise-magazine 12 or chamber 51 for the ribbon 52 which is formed of individual separable ribbon units 53 in which is encased the capsules or other merchandise 54, said units 53 being formed by perforations 53a, the number of which perforations being employed to determine the degree of pull necessary for severing the unit 53 and thereby functioning cooperatively with other locking mechanism to lock the ribbon 52 in guarding against unauthorized pulling out of said ribbon 52.

The merchandise dispensing mechanism 35 has a merchandise dispensing drum 55 in drum housing 56. Housing 56 has upper and lower grooves 57 to receive interlocking flanges 58 in the front housing member 10 about the merchandise delivery opening 15. Upper groove 57, Figs. 5 and 6, is in the face of drum housing 56 which has a depending knife-like edge 59 against which the ribbon 52 may be upwardly pulled in the act of severing an individual unit 53 of the said ribbon 52.

The dispensing mechanism 35, Fig. 3, has a return coin chute 60 with shoulders 61 and 62. The coin return pocket 21 of front member 10 has its edges 63 and 64 bearing tightly against said shoulders 61 and 62 to form a tight joint therebetween.

The merchandise dispensing drum 55 is preferably integrally formed on a driven disk 65 which in turn is operatively connected to a coin controlled driving disk 66 having operating lever 67 provided with operating handle 68—said lever being movable in slot 17. Drum 55 has capsule 54 or other merchandise receiving pockets 59. Between drum 55 and housing 56 is a narrow passageway 70 for merchandise encasing ribbon 52. The front lower portion of housing 56 bears closely against drum 55 so that no ribbon 52 passage exists therebetween and thus a definite block is provided against the ribbon 52 being drawn around by the drum 55 and reentering at that point between the drum 55 and the housing 56. The drum 55 is preferably provided with a removable end portion 71 which facilitates the weaving of the merchandise ribbon 52 over the drum at the time of loading and particularly does such construction facilitate unloading the drum 55 of the ribbon 52. Such construction avoids tearing off a unit 53 to empty the machine.

The mode of operation has been set forth in part above and further is as follows: In loading the cartridge the ribbon 52 is folded back and forth, one layer superimposed upon the other as appears in the drawings, Fig. 5. This ribbon 52 thus folded and lying on its edges forms a rectangular body which may be fed and pressed into one side leg of the U-formed cartridge 12, for

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example, in the leg opposite the side from which the ribbon is to be fed and the pressure continued until the folded ribbon 52 is forced around the curved or bottom portion of the cartridge 12 and up in the other leg or side of the U-formed cartridge 12. Thus, there is formed a feeding supply stack in the feeding leg of the U-shaped cartridge and a stored supply stack in the opposite leg. It is a part of our discovery or invention that the ribbon 12 in being pulled upwardly by the periodic rotation of the drum 55 from the feed supply stack, will feed upwardly and then from around the curved bottom portion and downwardly from the leg or side opposite where the drum 55 is located, i. e., from the stored supply stack.

In providing the necessary compactness and at the same time the necessary volume of merchandise in a small space, it was necessary to discover some way to store more than one column of the stacked ribbon 52 folds and at the same time such several columns had to be arranged to unfold continuously and permit continuous feeding of the ribbon 12. It is a part of our discovery or invention to provide the U-form of cartridge 12 so that the layers of ribbon 52 would unfold in being dispensed and move out of the feed portion of the leg or side beneath the drum 55. It is also a part of our discovery that the weight of the folded ribbon 52 in the stored stack in the opposite leg or side, together with the upward pull in the other, i. e., feeding leg or feed supply stack induced by the drum 55, would cause the ribbon 52 in the curved or bottom portion to pass around such curved portion without side wall sticking or jamming. In short, we discovered that by means of the U-form of cartridge-magazine that the ribbon 52 could be caused to periodically move successively in various different directions, that is, downwardly in the stored stack side, across the bottom and then upwardly in the feed supply stack, Figs. 4 and 5. Furthermore, we have discovered that these various movements of the ribbon 52 and the stacks may be provided without catching or jamming.

The cartridge-magazine 12 is made to serve in our invention the several functions as follows: a housing member, a display means, if desired, a magazine for the merchandise to be dispensed or vended, and a mounting member for the coin receptacle which in turn functions as a bracing member to the device as a whole in addition to serving as a receptacle.

In dispensing merchandise of the general character or nature of vitamin capsules or substances in the tablet form, sanitation and full protection against contamination are matters of prime consideration. To this end, we encase the product in a sealed ribbon carrier means and provide for this ribbon to be loaded into cartridges at the local plant or place of business, where cleaning and sterilizing of the cartridge may be performed before each loading and sanitary conditions generally may be provided. The reloading operator at the site of the dispensing machine may thus substitute a full for an empty cartridge 12 without contacting even the ribbon 52 let alone the product itself any more than is necessary to feed one end of the ribbon 52 over drum 55, since he merely substitutes the full for the empty cartridge.

We have succeeded in providing a vending machine characterized by its sanitary character, compactness, and simplicity and at the same time we have provided ready accessibility to the com-

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ponent parts of the device for servicing, quick removing and substitution of cartridges in reloading and servicing, rigidity of assembled members due to their being placed under tension when being locked into position in notches and grooves and when the movable plate 25 is forced into the key locked position.

Obviously, changes may be made in the forms, dimensions, and arrangement of the parts of our invention, without departing from the principle thereof, the above setting forth only preferred forms of embodiment.

We claim:

1. A vending machine for dispensing merchandise units secured together in spaced relation in a ribbon means comprising a housing having a removable transparent cartridge-magazine of U-form forming a part of said housing in which merchandise to be dispensed may be held and displayed the inner wall of said cartridge magazine being formed of a U-form resilient releasable member constituting a coin receptacle; a dispensing mechanism operatively disposed within said housing; and releasable holding means securing said cartridge-magazine in said housing.

2. A vending machine for dispensing merchandise units secured together in spaced relation in a ribbon means comprising a base plate; a right angle mounting bracket having an upright and base members, said base member being secured to said base plate; a coin controlled dispensing mechanism having a frame with an interlocking notch, said mechanism being fixedly mounted on the upright portion of the mounting bracket; a housing having a rear member secured to said upright member of said mounting bracket and a releasable front member which has an engaging shoulder for interlocking with said notch in said dispensing mechanism frame; key operated locking means carried by the front housing member and engageable with locking hook members carried by the base plate whereby the front and rear housing members are held in locked relation; and a cartridge-magazine for containing merchandise to be vended which magazine is disposed between said rear and front housing members.

3. A vending machine for dispensing merchandise units secured together in spaced relation in a ribbon means comprising a support housing formed by a rear and a front member and a removable continuous U-form passageway magazine mounted by said front and rear members wherein a merchandise mounting ribbon folded upon itself in superimposed layers may be received; a dispensing mechanism operatively secured in the upper portion of said housing; and releasable holding means for securing said magazine in said housing.

4. A vending machine for dispensing merchandise units secured together in spaced relation in a ribbon means comprising a support housing formed by a rear and front member; a dispensing mechanism secured in the upper portion of said housing; and a removable transparent U-form magazine mounted by said support housing below said dispensing mechanism, whereby the maximum amount of said magazine may be utilized as a show case as well as a compact unit.

5. A vending machine for dispensing merchandise units secured together in spaced relation in a ribbon means comprising a support housing formed by a rear and front member; a dispensing mechanism secured in the upper por-

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tion of said housing; and a removable transparent U-form magazine having sealing means disposed in the ends of the chamber formed by the arms of the U magazine, and said magazine being mounted by said support housing below said dispensing mechanism, whereby the maximum amount of said magazine may be utilized as a show case as well as a compact unit.

6. A vending machine for dispensing merchandise units secured together in spaced relation in a ribbon means comprising a support housing formed by a rear and front member; a dispensing mechanism secured in the upper portion of said housing; a removable transparent U-form magazine mounted by said support housing below said dispensing mechanism, whereby the maximum amount of said magazine may be utilized as a show case as well as a compact unit; and releasable holding means for securing said magazine in said housing.

7. A vending machine for dispensing merchandise units secured together in spaced relation in a ribbon means comprising a support housing formed by a rear and front member; a dispensing mechanism secured in the upper por-

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tion of said housing; a removable transparent U-form magazine having sealing means disposed in the ends of the chamber formed by the arms of the U magazine, and said magazine being mounted by said support housing below said dispensing mechanism, whereby the maximum amount of said magazine may be utilized as a show case as well as a compact unit; and a coin receptacle disposed within the arms of the U-form magazine.

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ROY FOSTER PAULSON.

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