Sept. 27, 1960 M. A. GORDON 2,954,129

ARTICLE DISPLAY AND DISPENSING DEVICE

Filed May 20, 1959 2 Sheets-Sheet 1

Fig. 1.

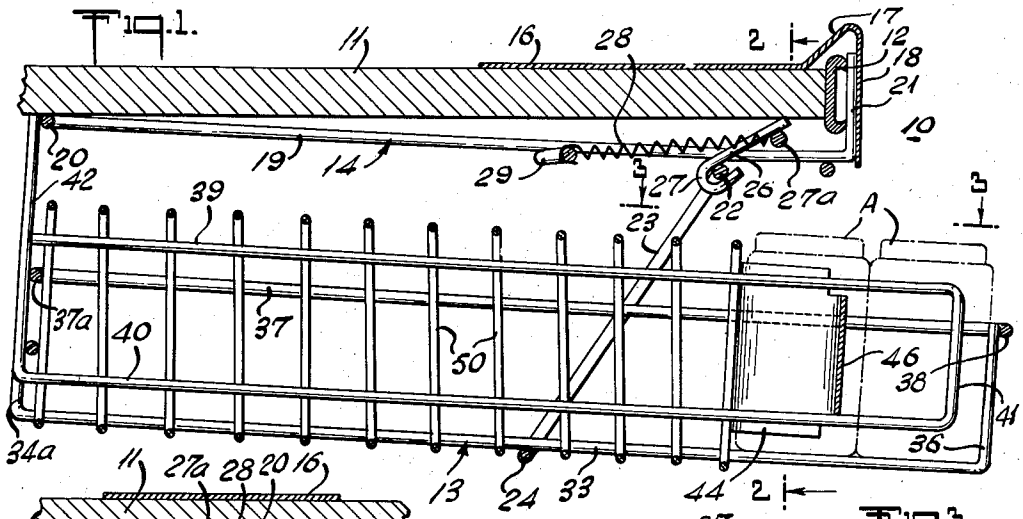


Fig. 2.

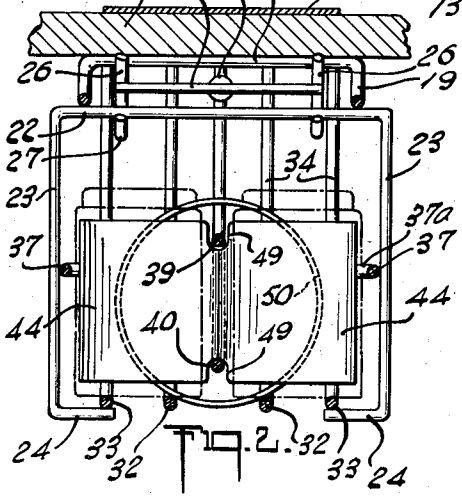


Fig. 3.

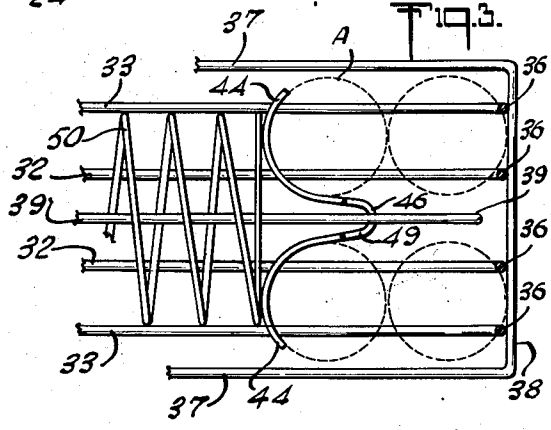


Fig. 4.

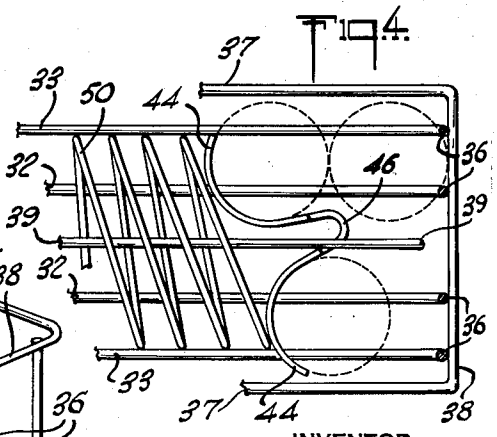
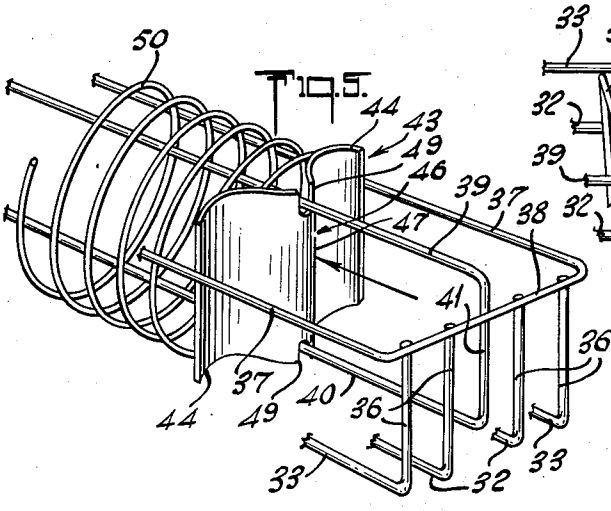


Fig. 5.



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ARTICLE DISPLAY AND DISPENSING DEVICE

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FIG. 6.

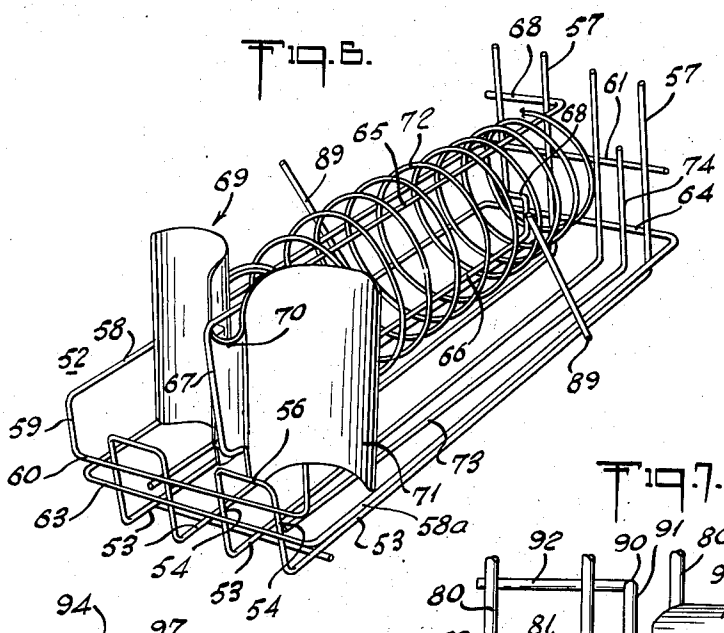


FIG. 8.

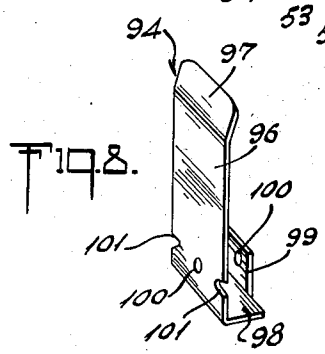


FIG. 7.

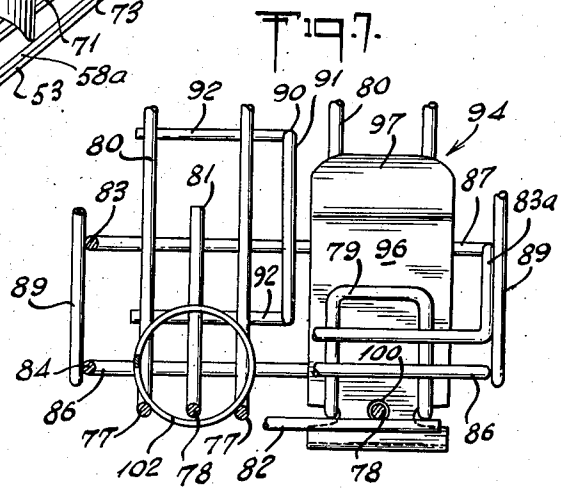
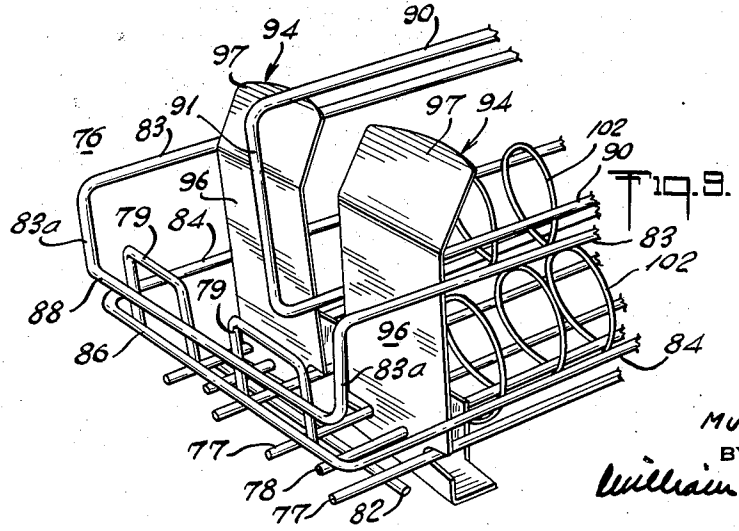


FIG. 9.



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Patented Sept. 27, 1960

2,954,129

ARTICLE DISPLAY AND DISPENSING DEVICE

Murray A. Gordon, Brooklyn, N.Y., assignor, by mesne assignments, to Ekco Products Company, Chicago, Ill., a corporation of Delaware

Filed May 20, 1959, Ser. No. 814,470

9 Claims. (Cl. 211—49)

The present invention relates generally to an improved display and dispensing device and it relates in particular to an improved, multistack article dispensing and display tray for attachment to shelves or the like.

With the advent and spread of self-service stores as typified by supermarkets, drugstores, department stores and similar establishments, the problem of dispensing and display space has become increasingly acute. The conventional practice has been to display and dispense the merchandise from shelves located along the walls of the store and in islands arranged throughout the store. Inasmuch as the merchandise being displayed and offered for sale varies widely in size, shape and popularity the standardized shelves cannot be used to their optimum efficiency. As a result there is a great waste of floor space in the self service type of store, a relatively poor display of merchandise, and waste of time and effort in the loading the shelves and the replenishment of merchandise displayed thereon. It is thus apparent that the conventional systems of displaying and dispensing merchandise in self service stores possesses numerous disadvantages and drawbacks and leaves much to be desired.

It is therefore a principal object of the present invention to provide an improved display and dispensing device.

Another object of the present invention is to provide an improved, multistack display and dispensing device for attachment to shelves and the like, and having an improved article advancing structure.

Still another object of the present invention is to provide an improved display and dispensing device which may be detachably supported by a shelf without interfering with the normal use of the shelf and its underlying space.

A further object of the present invention is to provide an improved multistack article dispensing and display tray which may be readily, separably attached to a shelf without interfering with the use of the shelf.

Still a further object of the present invention is to provide an improved display and dispensing device of the above nature characterized by its simplicity, ruggedness and low cost and the ease of application and loading thereof.

The above and other objects of the present invention will become apparent from a reading of the following description taken in conjunction with the accompanying drawings wherein:

Figure 1 is a longitudinal vertical sectional view of an improved dispensing and display device constructed according to and embodying the present invention, illustrated in mounted position and carrying articles shown in broken line;

Figure 2 is a sectional view taken along line 2—2 in Figure 1;

Figure 3 is a setcional view taken along line 3—3 in Figure 1, the same number of articles being located in adjacent rows;

Figure 4 is a view similar to Figure 3, the number of articles in adjacent rows being, however, different;

Figure 5 is a fragmentary perspective view of the improved device partially broken away for clarity of illustration;

Figure 6 is a fragmentary perspective view of another form of device constructed according to and embodying the present invention;

Figure 7 is a front end fragmentary elevational view of still another form of device constructed according to and embodying the present invention;

Figure 8 is a perspective view of the pusher member employed in the device illustrated in Figure 7; and

Figure 9 is a fragmentary perspective view of the discharge end of the improved device illustrated in Figure 7.

In a sense the present invention contemplates the provision of an improved display and dispensing device of the character described comprising an elongated tray, means separably securing said tray in underlying relation to a shelf, means dividing said tray into a pair of longitudinally extending, parallel, side-by-side compartments, pushing means longitudinally slidable along said compartments and spring means urging said pusher means to advanced positions.

According to a preferred form of the present invention the tray is formed of longitudinally extending rods defining a base and side members, the rods being shaped at their termini to define the tray end walls. A pair of vertically spaced, medially located longitudinally extending guide rods divide the tray into a pair of side-by-side compartments. The pusher member consists of a pair of forwardly cylindrically concave wings registering with each of the compartments and joined by a reversely curved U-shaped bridge member provided with rearwardly directed legs. Formed in the upper edges of the U-shaped bridge member are wide recesses which register with respective guide rods. A helical compression spring is entrapped between the tray rear wall and the pusher back wall. The tray is provided with a bracket permitting its attachment to a shelf and its dependence therefrom.

In accordance with another embodiment of the present invention, a separate pusher member and advancing spring is provided for each tray compartment.

The base of each compartment is defined by two parallel, coplanar, longitudinally extending rods. Each pusher member includes an upright plate having a bottom central aperture registering with the middle base rod and side recesses engaging the side rods. An apertured ear is secured rearwardly of the pusher plate bottom edge and also registers with the respective middle base rod.

Referring now to the drawing, and more particularly to Figures 1 to 5 thereof, which illustrate a preferred embodiment of the present invention, reference numeral 10 generally designates the improved display and dispensing device which is separably suspended from a shelf 11 carrying a tab receiving molding 12 along its forward edge. The dispensing device 10 comprises a dispensing tray 13 and a support bracket 14 mounted on and located above the tray 13.

Bracket member 14 includes an upper jaw member defined by a flat plate 16 provided at its front end with a forwardly, upwardly inclined leg 17 which terminates in a depending front wall 18. The lower jaw member of bracket 14 is formed of a single length of wire including a pair of longitudinally extending, parallel, laterally spaced rods 19 joined at their trailing ends by a cross-rod 20 and terminating at their forward ends in upright legs 21 which are secured, as by welding or otherwise to the rear face of front wall 18. The jaw defined by plate 16 and rods 19 are urged toward each other by reason

of the resiliency of the metal forming them thereby releasably to embrace the shelf 11, plate 16 lying flat along the upper face of shelf 11, so as not to interfere with the normal use thereof.

A support frame or hanger of wire rod material consists of an upper cross rod 22 secured, as by welding or otherwise to and between the undersurfaces of jaw rods 19 adjacent the forward ends thereof, which rod 22 is provided with rearwardly, downwardly extending side arms 23 terminating in inwardly directed legs 24. A latching member is defined by a pair of laterally spaced, upwardly, forwardly directed arms 26 connected at their upper ends by a cross piece 27a. A helical tension spring 28 connected between the cross-piece 27a and a rearwardly located, transversely extending rod 29 carried by jaw rods 19 urges latching arms 26 upwardly into separable biting engagement with the underface of shelf 11.

Tray 13 includes a base, defined by laterally spaced pairs of longitudinally extending inner and outer base rods 32 and 33 respectively, outer rods 33 resting upon and suitably secured permanently to the top faces of the hanger legs 24. The rear ends of base rods 32 and 33 terminate in upwardly directed legs 34 which are secured, as by welding or the like to cross rod 20 of the lower jaw, and define the rear wall of the tray. The sides of tray 13 are defined by a pair of longitudinally extending, laterally spaced rods 37 disposed above and parallel to the base rods 33 and on the outside thereof, rods 37 being suitably weld fastened to hanger arms 23. The forward ends of side rods 37 are joined by a cross-rod 38 which is fastened as by welding or otherwise to the upper ends of legs 36 of base rods 32, 33. The rear ends of side rods 37 terminate in inwardly directed legs 37a secured to the upwardly directed rear legs 34 of base rods 32, 33.

Dividing tray 13 into a pair of side-by-side compartments are a pair of vertically spaced, medially located, longitudinally extending parallel upper and lower rods 39 and 40 respectively, these defining a partition and a guide. Upper rod 39 is located above the level of side rods 37 and lower rod 40 is located above the level of base rods 32 and 33. The forward ends of guide rods 39 and 40 are joined by an integrally formed vertical rod 41 which is spaced from the cross rod 38. Lower rod 40 terminates at its rear in an upwardly directed leg 42 which is secured as by welding or otherwise to cross-rod 20 connecting legs 19, 19 of the lower jaw component.

The article advancing pusher member is designated by reference numeral 43, and includes a pair of laterally spaced wing members 44 joined by an integral reversely curved bridge member 46, and preferably formed of a single piece of sheet metal. Wings 44 are of vertical arcuate configuration having forwardly directed concave faces each of which is disposed in a corresponding tray compartment. The radius of curvature of wings 44 are preferably approximately equal to that of the dispensed articles A and their degree of curvature is preferably between 90° and 180°. Bridge member 46 is of U-shaped configuration having a base portion 47 slidably disposed between guide rods 39 and 40. Wings 44 are of greater height than bridge member 46, extending above and below the bridge member 46 to delineate, with the upper and lower edges thereof, upper and lower recesses 49 registering with corresponding guide rods 39 and 40. The width of recesses 49 relative to the thickness of guide rods 39 and 40 is such as to permit the free swinging of the pusher member 43 about a vertical axis without both edges of the recesses 49 concurrently engaging the guide rods 39 and 40 thereby preventing the binding and locking of the pusher member 43 against guide rods 39 and 40. It should be noted that the wings 44 are of lesser width than the tray compartments in which the pusher is disposed.

A large diameter helical compression spring 50 encircles guide rods 39 and 40 and rests upon the inner base rods 32. The diameter of spring 50 is greater than the distance between the rear edges of the wings 44, and less than the distance between side rods 37 and the spring is entrapped between the rear wall of the tray and the confronting rear face of the pusher member thereby to urge said pusher member forwardly. When spring 50 is in its fully extended position, pusher member 43 is at the forward end of tray 13.

In employing the improved display and dispensing tray described above it is attached to an overlying shelf as illustrated in Figures 1 and 2 of the drawing, and as more fully set forth in the copending application of Murray A. Gordon, filed May 20, 1959, Serial No. 814,469.

The tray may be preloaded or may be loaded while mounted on a shelf, as 11, by manually moving the pusher member rearwardly and inserting the articles into the tray compartments, or by inserting successive articles into alternate trays and sliding them rearwardly to retract the pusher member 43, or the tray compartments may be otherwise filled to capacity by articles A stacked in end-to-end abutting relationship thereby to compress and load the spring 50. When there are an equal number of articles A in each of the tray compartments the pusher member 43 urges the rows of articles forwardly until the forwardmost article of each row abuts the front wall of the tray which is forward of the front edge of the shelf at least to the depth of a dispensed article A, as illustrated in Figure 1 of the drawing. As one of articles A is removed from a tray compartment, pusher 43, under the expanding influence of spring 50, pushes the corresponding row of articles forward a fraction of the depth of the article A, and pusher 43 and spring 50 assume the positions illustrated in Figure 4 of the drawing. By reason of the inclination of the leading face of spring 50, the pressure on the forward wing of the pusher 43 is greatly reduced so that it is advanced only a limited distance. Furthermore, guide rods 39 and 40 are not concurrently engaged by the edges of recesses 46 thereby permitting the free advance of the pusher member 43. The next article A is removed from the other row and this row of articles A and the pusher are advanced to the position illustrated in Figure 3. The above procedure may be repeated until all articles A are removed from the tray, whereupon the tray may then be reloaded as aforesaid.

The embodiment of the present invention illustrated in Figure 6 of the drawing is similar to that previously described except in the construction of the tray and the guide rods. The tray, designated by reference numeral 52, includes a base defined by two laterally spaced pairs of laterally spaced longitudinally extending parallel rods 53 terminating at their forward ends in upwardly directed legs 54, the upper ends of each pair of legs 54 being joined by an integral cross piece 56. The rear ends of base rods 53 terminate in upwardly directed legs 57 secured to cross piece 20 of the jaw defined by legs 19, 19. The sides of tray 52 are defined by upper and lower pairs of longitudinally extending parallel laterally spaced rods 58 and 58a respectively. The forward ends of the upper side rods 58 terminate in depending legs 59 which are connected by an integral cross-rod 60 fastened to upright legs 54, while the rear ends of the side rods 58 are connected by a cross-rod 61 fastened to rear legs 57. The forward ends of the side rods 58a are connected by a cross-rod 63, and the rear ends of rods 58a are connected by a cross-rod 64, fastened to the front and rear upright legs 54 and 57 respectively.

Extending medially along the length of tray 53 are a pair of vertically spaced, parallel, upper and lower guide rods 65 and 66 respectively, which are joined at their leading ends by an integrally formed abutment defining vertical rod 67 disposed rearwardly of the front wall of the tray as defined by legs 54. The rear ends of the guide rods 65 and 66 are provided with laterally pro-

jecting arms 68 which are secured to a pair of rear legs 57. A pusher member 69 similar in construction to pusher member 43 (described in connection with the embodiment of Figures 1 to 5 of the drawings) is provided with a bridge member 70 located between guide rods 65 and 66, and laterally extending wings 71 located in the tray compartments separated by the guide rods 65 and 66. A helical compression spring 72 encircles guide rods 65 and 66 and is entrapped between the rear end wall of the tray and the rear face of pusher 69, the forward movement of the pusher 69 being limited by the abutment defined by vertical rod 67. A pair of cantilevered resilient arms 73 extend along the length of tray 52 between each pair of base rods 53, the forward ends of rods 73 being upwardly and forwardly inclined toward the level of the lower edge of the pusher 69. The rear ends of the rods 73 are at the level of base rods 53 and terminate in upwardly directed legs 74 suitably permanently secured to the rear cross rods 61 and 64 as by welding or otherwise.

The application, use and operation of the display and dispensing tray last described is similar to that of the embodiment first described.

Referring now to Figures 7 through 9 of the drawings, which illustrate still another embodiment of the present invention differing from those previously described principally in that the tray compartments are each provided with an independent pusher arrangement of improved construction, reference numeral 76 designates a tray which is provided with a supporting bracket mechanism as in the previous embodiments. The tray comprises a base defined by two laterally spaced sets of three longitudinally extending, laterally spaced, parallel coplanar rods, each set including a pair of outer rods 77 and a middle rod 78 spaced equidistantly between the rods 77. The forward ends of each pair of rods 77 are connected by an integrally-formed, upstanding, inverted U-shaped end member 79, and the rear ends thereof are provided with integrally formed upstanding legs 80 secured to the support bracket. The middle rods 78 also terminate at their rear ends in upstanding legs 81, and their forward ends are secured to a cross rod 82 carried by and between outer base rods 77.

The sides of tray 76 are defined by upper and lower pairs of longitudinally extending, parallel coplanar rods 83 and 84 respectively. The ends of the lower rods 84 are joined by integrally formed forward and rear cross rods 86 secured to the upright legs of the front end members 79 and to the rear legs 80 and 81 respectively. The rear ends of upper rods 83 are likewise joined by a cross-rod 87 secured to rear legs 80 and 81 and the front ends thereof terminate in depending legs 83^a, the bottoms of which are joined by cross-rod 88 likewise secured to front members 79.

As in the previous embodiments, arms 89 of the inclined hanger frame support the forward portion of the tray from the associated bracket and are secured to side rods 83 and 84.

Dividing tray 76 into longitudinally extending side by side compartments is a partition member consisting of a pair of vertically spaced, medially located, longitudinally extending rods 90 disposed above the level of the base rods 77 and 78. The forward ends of rods 90 are joined by an integrally formed vertical rod 91 and the rear ends of rods 90 terminate in laterally projecting legs 92 fastened to the rear upstanding legs 80 and 81.

Slidably located in each of the tray compartments is a pusher member 94 which includes an upright front plate 96 terminating at its top in a rearwardly upwardly inclined lip portion 97. A flange 98 projects rearwardly from the lower edge of plate 96 and carries at its trailing end a medially located upstanding ear 99. Formed in the ear 99 and the lower border of the plate 96 are a pair of horizontally aligned apertures 100 which slidably register with a corresponding middle base rod 78. A pair

of oppositely disposed, inwardly directed recesses 101 are formed in the side edges of the plate 96 co-level with apertures 100, slidably engaging side base rods 77. Associated with each pusher member 94 is a helical compression spring 102 which encircles each of the middle base rods 78 and rests upon the side base rods 77. Each spring 102 is entrapped between the tray rear wall and the rear face of a corresponding pusher member 94 to urge the pusher member 94 to its forwardmost position.

The last described embodiment of the present invention is applied and operates in the same manner as the earlier described embodiments except that each row of articles in their respective compartment is advanced independently of the other row.

While there have been described and illustrated preferred embodiments of the present invention, it is apparent that numerous alterations, omissions and additions may be made without departing from the spirit thereof.

I claim:

1. An improved display and dispensing device of the character described, comprising an elongated tray, a bracket member detachably suspending said tray from a shelf, a pair of vertically spaced, parallel guide rods extending longitudinally along the length of said tray and dividing said tray into parallel side-by-side compartments, a pusher member having medially disposed recesses formed in its upper and lower edges, said recesses being of greater width than and registering with said guide rods, and said pusher member including a pair of laterally extending arcuate wings disposed in said compartments and having forwardly directed vertically cylindrical concave surfaces, and a helical compression spring urging said pusher member toward an advanced position.

2. An improved display and dispensing device in accordance with claim 1, wherein said helical spring encircles said guide rods.

3. An improved display and dispensing device in accordance with claim 2, wherein said helical spring is entrapped between the confronting rear face of said pusher member and the rear wall of said tray.

4. An improved display and dispensing device in accordance with claim 1, wherein said arcuate wings are joined by a U-shaped bridge portion having rearwardly directed legs and a cross-piece, said recesses being formed at the upper and lower edges of said cross-piece.

5. An improved display and dispensing device in accordance with claim 1, including an abutment disposed in said tray between said compartments and in the path of said pusher member rearward of the forward end of said tray to limit the forward movement of said pusher member.

6. An improved display and dispensing device of the character described, comprising an elongated tray having a base defined by a plurality of longitudinally extending parallel substantially coplanar rods, and upright pusher member slidably located in said tray, an upwardly directed lug located rearwardly of and secured to the lower edge of said pusher member, said lug and said pusher member having aligned openings formed therein registering with one of said base rods and a helical compression spring urging said pusher member to a forward position.

7. An improved display and dispensing device of the character described, comprising an elongated tray having a base including a medially located longitudinally extending first rod and a pair of laterally spaced second rods extending along opposite sides of and parallel to said first rod, an upright pusher member longitudinally slidably disposed in said tray and having formed in the lower portion thereof a medially located first aperture registering with said first rod and a pair of inwardly directed recesses along opposite edges registering with said second rods and a helical compression spring urging said pusher member toward a forward position.

8. An improved display and dispensing device in ac-

cordance with claim 7, wherein said helical spring encircles said first rod and rests upon said second rods.

9. An improved display and dispensing device in accordance with claim 7, including a lug mounted on the lower edge of said pusher member and disposed rearwardly thereof and having formed therein a second aperture aligned with said first aperture and registering with said first rod.

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