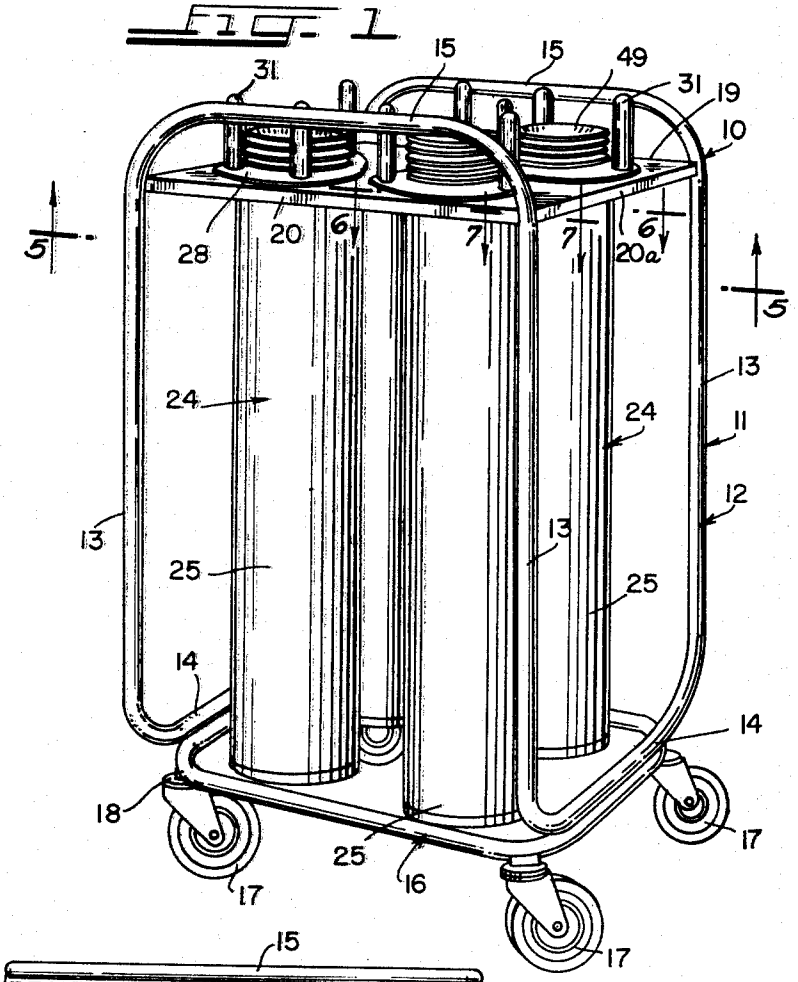
June 22, 1965 R. J. SHELLEY 3,190,453

PORTABLE DISH-DISPENSING APPARATUS

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FIG. 1



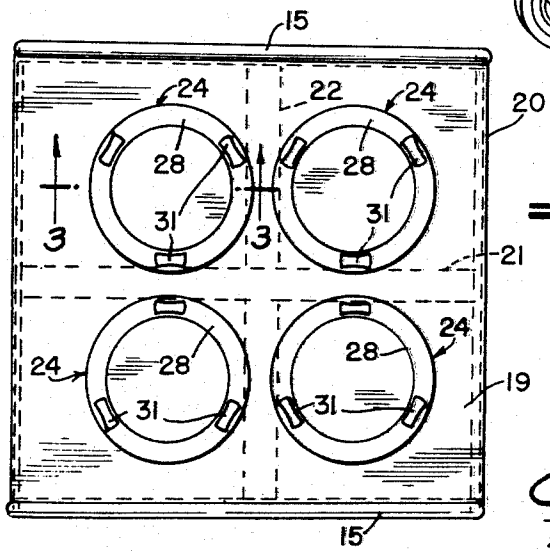


FIG. 2

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PORTABLE DISH-DISPENSING APPARATUS

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FIG. 3

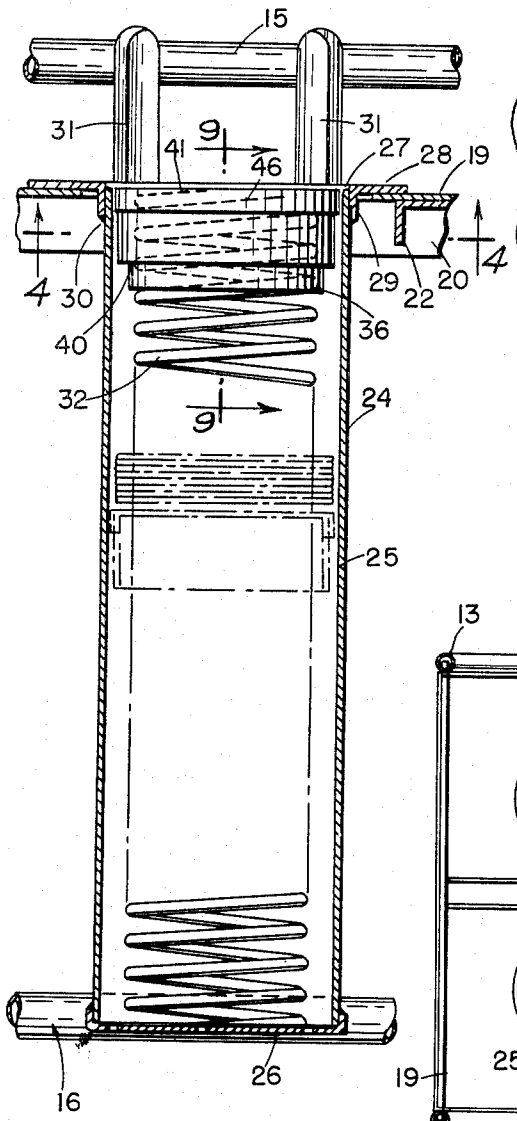


FIG. 4

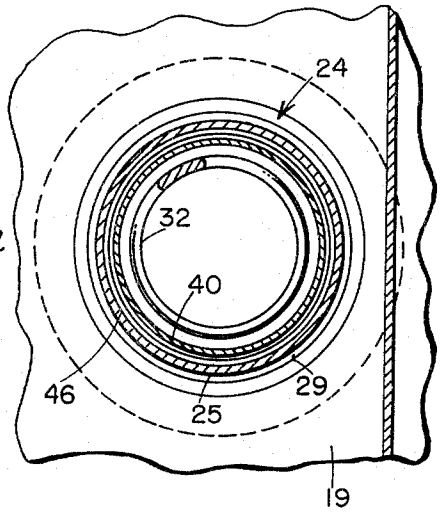
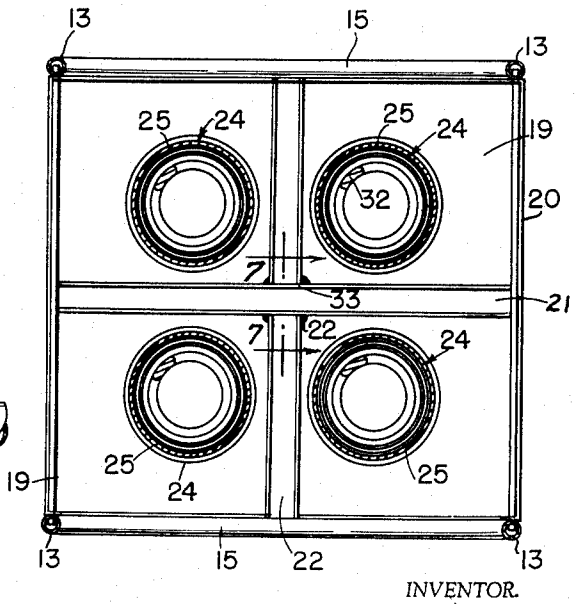


FIG. 5



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PORTABLE DISH-DISPENSING APPARATUS

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FIG. 6

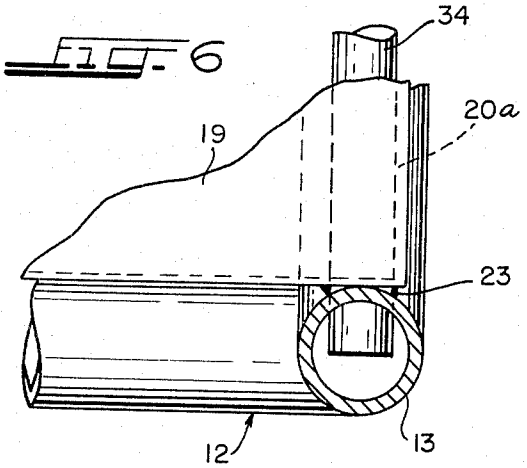


FIG. 7

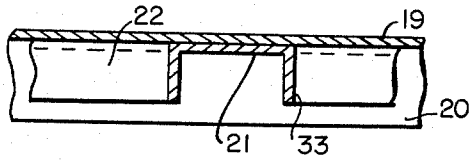


FIG. 9A

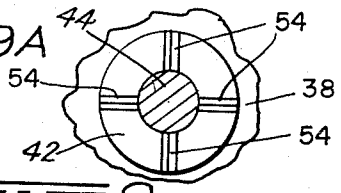


FIG. 9

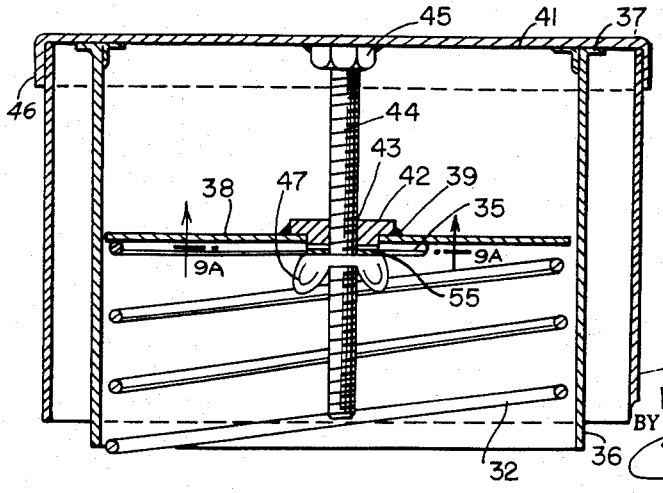
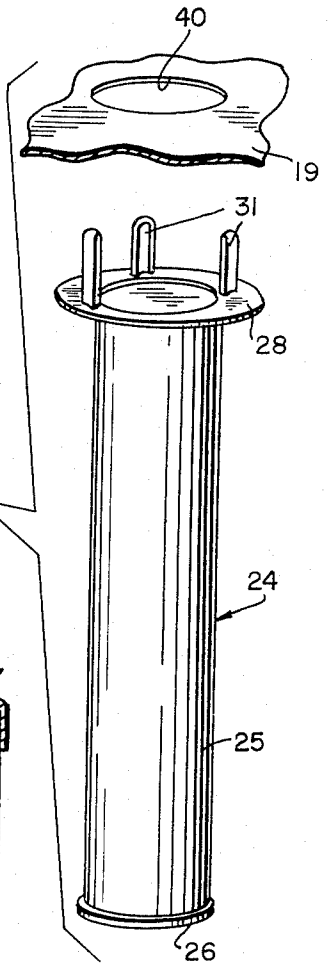


FIG. 8



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FIG. 13

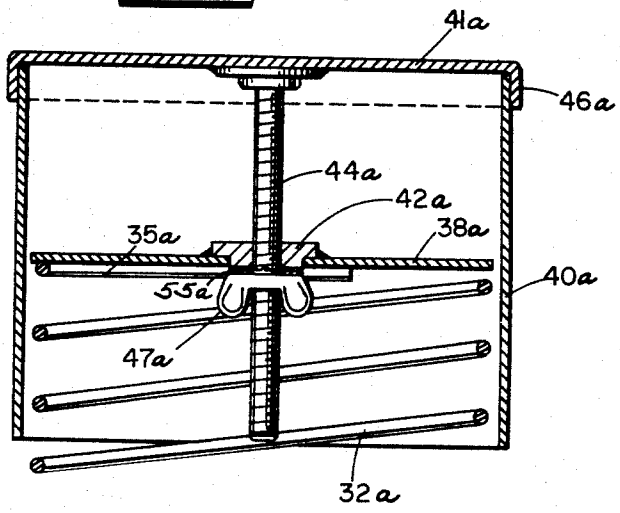


FIG. 10

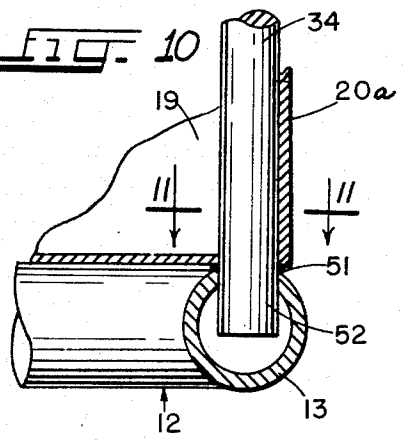


FIG. 12

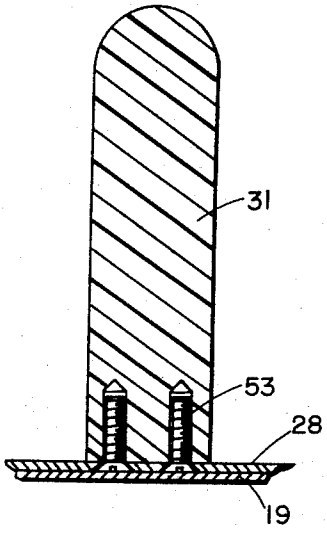
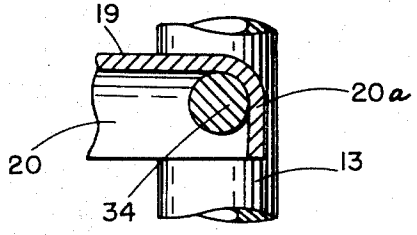


FIG. 11



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3,190,453

PORTABLE DISH-DISPENSING APPARATUS

Robert J. Shelley, 7009 SW. 62nd Court, Miami, Fla.

Filed Mar. 10, 1964, Ser. No. 350,700
4 Claims. (Cl. 211—49)

This application is a continuation-in-part of applicant's co-pending application, Serial No. 274,069, filed April 19, 1963 and entitled "Portable Dish-Dispensing Apparatus."

This invention relates to portable dish-dispensing apparatus.

More particularly, this invention relates to a new and improved dish-dispensing apparatus including a novel dish-dispensing cart embodying a plurality of novel tubular dish-dispensing units, the new dish-dispensing apparatus being particularly adapted for use in restaurants, hotels, cafeterias, schools, hospitals, and like places, for storing and transporting a supply of dishes from place to place and for maintaining the dishes in each of the new tubular dish-dispensing units in a constantly elevated position such that they may be readily withdrawn therefrom as and when needed.

One of the problems heretofore experienced in the use of tubular dish-dispensing units has been the fact that such prior portable dish-dispensing units have customarily been mounted in a closed cabinet type of cart, embodying an access door for the purpose of gaining access to the interior of the cabinet to clean the same, after the dish-dispensing units have been removed therefrom, thereby rendering it difficult to keep such prior closed cabinet types of dish-dispensing carts in a clean and sanitary condition, as is desirable and necessary to meet health and sanitation requirements.

Accordingly, an object of the present invention is to provide a new and improved portable dish-dispensing cart which may be readily transported from place to place in a restaurant, cafeteria, hospital, or like place, for storing a stack of dishes therein and for maintaining them in a constantly elevated position so that they may be readily available therefrom for use as and when needed.

Another object of the present invention is to provide a new and improved portable dish-dispensing cart which is relatively simple and light and inexpensive in construction and which is so designed and constructed that it may be kept clean and sanitary at all times.

Another object of the invention is to provide a new and improved portable dish-dispensing cart embodying a novel, simple and relatively light open supporting frame construction which embodies novel means for supporting the tubular dish-holding and dish-dispensing units in position of use thereon and in such a manner that the dish-holding and dish-dispensing units may be readily removed from the cart for cleaning, repair, or other purposes, as and when necessary.

A further object of the invention is to provide a new and improved portable dish-dispensing cart embodying novel means for removably mounting one or a plurality of the new tubular dish-holding and dish-dispensing units therein.

A further object of the invention is to provide in the new portable dish-dispensing cart novel means for removably and somewhat yieldably supporting one or a plurality of the new tubular dish-holding and dish-dispensing units therein in such a manner that the tubular dish-holding and dish-dispensing units will yield somewhat in their mountings if and when one of the tubular dish-holding and dish-dispensing units is struck by an object, or force, thereby minimizing the risk of damaging the tubular body of the dish-dispensing unit or breaking any of the dishes therein.

An additional object of the invention is to provide in each of the new tubular dish-dispensing units a novel construction and arrangement for varying the height of the dish-dispensing platform relative to the open upper end of the tubular housing or body therefor.

Other and further objects of the present invention will be apparent from the following description and claims and are illustrated in the accompanying drawings, which by way of illustration, show preferred embodiments of the present invention and the principles thereof and which I now consider to be the best mode in which I have contemplated applying these principles. Other embodiments of the invention embodying the same or equivalent principles may be used and structural changes may be made as desired by those skilled in the art without departing from the present invention.

In the drawings:

FIG. 1 is a perspective view of a preferred form of the new portable dish-dispensing cart having a group of the new tubular dish-dispensing units mounted therein;

FIG. 2 is a top plan view of the new portable dish-dispensing cart, and of the new tubular dish-dispensing units carried thereby, as shown in FIG. 1;

FIG. 3 is an enlarged fragmentary central longitudinal vertical sectional view, on line 3—3 in FIG. 2, of one of the new tubular dish-dispensing units of the present invention and showing the manner in which the same are mounted in position of use on the horizontal supporting frame or platform of the new portable dish-dispensing cart;

FIG. 4 is a fragmentary bottom sectional plan view on line 4—4 of FIG. 3;

FIG. 5 is a bottom sectional plan view on line 5—5 of FIG. 1;

FIG. 6 is an enlarged detail view, partly in section and partly in plan, on line 6—6 of FIG. 1;

FIG. 7 is an enlarged fragmentary sectional view, on line 7—7 of FIG. 5, illustrating a part of the horizontally extending supporting frame or platform embodied in the new portable dish-dispensing cart for removably supporting the new tubular dish-dispensing units in position of use thereon, and the bracing means for the said horizontally extending supporting frame or platform;

FIG. 8 is an exploded perspective view illustrating one of the new tubular dish-dispensing units and illustrating a part of the horizontally extending supporting platform for suspending the new tubular dish-dispensing units in position of use on the cart;

FIG. 9 is an enlarged vertical sectional view, on line 9—9 in FIG. 3, illustrating the construction of one of the new tubular dish-dispensing units embodied in the present invention;

FIG. 9A is an enlarged sectional detail view on line 9A—9A in FIG. 9;

FIG. 10 is an enlarged fragmentary sectional detail view of a part of the supporting structure for the horizontally extending platform embodied in the new portable dish-dispensing cart for supporting one or more of the new tubular dish-dispensing units thereon;

FIG. 11 is a sectional detail view on line 11—11 in FIG. 10;

FIG. 12 is a vertical sectional detail view illustrating one of the combination handle and dish-guard members mounted on the annular top supporting flange of each of the new tubular dish-dispensing units; and

FIG. 13 is a fragmentary sectional detail view, similar to FIG. 9, but showing a modification of the new tubular dish-dispensing unit embodied in the invention.

A typical embodiment of the present invention is illustrated in FIGS. 1 to 12, inclusive, of the drawings, where it is generally indicated at 10, and comprises a new portable

dish-dispensing cart 11 which includes an open supporting frame structure 12, which is preferably made of tubular stainless steel stock embodying four vertically extending tubular corner frame members or posts 13 which are arranged in pairs, that is to say, two of the tubular corner frame members or posts 13 are arranged at each side of the supporting frame 12, as seen from the right and from the left in FIG. 1. The two members of each pair of the vertically extending tubular corner frame members or corner posts 13 are integrally connected at their lower ends by a transversely extending tubular frame member 14, and the corner frame members or posts 13 are integrally connected at their upper ends, and at the sides of the new portable dish-dispensing cart 11, by horizontally extending tubular portions 15 of the frame structure 12, these horizontally extending tubular portions 15 also providing handle members for moving the new portable dish-dispensing cart from place to place, as and when desired.

The supporting frame structure 12 includes a generally rectangular-shaped open base frame member 16, which is also preferably made of tubular stainless steel stock, and to which the transverse horizontally extending bottom frame members 14 are integrally attached, in any suitable manner, as by welding, or the like. A caster wheel assembly 17 is swivelly mounted, as 18, on the base frame member 16 at each corner thereof.

The new portable dish-dispensing cart 11 includes a horizontally extending generally flat plate-like supporting member or platform 19, which has a depending marginal or peripheral flange 20 extending therearound. This plate-like supporting member or platform 19–20 is arranged with the confines of the vertically extending tubular corner frame members or posts 13, adjacent the upper end portions thereof, and somewhat below the horizontally extending tubular handle members 15. The horizontally extending supporting member or platform 19–20 has a pair of transversely extending channel-shaped brace members 21 and 22 attached thereto and extending across the supporting member or platform 19 below the body thereof. The depending flange portions 20 of the horizontal supporting platform 19 are attached, in any suitable manner, as by welding 23 (FIG. 6), to the inner surface of lower posts 13 of the supporting frame structure 12, and the outer end portions of the brace members 21–22 are attached in any suitable manner, as by welding, to the inner surface of the depending marginal flange portions 20 of the horizontal supporting platform 19. The brace member 22 is suitably notched, as at 33 (FIG. 5), for the reception of the brace member 21, and the brace members 20–21 are suitably interconnected at their intersecting center portions, as by welding, or the like.

As shown in FIGS. 6, 10 and 11 of the drawings, a pair of relatively large diameter metal supporting rods 34 extend across the horizontally extending supporting platform 19, below the latter, and inwardly of the two depending side flange portions 20*a* thereof (FIGS. 10 and 11). The end portions 52 of the supporting rods 34 extend through openings in the corresponding tubular corner posts 13 and are welded to the said corner posts 13, as at 51 (FIG. 10). In this manner, the supporting rods 34 support the supporting frame structure 12 and the horizontal supporting platform 19 carried thereby and the tubular dish-supporting units 24 carried thereby.

The horizontal supporting member or platform 19–20 has a plurality of generally circular mounting openings 48 formed therein (FIG. 8), and in the typical embodiment of the invention shown in the drawings, these openings 48 are shown as being four in number, and are arranged at 90° intervals around the supporting member or platform 19–20, for the reception and mounting of a corresponding number of the new dish-dispensing units 24, which will be described hereinafter. However, one or any larger number of openings 40 may be provided in the horizontally extending supporting platform 19 for the reception of a similar number of tubular dish-dispensing units 24, which will be described hereinafter.

The new portable dish-dispensing cart 11 is adapted to support and to carry one or a plurality of the new tubular dish-dispensing units 24, each of which includes a generally cylindrical or tubular body 25, which may be made of any suitable material such, for example, as stainless steel, having a closed lower end wall member 26, suitably secured thereto, and having an open upper end portion 27 (FIG. 3). Each of the tubular body members 25 has an annular supporting flange member 28 at the upper end thereof, and each of these annular supporting flange members 28 includes a depending annular flange portion 29 which is welded, or otherwise suitably secured, to the tubular body 25, as at 30 (FIG. 3).

Combination handle and dish-guard members 31, shown as being three in number, are attached at intervals radially around and to each of the annular flange members 28, on the upper surface thereof, in any suitable manner, as by screws 53 (FIG. 12), for a purpose which will be pointed out hereinafter. These members 31 are preferably made of nylon but may be made of any suitable material.

A helical and preferably stainless steel expansion elevating coil spring 32 is arranged within the tubular body 25 of each of the new dish-holding and dish-dispensing members 24, and the lower end portion of the coil spring 32 rests upon the bottom wall 26 of the tubular body 25. In the relatively larger diameter dish-dispensing units 24, as shown in FIG. 9 of the drawings, the upper end portion of the expansion coil spring 32 is arranged within a tubular spring guide member 36, which has an external annular flange 34 at the top thereof, and this flange 37 is attached to the bottom surface of the top wall or platform 41 of the tubular dish-supporting member 40 (FIG. 9). The uppermost end convolution 35 of the coil spring 32 bears against an annular plate 38 which is arranged within the tubular spring guiding member 36 (FIG. 9). The plate 38 has a centrally arranged opening 39 therein, and a threaded mounting means, in the form of a bushing 42 is fixedly mounted on the spring pressure plate 38, centrally thereof, partially within the opening 39. The bushing 42 has a centrally arranged threaded opening therein through which a screw member 44 is threaded so as to mount the plate 38 on the screw member 44. The upper end portion of the screw member 44 is threaded into a nut 45 which is fixedly attached to the under surface of the horizontal top wall or dish-supporting platform 41 of the tubular dish-supporting member 40. The tubular dish-supporting member 40–41 has a depending external annular flange 46 which is attached to the tubular body of the dish-supporting member 40–41 on the outer surface thereof.

A clamping member in the form of a wing nut 47 is threaded onto the screw member 44 below the spring pressure plate 38 (FIG. 9). As shown in FIG. 9A, the bushing 42 has a serrated lower surface 54, and a split lock washer 55 is mounted on the screw member 44 between the wing nut 47 and the serrated bottom surface 54 of the bushing 42 (FIG. 9).

It will be understood that one of the dish-elevating and dish-supporting mechanisms, as described above, and as best shown in FIGS. 3 and 9, is arranged within the tubular body 25 of each of the new dish-dispensing units 24.

In the use of the new portable dish-dispensing cart 11, and of the new tubular dish-dispensing units 24, the tubular body 25 of each of the new tubular dish-dispensing units 24, and the dish-elevating and dish-supporting mechanism 32–35–36–37–38–39–40–41–42–43–44–45–46–47 housed therein, may be assembled, as shown in FIGS. 3 and 9. Each of the thus assembled new dish-supporting units 24 may then be grasped by the combination dish-guard and handle members 31 and dropped down through its respective mounting opening 48 in the horizontally extending supporting member or platform 19 until the

annular supporting flange 28 thereon comes to rest upon the horizontally extending supporting member or platform 19, thereby removably suspending each of the new dish-dispensing units 24 from the horizontally extending supporting member or platform 19 and within the body of the open supporting frame structure 12 of the new portable dish-dispensing cart 11.

A stack of dishes, in the form of saucers, plates, or other articles of dishware 49, may then be inserted into the tubular body 25 of each of the new tubular dish-dispensing units 24 by depositing the same on the upper surface of the horizontal platform 41 of the dish-supporting member 40–41, and as the weight of the stack of such dishes 49 is increased the weight load on the dish-supporting member 40–41 acts, through the screw member 44 and the plate 38, to compress the elevating coil spring 32, and when the spring 32 is thus compressed it acts, through the plate 38, screw member 44, and dish-supporting member 40–41, to maintain the stack of dishes 49 on the dish-supporting platform 41 of the member 40–41 in a constantly raised and elevated position with the uppermost dishes 49 in each stack thereof being disposed above the upper surface of the horizontally extending supporting member or platform 19 so that they are readily available for removal therefrom. To this end, the expansion coil springs 32 are suitably calibrated to the end that the uppermost dishes 49 in each stack of the same on the dish-supporting members 40–41 of each of the new tubular dish-dispensing units 24 projects above the horizontally extending supporting member or platform 19.

If and when it is desired to vary the effective height of the dish-supporting member or unit 40–41 relative to the open top of the tubular body 25 of the dish-dispensing unit 24 this may be readily accomplished by merely lifting the tubular dish-supporting member 40–41, and attached plate 38, screw 44, and wing nut 47, up out of the tubular body 25 of the unit 24, and rotating the plate 38 on the screw member 44 so as to vary the distance between the plate 38 and the top wall or dish-supporting platform 41, of the dish-supporting unit, and then tightening the wing nut 47 on the screw member 44 against the undersurface of the split lock washer 55 which, in turn, engages against the serrated lower surface 54 of the bushing 42, thereby securely locking the parts including the wing nut 47 and the plate 38 in the desired adjusted position on the screw member 44.

It will be noted that in the use of the new tubular dish-dispensing units 24 the effective height of the dish-supporting platform 41, relative to the open upper end portion 27 of the tubular body 25 may thus be adjusted without varying the compression or tension of the spring 32, since the tubular dish-supporting unit 40–41 merely rides loosely on the upper portion of the spring 32. Hence, when the plate 38 is adjusted upwardly on the screw 44, toward the top wall of the dish-supporting platform 41, the tubular dish-supporting member or unit 40–41 is enabled to ride or drop down further in the tubular housing 25 relative to, and around, the spring 32, thereby lowering the effective height of the top wall 41 of the dish-supporting platform 41 relative to the open top 27 of the tubular housing 25. On the other hand, when the plate 38 is adjusted downwardly on the screw 44, the dish-supporting unit or member 40–41 will ride relatively higher in the tubular housing 25 since the spacing between the top of the dish-supporting platform 41 and the plate 38 is thus increased with the result that the effective height or level of the dish-supporting platform 41, relative to the open upper end portion 27 of the tubular housing 27 is thus increased.

It will thus be noted that this variation in the height of the top wall of the dish-supporting platform 41, and of the dish-supporting unit 40–41 is thus effected in the use of the present invention without the need for manipulating the spring 32 to vary the compression or tension thereof and without the need for or use of any limit chain with the spring or any means for adjusting the compression or tension of the spring.

When the new portable dish-dispensing cart 11, and the new dish-dispensing units 24 are thus assembled, with the stacks of dishes 49 therein, the entire unit may be readily moved from place to place in a restaurant, cafeteria, school, hospital, or like place to provide a ready supply of articles of dishware 49, at all times, and since the new portable dish-dispensing cart 11, and the new tubular dish-dispensing units 24, are relatively light, the entire unit may be readily moved from place to place on the caster wheels 17.

When it is desired to clean the tubular dish-dispensing units 24 this may be readily accomplished by removing the stack of dishes 49 therefrom and grasping the handle members 31 and lifting the dish-dispensing units 24 upwardly through and out of their mounting openings 48 in the horizontally extending supporting member or platform 19, whereupon the tubular body 25 of each of the dish-dispensing units 24, and the dish-elevating and supporting mechanism therein, may be washed, steamed, or otherwise cleaned, and thus kept in a clean and sanitary condition.

When the tubular dish-dispensing units 24 have thus been removed from the supporting frame 12–19 of the new portable dish-dispensing cart 11 the supporting frame 12–19 may be readily cleaned and kept in a sanitary condition since all parts thereof are open and are readily accessible, as distinguished from the closed cabinet types of prior portable dish-dispensing carts which have been difficult to clean and keep in a sanitary condition since access thereto could be had only through a hinged access door provided in a front side wall thereof.

Another advantage of the present invention resides in the fact that the tubular dish-dispensing units 24 are somewhat freely suspended from the horizontal extending supporting member or platform 19, and in their mounting opening 48 therein, so that if one of one or more of the tubular dish-dispensing members 24 are bumped or struck by an object or force, they will yield somewhat under the force of such an impact, in their mounting opening 48 in the horizontal supporting member or platform 19, and relative to the latter, thereby minimizing the danger of breaking any of the dishes 49 stored therein and damage to the tubular bodies 25 of the units 24.

Another advantage of the present invention resides in the fact that the members 31 function both as handle members to facilitate the ready insertion of the new dish-dispensing units 24 into and removal of the same from their mounting openings 48 in the horizontally extend ing supporting member or plaform 19, but these members 31 also function as dish-guarding members to protect the uppermost group of dishes 49 in each stack of the same from being dislodged from their proper position in a stack of the dishes 49, which might cause one or more of the uppermost dishes to fall off the horizontally extending supporting member 19 and be broken.

As pointed out hereinbefore, and as shown in FIG. 9 of the drawings, in the use of those of the new tubular dish-dispensing units 24 which are of relatively larger diameter, a tubular spring guide member 36 is employed to guide the upper end portion of the coil spring 32 and to stabilize the latter against side sway. However, in the use of the new tubular dish-dispensing units 24 which are of relatively smaller diameter, the use of the tubular spring guide member 36–37 is unnecessary, and in these instances the upper end portion of the coil spring 32*a* is mounted directly within the tubular dish-supporting member 40*a*–41*a*, as shown in FIG. 13 of the drawings, in which those parts, which are similar or comparable to corresponding parts of the invention, as shown in FIGS. 9 and 9A have been given similar reference numerals followed by the additional and distinguishing reference character "*a*." Otherwise the use and operation of the form

of the invention shown in FIG. 13 is the same as for the form of the invention shown in FIGS. 9 and 9A.

It will thus be seen from the foregoing description, considered in conjunction with the accompanying drawings, that the present invention provides a new and improved portable dish-dispensing cart, and a new and improved tubular dish-dispensing unit therefor, and thus has the desirable advantages and characteristics, and accomplishes its intended objects, including those hereinbefore pointed out and others which are inherent in the invention.

I claim:

1. A tubular dish-dispensing unit comprising an elongated tubular body having a closed lower end wall and having an open upper end, a tubular dish-supporting member movably mounted within the said tubular body adjacent the said upper end thereof and including a horizontally extending top wall providing a dish-supporting platform, a screw member having its upper end portion attached to the said horizontally extending dish-supporting platform of the said tubular dish-supporting member centrally thereof and depending therefrom into the body of the said tubular dish-supporting member, a plate arranged within the said tubular body of the said dish-supporting member below the said horizontally extending dish-supporting platform thereof, said plate having threaded mounting means centrally arranged therein and threadedly and adjustably mounted on the said screw member for movement toward and away from the said horizontally extending dish-supporting platform, an elevating coil spring arranged within the said tubular body of the said dish-dispensing unit and having an upper end portion bearing against the said plate, and a threaded clamping member threadedly and adjustably mounted on the screw member below the said plate whereby the position and height of the said dish-supporting platform relative to the open upper end of the said tubular body may be effected by lifting the said tubular dish-supporting member upwardly through the said opening in the upper end of the said tubular body and rotating the said plate on the said screw member and clamping the said plate in position of use by manually adjusting the said threaded clamping member on the said screw member against the undersurface of the said plate.

2. A tubular dish-dispensing unit as defined in claim 1 which includes a tubular spring guide member arranged within and attached to the said tubular dish-supporting member radially outwardly of the upper portion of the said elevating coil spring and the said plate.

3. A tubular dish-dispensing unit as defined in claim 1 in which the said threaded mounting means on the said plate has a serrated bottom surface, and in which a lock washer is mounted on the said screw member between the serrated bottom surface of the said threaded mounting means and the said threaded clamping member.

4. A tubular dish-dispensing unit comprising an elongated tubular body having a closed lower end wall and having an open upper end, a tubular dish-supporting member movably mounted within the said tubular body adjacent the said upper end thereof and including a horizontally extending top wall providing a dish-supporting platform, a screw member having its upper end portion attached to the said horizontally extending dish-supporting platform of the said tubular dish-supporting member centrally thereof and depending therefrom into the body of the said tubular dish-supporting member, a plate arranged within the said tubular body of the said dish-supporting member below the said horizontally extending dish-supporting platform thereof, said plate having threaded mounting means centrally arranged therein and threadedly and adjustably mounted on the said screw member for movement toward and away from the said horizontally extending dish-supporting platform, an elevating coil spring arranged within the said tubular body of the said dish-dispensing unit and having an upper end portion bearing against the said plate, and a threaded clamping member threadedly and adjustably mounted on the screw member below the said plate.

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CLAUDE A. LE ROY, *Primary Examiner.*