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T. DE STEFANI

2,219,206

DISPENSER DRUM

Filed March 25, 1938

2 Sheets-Sheet 1

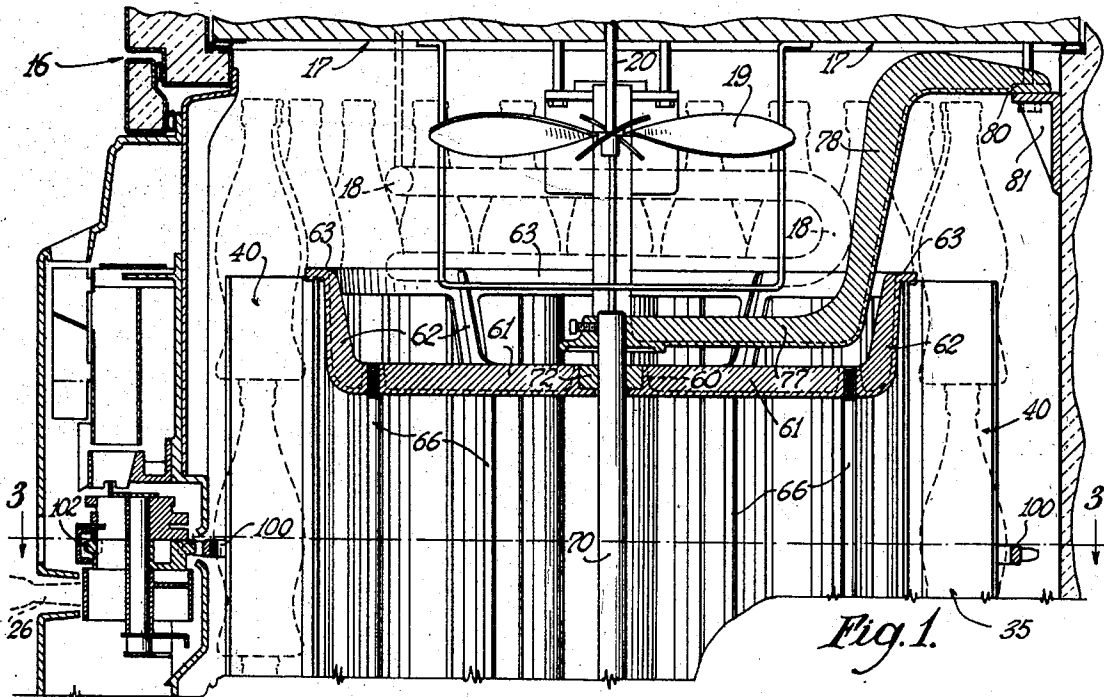


Fig. 1.

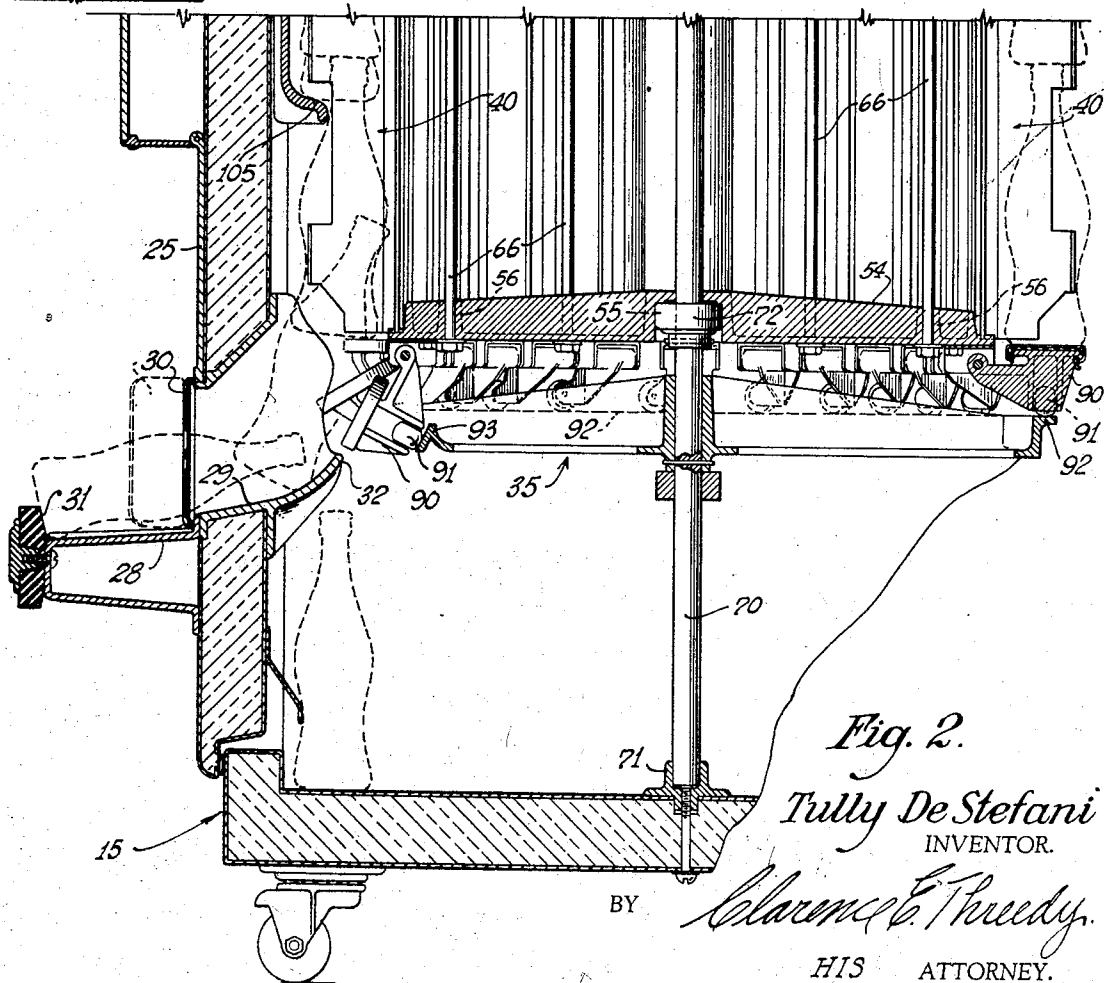


Fig. 2.

Tully De Stefani
INVENTOR.

BY

Clarence E. Thready.

HIS ATTORNEY.

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Fig. 3.

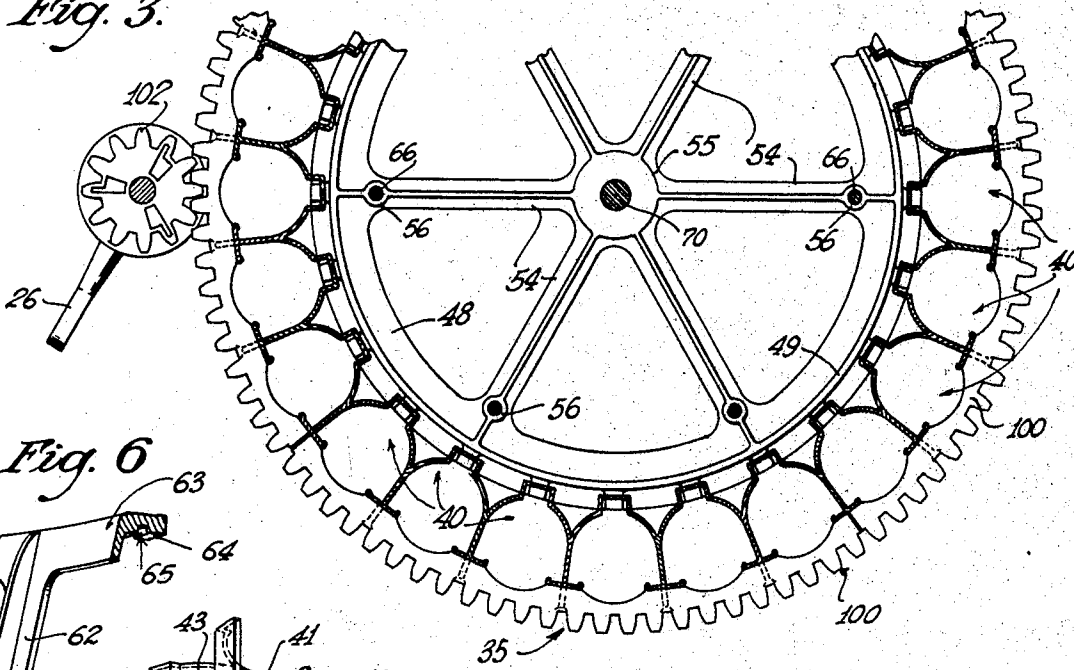


Fig. 6

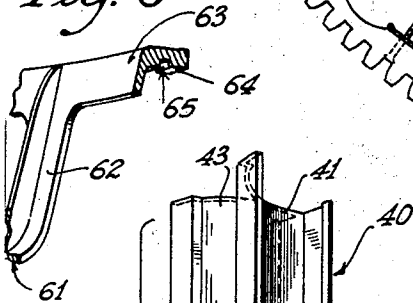


Fig. 7.

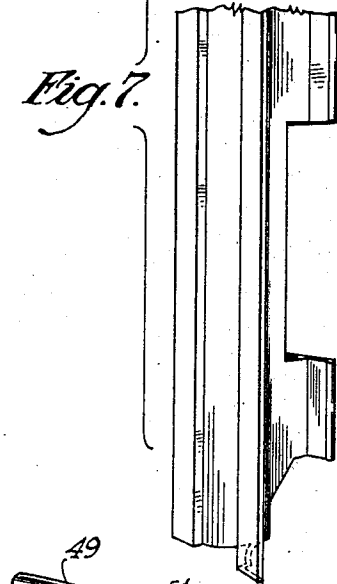


Fig. 5.

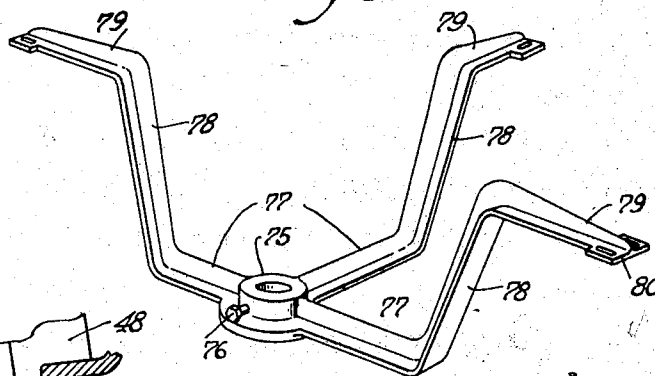


Fig. 4.

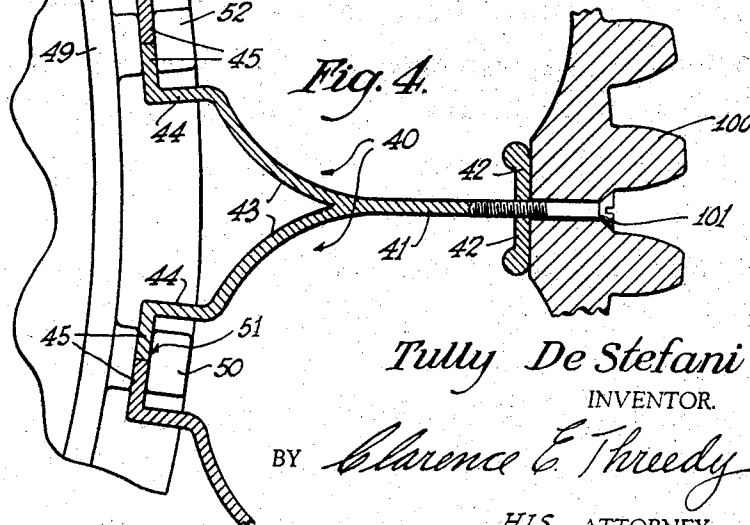


Fig. 8.

Tully De Stefani
INVENTOR.

BY Clarence E. Threedy
HIS ATTORNEY.

UNITED STATES PATENT OFFICE

2,219,206

DISPENSER DRUM

Tully De Stefani, Chicago, Ill., assignor, by mesne assignments, to The Bastian-Blessing Company, Chicago, Ill., a corporation of Illinois

Application March 25, 1938, Serial No. 198,157

8 Claims. (Cl. 312-42)

This invention relates to improvements in dispensing apparatus and has as one of its principal objects the provision of a magazine for vendible articles and especially adapted to use in refrigerated dispensing machines.

Another object is the provision of an article magazine for use particularly in refrigerated dispensing apparatus, the magazine being in the nature of a drum having compartments arranged about its periphery, and the compartments being formed by an assembly of partition plates clamped between axial end castings, the structure being simple, easily assembled, inexpensive, rugged, and greatly facilitating the cooling of articles contained therein.

A further object is the provision of a skeletonized magazine drum consisting of a series of especially shaped partition plates arranged side by side in circumferential array to provide compartments extending collaterally with the axis of the drum, the partition plates being clamped between special open-work axial end castings constituting the ends of the drum.

Another object is the provision of a drum of the kind described in which at least one of the end castings is depressed into the drum, there being a special mounting bracket for the drum and designed to fit closely into the depressed end casting so as to minimize the mounting obstruction at that end of the drum whereby to render possible the placement of a cooling device very close to the drum for circulating of cooling currents about the same as will appear hereinafter.

Still another object is the provision of a drum-shaped magazine with substantially unobstructed axial ends and a peripheral drive means arranged between said ends.

Other novel aspects and objects of the invention include the construction, form, location and operation of various elements of the preferred embodiment shown herein, including details of the drum and drive means therefor, means for mounting the drum such as the hanger spiders or brackets, the partition members, and the like, all of which will appear as the following description proceeds in view of the annexed drawings in which:

Figs. 1 and 2 are complementary vertical sections through a dispensing machine incorporating the invention;

Fig. 3 is a fragmentary horizontal section through the magazine drum and peripheral drive means therefor, as seen along lines 3-3 of Fig. 1;

Fig. 4 is an enlarged sectional detail of the

partition and peripheral drive mounting, as seen in Fig. 3;

Fig. 5 is a perspective detail of a drum mounting spider bracket;

Fig. 6 is an enlarged perspective fragment of the upper end-casting for the drum;

Fig. 7 is a perspective side view of one of the partitions;

Fig. 8 is a perspective fragment of the rim portion of the bottom drum end-casting.

This invention constitutes a continuation-in-part of the subject matter disclosed in my co-pending United States applications, Serial Nos. 198,155, 198,156, filed of even date herewith for improvements in dispensing apparatus.

The illustrative and preferred embodiment of the invention shown herein includes a cabinet 15 (Figs. 1 and 2) having an open top 16 normally closed by a mounting base 17 for a refrigerating mechanism (not shown herein) in such manner that the top is sealed shut by the mounting base.

Depending from the mounting base 17 is a cooling device in the form of expansion coils 18 having connection with the refrigerating mechanism. The coils 18 are arranged in the usual convolute form, and depending from the base is a blower or fan 19 driven by a shaft 20 extended through the base 17 and having driving connection with a motor on the upper side of the base. The blower circulates air down through the coils 18 and the refrigerating compartment therebelow.

A closure or door 25 for the cabinet 15 constitutes a control panel which includes a coin-freed control unit projecting through an opening in the door from within the cabinet and including an oscillatory control handle 26.

Below the control unit is a discharge tray 28 onto which articles are discharged from a chute 29 in the cabinet and past gates 30, there being a resilient buffer 31 at the outer end of the tray and against which the dispensed articles descend. The inner end or mouth 32 of the chute is positioned opposite the dispensing station of a magazine dispensing drum 35 constituting a particular feature of the invention of the present application.

The novel magazine drum is formed by assembling a plurality of especially designed partition members 40 (Figs. 3, 4, 7) side by side in circular array and clamping the same between special perforate or open-work end castings.

Referring particularly to Figs. 4 and 7, the partitions 40 are preferably made by extruding

a light-weight metal, such as an aluminum alloy, to provide elongated, trifoliate or triplex members, somewhat Y-shaped in cross-section, with three elongated surfaces diverging from a common origin so as to have a middle partition stem 41 having a laterally divergent edge flange 42 along one edge, with divergent wings 43 extending from the opposite and remaining edge. The free edge portions of both wings 43 are provided with divergent offset mounting flanges 44 adapted to fit in mounting slots in the drum end-castings.

To complete the drum structure, there are provided axial end-castings of open-work construction. Referring to Fig. 3, the bottom end-casting (see also Figs. 4 and 8) is preferably of aluminum and has a rim 48 with an upstanding annular flange 49 disposed between the peripheral edges of the rim.

Spaced along the outer rim portion are a plurality of bosses or mounting seats 50 for the partitions, and each boss has a lateral seating slot 51 extending in a circumferential sense and into which the angled ends 45 of the offset flanges 44 of adjoining partitions are seated (Fig. 4).

The rim of the lower casting has a plurality of spokes 54 converging in a hub 55. In the webbing at the juncture of the spokes with the rim are formed threaded tie-rod bores 56.

A companion end-casting for the opposite or top end of the drum is of recessed shape (Fig. 1) and includes a hub 60 from which radiate spokes 61 each turned up into substantially axially extending side flanges 62 all terminating in a raised rim 63 (see also Fig. 6). Spaced along the under side of the rim 63 are partition-seating bosses 64 having slots 65 and similar to the bosses 50—51 of Figs. 4 and 8.

In assembling the magazine drum, the partitions 40 are arranged side by side with their respective top and bottom offset flange portions 45 seated in the slots 65 and 51 respectively of the top and bottom end-castings, the latter then being drawn together by means such as the rods 56 (Fig. 1) threaded into tapped bores 56 in the castings.

It should be observed that each partition member 40 has four points of support, two at top and bottom, through the agency of the opposite flange portions 45, and while the material of which the drum elements is constructed is of light weight, yet the drum structure is very firm and strong.

Means for mounting the novel drum in the refrigerated cabinet 15 includes a vertical shaft 70 seated at its lower end in a stanchion 71, and supported at its upper end in a special recessed spider bracket, the shaft extending through bearings 72 arranged in the several hub formations 55 and 60 of the end-castings.

A recessed supporting spider for the upper end of the shaft 70 is shown in Fig. 5 (Fig. 1 also) and includes a hub 75 with a bore for the shaft and a set screw 76 clamping the spider and shaft together. Radiating from the hub are arms 77 each having a double upward bend section including vertically or axially directed intermediate portions 78 turning into divergent horizontal feet 79 each having a flange rest 80 apertured to receive mounting lugs (not seen) on wall brackets 81 (Fig. 1) arranged on the inner walls of the cabinet just below the mounting base 17.

Thus, the spider bracket is recessed to conform to the recessed upper end casting on the drum, and, in fact, hangs into the recessed part of the latter end-casting as viewed in Fig. 1. The pur-

pose of this arrangement is to minimize any obstruction at the upper end of the drum so that the latter end may be fitted as closely as possible beneath the cooling coils 18.

Since the end castings are open and the spaces around the partitions also open in an axial direction, air circulated downwardly by the blower 19 will move freely in and about the drum, there being a ready heat exchange between such air and the highly conductive aluminum body portions of the drum, with the result that articles in the several compartments formed by the partitions 40 will be quickly cooled.

The dispensing means itself includes a plurality of movable bottom members in the form of carriages or dollies 90 (Fig. 2) pivotally mounted on the bottom casting beneath each open bottom of the several compartments. These carriages 90 have rollers 91 which ride on a horizontal, discontinuous track 92 during rotation of the drum so as to maintain the several carriages in normal bottom-closing or article-sustaining position beneath their respective drum compartments.

As the magazine drum is rotated, the carriages 90 are moved sequentially into a discontinued or interrupted portion 93 of the track opposite the chute mouth 32, which effects a dropping of the carriage so that an article thereon will gravitate into the chute 29 and out onto the tray 28. This dispensing mechanism is particularly described and claimed in my aforesaid co-pending application, Serial No. 198,156. Suffice it to say herein, that the dollies are automatically restored to raised article-sustaining position upon subsequent movement of the drum, this being accomplished by a transitory restoring extension of the part 93 of the track which curves gradually back into a horizontal plane into the main track 92.

In order to rotate the drum 35 in steps in one direction, there is provided a novel peripheral drive means including (Figs. 3 and 4) a driven member in the form of a ring gear 100 made up of cast segments or arcs individually attached in alignment around the periphery of the drum 35 by means such as the screws 101 threaded through the lip flanges 42 in the partitions 40 at a level opposite a driving pinion 102 meshing therewith. The pinion 102 is driven by the coin-freed control means 26 in undirectional steps each moving the drum a distance equivalent to that between adjacent compartments, whereby the respective carriages or dollies may be successively moved into the discontinued part of the track to trip the carriages and eject an article therefrom.

Attention is called to the fact that where articles are stacked one upon another in the several compartments, means including a temporary article-sustaining ledge 105 (Fig. 2) is arranged to project beneath the higher-level articles above the discharge station to prevent such articles from following the discharged lower article out of the compartment. This sustaining means also includes a ramp arrangement (not shown) descending from the far end of the ledge 105 by means of which sustained articles are lowered one by one back onto restored carriages. This arrangement is shown in detail in my aforesaid co-pending applications.

In the illustrative embodiment, the drum compartments are loaded with bottled beverages (shown in dotted lines Figs. 1 and 2), which are efficiently cooled as a result of the special construction of the drum itself and the arrangement

of the cooling means close to one unobstructed end of the drum.

It is to be understood that a wide variety of packaged items, other than those in bottles, may be loaded into the drum compartments, for example, ice cream packets, frozen foodstuffs, bottled milk, and so on.

Various changes may be made in the preferred construction explained in detail herein, and the objects and advantages of the invention may be accomplished in various ways without departing from the spirit of the invention, so that it is to be understood that all equivalent arrangements as to form, location, and operation are included within the call of the appended claims.

Having thus described my invention, what I claim as new and desire to protect by Letters Patent is:

1. A magazine drum comprising a plurality of elongated integrally formed trifoliate partitions arranged collaterally about a center, and a pair of end members and means for clamping each of the same against opposite end portions of two of the three foliations of each partition, the third foliation of each of said partitions extending in a radial plane and mutually constituting article compartments about said center in the space intervening between adjoining partitions.

2. A magazine drum comprising a plurality of elongated trifoliate partitions arranged about a common center and each having a particular one of their foliations extending substantially in a plane through said center to provide, cooperably with adjacent and like foliations, article compartments about said center, and a pair of perforate end members each having a rim portion clamped against the opposite longitudinal end portions of the two remaining foliations conjugate with said particular foliations of each partition.

3. A magazine drum comprising a plurality of elongated trifoliate partitions arranged about a common center and each having a particular one of their foliations extending substantially in a plane through said center to provide, cooperably with adjacent and like foliations, article compartments about said center, and a pair of perforate end members each having a rim portion clamped against the opposite longitudinal end portions of the two remaining foliations conjugate with said particular foliations of each partition, the free edge portions of said particular foliations having laterally projecting flange portions constituting means for confining articles against movement laterally out of the several compartments.

4. A magazine drum comprising a plurality of elongated integrally formed trifoliate partitions arranged about a common center and each having a particular one of their foliations extending substantially in a plane through said center to provide, cooperably with adjacent and like foliations, article compartments about said center, and a pair of perforate end members each having a rim portion clamped against the opposite longitudinal end portions of the two remaining foliations conjugate with said particular folia-

tions of each partition, the free edge portions of said particular foliations having laterally projecting flange portions constituting means for confining articles against movement laterally out of the several compartments, said compartments being open at their longitudinal ends, said end members being provided with formations for engagement with means adapted to support said drum for rotation about said center.

5. A magazine for use in dispensing apparatus and comprising a plurality of partitions in the form of elongated members each having three integral conjugate webs arranged in a divergent manner, said partitions being arranged about a center, a particular one of said webs of each partition extending in a plane substantially radial to said center, said partitions being clamped between opposite end members having means to support the same for rotation about said center, said particular webs of adjoining partitions providing article compartments therebetween.

6. A rotatable drum for dispensing machines comprising opposite axial end members, and a plurality of partitions mounted therebetween to complete the drum and form compartments thereabout, said partitions having retaining flange means at their radially outer portions and each extending in a circumferential direction to confine articles in the corresponding compartments while permitting such articles to be seen therein, and drive means including a ring gear formed of segments mounted end to end in alignment about said drum and each secured to one or more of said retaining flange means, said drum being adapted to be rotatably driven by a driving gear meshed with said ring gear.

7. A magazine drum for dispensing machines and comprising opposite end members each having a rim portion joined with a hub portion, each of said rim portions have circumferentially spaced partition-receiving mounting slots, and partition members arranged circumferentially between said end members, each partition having a main web portion from which diverge two attaching webs, each of the said attaching webs having an offset mounting flange adapted to fit in said mounting slots in the rim portions with said main web lying in a plane through the axis of the drum, the space between the main web and one divergent web portion of each adjoining pair of partitions constituting an article storage space, and means for drawing said end members together to clamp said mounting flanges in said slots and hold the parts in assembled relation.

8. A drum in accordance with claim 7 and further characterized in that each of said main webs is provided with a lateral flange along the ledge thereof opposite the juncture of said divergent webs therewith, and the drum is further provided with driving means in the form of a ring gear consisting of a plurality of contiguous segments arranged circumferentially around the drum and each secured to one or more of said flanges on the main web, said gear being adapted for cooperation with driving means for rotating the drum.

TULLY DE STEFANI.