Jan. 1, 1957 L. R. NUNN 2,776,076

COOLER-DISPENSER WITH REMOVABLE AND REFILLABLE CONTAINER

Filed Nov. 1, 1955 4 Sheets-Sheet 1

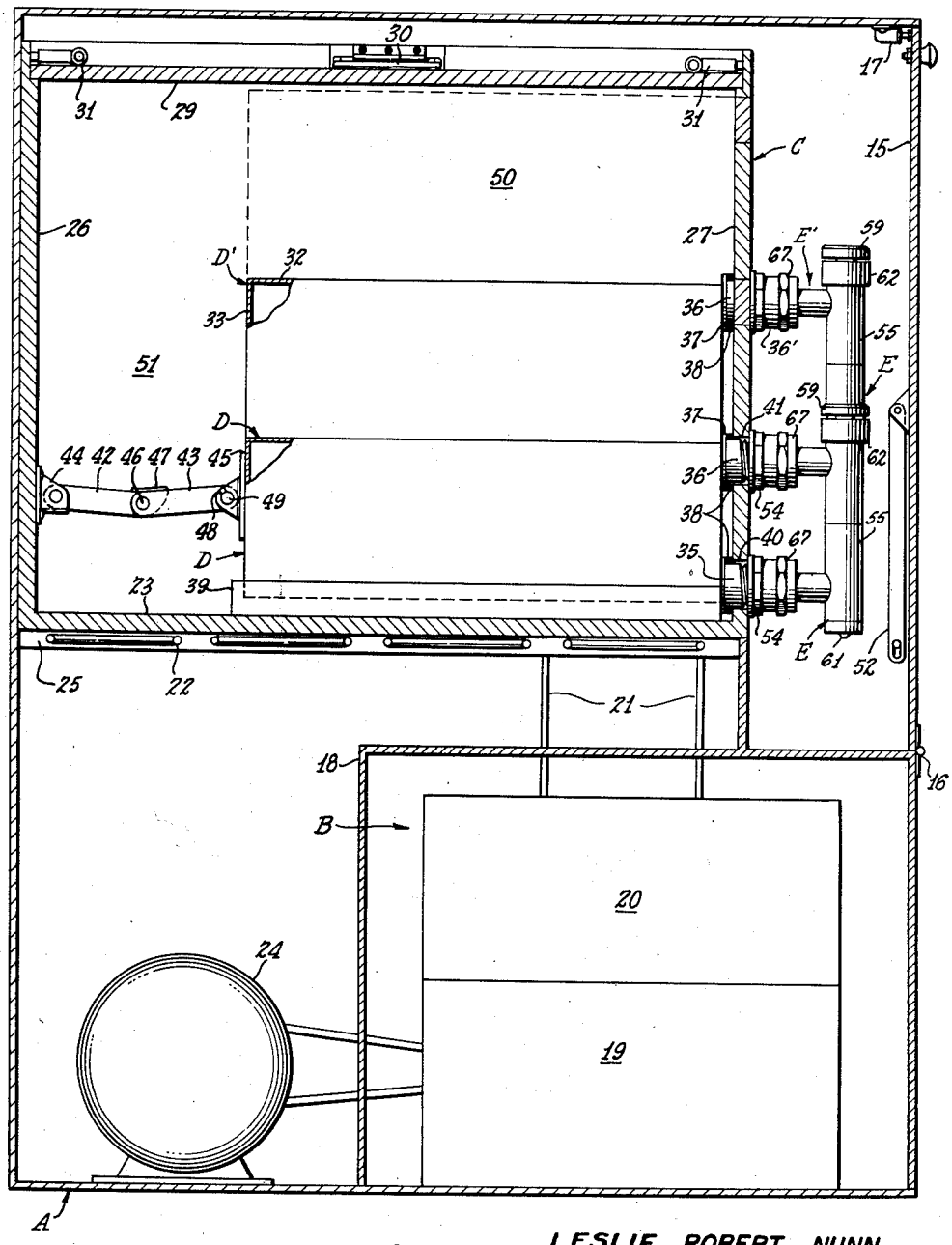

fig. 1.

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fig. 2.

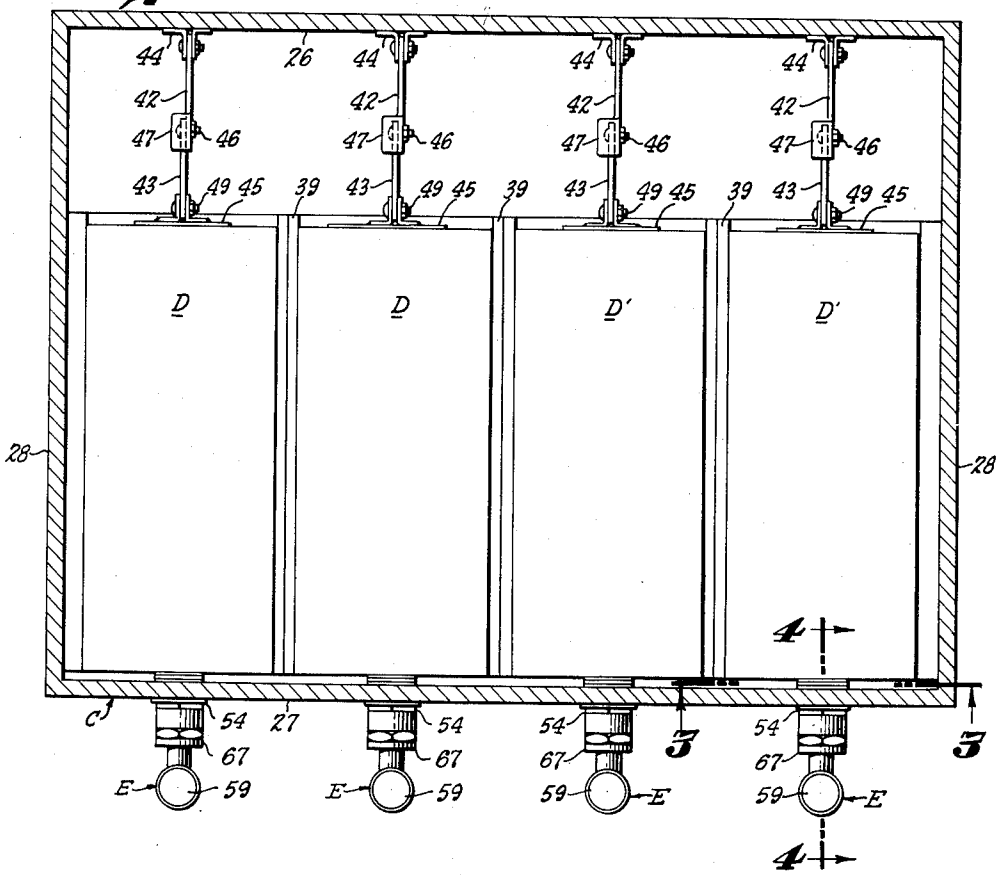


fig. 5.

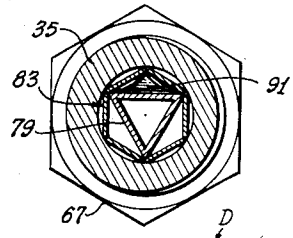


fig. 6.

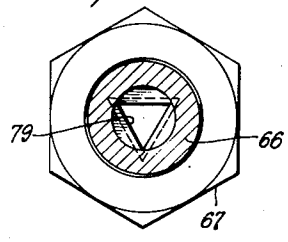
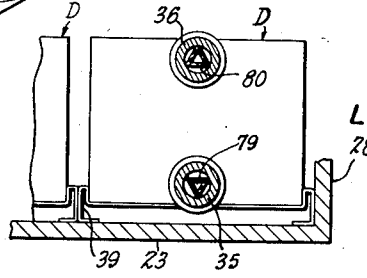


fig. 3.



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COOLER-DISPENSER WITH REMOVABLE AND REFILLABLE CONTAINER

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fig. 4.

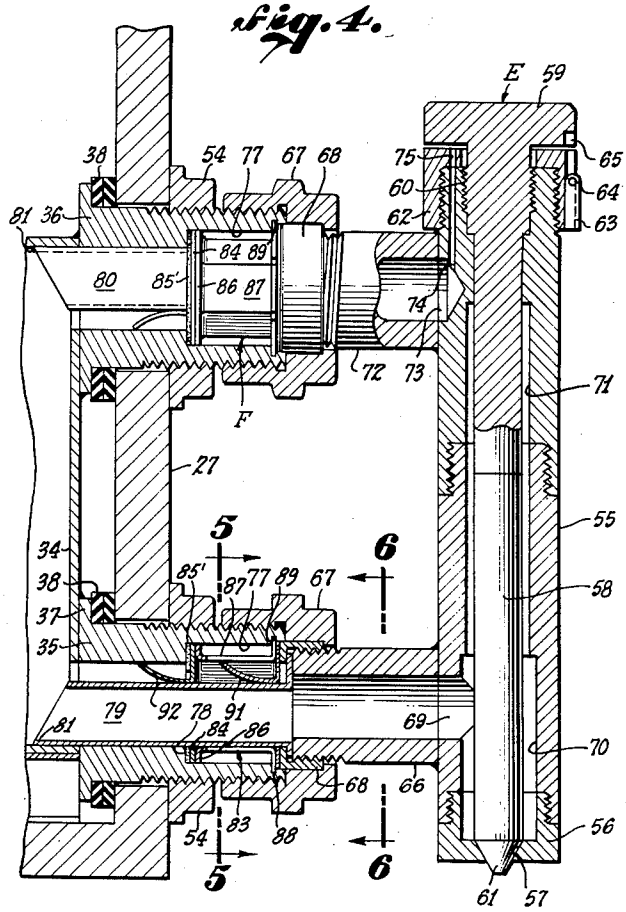


fig. 10.

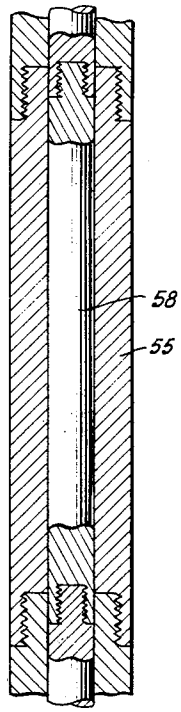


fig. 7.

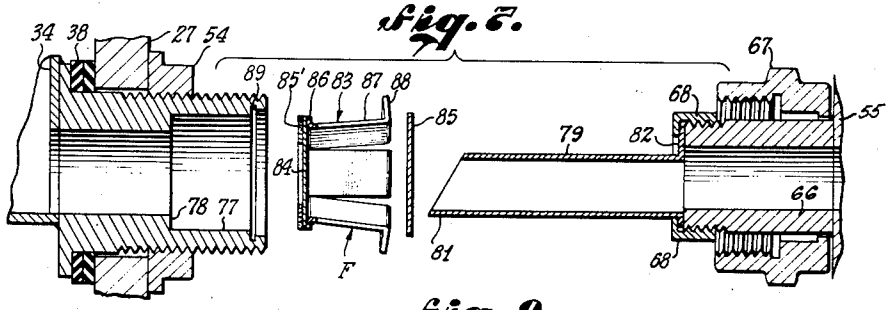


fig. 8.

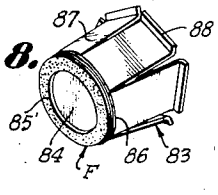
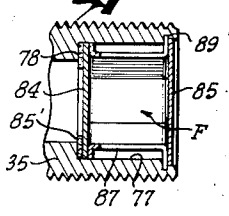


fig. 9.



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COOLER-DISPENSER WITH REMOVABLE AND REFILLABLE CONTAINER

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Fig. 12.

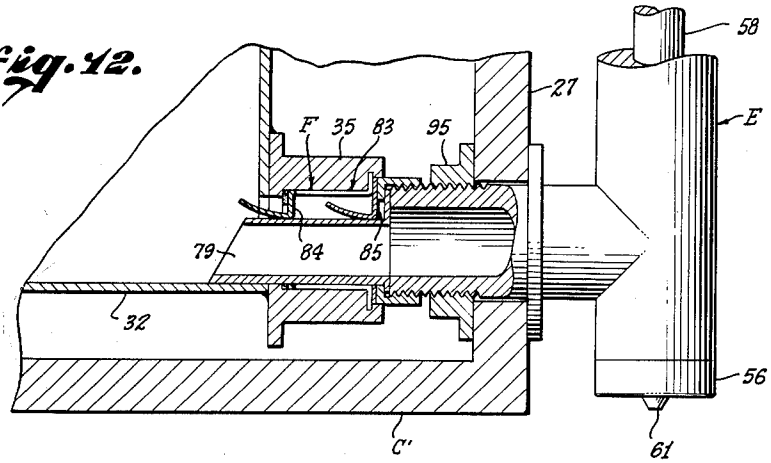
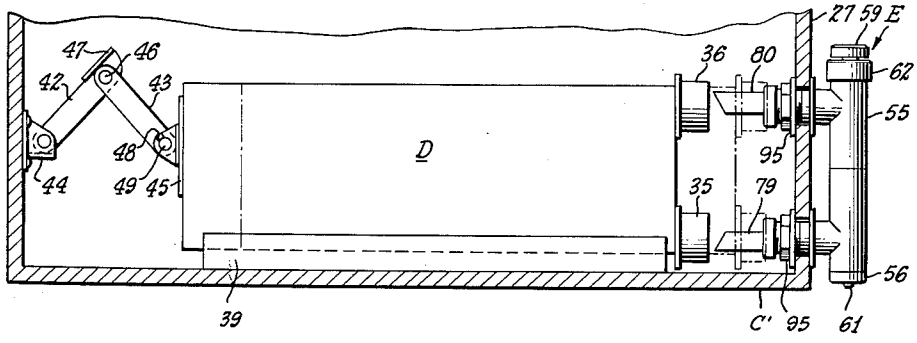


Fig. 11.



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COOLER-DISPENSER WITH REMOVABLE AND REFILLABLE CONTAINER

Leslie R. Nunn, Malibu, Calif.

Application November 1, 1955, Serial No. 544,300

11 Claims. (Cl. 222—83.5)

This invention relates to dispensing coolers and has as its general object to provide an improved cooler apparatus wherein a plurality of individual dispensing containers are mounted removably, for refilling purposes, in a cooled casing in conjunction with dispensing spigot mechanism which is detachable to permit the removal and refilling of the respective containers.

A primary object of the invention is to provide a dispenser cooler apparatus wherein multiple dispensing containers may be mounted within a common casing, with different beverages contained in the different containers, and a dispensing spigot unit and a vacuum-breaking air inlet connection provided for each of the containers so that the contents thereof may be selectively and individually drawn therefrom.

A specific object of the invention is to provide a means whereby the filled containers can be installed in the common casing in a sealed condition and wherein the spigot units may then be applied through the front wall of the casing and readily connected to the respective containers, unsealing them during such application so that the contents of the containers may then be drawn.

More particularly, the invention aims to provide a novel and improved seal which is installed in the dispensing outlet and in the vacuum breaking air inlet connection of each container, sealing the container after filling thereof and during handling of the container up to the point where a dispensing spigot unit is attached thereto, the seals being particularly adapted for accommodating the insertion of connecting augers carried by the dispensing spigots, into the respective containers for establishing the dispensing connection between the spigots and the containers.

A further specific object is to provide such an improved seal composed of several parts including seal discs of thin, readily piercable sheet material, which are quite inexpensive and are adapted to be replaced each time a seal is reestablished in sealing relation to a newly filled container.

A further object is to provide a dispensing cooler of the type outlined above, wherein the relationship between dispensing outlet, the seal therein, and the spigot auger is such as to provide for completely draining off the contents of the container through the bottom thereof.

A further object is to provide a novel and improved arrangement of cooler cabinet, removable container casing therein, mounting of the containers in the casing with spare space therein for the reception of ice (when the cooler is used as a portable cooler) on for the reception of extra containers, bottles, glasses etc.; with the dispensing spigot units enclosed within the outer cabinets, and with access door means, normally closing off the dispensing mechanism but adapted to be opened to expose the spigots for operation.

Other objects will become apparent in the ensuing specification and appended drawing in which:

Fig. 1 is a vertical fore-aft sectional view of a dispenser-cooler embodying the invention;

Fig. 2 is a horizontal sectional view through the upper region thereof, showing the multiple containers in plan view;

Fig. 3 is a detail sectional view through one of the sealing connections between a container and a spigot unit taken on the line 3—3 of Fig. 2;

Fig. 4 is a detail vertical sectional view through the forward end of one of the containers and through associated spigot and sealing connection units;

Fig. 5 is a detail transverse sectional view of a connecting seal unit taken on the line 5—5 of Fig. 4;

Fig. 6 is a detail sectional view through a spigot connection taken on the line 6—6 of Fig. 4;

Fig. 7 is an exploded axial sectional view of container outlet, seal and outer assembly;

Fig. 8 is a perspective view of a portion of one of the seal units, illustrating particularly the novel clip seal part;

Fig. 9 is a sectional view of the assembled seal unit;

Fig. 10 is a detail sectional view of a multiple spigot shaft arrangement of the invention;

Fig. 11 is a detail sectional view through the bottom of the casing of the modified form of the invention utilizing the detail arrangement of Fig. 10; and

Fig. 12 is a detail sectional view of a modified form of the connecting seal arrangement.

General features of the invention.—Overall cooler arrangement

Referring now to Figs. 1 and 2 of the drawings, I have shown therein as an example of one cooler arrangement in which the invention may be embodied, a cooler-dispenser apparatus including, in general, a cabinet A having in its lower area compartmented compressor-refrigerator apparatus B, a casing C supported in its upper area; a plurality of individual containers D for beverages or other liquids to be dispensed mounted in casing C, the containers D being connected to respective dispensing spigot units E which are accommodated in a vertical compartment between the front of cabinet A and the front of container C; and seal units F for sealing spigot units E to containers D.

Cabinet A may include conventional enclosing wall structure defining in the upper area thereof an opening extending the full width of the cabinet and normally closed by a serving leaf **15**. Leaf **15**, functioning also as a door, has hinges **16** connecting it along its lower margin to the fixed wall structure of the cabinet and has at its upper end suitable latch mechanism **17** for latching its upper margin to the fixed top of the cabinet. In its lower area it may be provided with partitioning wall structure **18** for defining a compartment for the compressor unit **19** and refrigerating heat transfer unit **20** of apparatus B, unit **20** being connected, as by connections **21**, to a conventional heat transfer coil **22** arranged in a horizontal plane just below the bottom **23** of casing C, for refrigerating the latter. A motor **24** is shown as the means for driving compressor **19**.

Casing C, resting with its bottom **23** upon a suitable supporting frame structure, **25** in which coil **22** is mounted, includes a back wall member **26**, a front wall member **27**, and side wall members **28** (Fig. 2) in a box-like arrangement which is open at the top and normally closed by a cover **29**. Cover **29** is recessed into the vertical wall members **26**, **27** and **28**, is hinged at one side as at **30**, and is provided with a latch unit **31** for latching it tightly down to the fixed box structure of the casing C. Container units D are inserted through this open top of the casing.

Each container unit D is preferably of rectangular cross section so that a maximum container volume may be accommodated within the space reserved for the container.

Each container includes horizontal bottom, top and side walls, all designated by the numerals 32, a permanently closed rear end wall 33, and a forward end wall 34 (Fig. 4) in which are mounted respective dispensing connections including an outlet gland 35 attached to wall 34 at the bottom of the container and a vacuum breaking air inlet gland 36 attached to the front wall 34 at the top of the container. Glands 35 and 36 are preferably formed with base flanges 37 between which, and front wall 27 of casing C, sealing gaskets 38 are interposed.

Referring now to Fig. 2, a plurality of the containers D are arranged in side by side relation across the width of casing C. The containers are mounted on removable shoes 39 resting on bottom 23, whereby the containers may be readily shifted along their longitudinal axes, sliding on bottom 23 for insertion of connector nipples 35, 36, through respective registering openings 40, 41 in the forward casing wall 27. Shoes 39 may also be used with individual containers on a shelf of a home refrigerator, out of casing C.

To facilitate the sliding of containers D, I provide operator units each including a pair of toggle links 42, 43, pivoted respectively to brackets 44, 45 secured to rear casing wall 26 and rear end wall 33 of a container respectively. Links 42, 43 are pivotally connected to one another by a pivot 46. Link 42 is provided with a stop tab 47 disposed in a plane at right angles to the plane of its body and overhanging pivot 46 so as to engage and lock against link 43 to limit the downward movement of the toggle links at a point just below dead center, thus locking the container D with its connecting nipples 35, 36 fully projected through apertures 40, 41, and with seal gasket 38 placed under compression.

A detachable connection between a toggle actuator and a respective container D may be provided for by a diagonal slot 48 in a respective bracket 45, receiving a stud 49 fixed in the end of link 43 to provide a releasable pivotal connection between the toggle linkage and the container. A container D may be removed from the casing C by disconnecting the toggle actuator from the container.

Above the row of containers D and below cover 29, there is defined an extra storage space 50. Similarly, between the rear ends of containers D and rear wall 26 there is defined a vertical storage space 51. These spaces may be utilized for packing ice around the containers when the apparatus is used as a portable cooler apparatus for picnics etc., or may alternatively be used for storing and cooling extra containers that are full and sealed. Tumblers, beverage glasses, etc., may also be stored in space 51.

The invention contemplates the use of containers of varying height but of uniform width. A container D (approximately one third the height of the casing C) may have a minimum unit volume. A container D', of double unit volume, resting on shoes 39 on floor 23 at one side of container D, is indicated in Fig. 1 with its upper half showing above container D and its lower half hidden behind container D. Container D' has a lower spigot connection gland 35 on a level with that of container D, and an upper spigot connection gland 36' at its upper extremity and visible above connection 36 of container D. The upper portion of its spigot unit E' is likewise visible above spigot E.

Serving leaf 15 has its respective sides connected to the side wall members of cabinet member A by linkage 52 which provides cantilever supports when leaf 15 has reached the horizontal position, thus constituting it a table top for the serving of beverages.

After container D has been installed in proper position within casing C, it is locked in that position by means of nuts 54 threaded into the threaded outer ends of glands 35, 36 respectively and drawn tightly against casing wall 27.

Each of the container glands 35, 36 is provided in its outer end with a counterbore 77 at the inner end of which is defined a flat offset annular shoulder 78 providing a seat for the seal unit F illustrated in assembled condition in Fig. 4 and in exploded relation in Fig. 7.

Dispensing spigot units E

Each spigot E comprises a valve housing 55 in the form of a vertically disposed cylindrical tube, preferably in sections (to make up the different sizes of spigots) threaded together as illustrated in Fig. 4, each valve casing having at its lower end a valve seat section 56 (which likewise may be detachably connected by a threaded connection as shown) the seat section being of annular cap form and having a conical valve seat 57. Extending vertically through casing 55 is the sectional shaft 58 of a valve element of the needle valve type, including a head 59, a threaded neck portion 60 just below head 59 and threaded into an internally threaded upper end portion of casing 55, and a sectional stem having at its lower end a conical valve tip 61 which seals against seat 57 when the valve element is rotated in valve closing direction (e. g. clockwise from above). Threaded onto the upper end of casing 55 is a cap 62 through which neck 60 extends. The latch element 63 is pivoted at 64 to cap 62 and is adapted to engage in a notch 65 in valve head 59 to lock the valve element 58 to the cap 62.

Attached to the lower section of valve casing 65 is a connector nipple 66 for connection to gland 35 of a container D by means of a coupler nut 67 threaded onto its threaded outer end, and having a flange to engage a smaller nut 68 that is received within the nut 67 and threaded onto the threaded free end of nipple 66. Nipple 66 communicates, through a port 69 in the side of valve casing 55, with a valve chamber 70 in the lower portion of casing 58, extending annularly around the lower end of valve element 58.

Preferably, valve casing 55 is of transparent material (such as a vinyl plastic material) and is provided with an annular chamber 71 extending upwardly from chamber 70 to approximately the top of the container, so that when the spigot is closed, the liquid may rise in chamber 71 to seek the level of the liquid within the container thus indicating at a glance at the spigot, how much beverage is left in a given container.

Attached to the upper section of valve casing 55 is a nipple 72 of the same construction as nipple 66 and connected to container gland 36 by outer and inner nuts 67, 68. Nipple 72 communicates with a recess 73 in the side of casing 55, and an air inlet port 74 extends upwardly from recess 73 in the wall of casing 55, to communicate with atmosphere through a registering port 75 in cap 62.

It may now be noted that, by rotating valve element 58 upwardly to unseat its valve tip 61, the contents of a container may be drawn off from the bottom of the container while air enters the top of the container through release passage 74 and connection 72, 36, to fill the void left by the withdrawn contents. (A seal disc 80 of thin sheet metal or foil abutted against one end of clip seal 79, an annular gasket 81 on the outer face of seal disc 80, and a second seal disc 82, similar to disc 80 but of slightly larger diameter, which seats against the opposite end of clip seal 79. The assembled seal unit F is roughly of drum form and is secured to counterbore 77 to seal the outer end of a respective nipple 35 or 36.)

Attached to and projecting from the ends of the respective nipples 66 and 72 are augers 79, 80 respectively, for piercing the seal units F. Each of these augers is of triangular section (Fig. 5), has a piercing point 81 at one end, and has at its other end a radially outwardly projecting flange 82 by means of which it is mounted against the end of a respective nipple 66 or 72, being clamped thereto by a respective inner nut 68. The piercing point 81 is located at the lower corner of the triangular tube section of the auger 79 and at the upper corner of auger 80.

Seal unit F

Each of the seal units F comprises a clip seal 83 of

stamped sheet metal, sealing discs 84 and 84 of thin sheet metal or foil or equivalent thin piercable sheet material, engaged against and adhesively attached to the respective ends of clip seal 83, and a gasket 85 similarly attached to the outer face of seal disc 84 (Fig. 9). The gasket 85 seats against shoulder 78 at the bottom of counterbore 77 in a respective gland 35 or 36.

The clip seal 83 is formed with a circumferentially continuous web portion in the form of a flange 86 at the end thereof which engages gasket 85; includes a series of fixed flat lateral staves 87 cooperatively defining a hexagonal tubular body, and has at the end opposite web 86, a plurality of fingers 88 which cooperatively define a hexagonal flange for seating against seal disc 85. Fingers 88 also function to latch the seal unit F into counterbore 87, their tips engaging in the annular groove 89 at the outer end of counterbore 87.

Operation of preferred form

In the operation of the apparatus shown in Figs. 1–9, the casing C is removed forwardly through the open front of housing A after lowering door 15, and may be allowed to rest on the serving leaf 15 in its horizontal position. Cover 30 of casing C is then raised to provide access to the containers therewithin. Assuming that a particular container has been emptied and is to be replaced by a filled container, one of the filled containers, with unbroken seal units F in its respective glands 35, 36, sealing the container, is readied for the replacement. The emptied container is removed from the apparatus as follows: Nuts 67 are backed off and detached from glands 35, 36, and dispensing spigot unit A is withdrawn. Locking nuts 54 are then removed from glands 35, 36, freeing the latter so that the emptied container may be shifted inwardly toward rear wall 25, of casing C. This may be done by unlocking toggle actuator units 42—48 (breaking the links 42, 43 upwardly and unhooking the link 43 at slot 48. The container is then shifted rearwardly until glands 35, 36 clear front wall 27 of the casing and the container is then lifted through the open top of the casing.

The emptied container is then set aside, to be returned to beverage packer for refilling and the fresh, filled container is inserted in its place within casing C, the glands 35 and 36 are aligned with apertures 40, 41, and the container is then shifted forwardly on shoes 39 until gaskets 38 make contact with forward wall 27. Locking nuts 54 are then applied to the glands and drawn up tight to seal the glands to the casing wall 27. Spigot unit E is then positioned with augers 79, 80 registering with seal units F of glands 35 and 36 and are pushed inwardly, the piercing points 81 puncturing the sealing discs 85 and 84 in succession and the biased forward ends of augers 79, 80 rolling back triangular tabs 91, 92 from the apertures that are pierced in the sealing discs, until there is provided in the respective discs, triangular openings closely fitting the triangular walls of the augers 79, 80. Tab 91 is received in a wedge shaped space between the upper wall of an auger and the clip seal 83 as indicated in Fig. 4. Tab 92 is received in a space defined between the upper auger wall and the cylindrical inner wall of a gland 35 or 36.

Referring now to Fig. 5, it may be noted that the corners of the triangular section augers are received in alternate corners of the hexagonal body of clip seal 83. An important aspect of the invention is the utilization of a regular hexagonal prism form for clip seal 83, with the inner diameter (between opposite corners thereof) being just slightly larger than the outer diameter of a circle intersecting the three corners of equilateral triangular section of an auger, so that accurate location of the three corners of an auger within the three alternate corners of the clip seal, is provided for. Furthermore, with the lower auger arranged so that its apex is at the bottom and on the vertical median plane thereof, and with the seal unit F correspondingly arranged with opposite corners located on its vertical plane, the auger will be positioned to drain the container to the very bottom thereof, the counterbore 87 being of a radius such that the apex of the auger 79 may graze the upper surface of the container bottom, as it is inserted.

When the augers have been sufficiently inserted, securing nuts 67 are threaded onto glands 35, 36, and drawn tight to seal the inner nuts 68 against the outer seal discs 85. Thus spigot unit is sealed to the glands 35, 36, and the liquid in the container is allowed to flow into the chambers 70, 71 of the spigot casing 55.

When the spigot connections have thus been made, the casing C is placed back in the cabinet A, spigot unit E occupying the vertical chamber between forward wall 27 and the front of cabinet A. Access to the spigot units is then obtained by lowering door 15.

By rotating knob 59, a spigot E may be opened to draw beverage from its lower end. When the spigot is closed, flow is cut off and the beverage will rise in chamber 71 to indicate the height of the body of beverage remaining in the container.

Modified form

In the modified form of the invention disclosed in Figs. 11 and 12, the augers 79, 80 are permanently attached to front wall 27 of casing C' by means of securing nuts 95, and the seal units F in glands 35, 36 are punctured as the container is shifted against the augers.

In each case, the spigot is sealed to glands 35, 36 by the seal discs 84, 85, the augers 79, 80 fitting perfectly in the apertures punctured by them, and thus being sealed to the discs 84, 85.

Instead of the hexagonal cross section shown and described above, clip seals 83 may, if desired, be of triangular cross section, fitting closely around augers 79, 80.

I claim:

1. In a liquid dispensing apparatus wherein a casing is provided for reception of a liquid container, in combination with said container; a gland on said container adapted to project through an opening in a wall of said casing, said gland having a counterbore defining an annular shoulder at the inner end thereof; a seal unit disposed in said counterbore, said unit including a clip seal of regular polygonal cross section having three equi-angular corners and including thin sheet disc seals at respective ends thereof, and means for sealing one of said disc seals to said shoulder; and a spigot unit having an auger of triangular cross section projecting laterally therefrom for insertion through said seal unit, said auger having a piercing point at one of its corners, for piercing said disc seals, and being proportioned so that its respective corners will rest within said equi-angular corners of the clip seal.

2. Apparatus as defined in claim 1, wherein said clip seal is of hexagonal cross section.

3. Apparatus as defined in claim 2, wherein said clip seal comprises a plurality of rectangular flat staves, and an annular web integrally joining said staves at one end of the seal unit and being in the form of a flange bent radially outwardly from the ends of said staves.

4. Apparatus as defined in claim 3, wherein said staves, at their ends opposite said web, are formed with fingers bent radially outwardly, and wherein said gland has, at the outer end of said bore, an annular internal groove into which said fingers are adapted to latch.

5. Apparatus as defined in claim 4, wherein said outer seal disc is adhesively attached to the outer faces of said fingers as latched into said groove.

6. In a beverage dispenser-cooler apparatus, in combination: a cooling casing having a front wall provided with apertures; a plurality of elongated beverage containers receivable in said casing with their longitudinal axes horizontal and provided at their forward ends with seal glands adapted to project through said apertures, each of said seal glands having a counterbore defining an annu-

lar shoulder at its inner end; a spigot unit for each container, having a laterally projecting tubular auger receivable in a respective seal gland and providing a passage for flow of beverage from the respective container into the respective spigot unit; and a seal unit of drum form receivable in each counterbore and having at its respective ends, thin sheet disc seals adapted to be pierced by a respective auger and to form a liquid seal therearound.

7. Apparatus as defined in claim 6, wherein each spigot unit includes a tubular casing of transparent material and having a chamber in which liquid may rise for levelling with the liquid in the container to indicate the height thereof.

8. Apparatus as defined in claim 7, wherein the spigot casings are of sectional form, and of different lengths to conform to containers of differing height.

9. Apparatus as defined in claim 6, including toggle actuators within said cooler casing, attached to the rear wall thereof and attachable to the rear ends of respective containers for actuating them toward and from the front wall of the casing.

10. Apparatus as defined in claim 6, including a cabinet having a shelf to support said casing at the rear of the cabinet, said cabinet projecting forwardly of the casing as thus supported, whereby to define a vertical space to accommodate the spigot units.

11. Apparatus as defined in claim 6, including a cabinet having a shelf to support said casing at the rear of the cabinet, said cabinet projecting forwardly of the casing as thus supported, whereby to define a vertical space to accommodate the spigot units; and a serving leaf functioning normally as a door for the front of the cabinet, the cabinet having a front opening for receiving said casing and having means hinging said leaf thereto along the lower margin of said opening, and means operative between said cabinet and said leaf to provide a cantilever support for the leaf in a lowered, horizontal position in which it provides a support for said casing when the casing is withdrawn through said opening.

No references cited.