

June 17, 1958

L. J. JACOBI, JR

2,839,260

NON-DISPLACEABLE RECEPTACLE

Filed Feb. 8, 1954

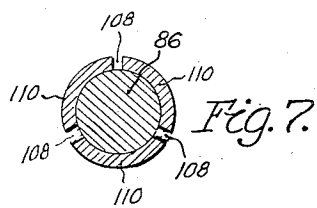
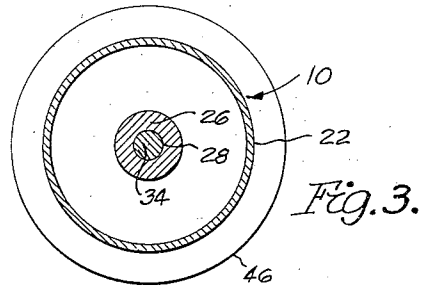
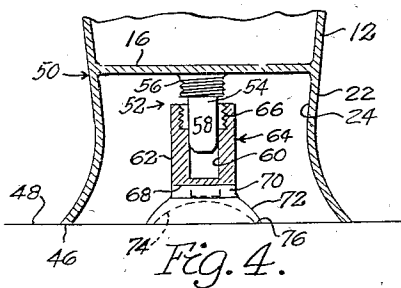
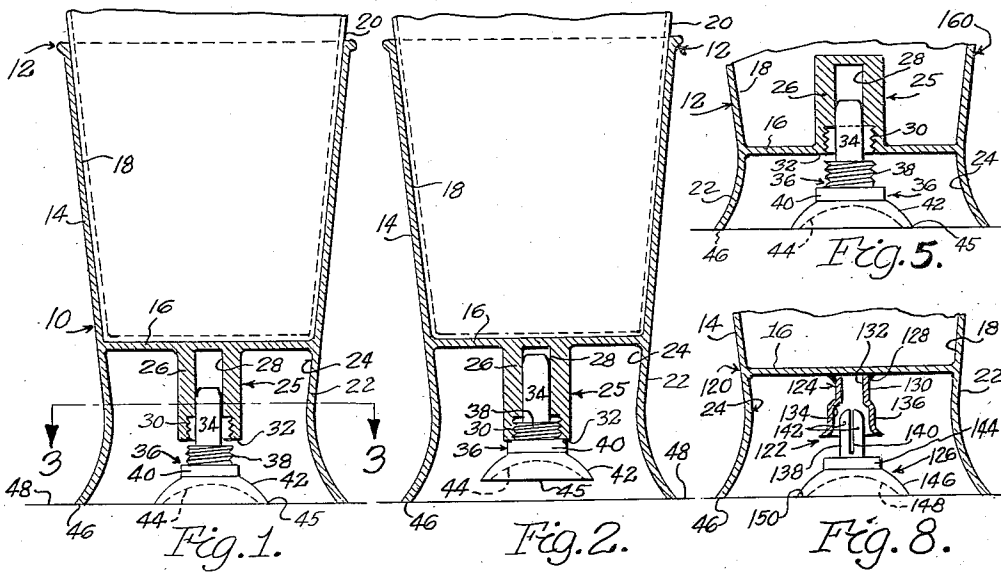


Fig. 5.

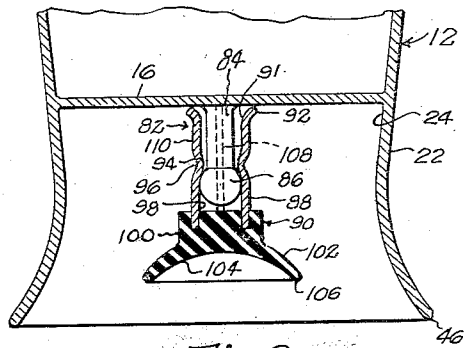
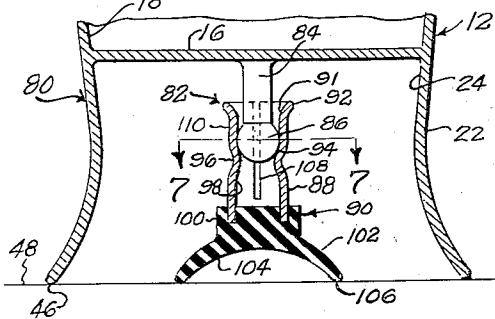


Fig. 6.



INVENTOR.
Leon John Jacobi Jr
BY
Barthel + Bugbee
Attys

1

2,839,260

NON-DISPLACEABLE RECEPTACLE

Leon John Jacobi, Jr., Grosse Pointe, Mich.

Application February 8, 1954, Serial No. 408,651

3 Claims. (Cl. 248—146)

This invention relates to receptacles for solids or liquids, and, in particular, to such receptacles which are provided with means for preventing them from overturning or sliding off tables or other surfaces on which they are placed.

One object of this invention is to provide a receptacle unit for solids or liquids having a holder on the bottom thereof for preventing accidental displacement of the receptacle yet instantly permitting the intended removal of the receptacle from the surface upon which it is placed.

Another object is to provide a receptacle unit for solids or liquids having a lateral-displacement-preventing holder thereon of the foregoing character wherein the bottom of the receptacle is provided with a recess in which is mounted a suction cup having a downwardly-extended position in which it is engaged with the table or other sustaining surface upon which the receptacle is supported, but which permits instant separation of the cup from the holder when the user desires to lift the receptacle from the table, and which has means for retracting and securing the holder within the recess and out of contact with the table or other sustaining surface when it is desired to remove the receptacle.

Another object is to provide a receptacle unit of the foregoing character for solids or liquids wherein the holder has a stem which slidably engages a correspondingly-shaped portion on the bottom of the receptacle when the holder is in its extended position, but which detachably engages that portion when the holder is in its retracted position, such detachable engagement being variously provided as by a threaded connection or by a yielding detent.

Other objects and advantages of the invention will become apparent during the course of the following description of the accompanying drawings, wherein:

Figure 1 is a central vertical section through a receptacle unit including a receptacle for solids or liquids or for disposable receptacles for such foods or liquids, equipped with a releasable holder for preventing displacement or overturning of the receptacle, according to one form of the invention, with the holder in its extended position;

Figure 2 is a view similar to Figure 1, but showing the holder raised and secured;

Figure 3 is a horizontal section taken along the line 3—3 in Figure 1;

Figure 4 is a fragmentary central vertical section through the lower part of a modification of the invention shown in Figures 1 to 3 inclusive, with the holder extended;

Figure 5 is a slightly enlarged fragmentary central vertical section through the lower part of a further modification of the invention, with the holder extended;

Figure 6 is a view similar to Figure 5, but showing the holder raised and secured;

Figure 7 is an enlarged fragmentary horizontal section taken along the line 7—7 in Figure 5;

Figure 8 is a fragmentary central vertical section of a still further modification of the invention, with the holder shown in its raised position; and

Figure 9 is a fragmentary central vertical section of another modification of the invention, with the holder shown in its extended position.

Receptacles, such as cups, tumblers, dishes and bowls or the like for solids or liquids have been easily over-

2

turned accidentally either by being accidentally hit or, when used in a vehicle, such as a ship, airplane, train or automobile, by being jolted or tilted and thereby caused to slide or overturn. Suction holders have hitherto been provided in the effort to prevent such accidents, but such holders have found little acceptance because of the effort required to detach them from the table or other sustaining surface whenever the user wishes to lift the receptacle, such as to drink from the receptacle.

The present invention provides a receptacle unit including a receptacle equipped with a holder which prevents lateral displacement or overturning of the receptacle when under all ordinary circumstances of jouncing or jolting, but at the same time permits the user instantly and without special manipulation to lift the receptacle free from the table or other sustaining surface and away from the suction cup part of the holder. The invention, however, additionally enable raising the holder into a recess in the base of the receptacle, where it is secured by a threaded or frictional resilient connection so as to be out of sight yet instantly available when the user next desires to make use of the holder. The receptacle may itself contain the solids or liquid, or it may receive a supplementary removable receptacle, such as a paper cup or other supplementary receptacle.

Referring to the drawings in detail, Figures 1, 2 and 3 show a non-displaceable removable receptacle unit, generally designated 10, consisting of a cup-shaped receptacle 12 having a side wall or side walls 14 and a bottom wall 16 forming a recess or chamber 18 for receiving solids or liquids directly, or for receiving a supplementary receptacle, generally designated 20, preferably of similar shape so as to fit the recess 18. The supplementary receptacle 20 may, for example, be a permanent receptacle, such as a dish or cup of glass, ceramic material, plastic or the like, or it may be a disposable receptacle of paper or the like. The side wall or side walls 14 extend downward below the bottom wall 16 to form a supporting portion 22, such as a skirt or flange which, with the bottom wall 16, encloses a recess 24 at the bottom of the cupped or dished receptacle 12. The lateral-displacement-preventing holding device, generally designated 25, includes a tubular portion 26 extending downwardly within the recess 24 from the bottom wall 16 and preferably integral therewith. The tubular portion 26 has a bore or socket 28 therein with an enlarged threaded counterbore 30 adjacent the lower end 32 thereof.

The holding device 25 also includes a holder 36 having a smooth stem 34, slidably engaging the bore 28. The holder 36 has an enlarged threaded portion 38 adjacent the base of the stem 34 at its point of connection with the base 40 of a suction cup 42. The suction cup 42 is preferably of elastic deformable material, such as natural or synthetic rubber or resilient plastic, and has a suction cavity 44 in the bottom thereof surrounded by an annular edge or rim 45. The tubular portion 26 and its threaded counterbore 30 are so located relatively to the lower edge 46 of the skirt 22 as to permit the stem 34 to smoothly and slidably engage the bore or socket 28 while the suction cup 42 is in engagement with a sustaining surface 48, such as a table top, chair arm or the like, while positioning the threaded portion 38 of the holder 36 below and out of engagement with the threaded counterbore 30.

In the use of the form of the invention shown in Figures 1, 2 and 3, let it be assumed that the holder 36 is in its raised position (Figure 2), with the threaded enlarged portion 38 screwed into the threaded counterbore 30 so as to raise the suction cup 42 above and out of contact with the sustaining surface 48. This is the position in which the receptacle 10 is assembled for transportation or storage, and maintains the holder 36 in a position where it

cannot be lost, where it is out of sight, yet where it is instantly available for its purpose of preventing displacement or overturning of the receptacle.

To make use of the holder 36 to prevent overturning, sliding or other displacement of the receptacle 12, the user grasps the latter in one hand and unscrews the holder 36 by grasping the suction cup 42 in the fingers of the other hand and rotating it until the threaded enlarged portion 38 is completely out of the threaded counterbore 30, enabling the stem 34 to be completely withdrawn from the bore 28. Holding the stem 34 between his thumb and forefinger, the user applies the suction cup 42 to the table or chair arm surface 48 and pushes downward upon it to flex the suction cup 42 and expel air from the cavity 44 by partially flattening the cup 42. This creates suction within the cavity 44 and causes the edge or rim 45 of the suction cup 42 to securely grip the supporting surface 48.

With the holder 36 thus firmly but detachably secured to the sustaining surface 48, the user then lowers the tubular portion 26 of the receptacle 12 upon the holder 36, causing the upstanding stem 34 to loosely and slidably enter the bore 28. The lower rim 46 of the receptacle 12, however, being spaced a sufficient distance below the lower end 32 of the tubular portion 26, prevents the threaded counterbore 30 from coming into contact with the threaded enlarged portion 38. Thus, the user can easily raise and lower receptacle 12 relatively to the holder 36 in order to drink or otherwise use the contents, replacing the tubular portion 26 upon the stem 34 each time after such use. Thus, if the invention is being used in a train, aircraft, boat, automobile or the like, the holder 36 prevents sliding or overturning of the receptacle 12 while permitting free raising and lowering thereof.

When the traveler or other user of the device has finished his meal or drink, or has otherwise completed his use of the invention, he removes the receptacle 12 by raising it away from the holder 36, breaks the suction between the cavity 44 and sustaining surface 48 by pulling the stem 34 away from the surface 48, and then raises the holder 36 by screwing the portion 38 into the threaded counterbore 30 after inserting the stem 34 in the socket 28.

The modified non-displaceable removable receptacle unit, generally designated 50, shown in Figure 4 is generally similar to that shown in Figures 1 to 3 inclusive, except for the construction of the holding device, generally designated 52. The receptacle 12 of Figure 4 and its component parts are the same as in Figure 1, hence bear the same reference numerals. In the Figure 4 modification, however, the bottom wall 16 carries a downwardly-extending member 54 consisting of a threaded enlargement 56 below which is an elongated smooth stem 58 of reduced diameter. The stem 58 engages a smooth bore or socket 60 within the tubular shank 62 of a holder, generally designated 64, the upper end of the socket or bore 60 having a threaded counterbore 66 adapted to receive the threaded enlarged portion 56. Secured to the lower end 68 of the tubular shank 62 is the base 70 of a suction cup 72, similar to the suction cup 42 and similarly having a suction cavity 74 with a lower rim 76. The dimensions of the various components of the holding device 52 are so proportioned that when the suction cup 72 is engaged with the table top or other sustaining surface 48, the threaded counterbore 66 lies below and out of engagement with the threaded enlarged portion 56 but the elongated stem 58 slidably and releasably engages the socket or bore 60.

The use of the modified non-displaceable removable receptacle unit 50 of Figure 4 is similar to that shown in Figures 1, 2 and 3 and hence requires no additional description. The device is used as shown in Figure 4, but is removed and secured to the threaded portion 56 in the same manner as described and shown in connection with Figure 2. The devices differ in that in Figure 4 the stem

62 to the suction cup 72 instead of vice versa as in Figures 1 and 2.

The further modified non-displaceable removable receptacle unit, generally designated 80, shown in Figures 5, 6 and 7 also employs a similar receptacle 12 with a similar skirt 22, lower rim or edge 46 and bottom wall 16. In Figures 5 and 6, however, the holding device, generally designated 82, includes a stem 84 extending downwardly from the bottom wall 16 and terminating in a ball or other enlargement 86 engageable with the tubular shank 88 of a holder, generally designated 90. The tubular shank 88 has a bore 91 with a flared upper portion 92, a rounded central portion 94 shaped to receive the ball 86, a constricted portion 96 immediately below the rounded portion 94 to yieldingly resist further entry of the ball 86, and a cylindrical lower portion 98 seated in the base 100 of a suction cup 102. The suction cup 102, like the suction cup 42 and 72 of Figures 1 and 7 respectively, is preferably of resilient material and similarly has a suction cavity 104 terminating in a lower rim or edge 106. The tubular shank 88 is provided with one or more longitudinal slots 108 (three being shown in Figure 7), dividing the upper portion of the tubular shank 88 into multiple arms or wings 110. The tubular shank 88 is preferably of spring metal so as to yield momentarily but to regain its former position. The dimensions of the various parts of the holding device 82 are so proportioned as to place the ball 86 above the constricted portion 96 when the device is in use.

The use of the further modified non-displaceable removable receptacle unit 80 with its holding device 82 is also generally similar to the forms shown in Figures 1 to 4 inclusive, except that the threaded connections between the components of the holding devices 25 and 52 of Figures 1 to 4 are replaced by the frictional connection of the holding device 82. During use, the suction cup 102 is engaged, as before, with the sustaining surface 48 and the ball portion 86 of the stem 84 rests lightly in the rounded portion 94 of the bore 91 so that the user in raising the receptacle 12 merely lifts the ball portion 86 and stem 84 out of the bore 91, replacing it when he has finished his drink.

To secure the holder 90 in its inoperative position for storage or transportation, the user first removes the receptacle 12 in the previously described manner by lifting it in order to expose the holder 90 which he then detaches from the sustaining surface 48 by pulling upward upon the tubular shank 88 to break the vacuum within the vacuum cup 102. He then pushes the tubular portion 88 of the holder 90 upon the stem 84, forcing the enlarged end 86 thereof through the constricted portion 96 into the lower portion 98 (Figure 6), thereby raising the vacuum cup 102 so that its rim 106 is above the level of the rim 46 of the receptacle 12. The holder 90 may be removed for further use by pulling upon the holder 90 with sufficient force to cause the ball 86 to spread the wings 110 apart so as to permit the ball 86 to pass through the constricted portion 96 into the socket portion 94 and out through the flared portion 92.

The modified non-displaceable removable receptacle unit, generally designated 120, shown in Figure 8 has a holding device 122 which, as in the case of the previous forms of the invention, is mounted in the recess 24 below the bottom wall 16 of the receptacle 12. The receptacle 12 is of similar construction to the similar receptacles of the same number shown in the other figures of the drawings, and has a similar skirt 22 with a bottom edge 46. The holding device 122, however, is of somewhat different construction and consists generally of a tubular socket 124 for the detachable holder 126. The socket 124 is welded or otherwise secured as at 128 at its upper end to the lower surface of the bottom wall 16 and is provided with an upper small diameter portion 130 containing a bore 132 opening into an enlargement 134 within a bell-mouthed or flared portion 136. The

holder 126 is provided with a stem 138 slotted as at 140 to render it contractible, and configured to fit the bore 132 in a snug and frictionally-holding manner. For this purpose, the stem 138 is of slightly larger diameter than the bore 132, the slot 140 enabling the opposite halves 142 to yield toward one another in order to enter the bore 132. The stem 138 is of sufficient resilience to spring back of its own accord and frictionally engage the bore 132 for transportation or storage purposes, as explained below.

Secured to the stem 138, as by embedding the latter therein, is the base 144 of a suction cup 146 containing a suction cavity 148 with a lower rim 150. The vacuum cup 146 is of elastic deformable material, as in the case of the vacuum cups 42, 72 and 102. The dimensions of the holding device 122 are so chosen that when the suction cup 126 is so attached to the sustaining surface 48, the upper end of the stem 138 lies below the lower end of the restricted bore 132.

In the use of the modified receptacle unit 120, the holder 126 is detachably secured to the table top or other sustaining surface 48 by pressing downward upon the stem 138 so as to drive air out of the suction cavity 148 and cause the suction to hold the vacuum cup 146 against the surface 48. The user then lowers the tubular socket 124 of the receptacle 12 downward upon the stem 138 into the position shown in Figure 8, causing the stem 138 to project upward into the flared portion 134 but not to extend into the restricted bore 132. The container 12 can thus be raised and lowered freely without resistance, yet is prevented from sliding laterally or overturning by the projecting of the stem 138 upward into the flared entrance 134 of the tubular socket 124.

When the user desires to carry away the receptacle 12, however, he removes the suction cup holder 126 by pulling upward upon the stem 138 to break the vacuum therein, and then pushes the stem 138 into the restricted bore 132, the halves 142 of which yieldingly and frictionally engage the walls of the bore 132 to secure the holder 126 in its storage position with the vacuum cup rim 150 located on a level above the container skirt edge 46.

Figure 9 shows another modification of the invention, generally designated 160. The modified receptacle unit 160 is similar to the receptacle 10 of Figures 1 and 2, except that the holding device 25 has its tubular portion 26 extending upwardly into the recess 18 so that the bottom wall 16 is much closer to the bottom edge 46 of the supporting portion 22 than in Figures 1 and 2. Since the parts are otherwise the same, they bear the same reference numerals as the corresponding parts in Figures 1 and 2. The operation of the modified receptacle 160 is also identical with that of Figures 1 and 2, accordingly the modified receptacle 160, for a given capacity of liquid in the container 12, would have a somewhat less overall height than the receptacle 10 of Figures 1 and 2, since the bottom recess 24 is lower than the corresponding recess in Figures 1 and 2.

What I claim is:

1. A laterally non-displaceable separable receptacle unit comprising a receptacle having a raised bottom with a supporting edge thereon defining a recess beneath said bottom, upper and lower separable holding components disposed within said recess, said upper component being connected to said receptacle, said lower component having a portion extending upwardly into sliding separable engagement with said upper component, and a suction cup secured to said lower component and adapted to releasably anchor said lower component to a smooth sustaining surface, said components also having releasable interlocking elements thereon disposable selectively in locked and unlocked positions respectively, said elements including yielding frictionally-engaging portions spaced axially apart from one another on different levels in said unlocked position when said suction cup is in anchoring

engagement with said sustaining surface and interlockingly engageable with one another when said suction cup is moved upward above the level of said supporting edge farther into said recess and out of anchoring engagement with said sustaining surface.

2. A laterally non-displaceable separable receptacle unit comprising a receptacle having a raised bottom with a supporting edge thereon defining a recess beneath said bottom, upper and lower separable holding components disposed within said recess, said upper components being connected to said receptacle, said lower component having a portion extending upwardly into sliding separable engagement with said upper component, and a suction cup secured to said lower component and adapted to releasably anchor said lower component to a smooth sustaining surface, said components also having releasable interlocking elements thereon disposable selectively in locked and unlocked positions respectively, said elements including yielding frictionally-engaging portions spaced axially apart from one another on different levels in said unlocked position when said suction cup is in anchoring engagement with said sustaining surface and interlockingly engageable with one another when said suction cup is moved upward above the level of said supporting edge farther into said recess and out of anchoring engagement with said sustaining surface, one of said components having a slotted portion therein and the other component having a portion yieldingly engaging said slotted portion.

3. A laterally non-displaceable separable receptacle unit comprising a receptacle having a raised bottom with a supporting edge thereon defining a recess beneath said bottom, upper and lower separable holding components disposed within said recess, said upper components being connected to said receptacle, said lower component having a portion extending upwardly into sliding separable engagement with said upper component, and a suction cup secured to said lower component and adapted to releasably anchor said lower component to a smooth sustaining surface, said components also having releasable interlocking elements thereon disposable selectively in locked and unlocked positions respectively, said elements including yielding frictionally-engaging portions spaced axially apart from one another on different levels in said unlocked positions when said suction cup is in anchoring engagement with said sustaining surface and interlockingly engageable with one another when said suction cup is moved upward above the level of said supporting edge farther into said recess and out of anchoring engagement with said sustaining surface, one of said components having a restricted bore and the other component having a portion snugly but yieldingly engaging said restricted portion.

References Cited in the file of this patent

UNITED STATES PATENTS

371,281	Siemang	Oct. 11, 1887
623,468	Forbes	Apr. 18, 1899
881,899	Chapman	Mar. 17, 1908
1,165,052	Williams et al.	Dec. 21, 1915
1,422,879	Meyer	July 18, 1922
1,471,122	Greaves	Oct. 16, 1923
1,587,874	Strickland	June 8, 1926
1,687,019	Hallberg	Oct. 9, 1928
1,762,805	Tucker	June 10, 1930
1,876,264	Tucker	Sept. 6, 1932
2,111,456	Markle	Mar. 15, 1938
2,158,230	Godfrey	May 16, 1939
2,185,156	Meeker et al.	Dec. 26, 1939
2,398,060	Van Alstyne	Apr. 9, 1946
2,588,990	Sanchez	Mar. 11, 1952
2,623,369	Haydu	Dec. 30, 1952

FOREIGN PATENTS

12,488	Great Britain	June 15, 1899
358,589	Great Britain	Oct. 15, 1931