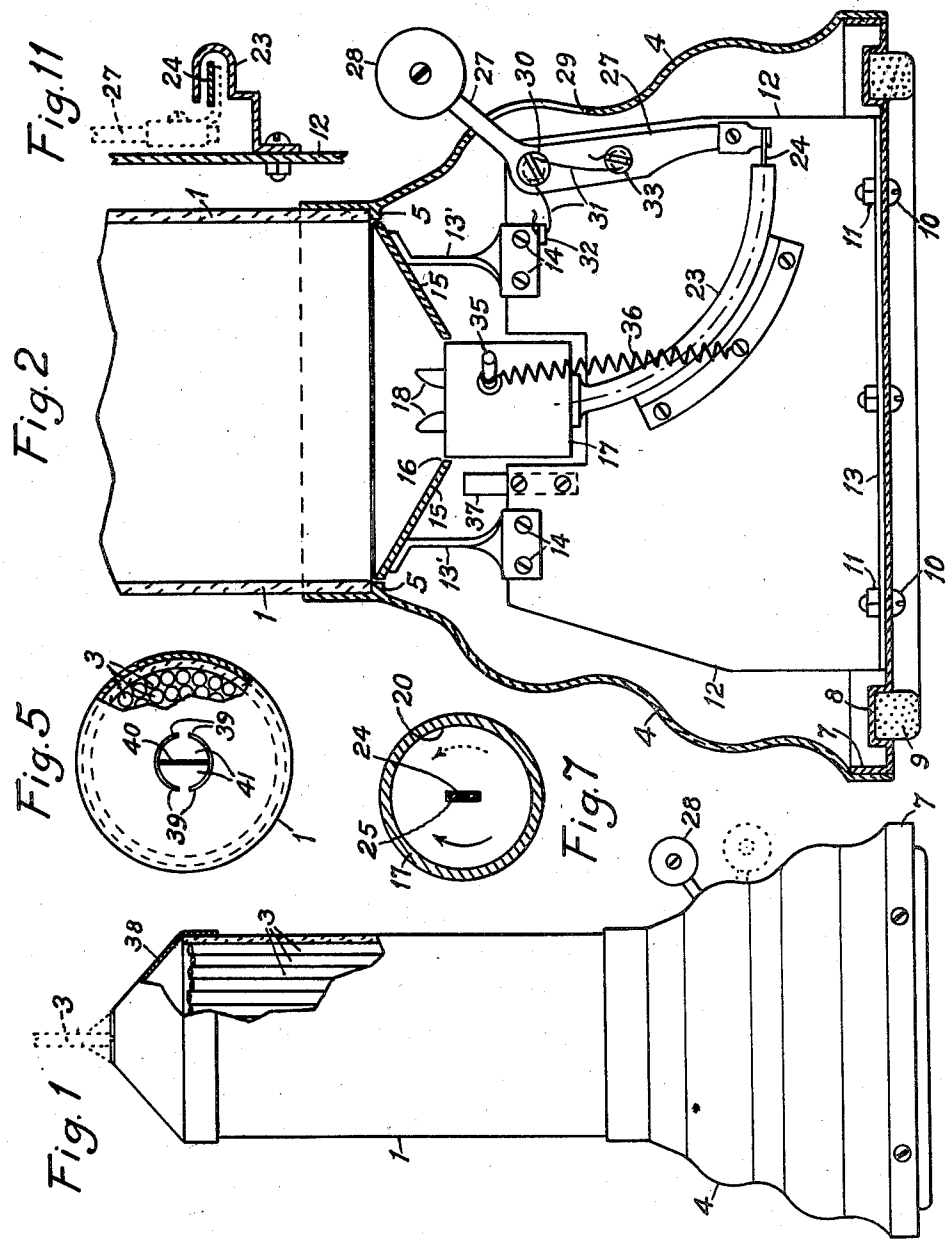
Feb. 10, 1959 F. G. CEPERO 2,873,047

HOLDER FOR DRINKING STRAWS

Filed May 7, 1956 2 Sheets-Sheet 1

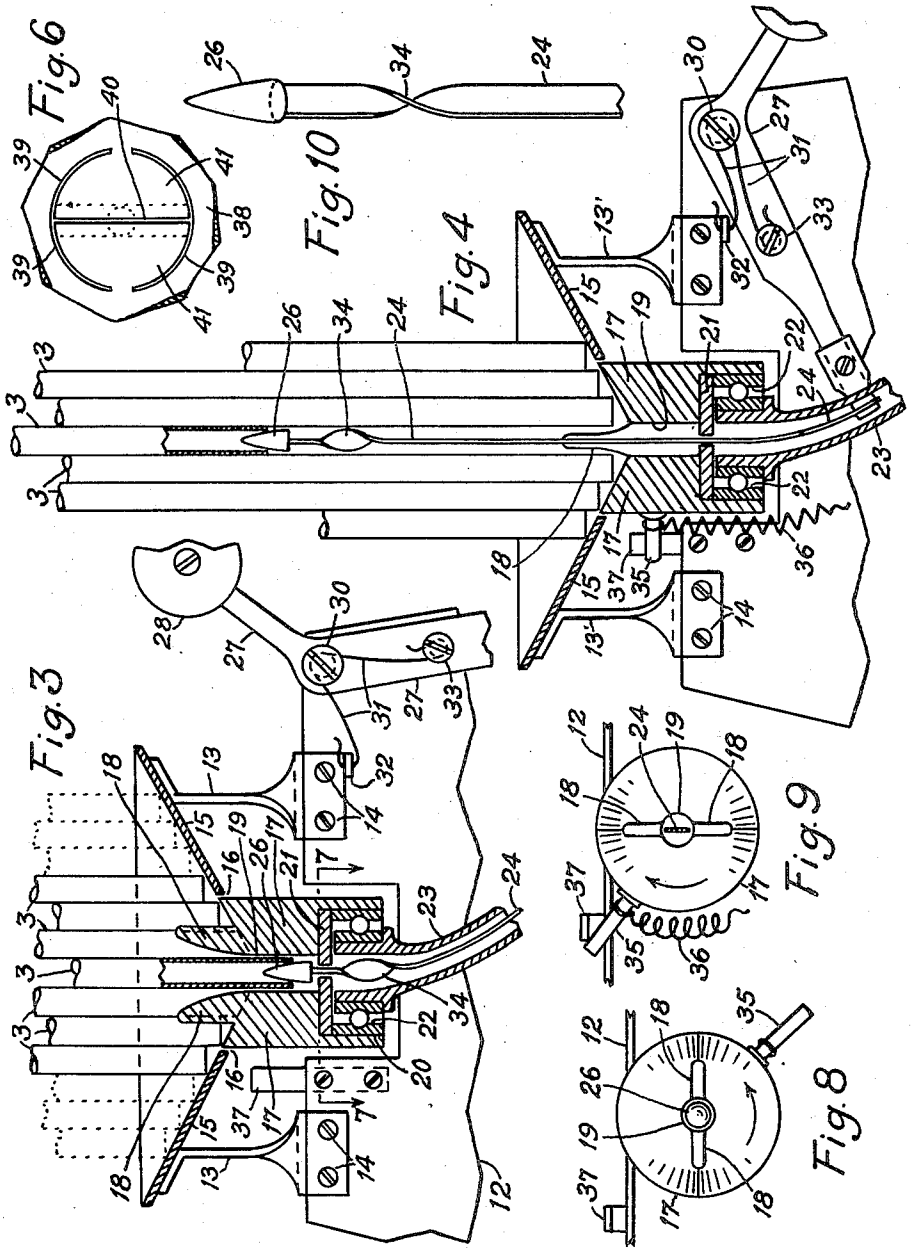


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2,873,047

HOLDER FOR DRINKING STRAWS

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2 Claims. (Cl. 221—260)

This invention relates to holders for drinking straws and it has for its object to provide a device which is adapted to dispense drinking straws one by one upon operation of a lever.

The drinking straws in this device are grouped in vertical position within a receptacle which may be of cylindrical shape or otherwise and the bottom of which is fixed on a vertical partition secured to the base portion of the device and is surrounded by a corrugated frusto-conical casing that conceals the device mechanism. The top edge of said casing has fitted therein the lower portion of the straw receptacle the bottom of which is of conical shape so that the vertically positioned straws will tend to slip towards the central opening of the bottom where it fits the upper portion of a cylindrical body which is vertically positioned and rotatably mounted in a ball bearing and which has its top surface in the shape of a conical extension of the bottom portion of said receptacle. The surface of the solid body ends at the centre thereof in a central hole bordered by two protuberances or lugs adapted to remove the straws as the solid body rotates and at the same time they allow the orderly advance of each straw into the central vertical hole of the solid body, the straws displacing by gravity towards the centre and falling correlatively and uninterruptedly into the central hole as the latter becomes unoccupied, and so forth until the last straw in the receptacle falls into said hole.

A central tube having its head lodged within the solid body and passing through the ball bearing is bent towards one side thereof and is fixed on the above-mentioned partition, said tube being bent to lodge a steel strip slidable therein which has secured at its top end a conical point and at a portion adjacent said point it is bent or symmetrically twisted upon itself in the shape of a fraction of a screw-flight of a one-half turn, the steel strip passing across a straight slot in a disk-like plate interposed at the centre and within the rotatable solid body to obturate the central hole thereof so that it will allow the passage of the steel strip whose fraction of a turn causes the solid body to rotate as the turning fraction of said strip crosses said slot but it will not allow the passage of the conical point which will remain concealed within the central vertical hole of the solid body that rests on the slot preparatory to receiving on the conical point thereof the fall of the next straw to be positioned within said body hole, the tube housing the steel strip being open at one side at its portion beyond the solid body to allow the connection of the strip with a pivotally mounted lever adapted to operate same.

The lever has an outer arm projecting outside the casing across an opening of the latter and it ends in a handle, the lever pivot having wound thereabout a coil spring the ends of which are connected to the lever and the partition and whose function is to urge the lever to return to its original position once it has raised the strip upwardly carrying one straw with its lower end mounted on the strip conical point. As the turning fraction of the strip

passes across the straight slot of the disk-like plate secured to the solid body, the same will cause the latter to rotate a fraction of a circle, whereupon the two diametrically opposed lugs carried by the solid body at the edge of the lower opening of the straw-receptacle conical bottom will vibrate the vertical straws and tend to cause another one of the vertical straws to move towards the central hole of the solid body until the straw falls on the conical point to be raised when the lever is operated again, the vibratory movement of the solid body being lessened by a horizontal arm which projects from the solid body and is connected by a coil spring to a point of the partition and which in a certain position abuts a stop secured to the partition.

This device may be made of metal, wood, glass or a plastic material, and the principle of its operation resides in the conical point of the slidable strip on which one of the central group of straws of the straws grouping will rest by gravity and which raises upwardly carrying the staw outside the receptacle so that it can be grasped by the user, and the strip will be automatically lowered by elastic tension until it is in position to receive the lower end of another straw. This device is completely sanitary and relatively economical in construction considering its contemplated use.

The invention is described with reference to the figures of the accompanying drawings, of which:

Fig. 1 is an elevational view partially broken away to illustrate the device of this invention.

Fig. 2 is an enlarged fragmentary diametral vertical sectional view of the device, showing its inner mechanism in its normal position.

Fig. 3 is a sectional view similar to that of Fig. 2 in the same normal position of the interior operating mechanism, showing the structure of the rotatable solid body.

Fig. 4 is a sectional view similar to that of Fig. 2, showing the internal operating mechanism in its operated position.

Fig. 5 is a top plan view of the straws.

Fig. 6 is a view similar to that of Fig. 5, showing the construction of the two-halved flexible lid covering the outlet for the straw raised from the straws receptacle.

Fig. 7 is a horizontal cross-sectional view on line 7—7 of Fig. 3.

Fig. 8 is a detailed top view of the solid body having raised lugs to vibrate the straws and to allow the orderly passage of the straws into the central hole of the solid body during its normal position.

Fig. 9 is a detailed view similar to that of Fig. 8, showing the lug-carrying solid body in its half-turned position in which it abuts a fixed stop.

Fig. 10 is a detailed view of the steel strip to raise one straw from the straws grouping.

Fig. 11 is a cross-sectional view of the tube within which the steel strip is slidably mounted.

In the drawings, 1 indicates a metal, wood, glass or plastic material receptacle to hold the straws 3 vertically positioned therein, 4 is a corrugated frustro-conical metal casing enclosing the operating mechanism and fittingly receiving at its top portion the lower portion of the receptacle 1 which rests on a peripheral projecting rim 5 of the casing 4; 6 is a flat metallic base bottom having a raised peripheral flange 7 having secured thereto the vertical lower end portion of the casing 4, the bottom 6 having a raised circular projection 8 on which is fitted a rubber ring 9 serving as a seat for the device on a table or like surface.

The bottom 6 within the casing 4 has secured thereto by screws 10 and nuts 11 a vertical partition 12 having a lower horizontal flange 13 and serving to support the operating mechanism. To this end, the top edge of the partition 12 has fixed thereto by means of uprights 13'

secured by screws 14 to the partition, a conical bottom 15 the top edge of which is adjacent the peripheral rim 5 of the casing 4 to form the bottom of receptacle 1 wherein the straws 3 will be vertically positioned, the function of said conical bottom being to urge the straws to slide towards the central opening 16 of said conical bottom 15. A cylindrical metal solid body 17 is fitted at its top edge in the edge of opening 16 and in a recess in the partition 12, the solid body having its top conical face forming an extension of the top surface of the conical bottom 15 and has raised thereon two diametrically opposed vertical lugs 17 about a vertical hole 19 in the solid body which is of a diameter slightly greater than the diameter of a straw 3 and ends in a cylindrical recess 20 formed in the lower half-portion of said solid body. The upper portion of said recess has lodged therein a horizontal disk-like plate 21 which is integral with the solid body 17 and is mounted on a ball bearing 22 surrounding the top portion of a tube 23 fixed to the partition 12 in alignment with the central hole 19 of the solid body 17, the tube 23 being bent downward in the shape of an arc of a circle (Fig. 2). Said tube 23 is in the shape of a channel open at one side as shown in Fig. 11 within which a steel strip 24 is slidably mounted to pass across a straight slot 25 in the rotatable disk 21. Said steel strip 24 ends at its top end above the disk 21 in a conical point 26 (Fig. 10) the lower diameter of which is somewhat greater than the diameter of a straw 3 so that it can raise the latter with its lower end engaged on said point 26. The steel strip 24 is fixedly connected to the longer arm of a lever 27 having a handle 28 at the end of its shorter arm that projects outside the casing 4 across an opening 29 of the latter, and said lever 27 is pivotally mounted on a screw pivot 30 secured to an upper corner of the partition 12 and having wound thereabout a coil spring 31 of which one end is connected to a projection 32 of the partition 12 and the other end is connected to a screw 33 fixed to the longer arm of the lever 27, so that the elastic tension exerted by it will urge the lever back to its normal position when the lever 27 is operated and then released.

The steel strip 24 is bent in the proximity of the conical point 26 beneath the disk 21 in the shape of a fraction of a screw flight 34, so that as said bent portion passes across the straight slot 25 of disk 21 it will cause the disk 21 and the solid body 17 to rotate a fraction of a circle in either direction upon the strip 24 moving upward and downward across the slot 25 (Figs. 8 and 9). In order to lessen the rotatory movement of the solid body 17 and to prevent the latter from vibrating so much as to cause the straw 3 carried by the conical point 26 to fall, the solid body 17 carries an outer horizontal arm 35 which is connected by a coil spring 36 to a fixed point of the partition 12 and which as the body 17 is caused to rotate will bring the end of said arm 35 into contact with a strip 37 fixed to the partition 12 (Fig. 2).

The receptacle 1 has a frustro-conical flanged lid 38 which is of a flexible plastic material and has a top portion extending horizontally to obturate the outlet, but it has two cuts 39 smaller than a semicircle and a cross-section diametral cut 40 to thus form two semicircular flexible sheets 41 which are urged to bend upwards as the top end of a straw 3 abuts the lower surfaces of said sheets 41 to thereby allow the passage of one straw 3 upwardly.

The operation of this device is as follows: Assuming the straws 3 positioned within the receptacle 1 on the conical bottom 15, the grouped central straws 3 tend to slide on the top conical surface of the solid body 17 and one of them will fall by gravity within the vertical hole 10 of the solid body 17 and seat at its lower edge on the conical point 26 of the steel strip 24 as it is seen in Fig. 3. To withdraw the straw 3 by raising it upwardly, the handle 28 is pressed down, whereupon the lever 27 will oscillate and cause its longer arm to move upward thereby urging the steel strip 24 to slide and to push the straw 3 through the space between the two sheets 41 previously raised by it.

As the spiral turn 34 of strip 24 passes across the slot 25 of disk 21 obturating the hole 19, the spiral turn 34 will cause the solid body 17 (Fig. 8) to rotate a fraction of a circle to the position illustrated in Fig. 9 against the elastic tension of the coil spring 36 until it contacts the fixed stop 37 so that the solid body 17 will not vibrate enough to produce the fall of the straw carried all the way through by the strip 24 and that the straw may be readily raised to project outside the receptacle 1 for its grasping by the user. As soon as the raised straw 3 has been withdrawn, the handle 28 is released, whereupon the lever 27 will move back to its normal position (Fig. 2) by virtue of the elastic tension of coil spring 31, and after the spiral 34 of strip 24 has again passed across the slot 25 of disk 21 obturating the hole 19 it will cause in its downward movement the rotation of body 17 from the position indicated in Figure 9 to that indicated in Figure 8 as facilitated by the coil spring 36, thus it causing the conical point 26 to be concealed again in the hole 19 to thereby allow another straw 3 to be displaced toward the hole 19 and positioned on the conical point 26 again in normal position.

It is obvious that changes may be made in the construction details and materials of the device, without thereby altering the essential construction and operating principle of the device, as defined in the appended claims.

What I claim is:

1. In a holder for drinking straws, comprising a frustro-conical bottom base member having a lower floor plate and an annular flange directed inwardly on its upper open end, a cylindrical receptacle for holding a plurality of straws vertically on end and removably supported on said frustro-conical base member with its lower edge resting upon said inwardly directed flange, a vertical partition in said base member supported on said floor plate and extending upwardly and diametrically therefrom, a conical bottom wall for said straws receptacle supported on the upper edge of said partition with its outer peripheral edge in registry with the inner edge of said annular flange and having an enlarged central opening, an arcuately curved tube supported on said partition and arranged in a plane parallel therewith with its upper end axially aligned with the center of said cylindrical receptacle and terminating in its upper end in a bearing support beneath the opening in said conical bottom wall, a cylindrical solid body having a central opening rotatably mounted on said bearing support to rotate on the upper end of said arcuately curved tube, anti-friction bearing members interposed between said bearing support and said cylindrical body, said cylindrical body being arranged in the central opening of the conical bottom wall of said straws receptacle and having a concave surface forming a continuation of the taper of said bottom wall, a pair of vertical agitator lugs on said cylindrical body in diametrically opposed relation with respect to the center of said cylindrical body to project into said straws receptacle and above the lower edge of said conical bottom wall, a manual operating lever pivotally mounted on said partition with its axis arranged on the center of the arc of said arcuate tube, a flexible strip of metal movably and slidably mounted in said tube with its lower end attached to the inner end of said operating lever and arranged with its upper end projecting into said cylindrical body member, the upper end of said flexible metal strip being twisted about its longitudinal axis to provide a sectional screw thread adapted to move through a restricted opening in the solid cylindrical member such that operation of said manual operating lever will cause to and fro movement of said metal strip and will rotate said cylindrical member in

opposite directions, a pointed straw engaging portion formed on the upper end of said flexible metal strip adapted to engage the lower end of a centrally disposed straw and project the same upwardly through an opening in the upper end of said straws receptacle, the arrangement being such that actuation of the control lever will simultaneously eject a straw and agitate the centralmost straws in the straws receptacle in the area adjacent the ejected straw, the free end of said manual operating lever being arranged to extend through an opening in the side of said frustro-conical base member and conveniently positioned for manual operation.

2. In a holder for drinking straws, comprising a frusto-conical base member having a floor plate on its lower end and a cylindrical portion at its upper end provided with an inwardly extending annular flange, a straws receptacle for supporting a plurality of straws vertically on end, said receptacle being removably supported on the cylindrical portion of said base with its lower edge resting upon said flange, a vertical partition plate extending upwardly from said floor plate and projecting into said base, a cone-shaped floor member supported on the upper edge of said partition having a central opening, said cone-shaped floor member being arranged to form the bottom wall for said straws receptacle with its outer edge in registry with said annular flange, an arcuately bent tube extending in a plane parallel to said partition and supported by said partition with its upper end shaped to provide a bearing support disposed centrally of the opening in said cone-shaped floor member, a solid cylindrical body rotatably mounted on the bearing portion of said arcuately bent tube for rotation within said central opening, an anti-friction bearing assembly mounted between said bearing portion and said solid cylindrical body, said solid cylindrical body being provided with a central opening in registry with the upper end of said arcuately bent tube, a pair of diametrically opposed agitating lugs formed on said cylindrical body member projecting through the central opening of said cone-shaped floor into said straws receptacle, an actuating lever pivotally connected to said partition at a point defining the center of the arc of said bent tube having one end extending through an opening in the side of said frusto-conical base member, a flexible metal strip slidably mounted in said tube, the other end of said actuating lever being disposed to extend through a slot in said arcuate tube for connection with the lower end of said flexible metal strip, said flexible metal strip being twisted adjacent its upper end to form a partial screw thread adapted to pass through a correspondingly shaped restricted opening in said solid cylindrical member and project into said cylindrical body, a spring for normally urging said flexible member and operating lever to a position in which said flexible metal strip is retracted in said cylindrical body member, a limit stop on said solid cylindrical member, a stop supported on the upper edge of said partition adapted to engage said limit stop, a second spring for urging said solid cylindrical member in a direction of rotation in which said limit stop is displaced from the stop on said partition, and a pointed head on the upper end of said flexible metal strip adapted to project into said straws receptacle when said actuating lever is operated to engage the lower end of a centralmost straw and project the same through an opening in the upper end of said receptacle and simultaneously rotate the diametrically opposed lugs to agitate the remaining straws in said receptacle.

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