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BALL DISPENSING APPARATUS

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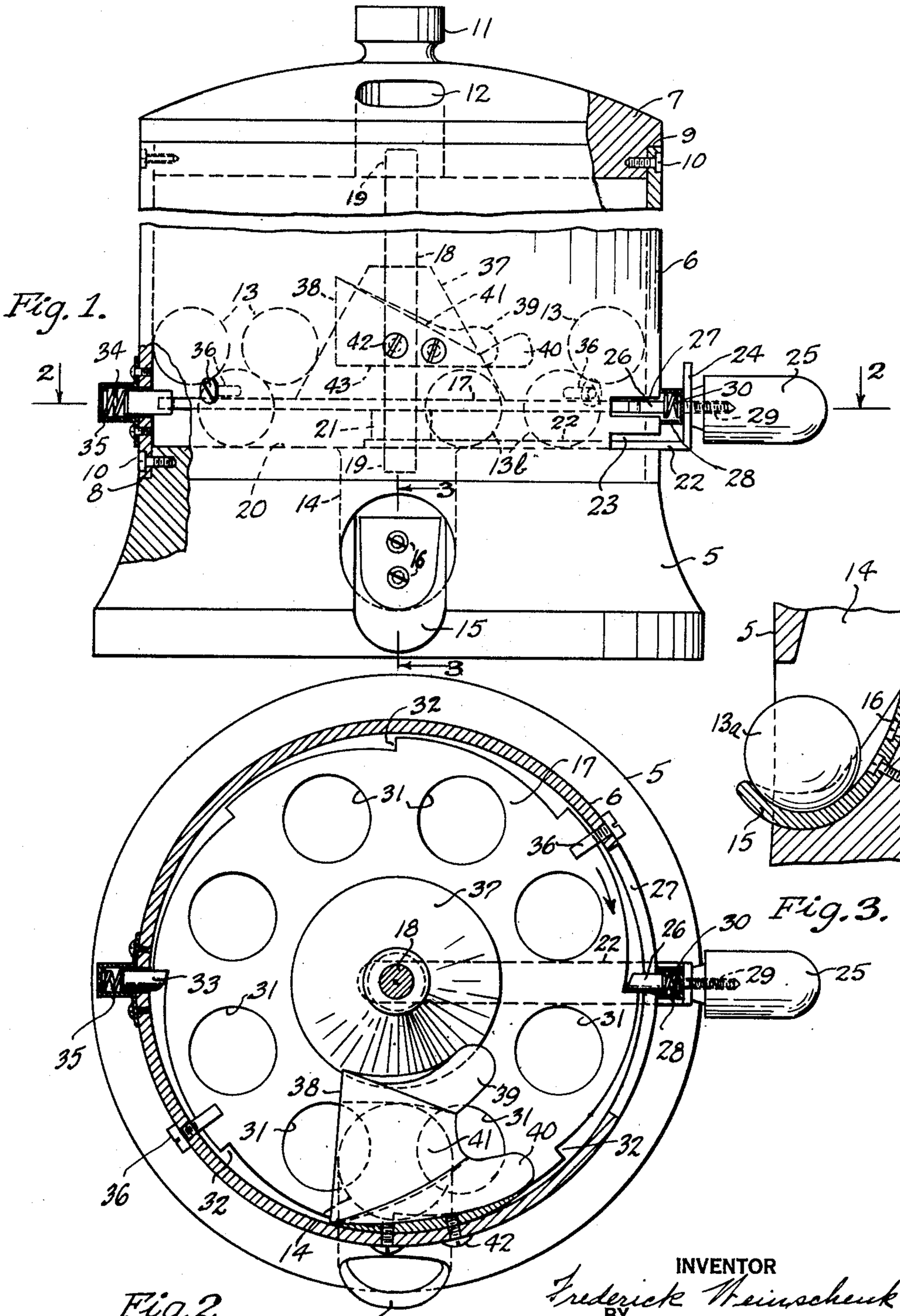

Fig. 1.

Fig. 3.

Fig. 2.

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BALL DISPENSING APPARATUS

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4 Claims. (Cl. 273—144)

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This invention relates to a dispensing device, especially designed for advertising purposes. It is particularly designed for dispensing numbered balls for drawings by customers in a store after making a purchase or paying their accounts, to determine disposition or granting of prizes or awards. It has for an object to provide a simple and improved means for selecting and dispensing these numbered balls, and one which can be depended upon to select one ball at a time and during operation of the selecting means will thoroughly mix up the balls in the container.

Another object is to provide a simple operating mechanism for selecting the individual numbered balls.

With the foregoing and other objects in view I have devised the construction illustrated in the accompanying drawing forming a part of this specification. It is, however, to be understood the device is not limited to the specific details of construction and arrangement shown, but may embody various changes and modifications within the scope of the invention.

In this drawing:

Fig. 1 is a front elevation of the device with parts broken away to more clearly show the construction;

Fig. 2 is a transverse section substantially on the line 2—2 of Fig. 1, and

Fig. 3 is a detail section on a somewhat enlarged scale taken substantially on line 3—3 of Fig. 1.

The device comprises a container for any desired number of numbered balls, this container comprising a base 5 and cylindrical side walls 6 with a dome or top 7, the upper and lower portions of the base and dome being reduced respectively to telescope into the lower and upper ends of the cylinder forming the side walls 6, as indicated at 8 and 9 respectively to give a smooth continuous outer surface, and the base and dome or cover being secured to the cylinder by any suitable means, such, for example, as the screws 10. These members may be made of any suitable material, such, for example, as metal or molded plastic, and the dome or cover is provided with a suitable handle 11 and also with an opening 12 leading through it to the interior of the cylinder for replacing the balls in the cylinder, a few of which are indicated at 13.

The base 5 is provided with an outlet passage 14 leading from its top wall 20 within the cylinder downwardly through the front wall, and at the lower end of this passage is inserted a catch lip 15 fitted into the lower end of this passage

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and secured therein by any suitable means, such as the screws 16. The outer or lower edge of this lip preferably extends beyond the surface of the base, as shown in Fig. 3, so that it holds a ball 13a at the outer part of the discharge passage where it may be easily gripped with the fingers and removed.

Mounted within the chamber within the cylinder and above the base 5 is a control mechanism for selecting a ball and carrying it to the outlet gate or passage 14. This comprises a ratchet plate 17 mounted on an upright central shaft 18 seated at its opposite ends in recesses 19 in the base 5 and dome 7. This ratchet may turn about this shaft and is spaced a suitable distance above the top wall 20 of the base 5 by a spacer sleeve 21 on the shaft 18 under the disc. Also adapted to swing on this shaft is an operating lever 22 which may be a flat strap piece resting on the top wall 20 of the base 5 and extending outwardly through a slot 23 in the side wall of the cylinder 6 where it is provided with an upright end portion 24. Mounted on this upright portion is an operating handle 25, and between the portion 24 and the edge of the ratchet plate 17 is a spring pressed pawl 26 extending through a slot 27 in the side of the cylinder. This pawl is mounted in a cupped member 28 which has a threaded shank 29 extending through the upright member 24 and on which the handle 25 may be threaded. A spring 30 in this cup presses the inner end of the pawl 26 against the edge of the ratchet plate 17.

The ratchet plate 17 is provided with a series of openings 31 of a little larger diameter than that of the balls 13 so that the individual balls may pass into the openings and through this plate, and the edge of this plate is provided with a series of notches forming shoulders 32, one adjacent each of the openings 31 against which the pawl 26 may engage to rotate the disc 17 with a step-by-step movement clockwise, as indicated by the arrow in Fig. 2, by swinging the handle 25 and lever 22 back and forth. To prevent the disc 17 being swung to the left or counterclockwise as the handle 25 is swung back, a stop or non-return pawl 33 is provided. This is mounted in the wall of the cylinder so that its inner end engages the edge of the ratchetplate, and is yieldingly held against it by a spring 34 in a small cup member 35 secured to the outer wall of the cylinder. A pair of screws 36 is preferably mounted in the cylinder walls just above the ratchet plate with their inner ends extending over this plate to keep the ratchet plate or disc

in place and prevent its moving upwardly by action of the balls or being lifted out of place by removal of the dome and of the shaft.

Mounted on this shaft and resting on top of the ratchet plate 17 is a cone 37. This fits snugly about the shaft and acts to steer the balls outwardly toward the openings 31 in the ratchet disc. At one side of this cone between the cone and the walls of the cylinder 6 and located over the outlet gate or passage 14 is a mixer 38. This device includes a pair of spaced tongues 39 and 40 extending against the direction of movement of the ratchet plate 17, as shown in Fig. 2, with the inner tongue 39 extending substantially to the surface of the cone 37, while the outer tongue 40 rests against the inner surface of the cylinder 6. Between them is a passage through which the balls may pass and which has an upwardly inclined bottom wall 41. This mixer is held in place by any suitable means, such, for example, as screws 42 passing through the walls of the cylinder. The bottom wall 43 of this mixer is spaced sufficiently above the top wall 20 of the base to permit the balls 13 to roll along the top of this base under this mixer with the disc 17 when the balls are in the openings 31 in the ratchet disc 17, as indicated by the balls 13*b* in Fig. 1. As the ratchet plate 17 is mounted between the bottom wall 43 of this mixer and the top wall 20 of the base 5, balls cannot pass under this mixer to the outlet passage 14 unless it is within one of the holes 31 in the ratchet disc 17, and it will be understood that as this ratchet disc is given a step-by-step rotary movement by operation of the handle 25 and the pawl 26, only one ball will be carried to the outlet passage 14 at one time. As the opening 31 in which a ball is located is moved over and into alignment with the outlet passage 14, this ball drops from the ratchet disc through the passage 14 and is caught by the lip 15, where the operator may pick it up and observe the number on it and then later return it to the container through the opening 12, but as this opening 31 in the ratchet disc from which the ball drops in this position is under the mixer 38, no other ball can drop through this opening into the outlet 14.

The tongues or lips 39 and 40 have a peculiar shape including bevelled top surfaces. The central tongue 39 has a twist so as to rest loosely against the cone driver 37. The outer tongue or lip 40 has a twist so as to rest against the inner wall of cylinder 6. These lips or tongues direct the balls toward the inclined tapered surface 41 between them, up which the balls are carried and drop off the rear end of the mixer. These tongues or lips will also prevent jamming of the surplus balls over the outlet as they are carried around by the ratchet disc, and the mixer also thoroughly mixes the balls so that the balls in this rotation do not assume a certain position in relation to the other balls and maintain it, but the balls are shifted and mixed on each operation of the ratchet disc. In other words, individual balls are carried to the outlet gate or passage 14 in the separate openings 31 of the ratchet disc 17, and as they are carried under the mixer 38 the tongues partially surround the ball in the opening 31 in the ratchet disc that is proceeding to the outlet gate, and this mixer prevents more than one ball being carried to the outlet, the bulk of the balls being directed over the inclined top wall 41 of the mixer, which acts in such a way as to shift and mix the balls so that a certain ball may come out the outlet in a given number of operations, and then again, after being returned to the container, may not come out for even a larger number of operations. There is, therefore, no chance of fixing the device so that any given ball can be fed to the outlet after any given number of operations.

Having thus set forth the nature of my invention, what I claim is:

1. A device of the character described comprising a container for a plurality of balls including a base provided with a discharge passage leading from the top wall of the base, a rotatable disc mounted above said top wall provided with a series of openings in it to receive individual balls, a mixer for the balls above said disc and over the entrance to the discharge passage and spaced above the disc sufficiently to permit a ball in an opening in the disc to be carried to the discharge passage but spaced above the disc less than the diameter of the balls to prevent other balls being carried to this position, said mixer being provided with means to stir up and mix the balls carried to it which are not in said openings comprising a rearwardly and upwardly inclined top wall and spaced tongues on opposite sides of said wall inclined in opposite directions to direct the balls to said inclined wall, and means for operating the disc to carry the individual balls to said discharge passage.

2. A device of the character described comprising a container for a plurality of balls including a base provided with a discharge passage leading from the top of the base, a rotary disc mounted in the receptacle over the base provided with a series of openings to receive individual balls and carry them to the discharge passage by turning movement of the disc, said disc being provided with a series of notches in its outer edge, a lever pivoted on the top of the base to swing back and forth, a handle for operating the lever, a spring pressed pawl carried by the lever to engage said notches to turn the disc with a step-by-step movement, and a mixer mounted above the disc over the discharge passage in position spaced above the disc less than the diameter of the balls to prevent more than one ball being carried to the discharge passage by each opening in the disc and provided with spaced tongues arranged respectively adjacent the side wall of the container and inwardly therefrom toward the center, said tongues being inclined in opposite directions to deflect surplus balls out of a circular path so as to mix them up as they pass over the mixer.

3. A device of the character described comprising a container for a plurality of balls including a base provided with a discharge passage leading from the top of the base, an upright shaft in the container, a ratchet disc on the shaft above the base provided with spaced shoulders, movable means to engage the shoulders for turning the disc with a step-by-step movement, said disc being provided with openings to receive individual balls and carry them to said discharge passage by turning movement of the disc, a cone arranged on the shaft above said disc with its inclined side walls directing the balls to said openings, and a mixer mounted between the cone and the side wall of the container over said passage and spaced above the disc less than the diameter of the balls to prevent more than one ball being carried by a single opening to said passage, said mixer being provided with spaced oppositely inclined tongues extending in the opposite direction to that of movement of the balls being moved by said disc to

the discharge passage and arranged on opposite sides of the path of movement of these balls with one tongue adjacent the cone and inclined to deflect surplus balls outwardly away from the center of the disc and the other tongue being adjacent the side wall of the container and inclined to deflect surplus balls inwardly toward the center of the disc, and an upwardly inclined wall between said tongues over which these surplus balls pass.

4. A device of the character described comprising a container for a plurality of balls including a base provided with a discharge passage leading from the top of the base, an upright shaft in the container, a rotatable control disc on the shaft above the base provided with openings to receive individual balls and movable by turning movement of the disc to a position over said passage, ratchet means for rotating the disc with a step-by-step movement to carry the balls in succession in said openings to the discharge passage, a member on the shaft above the disc provided with inclined walls to direct balls in the container to the openings in the disc, and a mixer mounted between said member and the side wall of the container over said discharge passage and spaced above the disc less than the diameter of the balls to prevent more than one ball being directed to the said passage by any given opening, said mixer having an upwardly inclined top wall and spaced tongues at the forward and lower part of said wall inclined in opposite directions to direct surplus balls to said inclined wall to pass over it.

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