

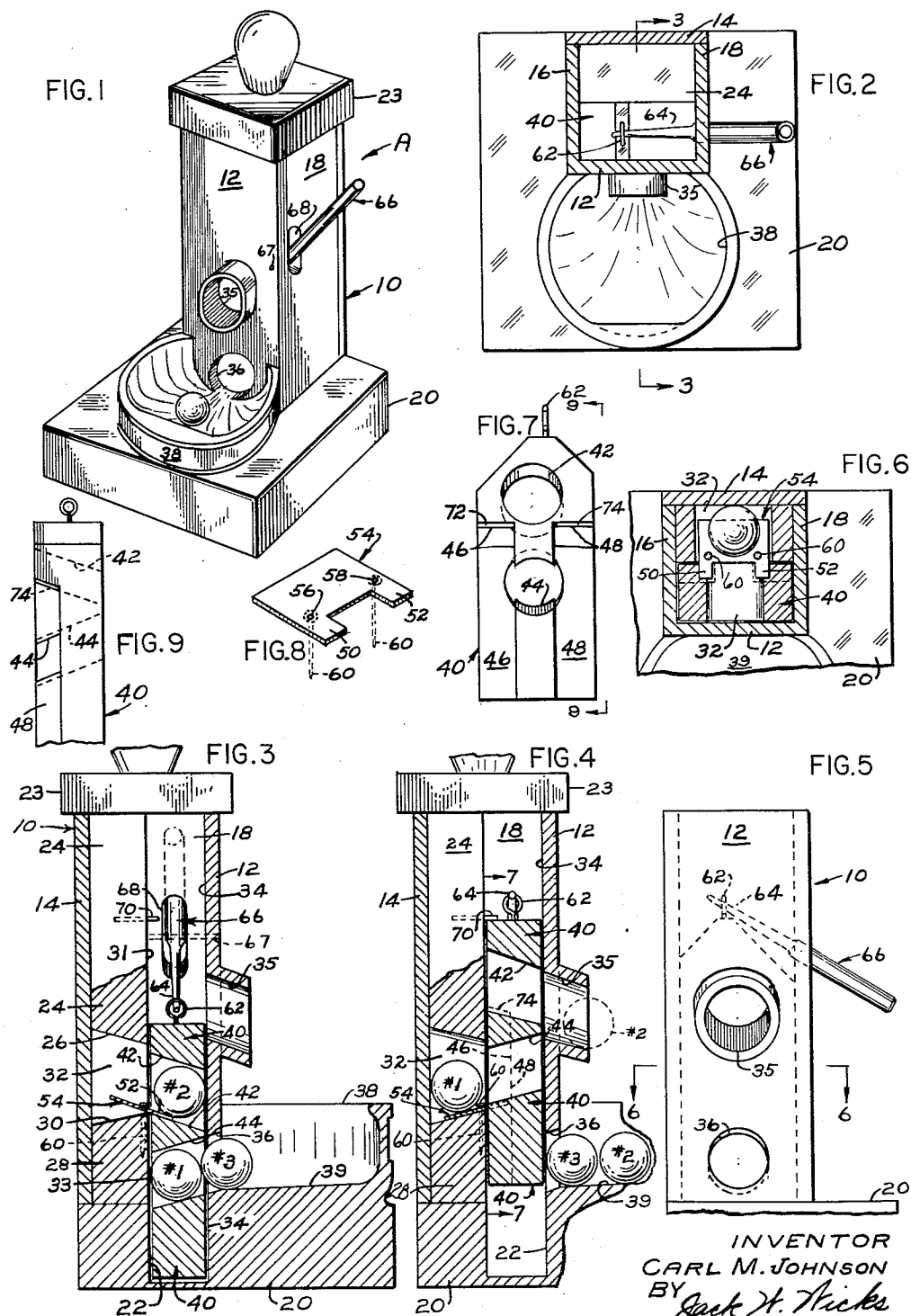
Dec. 12, 1961

C. M. JOHNSON

3,012,364

TOY BALL PUMP

Filed Oct. 17, 1960



INVENTOR
CARL M. JOHNSON
BY *Jack H. Thicke*
ATTORNEY

1

3,012,364

TOY BALL PUMP

Carl M. Johnson, 417 N. 12th Ave. E., Duluth, Minn.

Filed Oct. 17, 1960, Ser. No. 63,141

3 Claims. (Cl. 46—43)

This invention relates to an improvement in a toy device and more particularly to a toy pump-like device which will lift and eject balls from an upright standard to a receptacle from which the balls are returned to the upright standard where the same are again "pumped" and dropped into the receptacle. The action is continuous as long as the pumping or reciprocating lifting movement action is operated.

It is an object of this invention to provide an upright standard having a reciprocating ball receiver therein whereby balls, marbles or other spherical forms are lifted to the desired height and discharged, one at a time through a spout or exit guide where the same drop into a receptacle from which they automatically return to position for lifting by the ball receiver so that there is a continual circulating round of balls from standard to receptacle as long as the ball receiver is reciprocated by means of a handle.

It will not be here attempted to set forth and indicate all of the various objects and advantages incident to the invention, but other objects and advantages will be referred to in or else will become apparent from that which follows.

The invention will appear more clearly from the following detailed description when taken in connection with the accompanying drawings, showing by way of example a preferred embodiment of the inventive idea wherein like numerals refer to like parts throughout.

FIGURE 1 is a perspective view of the toy ball pump according to the invention.

FIGURE 2 is a top plan view with the top cap removed.

FIGURE 3 is a sectional view on the line 3—3 of FIGURE 2.

FIGURE 4 is a sectional view similar to FIGURE 3 but with the ball lifter in a raised position.

FIGURE 5 is a front view of the pump, portions of which being broken away.

FIGURE 6 is a sectional view on the line 6—6 of FIGURE 5.

FIGURE 7 is a rear elevational view of the lifter member removed from the upright standard on the line 7—7 of FIGURE 4.

FIGURE 8 is a perspective view of the transfer plate removed from the upright standard.

FIGURE 9 is a side elevational view in reduced size of the ball lifter shown in FIGURE 7.

Referring to the drawings in detail, the letter A indicates the ball pump in its entirety which includes the partially hollow upright standard 10 formed of the spaced and parallel front and rear walls 12 and 14, respectively, and the spaced and parallel side walls 16 and 18. The hollow standard 10 is mounted to the rear of the base member 20 and extending downwardly into the base from the hollow standard is the communication recess 22. The standard 10 has the top cover member 23.

The standard 10 has been referred to as partially hollow because secured to the rear wall 14 is the upper block portion 24 having the angular lower end 26. Also secured to the rear wall 14 is the lower block portion 28 having the angular upper end 30 which slopes downwardly toward the rear wall. The space between the lower end 26 of the upper block portion 24 and the upper end 30 of the lower block portion 28 defines an intermediate ball recess 32. The front edge 31 of the block 24, and the front edge 33 of the block 28 form

2

a vertical recess 34 for the ball lifter hereinafter described.

Further provided is the discharge opening chute 35 formed on the front wall 12 which inclines downwardly slightly away from the front wall. Positioned below the discharge opening chute 35 in the wall 12 is the ball intake opening 36 and connecting with the opening 36 is the open top receptacle formation 38 formed on the base 20. The bottom 39 of the receptacle 38 inclines rearwardly toward the standard 10.

The numeral 40 designates a ball lifter member which is substantially rectangular in cross section and which reciprocates vertically within the recesses 22 and 34. The lifter 40 has formed therein the upper ball recess 42 which extends through the lifter at an upward angle towards the rear and a lower ball recess 44 which extends through the lifter at a downward angle towards the rear. The lifter 40 is also formed with a pair of spaced recesses 46 and 48, formed in the rear face surface thereof at the outer edges which receive the spaced ear portions 50 and 52 of the transfer plate 54. The ear portions 50 and 52 are free to operate within the recesses 46 and 48 of the lifter 40. The transfer plate 54 further includes the two holes 56 and 58 through which pins, such as 60, loosely extend, and the pins 60 are driven and anchored in the lower block portion 28, FIGURES 3 and 4, whereby the paddle 54 may be tilted to the positions of FIGURES 3 and 4. With no ball in the device, the plate 54 normally assumes the position of FIGURE 4 due to the greater weight bulk in the portion opposite the ears 50 and 52.

The lifter member 40 has secured to the upper end thereof the eye 62 into which extends the inner end 64 of the pump handle 66. The handle 66 is pivotally mounted on the side wall 18 by means of the pin 67 where it extends through the slot 68 with the inner end portion 64 in engagement with the eye 62 of the lifter 40 whereby the lifter may be moved up and down within the recess 34 of the standard 10. The upward limit of travel of the lifter 40 is determined by the stop pin 70 secured to the upper block portion 24.

In operating the device A, the handle 66 is placed in an up position with the lifter in a lowered position, as in FIGURE 3. Balls #1, #2, and #3 are placed in the receptacle 38 where one ball, such as #1, rolls down into the lower ball recess 44 of the lifter 40. Let it be assumed that ball #2 has been brought to its position shown in FIGURE 3 by the movements hereinafter described with regard to ball #1. With ball #1 in recess 44, the handle 66 is moved downwardly thereby lifting the lifter 40 whereby the recess 44 of the lifter 40 is opposite the ball recess 32. As this is done, the ball #1 rolls down the inclined lower surface of the recess 44 into the recess 32, FIGURE 4, also tipping the transfer plate 54 into the position of FIGURE 4 with the ball #1 upon the major plate portion. As a further result of the reciprocated movement of the lifter 40, the ball #2 has been raised in the upper ball recess 42 to a point opposite the discharge chute 35, and due to the downwardly and forwardly inclined formation of the recess 42 and the chute 35, the ball #2 is caused to pass out the chute 35 where it drops into the receptacle 38.

When the lifter 40 is lowered, the shoulders 72 and 74, formed by the recesses 46 and 48, respectively, contact the ears 50 and 52 of the transfer plate 54 and tip the plate into the position of FIGURE 3, whereby the ball #1 resting on the transfer plate and in the recess 32 is caused to roll downwardly into the upper recess 42 from where it rolls out through the discharge chute 35 when the lifter is again raised as was true with ball #2. Thus with a continuous pumping of the handle 66 and the use of the balls, there can be effected a continuous ejection of balls at the discharge chute 35.

The invention is not to be understood as restricted to the details set forth since these may be modified within the scope of the appended claims without departing from the spirit and scope of the invention.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. In a toy ball pump, an upright standard, a receptacle positioned adjacent the lower end of said standard, an intermediate ball recess formed in said standard, a ball lifter member slidably mounted in said standard, said ball lifter having upper and lower ball recesses, a ball discharge chute formed on said upright standard, a ball intake opening formed in said standard below said discharge chute and communicating said receptacle with the interior of said standard, a transfer plate pivotally mounted at the forward edge of said intermediate ball recess adapted to normally tilt into said intermediate recess, means for raising and lowering said ball lifter within said standard whereby a ball is lifted within said lower ball recess and transferred to said intermediate ball recess, and means carried by said lifter for pivoting said transfer plate when said lifter is lowered to transfer the ball from said intermediate ball recess to said upper ball recess, from which the ball passes to said discharge chute and outwardly therefrom when said lifter is raised.

2. In a toy ball pump, an upright standard having a receptacle positioned at the lower end thereof, a discharge chute and a ball inlet opening formed on said standard, a ball lifter member slidably mounted in said standard

having upper and lower ball-carrying recesses, said standard having an intermediate ball-receiving recess, means for transferring a ball from said lower ball-carrying recess to said intermediate ball-receiving recess when said lifter is raised, means for transferring a ball from said intermediate ball-receiving recess to said upper ball-carrying recess when said ball lifter is lowered, and means for allowing a ball to pass from said upper ball-carrying recess out through said discharge chute.

3. In a toy ball pump, an upright standard, a receptacle positioned adjacent the lower end of the standard, a ball discharge opening and a ball inlet opening formed in said standard, a ball carrier member reciprocally mounted in said upright standard, means for reciprocating said carrier, upper and lower recess means formed in said ball carrier, an intermediate ball recess formed in said standard, a transfer plate pivotally mounted adjacent said intermediate ball recess, means carried by said ball carrier member for pivoting said transfer plate to transfer a ball from said intermediate recess to said upper recess of said ball carrier when said ball carrier is reciprocally lowered, means for causing a ball to move from said lower recess of said ball carrier to said intermediate recess, and means for causing a ball to move from said upper recess to said ball discharge opening.

References Cited in the file of this patent

UNITED STATES PATENTS

348,952 Converse ----- Sept. 14, 1886