May 23, 1944. J. J. HICKEY 2,349,623

MIXING AND DISPENSING DEVICE

Original Filed June 10, 1942 2 Sheets-Sheet 1

Fig. 1.

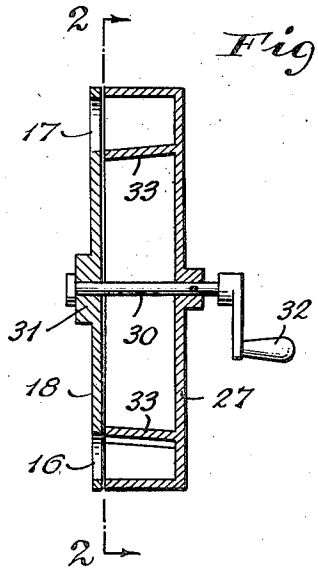


Fig. 2.

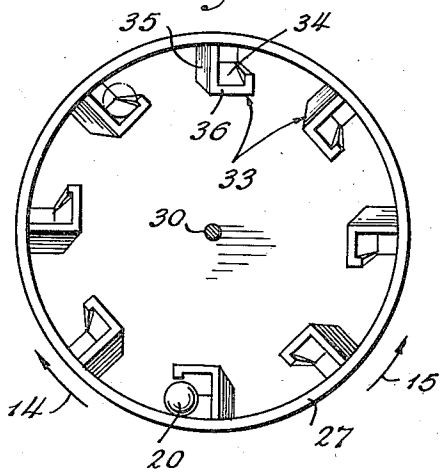


Fig. 3.

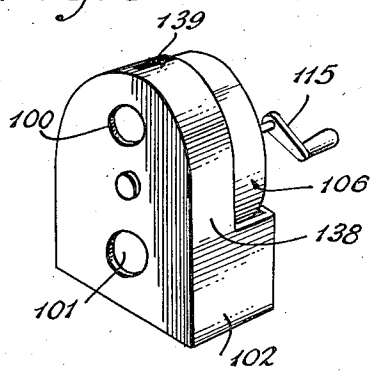


Fig. 4.

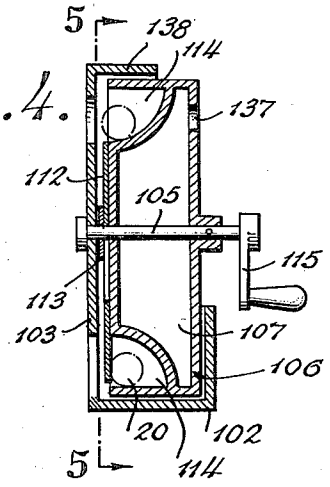
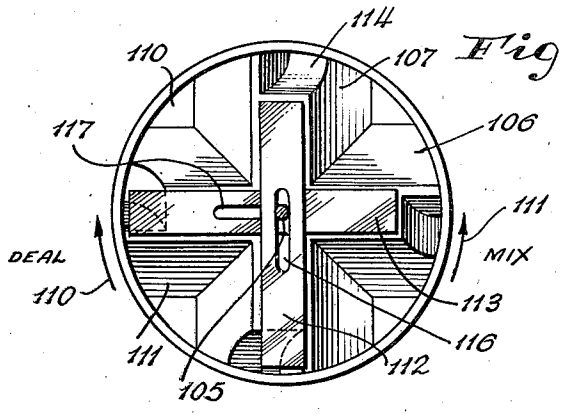


Fig. 5.



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Fig. 6.

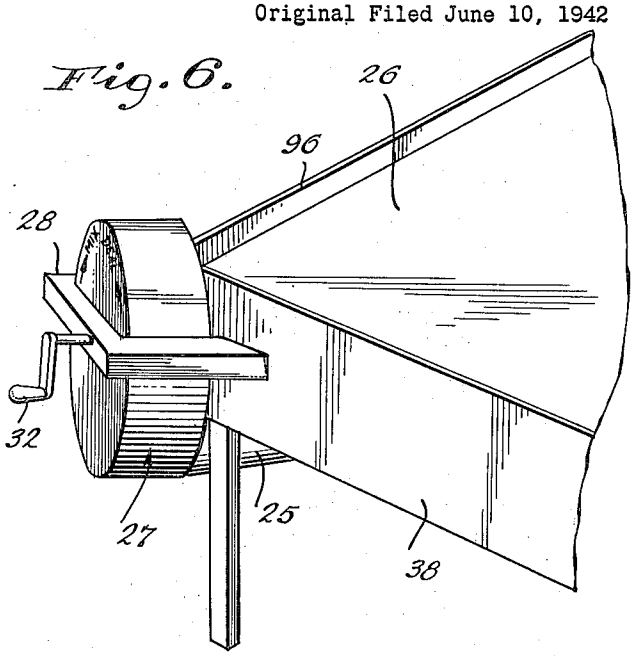


Fig. 7.

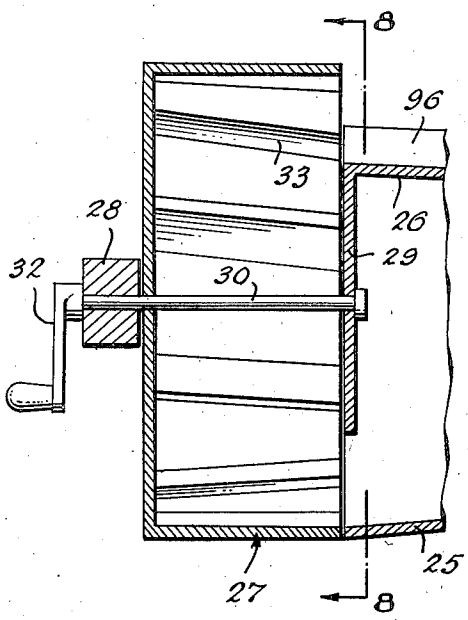
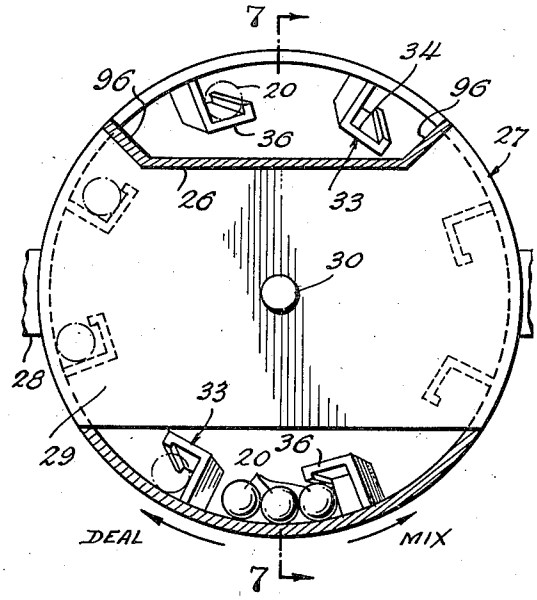


Fig. 8.



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2,349,623

MIXING AND DISPENSING DEVICE

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Original applications June 10, 1942, Serial No. 446,424, and June 10, 1942, Serial No. 446,426. Divided and this application October 10, 1942, Serial No. 461,540

3 Claims. (Cl. 273—144)

This invention relates to a mixing device and refers more particularly to devices for mixing, raising and dispensing a plurality of elements, such as balls, chips, or the like.

The present application is a division of my copending patent applications, Ser. Nos. 446,424 and 446,426, relating to Machines for playing games, and Machines for playing bridge, respectively. These applications have now matured into Patents 2,334,092 and 2,334,094, respectively, issued Nov. 9, 1943.

An object of the present invention is the provision of a device which is simple in construction and effective in operation, which may be used in various games wherein the mixing and dispensing of certain elements is required, and which may serve as a substitute for the manual drawing of one of a number of elements.

Another object of the present invention is the provision of a mixing and dispensing device which is so constructed that the elements to be mixed are raised during the mixing from their lowermost positions and are dispensed or withdrawn from the device in their uppermost positions.

Other objects will become apparent in the course of the following specification.

In accomplishing the objects of the present invention, it was found desirable to construct a mixing device in the form of a rotary cylinder or wheel containing radially directed baffles or partitions capable of stirring the elements to be mixed, which preferably have the form of small balls. The baffles are preferably so constructed that they mix the balls when the wheel is rotated in one direction, and that they raise the balls to an uppermost position within the wheel when the latter is rotated in the opposite direction, whereupon the balls may roll toward an exit of the mixing device.

The invention will appear more clearly from the following detailed description when taken in connection with the accompanying drawings showing, by way of example, preferred embodiments of the inventive idea.

In the drawings:

Figure 1 is a central vertical section through a mixing device constructed in accordance with the principles of the present invention.

Figure 2 is a section through the mixing device along the line 2—2 of Figure 1.

Figure 3 is a perspective view of a somewhat differently constructed mixing device.

Figure 4 is a central vertical section through the mixing device shown in Figure 3.

Figure 5 is a section along the line 5—5 or Figure 4.

Figure 6 is a perspective view illustrating the attachment of a mixing device to a playing table.

Figure 7 is a central vertical section along the line 7—7 of Figure 8.

Figure 8 is a section along the line 8—8 of Figure 7.

A casing which includes a rotary cylinder or drum 27, a rotary casing 27, having the form of the cylinder which is open on one side. This open side is closed by an immovable wall 18 having an upper opening 17 and a lower opening 16.

The mixing device may be used for mixing and selectively dispensing a plurality of elements 20 which may have the form of small colored balls and/or which may be provided with any type of suitable indicia. The balls 20 may be hollow and may contain a writing or the like.

The rotary casing 27 is keyed upon a shaft 30 which is mounted in a support 31 constituting a part of the immovable wall 18. A crank 32 is used to rotate the shaft 30 and the casing 27 connected therewith.

The inner rim of the casing 27 carries a plurality of baffles 33 each of which has a straight portion 35 which is attached to the casing, and a hook-shaped portion 36, provided with a surface 34 which is inclined in the direction toward the wall 18 and the exit opening 17.

The wheel may be rotated in opposite directions and it may contain a large number of balls 20. When the wheel is rotated in the direction of the arrow 15, the baffles 33 will lift some of the balls and drop the raised balls on top of the mass of other balls, thereby rotating the whole mass and mixing the balls thoroughly. When the wheel is rotated in the direction of the arrow 14, the hook-shaped portions 36 of the baffles 33 will carry the balls upwardly until a ball is brought opposite the opening 17. If the wheel 27 is stopped in that position, the ball will roll upon the inclined surface 34 and out of the opening 17.

In operation, the balls 20 are inserted into the mixing device through a lower opening 16. Then the wheel 27 is rotated in the direction of the arrow 15, whereby the mass of balls 20 situated within the wheel 27 will be thoroughly agitated and mixed. Then the user rotates the crank 32 stepwise in the opposite direction, namely, in the direction of the arrow 14, whereupon the balls are lifted to the level of the opening 17 and roll out of the device through that opening.

A mixing wheel shown in Figures 3, 4 and 5 has a casing which includes a cylindrical drum or wheel **106** rotatable along with a central shaft **105** which carries a crank **115**. The shaft **105** is carried by a wall **103** of a casing which also includes a round portion **138** partly enclosing the rotary casing **106**, and a lower box-like portion **102**. The wall **103** is provided with an upper opening **100** and a lower opening **101**.

The wheel **106** has four partition walls **107**. The balls **20** may be introduced in the lower portion of the wheel and are raised in the pockets **114** of the walls **107** by the rotation of the wheel **106** in the direction of the arrow **110**. The balls are guided into the pockets **114** by inclined surfaces of the partition walls **107**. Each pocket **114** is open on one side to receive the balls.

When the wheel **106** is rotated in the opposite direction, namely, in the direction of the arrow **111**, the walls **107** will mix and shuffle the balls **20** situated in the wheel **106**.

Two metal strips **112** and **113** situated in the wheel **106** are sufficiently wide to cover the pockets **114** of the walls **107**, and have elongated slots **116** and **117**, respectively, through which the shaft **105** extends. The pockets **114** are dimensioned to hold one ball each. As the wheel **106** rotates in the direction of the arrow **110**, a strip drops by gravity and closes a pocket **114** when that pocket is in the lower position, thereby entrapping the ball in the pocket. The ball is raised and the strip is turned by the further rotation of the wheel, whereupon the strip drops again by gravity and opens the pocket when the pocket is near its highest position. Thus the balls are singled out of the pockets **114** and are released one at a time into the exit opening **100**.

The rear wall of the wheel **106** may be provided with four holes **137**, situated opposite the pockets **114**. The crank **115** may be eliminated and the wheel **106** may be conveniently rotated by an operator who may insert his finger into one of the holes **137**. The stationary casing portion **138** may be provided with indicia **139** at its top which is so located that one ball will be dealt through the opening **100** whenever a hole **137** is brought opposite the indicia **139**.

The wheels **23** and **106** may be operated by electric power in lieu of the hand crank operation.

These mixing and dealing wheels may be used as number selecting devices for the purpose of selecting a lot, or a winning ticket or number out of a large mass of tickets sold by churches, fraternal societies and the like. For that purpose, large wheels may be used and the balls may be numbered to correspond with the numbers on the tickets sold. The operations including the movement of the balls into the wheel, the mixing of the balls when the wheel is turned in one direction, and the allocation and discharge of the balls singly when the wheel is turned in the opposite direction, can by appropriate construction of the apparatus be concealed to whatever extent is desired, or made visible in whole or in part. Thus the selection of the winning numbers would be wholly mechanical and without the contact of the human hand, but each step of the process may be made visible.

Figures 6, 7 and 8 show the manner in which a mixing wheel **27** may be attached to a side of a playing table **38**. The mixing wheel has the form of a cylindrical casing which is open on the side directed toward the table, so that the interior of the wheel is always in communication with the ball-receiving table top **26** which is enclosed by raised edges **96**. The table top is in communication by any suitable means not shown in the drawings with a ball-transmitting trough **25** which is attached to the table and which transmits the balls to the lower half of the mixing wheel **27**.

The wheel **27** is rotatable along with its shaft **30**, which is mounted in a support **28** enclosing the wheel and connected to the table. The shaft **30** is also mounted in a wall **29** constituting a part of the table top. The handle **32** is used to rotate the shaft **30** and the casing **27** connected therewith.

The rim of the casing **27** carries a plurality of baffles **33**, which are similar to those shown in Figure 2.

The wheel **23** may be rotated in opposite directions and may contain a substantial number of balls **20**. When the wheel is rotated in one direction, the baffles **31** will lift some of the balls which rest in the casing, and drop them on top of the mass of balls, thereby rotating the whole mass of balls and mixing it thoroughly.

When the wheel is rotated in the opposite direction, the hook-shaped portions **36** of the baffles **33** will entrap some of the balls and raise them, while continuing to mix the mass of balls. Due to the inclination of the surfaces **34** upon which the balls rest, the balls will roll out of the wheel **27** and upon the table top **26**. There the balls may be played or dealt to the players by any suitable device not shown in the drawings.

It is apparent that the machines shown above have been given by way of illustration and not by way of limitation, and that the above described illustrations are subject to wide variation and modification without departing from the scope or intent of the present invention as defined by the claims. All of such variations and modifications are to be included within the scope of the present invention as defined by the claims.

What is claimed is:

1. A mixing and dispensing device, comprising a hollow wheel casing, means connected with said casing for rotating the same in opposite directions, means situated within said casing and having surfaces engaging and mixing balls situated within said casing when the casing is rotated in one direction, and further having pockets formed therein for selectively holding a predetermined number of said balls to raise the same when the casing is rotated in the opposite direction, and means covering each pocket during a part of the lower portion of its rotary movement and uncovering it during the upper portion of its rotary movement for selectively raising the balls in said pockets and dispensing the raised balls.

2. A mixing and dispensing device comprising a casing including a drum rotatable on a horizontal axis, means connected with said drum for rotating the same in opposite directions, and baffles arranged within the drum and rotatable therewith and having surfaces facing in one direction of rotation of the drum for engaging and mixing balls contained within the drum when the drum is rotated in that direction, and said baffles also having pockets formed therein and communicating with the drum and facing in the opposite direction of rotation of the drum for selectively gathering a pre-determined number of balls from the drum and raising the selected balls from a lower to a higher portion of the drum when the drum is rotated in the second-named direc-

tion, said casing having an inlet for the introduction of balls into the drum and an outlet, the latter being located at a level above the axis of the drum in the path of rotation of the pockets for the discharge of the selected balls from the pockets through said outlet.

3. A mixing and dispensing device comprising a casing including a stationary wall and a drum rotatable on a horizontal axis, said drum being closed at one side and having an open side substantially closed by the stationary wall, means connected with said drum for rotating the same in opposite directions, and an annular series of baffles arranged within the drum and rotatable therewith and having surfaces facing in one direction of rotation of the drum for engaging and mixing balls contained within the drum when the drum is rotated in that direction, and said baffles also having pockets formed therein and communicating with the drum and facing in the opposite direction of rotation of the drum for selectively gathering a pre-determined number of balls from the drum and raising the selected balls from a lower to a higher portion of the drum when the drum is rotated in the second-named direction, each pocket having a discharge side facing the stationary wall and a sloping surface inclining downwardly toward said discharge side, the said stationary wall being provided with an inlet for the introduction of balls into the lower portion of the drum and an outlet, the latter being located at a level above the axis of the drum and in the path of rotation of the pockets for the discharge of the selected balls from the discharge sides of the pockets therethrough.

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