

Feb. 16, 1954

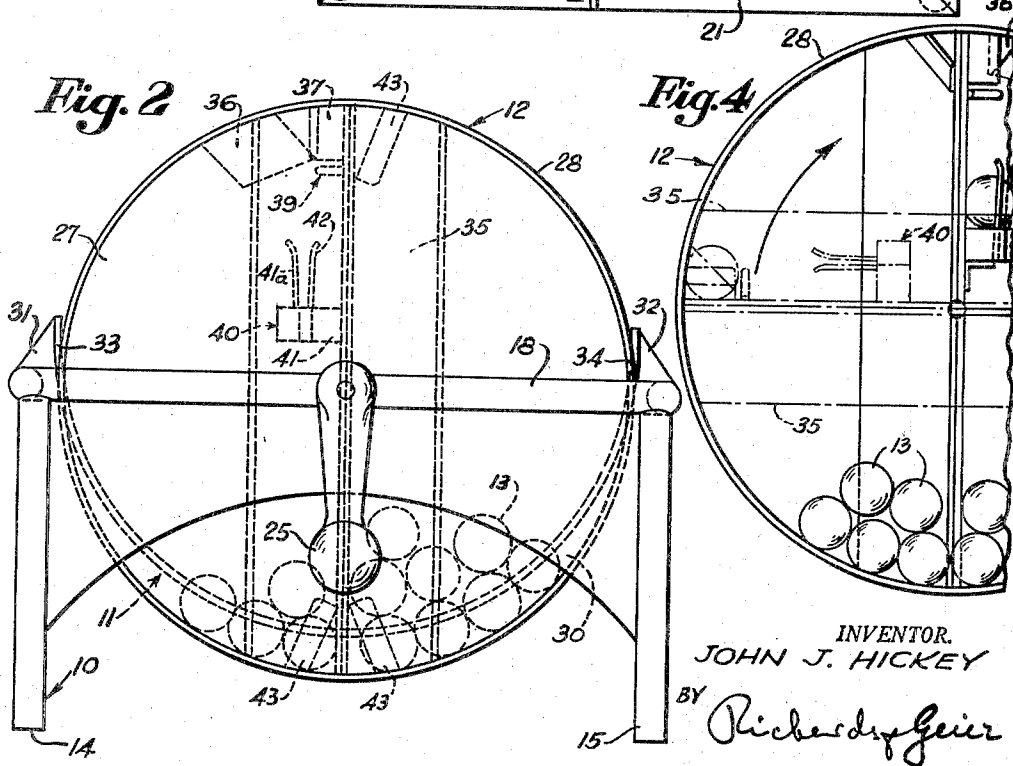
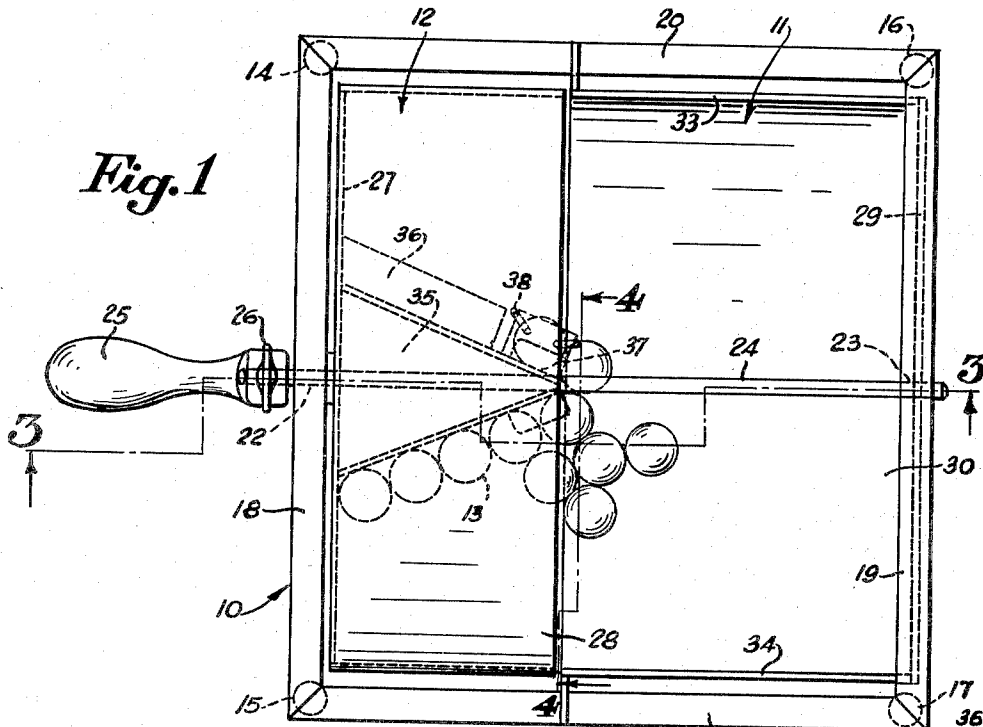
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2,669,456

GAME BALL MIXER AND DISPENSER

Filed Jan. 24, 1951

3 Sheets-Sheet 1



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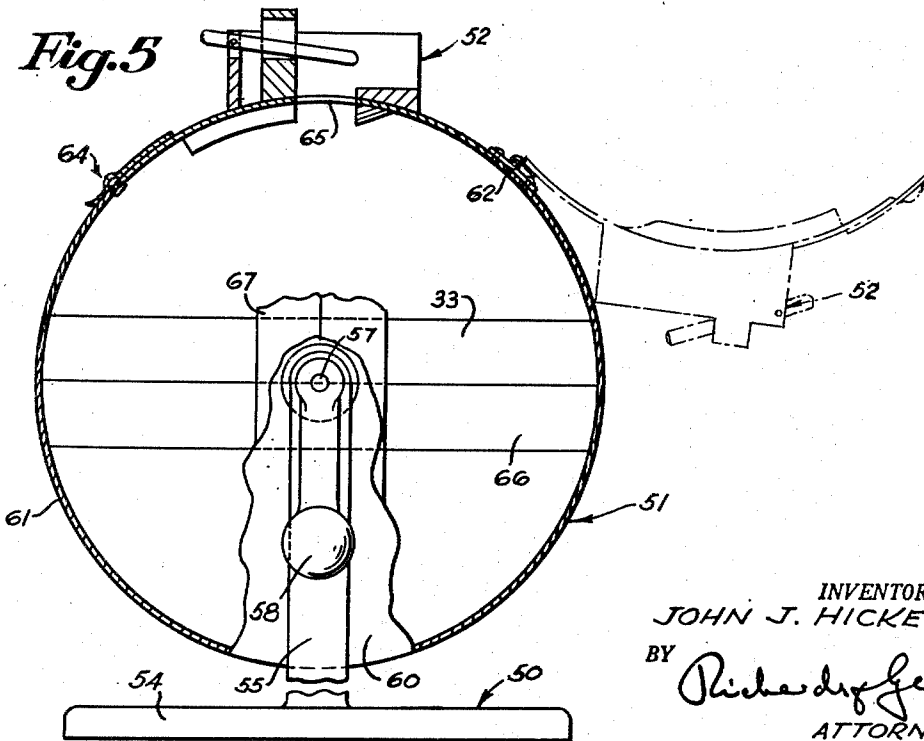
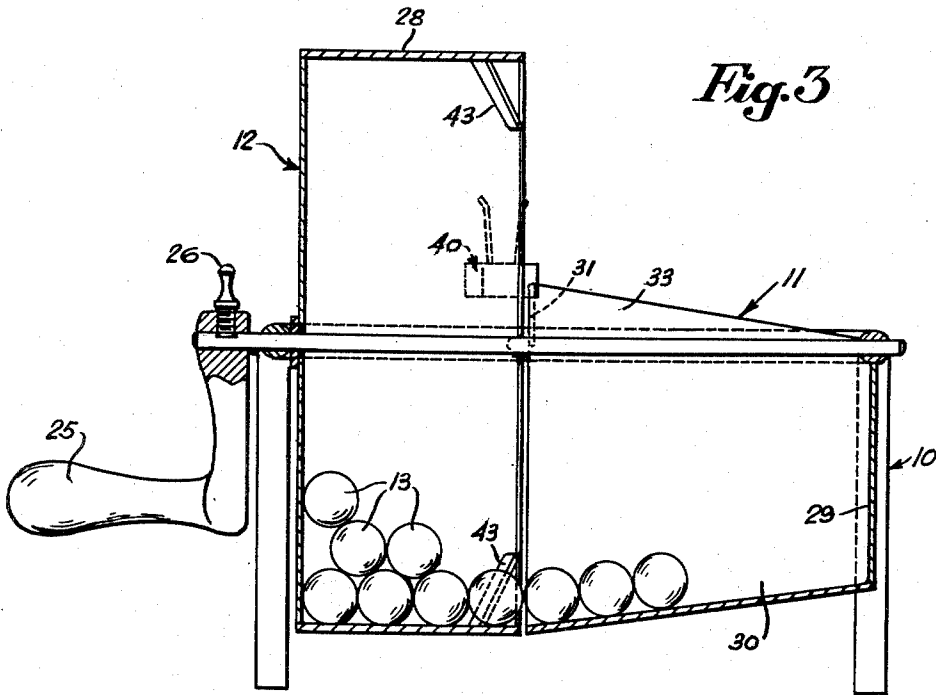
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GAME BALL MIXER AND DISPENSER

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3 Sheets-Sheet 2



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GAME BALL MIXER AND DISPENSER

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3 Sheets-Sheet 3

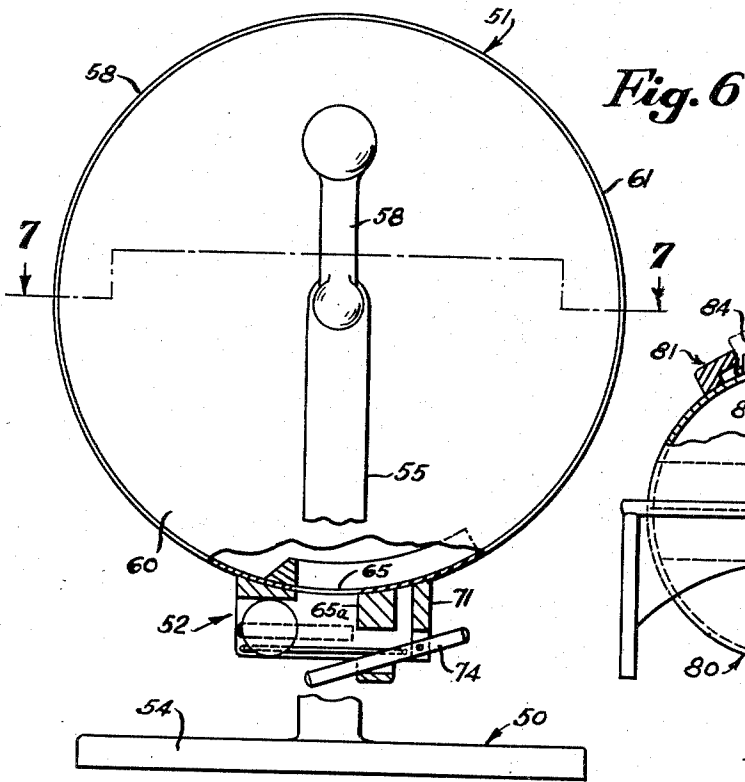


Fig. 6

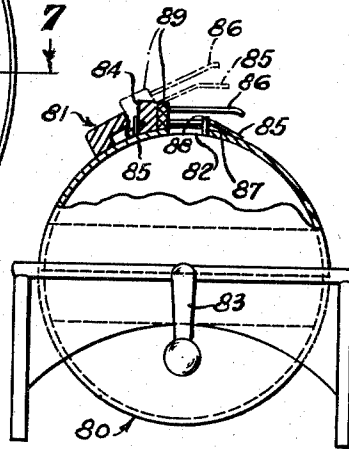


Fig. 8

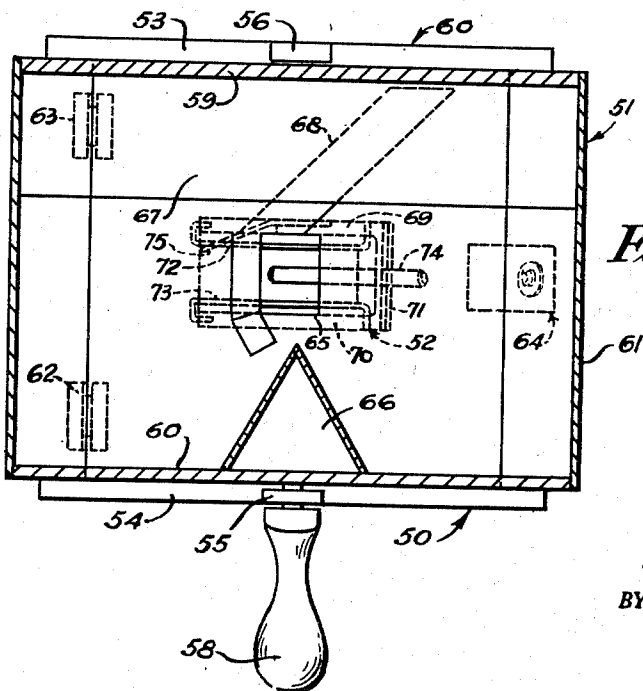


Fig. 7

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2,669,456

GAME BALL MIXER AND DISPENSER

John J. Hickey, Belleville, N. J.

Application January 24, 1951, Serial No. 207,616

6 Claims. (Cl. 273-144)

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This invention relates to a mixing, dealing, and displaying device for games using small balls marked with card game or other insignia.

In applicant's Patent No. 2,349,623, issued May 23, 1944, there was disclosed a drum confined to mixing and dealing the balls by the gravitational falling of strips or slides which discharged the balls into channels, chutes, and parallel grooves on an affixed case cover or table top.

It is an object of the instant invention to provide a greatly simplified device compared with known similar devices that will not only shuffle and deal the playing units but will directly display the dealt unit.

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

In the attainment of these objectives, the device is made in two main forms, one of which uses a transparent drum and a coating transparent hopper while the other uses an opaque drum without the hopper. In the transparent form, the allocating display mechanism is constituted of at least three coating parts within the drum. In the opaque form, the allocating display mechanism is substantially a single unit in two forms attached to the outside of the drum. Each form of the single unit could be used with the transparent drum, while the three coating parts constituting the allocating display mechanism for the transparent drum could be used with the opaque drum, especially if it too were made transparent and provided with access means. In the transparent drum, one blade is used for mixing and, in coaction with the three parts of the allocating display mechanism, to aid in allocating and displaying one ball. In the opaque drum two blades are used for mixing, one of which aids in the allocating and display step.

The invention will appear more clearly when taken in conjunction with the accompanying drawings showing by way of example the preferred embodiments of the inventive idea.

In the drawings:

Figures 1 through 4 show the first form of the device made from transparent material and constructed in accordance with the principles of this invention, and in which:

Figure 1 is a plan view of the device;

Figure 2 is a front elevational view of the device shown in Figure 1;

Figure 3 is a cross sectional view taken on line 3-3 of Figure 1; and

Figure 4 is a fragmentary sectional view taken on line 4-4 of Figure 1.

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Figures 5 through 7 show the second form of the device made from opaque material, and in which:

Figure 5 is a front elevational view in part section with one form of allocating display mechanism in the zenith position;

Figure 6 is similar to Figure 5 but with the allocating display mechanism in the nadir position; and

Figure 7 is a sectional view taken along the line 7-7 of Figure 6.

Figure 8 is a front elevational view in part section and on a reduced scale of another form of allocating display mechanism used with the transparent device shown in Figures 1 through 4 and equally useful with the opaque device shown in Figures 5 through 7.

Referring now to the first form of the device shown in Figures 1 through 4, where like reference numerals indicate like parts, reference numeral 10 indicates the frame, 11 the hopper, 12 the drum, and 13 the balls.

The frame 10 is constituted of the front leg members 14 and 15 (Fig. 2) and the back leg members 16 and 17 (Fig. 1) which support in a horizontal plane a frame having the front member 18 spaced parallel from the back member 19 and the side members 20 and 21. All of the legs and the members of the frame are formed from transparent material and are attached along corresponding ends by any known means. The transparent material may be Lucite or the like.

Through the aligned openings 22 and 23 (Fig. 1) in the front and back members 18 and 19, respectively, the shaft 24 is rotatably passed. The shaft protrudes forwardly of the member 18 as shown in Figure 1 and to the protruding end is a weighted handle member 25 attached by any suitable means, the means shown being the set screw 26 (Figs. 1 and 3).

Of course, the handle member 25 can be replaced by a handle member of different weight.

Vertically inserted at the front of the frame 10 is the transparent drum 12. The drum 12 has one end member 27 of circular form and extended rearwardly from the periphery thereof is the rim 28, the rim being perpendicular to the plane of the end member. The shaft 24 is passed through the center of the end member 27 and keyed thereto in any desired manner so that as the weighted handle member 25 is rotated the drum is simultaneously rotated.

Rearwardly of the drum and also disposed in the frame is the transparent hopper 11 constituted of a back member 29 of substantially

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semi-circular form with the arcuate periphery downwardly directed and the upper straight line edge secured in any known manner to the back member 19 of the frame. Extended forwardly from the semi-circular rim of the back member 29 is an arcuate body portion 30 which is inclined downwardly and forwardly to the bottom of the drum 12. Adjacent the drum, the hopper may be supported in the frame by any suitable means such as the angular members 31 and 32 (Fig. 2) secured to the corresponding side members of the frame and also to the angular portions 33 and 34, respectively, formed along the upper edges of the arcuate body portion and downwardly and rearwardly inclined from the drum to provide retaining baffles for the balls when the drum is revolved at relatively high speed.

Within the drum is a transparent blade 35 (Figs. 1 and 2) of triangular cross section with one side adjacent the end member 27 of the drum and with the opposite edge along the axis of rotation or shaft 24 and aligned with the inner and free edge of the rim 23, that is the perpendicular height of the blade from the side against the end member is equal to the width of the rim. It is to be noted in Figure 2 that the edge of the blade along the axis of rotation is also aligned with the weighted handle member. On one side of the blade 35, above the shaft and the weighted handle, is a baffle 36 of rectangular cross section, one side being adjacent the blade with another side adjacent the rim, and with one end against the end member 27. Rearwardly of the baffle 36 and coacting therewith is a pocket 39 constituted of a front member 37 of substantially rectangular cross section, one end of which is fastened in any known manner to the inner periphery of the rim and an adjoining side to the edge of the blade, the other end and side being unattached. The area of the front member is made substantially equal to the cross sectional area of a ball through the center. A retarding member 38 coacting with the front member is transversely disposed on the blade adjacent the free end of the front member and directed toward the end of the baffle 36 adjacent the end member 27 of the drum. The free or inner end of the baffle 36 is spaced from the front member a distance greater than the diameter of a ball and is positioned outwardly relative to the retarding member. Radially displaced from the pocket 39 and on the same side of the blade is the display cup 40. The cup 40 is constituted of the base member 41 secured to the blade in any known manner. Protruding from the base member are the retaining prongs 41a and 42 which flare outwardly toward the pocket as illustrated, and which at the attached ends are spaced from the blade a distance greater than the diameter of a ball and spaced apart a distance less than the diameter of a ball. In the other three corners of the blade, that is the corners comparable to that occupied by the pocket 39, are the similar baffles 43 disposed between the edge of the blade and the rim at a point forwardly of the free edge thereof as shown.

The balls 13 are formed from any suitable material and carry or are marked with card game or other suitable insignia.

In operation:

A mass of balls 13 are placed in the hopper 11 through the open top where, by virtue of the arcuate and inclined body portion, the balls will

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roll by gravity into the bottom of the drum and around the blade 35. The drum (Fig. 2) when revolved clockwise with the aid of the blade efficiently mixes the mass of the balls. When revolved counterclockwise, that is the dealing operation, the blade while further mixing the balls will force some in the mass when moving to the 90° level against the baffle 36 which directs the balls toward the pocket 39 where one will be temporarily held by the coaction of the front member 37 and the retarding member 38 while the overflow will fall back into the hopper and thence roll into the bottom of the drum. Even when only one ball remains in the device, the movement of the ball will be toward the pocket 39. When the pocket 39 reaches the zenith of rotation, it is vertically above the display cup 40. At a point between 95° and zenith, the ball carried by the pocket and momentarily retained by the retarding member 38 will fall into the cup 40. Any ball in the device could possibly roll directly into the cup and become the allocated ball. Later, when another ball carried by the pocket falls toward the cup, it will be deflected by the already entrapped ball back into the hopper. However, such will not disturb the accuracy of the deal which requires but one ball, any ball in the device during the dealing operation. As a matter of fact, such chance is desirable. The ball displayed in the cup permits convenient withdrawal by the operator to a box, display board, or other accessorial holder. The mechanism provides a display of the ball at a high location on the drum giving complete visibility of the machine and ball performance in the mixing, dealing, and displaying steps. The cup is always returned to the zenith position by the weighted handle member when the drum is free to rotate.

In playing, suppose there are five players of hearts who have provided themselves with a cardboard or plastic display board of home made variety or with one of the many accessorial display boards to be found on the market. In this case, the board will have fifty-two compartments in five vertical rows. By using the subject device for the shuffling, dealing, and part of the display steps, the board being used for the remainder of the display, will conform with the design. A sole player of solitaire upon using the subject device for shuffling and dealing can use five numbered vertical rows and five lettered horizontal rows of the display board for playing many of the games of poker-solitaire described in any standard book on the subject. Also several players of poker can use that square of 10 rows for playing various games of poker.

Referring now to the form of the device using the opaque drum as shown in Figures 5, 6, and 7, reference numeral 50 indicates the frame, 51 the drum, and 52 the allocating display mechanism.

The frame 50 is constituted of the horizontal members 53 and 54 maintained in spaced parallel arrangement by a tie bar (not shown) attached by any suitable means to the horizontal members at the center. Extended upwardly from the center of each horizontal member are the vertical supporting members 55 and 56, respectively. At equal distances from the horizontal members openings are made in the vertical members and through the aligned openings a shaft 57 (Fig. 5) is rotatably inserted. The end of the shaft on the side of the vertical supporting member 55 is extended and to the extended end a

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weighted handle member 58 is attached in any known manner (not shown). Obviously, the handle member 58 can be made replaceable as in the handle member of the first form so that a handle member correlated with the weight of the balls in the drum can be used, the number of balls varying from game to game, and the weight of the balls varying with the material from which formed.

The drum 51 is rotatably inserted between the vertical supporting members 55 and 56 and is keyed to the shaft 57 in any desirable manner, the shaft passing between two spaced end members 59 and 60 (Fig. 7) of the drum. A rim 61 is disposed between the peripheries of the end members and a portion of the rim opposite the weighted handle 58 is hinged by any suitable hinge means 62 and 63 (Figs. 5 and 7). The opposite or free end of the hinged portion is releasably attached in the closed position to the contiguous surface of the rim by any suitable catch and latch 64. In the hinged portion of the rim and opposite the handle member 58 (Fig. 5) is an opening 65. The opening is shown as being of rectangular form but other forms could be used as long as the area of the opening is greater than the cross sectional area of a ball at the center.

In the drum are two blades 66 and 67, both of triangular cross section with one side against an end member of the drum and with the opposite edges through the shaft 57 and spaced from the sides of the opening 65, each blade being turned at 90° to the other. One side of the blade 66 is aligned with one end of a baffle 68 disposed around the periphery of the opening and continued to the opposite side of the drum as illustrated.

Disposed over the opening 65 on the outside of the hinged portion is the allocating display mechanism 52 coating with the previously mentioned baffle 68. The mechanism 52 is formed with the side members 69 and 70 (Fig. 7) disposed on the outer surface of the hinged portion of the rim and held in spaced parallel arrangement perpendicular to a vertical plane through the driven shaft when the drum is free and at rest by an end member 71 attached in any known manner to corresponding ends of the side members. As will be noted in the illustration, both ends of the side members protrude beyond the ends of the opening for a distance substantially equal to the diameter of a ball and the end member 71 is on the side of the opening opposite to the baffle 68. The flexible ball guides 72 and 73 are attached along the edges of the side members and are inwardly directed in opposed relationship over the opening to provide a receptacle and guideway for the balls passing through the opening as later shown. Intermediate the side members and parallel thereto is a lever 74, pivotally mounted in the end member 71 by any suitable means and with the power arm protruding therefrom and with the weight arm extending to the most remote side of the opening 65. A resilient ball retainer 75 is disposed in the guideway, one end being attached to the side member 70 and with the free end extended outwardly and inwardly toward the opposite side member, while a stop 65a (Fig. 6) intermediate the end member and the opening limits the rotation of the lever in two directions.

The device of the second form may also be made of transparent material like the first but in the first form the interior walls are readily cleaned. If transparent, the interior of the drum

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of the second form will soon become clouded through contact with finger handled dirty wooden balls. However, the interior of the drum 51 could be readily cleaned by providing a second hinged portion in the rim which is not shown. On the other hand, the allocating display chamber alone may be formed from transparent material.

In operation:

A plurality of balls (not shown) are dumped into the drum through the hinged portion. During the clockwise rotation of the drum (Fig. 5) each of the blades 66 and 67 will shift a substantial number of the balls across the drum onto the opposite blade which then functions likewise accomplishing a thorough mixing of the balls upon four or five clockwise revolutions. When the drum is revolved counterclockwise some of the balls with the aid of the blade 66 and the co-acting baffle 68 will be directed toward the opening 65 at or near the nadir position and one will pass through that opening to be caught by the guides 72 and 73 and, as the counter-clockwise movement continues, it will roll under gravity and the pressure of other balls crowding to get through the opening toward the open ends of the side members 69 and 70 to be held in the outer end of the guideway by the retainer 75 and entrapped by the weight arm of the lever 74 swinging toward and closing the opening as the chamber rotates to the zenith position. The baffle 68 coacting with the blade 66 actually has a funneling action which becomes especially important when the number of mixed balls remaining in the drum is reduced to one or a few and assures no miss in dealing even when only one ball remains to be elevated by the drum and displayed in the chamber. By forming the handle member 58 of heavy material, the chamber will normally be at the zenith position of the drum when free to rotate, the most advantageous location for desired visibility. The retainer 75 facilitates the withdrawal of the displayed ball from the chamber for transfer to an accessorial box, holding board, or other container. By extending the power arm of the lever 74 beyond the end member 71, as illustrated, a convenient means is provided for lifting the weight arm entrapping a ball so that it can be returned to the drum through the opening 65. Such release may be used in deciding tie scores, selecting the first dealer, playing high spade, and in certain games of solitaire. In the counterclockwise or dealing rotation of the drum, the allocating display mechanism 52 functions like a cup, from the nadir position up to the zenith, which captures balls and allocates one as stated. But, in the clockwise or mixing rotation of the drum, the inverted cup will not designedly entrap or hold any balls. Any of the balls which happen to enter the cup at or near the nadir position will roll back into the drum before the cup is lifted to the zenith position. Hence, no balls are allocated in the mixing rotation.

Another form of allocating display chamber is shown in Figure 8, used as illustrated, in conjunction with the transparent drum of the first form. However, it is to be noted that the allocating and display mechanism already described in the first form has been eliminated and an opening formed in the rim of the drum. The opening may or may not be in a hinged portion of the drum rim and the blades of the second form could be readily substituted for the blade of the first form. Of course, a baffle may be re-

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quired on the inner surface of the rim around the opening to funnel the balls therethrough. It is also to be noted that the allocating display chamber of Figure 8 could be readily substituted for the similar mechanism shown in Figures 5, 6, and 7 and already described.

Referring now to the allocating display mechanism shown in Figure 8, reference numeral 80 indicates the drum, and 81 the allocating display mechanism.

The drum 80 is the same as that described previously for the first form except that an opening 82 has been provided in the rim directly opposite the weighted handle 83, and that a baffle member similar to the baffle 68 of the second form and not shown is provided on the inner surface of the rim. On the outside of the rim and over the opening is the allocating display chamber 81 constituted of an end member 84 hingedly disposed by any suitable means 85 on the rim of the drum. Protruding forwardly of the end member are two spaced flexible members, one of which is shown by numeral 85, the members being spaced along the sides of the opening perpendicular to a vertical plane through the axis of the drum when the drum is free and at rest, the flexible members being contracted at the end. On the outer end of the end member are two spaced flexible ball guides 86 spaced apart a distance less than the diameter of a ball and spaced from the flexible members a distance greater than the diameter of a ball. Both the flexible members and the ball guides protrude beyond the opening 82 a distance substantially equal to the diameter of a ball. Disposed on the drum between the flexible members and adjacent the side of the opening most remote from the hingedly mounted end member is the ball retainer 87 at the end of which adjacent the opening is a vertically disposed member 88. On the opposite side of the end member 84 is a stop 81 limiting the rotation of the end member while on the side of the end member adjacent the opening is a weighted member 89.

It will be understood that the invention is not limited to the exact disclosure herein described but may lend itself to a variety of expressions within the scope of the appended claims.

What is claimed is:

1. A mixing, dealing, and displaying device employing balls with card game insignia, the device comprising a frame supporting a drum in a vertical plane, the frame comprising spaced parallel horizontal members, a tie bar disposed between the horizontal members substantially at the center, and a vertical member disposed on each horizontal member substantially at the center, the free ends of the vertical members having an opening formed therethrough at equal distances from the horizontal members, a shaft rotatably disposed through the openings, one end of the shaft being extended forwardly of the corresponding vertical member, and a weighted handle member keyed to the extended end of the shaft; the drum comprising spaced parallel side members, a rim disposed between the side members, means for passing the shaft through the side members at the center, and means for keying the drum to the shaft, a portion of the drum rim substantially opposite the weighted handle member being hingedly secured to an adjacent portion of the rim, means for releasably securing the free end of the hinged portion to the corresponding portion of the rim, the hinged portion having an opening formed therein, the opening

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being of greater magnitude than that of a cross section of a ball through the center and substantially aligned with the weighted handle member, and allocating display means for the balls disposed on the outer surface of the rim and adjacent the opening; the drum further comprising two blades disposed therein, each blade being of triangular cross section with a side against one end member and with the opposite edge through the shaft, one of the blades being turned at 90° to the other and with the corresponding edges in spaced relationship, the side of one blade being directed toward the side of the opening most remote from the allocating display means, and at least one baffle disposed on the inner surface of the rim opposite the same blade and coacting with the same side of the opening and with the blade to funnel a ball into said opening.

2. A mixing, dealing, and displaying device according to claim 1 in which the allocating display means comprises side members disposed in spaced parallel arrangement on opposite sides of the opening in the hinged portion, said side members being perpendicular to a vertical plane through the axis of rotation when the drum is free and at rest, an end member disposed along corresponding ends of said side members, the free ends of said side members being extended beyond said opening a distance substantially equal to the diameter of a ball; the allocating display means further comprising inwardly directed ball guides disposed in opposed relationship along the edges of said side members, a lever pivotally disposed in said end member intermediate said side members, said lever having a weight arm and a power arm, the weight arm being extended to a point adjacent the most remote side of said opening and the power arm being extended beyond said end member a distance less than the length of the weight arm, a stop for said lever limiting the rotation thereof in two directions disposed on the drum rim intermediate said opening and said end member, and a resilient ball retainer for the free ends of said side members, one end of each retainer being secured to one side member with the free end thereof extended toward the free end of the opposite side member, and at least one baffle disposed on the inner surface of the rim of the drum adjacent the end of said opening and opposite said stop and coacting with at least one blade to funnel a ball into said opening.

3. A mixing, dealing, and displaying device according to claim 1 in which the allocating display means comprises an end member pivotally disposed adjacent one end of the opening in the rim, said end member being weighted on the side of the opening, a flexible member disposed on said end member adjacent each side of said opening and substantially perpendicular to a vertical plane through the axis of rotation of the drum when free and at rest, said flexible members being in spaced parallel arrangement at a distance greater than the diameter of a ball, the free ends of said flexible members being inwardly directed and protruding beyond said opening a distance greater than the diameter of a ball, a flexible ball guide disposed on the weighted end member on each side of said opening, said guides being spaced from said flexible members a distance greater than the diameter of a ball and from each other a distance less than the diameter of a ball, the free ends of said guides being inwardly directed and extending substantially to the ends of said flexible members, a ball retainer

disposed on the rim intermediate the free ends of said flexible members and adjacent the edge of said opening most remote from said weighted end member, said retainer having an upright portion adjacent said opening, a stop for said end member disposed on the rim on the side of said end member most remote from said opening, and at least one baffle disposed on the inner surface of the rim adjacent said opening and coacting with at least one blade to funnel a ball into said opening.

4. A mixing, dealing, and displaying device employing balls with card game insignia, the device comprising a shaft, rotatable mounting means for said shaft, a drum keyed to said shaft, said drum comprising at least one end member, a rim disposed around the periphery of said end member and perpendicular to the plane thereof, means for retaining the balls in the drum, a weighted handle member removably disposed on said shaft, at least one blade of triangular cross section disposed in said drum, said blade having one edge outwardly directed from the end member and substantially aligned with said handle member, ball allocating display means coacting with said blade for said drum, said means being radially displaced from the axis of rotation of said drum and substantially opposite said handle member.

5. A mixing, dealing, and displaying device employing balls with card game insignia, the device comprising a rectangular frame, means for supporting said frame in a horizontal plane, a shaft rotatably disposed between opposite sides of said frame and protruding from one side thereof, a weighted handle member removably disposed on the protruding end of said shaft, a drum rotatably disposed in one end of said frame and keyed to said shaft, said drum comprising an end member, a rim disposed around the periphery of said end member perpendicular to the plane thereof and directed toward the opposite end of said frame, a blade disposed in said drum, said blade being of triangular cross section with one edge outwardly directed from said end member and substantially aligned with said handle member and flush with the periphery of the rim opposite said end member; the device further comprising a hopper for the opposite end of said frame, said hopper having an end member adjacent said frame at the back and side and bottom portions of arcuate form disposed along the periphery of the end member

and inclined downwardly to the bottom of the open end of said drum, the top of said hopper being open substantially in the plane of said frame; the device further comprising ball allocating display means for said drum, and means for retaining the balls in the device disposed on said hopper and in said drum, said second mentioned means comprising a baffle disposed at the top of said arcuate body portion of the hopper on each side of said frame, and a second baffle disposed on at least one side of said blade intermediate the rim and the outwardly directed edge of said blade.

6. A mixing, dealing, and displaying device according to claim 5 in which the ball allocating display means comprises a pocket for the drum, said pocket comprising a substantially rectangular front member disposed intermediate the outer edge of the blade and the contiguous edge of the rim, and a retarding member disposed on the blade substantially at the free end of said front member; the ball allocating display means further comprising a baffle coacting with said pocket, said baffle comprising a strip disposed intermediate said blade and the contiguous surface portion of the rim, said baffle being of triangular cross section with one side against the blade and another side against the rim and with one end against the end member and with the free end spaced from said front member a distance greater than the diameter of a ball, a cup coacting with said pocket, said cup comprising a base member disposed on the blade intermediate said pocket and the axis of rotation, and at least two retaining prongs disposed on said base member and directed toward said pocket, said prongs being spaced apart a distance less than the diameter of a ball and spaced from the blade a distance substantially equal to the diameter of a ball.

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