June 11, 1940. V. ZAMORA 2,203,886

BALL DELIVERY MACHINE

Filed Jan. 16, 1939

Fig. 1.

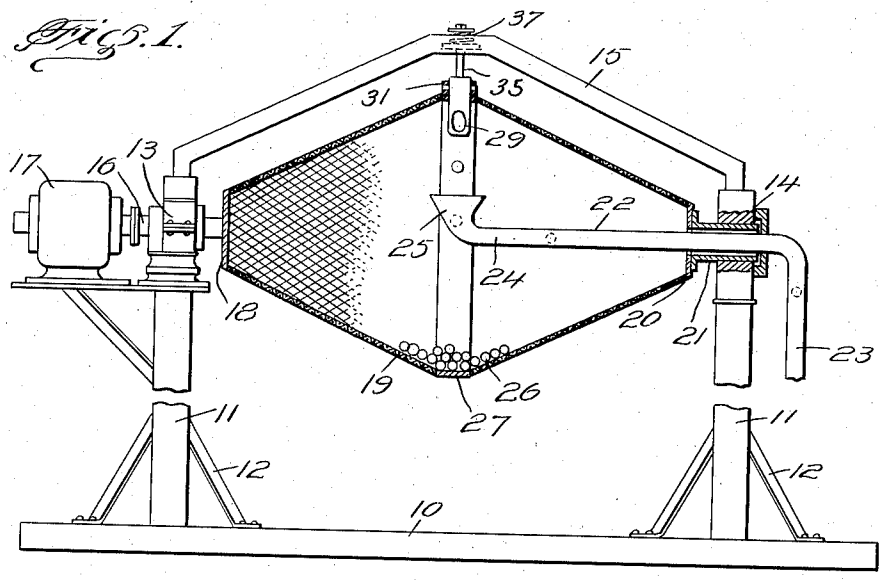


Fig. 2.

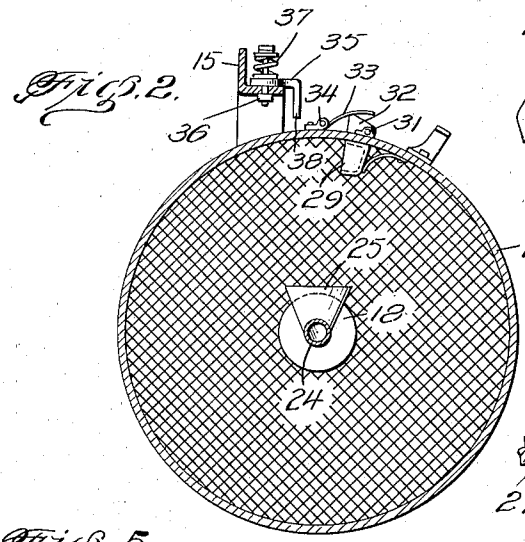


Fig. 3.

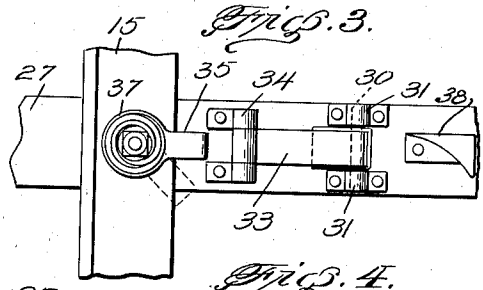


Fig. 4.

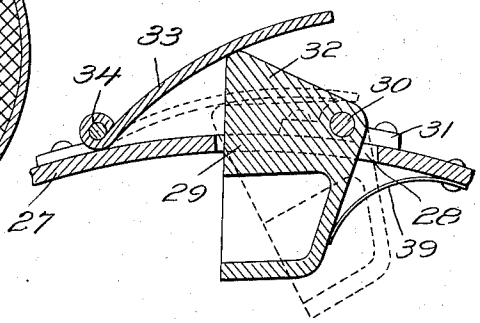
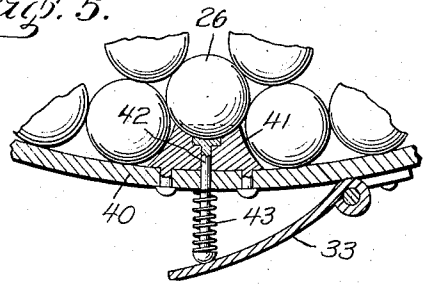


Fig. 5.



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BALL DELIVERY MACHINE

Vicente Zamora, Manila, P. I.

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3 Claims. (Cl. 273—144)

The invention relates to a ball delivery machine and more especially to an object shuffling, selecting and delivering machine.

The primary object of the invention is the provision of a machine of this character, wherein a group of balls confined within a rotary body can be set in motion and a single ball selected therefrom for automatic delivery into a chute whence the ball will be discharged onto a table, support or the like, the machine being designated for the playing of games having indicia indicative of a value for the winning of a game.

Another object of the invention is the provision of a machine of this character, wherein the construction thereof is novel in its entirety, the machine being either manually or power operated.

A further object of the invention is the provision of a machine of this character, which is simple in construction, thoroughly reliable and efficient in operation, assuring in the working thereof the single selection and delivery of a moving object, such, for example, as a ball, each being delivered in succession, and inexpensive to manufacture.

With these and other objects in view, the invention consists in the features of construction, combination and arrangement of parts as will be hereinafter more fully described, illustrated in the accompanying drawing, which discloses the preferred and modified forms of embodiment of the invention and pointed out in the claims hereunto appended.

In the accompanying drawing:

Figure 1 is a side elevation of the machine partly in section constructed in accordance with the invention.

Figure 2 is a vertical transverse sectional view therethrough.

Figure 3 is an enlarged fragmentary top plan view.

Figure 4 is an enlarged fragmentary vertical transverse sectional view showing in detail by full lines one position of its object selector and delivery device and by dotted lines another position thereof.

Figure 5 is a view similar to Figure 4 showing a modification of selector and delivery device.

Similar reference characters indicate corresponding parts throughout the several views in the drawing.

Referring to the drawing in detail, the machine in its entirety comprises a suitable base 10, preferably of elongated formation, serving as a bed from which rise vertically disposed uprights 11, these being in the form of posts and are braced at their lower portions by brace wires 12 suitably fixed thereto and joined with the bed 10 in any desirable manner. The posts 11 adjacent to their upper ends are formed with bearings 13 and 14, respectively, while bridging the space between said posts and connected thereto above the bearings is an inverted substantially V-shaped arch member 15 supplementing rigidity to the setup of the posts on the bed.

The bearing 13 has carried therethrough a drive shaft 16 operated from an electric motor 17 constituting a power unit. The shaft 16 is joined with one end 18 of a rotatable drum 19 having reversely tapered ends, the other end 20 of said drum being formed with a hollow trunnion 21 journaled in the bearing 14. Passed through this trunnion 21 is a chute 22 having the depending end 23 exteriorly of said drum 19. The opposite end 24, which is the receiving end of said chute, is interiorly of and extends to the center of said drum 19, the end 23 being the discharge end of said chute. The receiving end 24 is formed with a flared upwardly directed substantially funnel-shaped entrance mouth for the admission of an object, for example, balls 26, to the chute 22 whence the balls 26 in single order will be discharged at the delivery end 23 at said chute and are adapted to drop upon a support, table or the like exteriorly of the drum. The balls 26 are loosely confined within the drum 19 and are whirled or shuffled on the rotation of the latter by the motor 17.

Built with the drum 19 at its transverse center is an annular band 27 having a clearance or opening 28 through which extends a tilting cup 29 rocking on a pivot 30 vertically, this pivot being engaged in bearings 31 on the band 27 at opposite sides of the clearance or opening 28.

The cup 29 has a tripping heel 32 with which contacts and cooperates a depressible tripping lever 33 hinged at 34 on the band 27 for a purpose presently described.

The cup 29 is adapted to act as a ball scoop or selector device for the picking up of a single ball 26 within the drum 19 on its rotation and automatically dropping the said ball into the mouth entrance 25 for delivery and discharge through the chute 22 at its delivery end 23, as before stated. The cup 29 is normally in a position shown by full lines in Figure 4 of the drawing for the picking up selectively of a single ball 26 within the drum and carrying this ball to an uppermost dead center of such drum directly over the mouth entrance 25 of the chute 22

whence the cup 29 will be automatically acted upon for movement thereof to the dotted line position shown in said Figure 4 for the discharge of the ball and the dropping thereof into the mouth entrance 25 of the chute 22 where this ball traveling through the chute will be delivered exteriorly of the machine in a manner as before stated. Centrally of the arch 15 is arranged an inverted substantially L-shaped trigger 35, being pivoted for horizontal swing at 36 and is slightly displaceable against a spring 37 carried by said pivot 36. This trigger 35, when in the path of the lever 33, causes the latter to be depressed when making contact therewith under the rotation of the drum 19, dumping the cup 29 of a ball selectively scooped thereby from within the drum for the entry of this ball into the mouth entrance 25 of the chute 22 and the subsequent delivery from the latter of said ball to without the machine.

Arranged on the band 27 close to the clearance or opening 28 and rearward of the cup 29 in the counter-clockwise movement of the drum 19 is a diverter wing or switch ear 38, being in alignment with the lever 33 and in the path of the trigger 35 for coaction with the latter so as to automatically displace laterally the said trigger on the contact of this wing or ear 38 therewith.

The drum 19, when rotated by the motor 17, causes the ball through gravity to group at the transverse center of said drum and through centrifugal force lie in the path of the cup 29 in that the balls 26 will be confined at the lowermost portion of the drum during its rotation and thus the cup 29 will select and pick up a single ball within the drum to be delivered therefrom into the chute 22. The continued rotation of the drum 19 causes selective picking up of balls in single order by the cup to be discharged from the drum through the chute 22 onto a table, support or the like.

The balls 26 within the drum 19 are numbered (not shown) and the same are introduced into the drum in any desirable manner. The machine is useful for the playing of a game in that the numbered balls delivered from the machine through their numbers effect a totaling score for a player or players of the game.

When the diverter 38 moves the trigger 35 out of the path of the lever 33, the cup 29 will not be tilted and therefore, the ball contained therein will not be delivered therefrom into the chute 22. The trigger is set by hand after actuation by the diverter 38 so that this trigger will be effective for acting upon the lever 33 and the dumping of the cup 29 to have a ball delivered from the drum 19 into the chute 22.

Acting upon the cup 29 is a leaf spring 39 which holds such cup in the normal position shown by full lines in Figure 4 of the drawing so the cup will scoop or pick up a ball 26 within the drum 19 on rotation of said drum in the operation of the machine.

In Figure 5 of the drawing there is shown a slight modification of the invention wherein the drum 40 has fixed within the same an electrically operated non-permanent magnet 41 in substitute for the cup 29 and this magnet has centered therein a plunger 42 of non-magnetic material, being held inactive by a coiled compression spring 43 and acted upon by the lever 33 which is controlled in a manner hereinbefore set forth. Now the purpose of the magnet 41 is to pick up selectively a ball 26, holding it for arrival thereof at the uppermost dead center in the rotation of the drum 40 whence the lever 33 will be acted upon for operating the plunger 42 against the activity of the spring 43 releasing the ball 26 held by the magnet 41 for the dropping of said ball into the mouth entrance 25 of the chute 22. The reason for the presence of the magnet of the type indicated is that the magnet should not hold a ball while the drum is being rotated. The magnet should be put in operation only when it is desired to pick a ball at any given moment for release into the chute. This magnet with its plunger 42 functions for the same purpose intended of the cup 29 in the operation of the machine.

What is claimed is:

1. A machine of the character described comprising a frame, a drum rotatably mounted on said frame for carrying a plurality of objects, said drum having a cup member pivoted therein for selecting and holding one of the objects upon rotation of said drum, means positioned rearwardly of said cup member for maintaining said cup member in non-tilting position, a lever pivoted to said drum, one end of said lever adapted to overlie said cup member, a trigger pivotally mounted on said frame, said trigger adapted to cooperate with said lever for tilting said cup member, means secured to said drum rearwardly of said cup member adapted to engage said trigger and move same out of the path of the said lever and a chute extending within the drum for the deposit therein of the contents of said cup member and for delivery of said contents outside of the drum.

2. A machine of the character described comprising a frame, a drum rotatably mounted on said frame for carrying a plurality of objects, said drum being provided with a substantially cup-shaped member depending therein and pivoted thereto, spring means for maintaining said cup-shaped member in non-tilting position, a lever pivoted to the outer periphery of said drum, the free end of said lever adapted to overlie said cup-shaped member, a trigger pivotally mounted on said frame, said trigger adapted to cooperate with said lever for tilting said cup-shaped member, means secured to the outside periphery of said drum and adapted to engage said trigger and move said trigger out of the path of said lever and a chute extending within the drum for the deposit therein of the contents of said cup-shaped member and for delivery of said contents outside of said drum.

3. A machine of the character described comprising a rotatably supported drum for the carrying of a plurality of objects, said drum having a member pivoted therein for selecting and holding one of the objects upon rotation of said drum, spring means positioned rearwardly of said pivoted member for maintaining said pivoted member in non-tilting position, a lever pivoted to said drum with one end thereof resting against said pivoted member, a trigger pivotally mounted outside of said drum, said trigger adapted to cooperate with said lever for tilting said pivoted member, means secured to said drum rearwardly of said pivoted member adapted to engage said trigger member and move same out of the path of said lever and a chute extending within the drum for the deposit of the contents of said pivoted member therein and for delivery of said contents outside of said drum.

VICENTE ZAMORA.