Feb. 22, 1949. B. W. STALLARD 2,462,686

DICE AGITATOR

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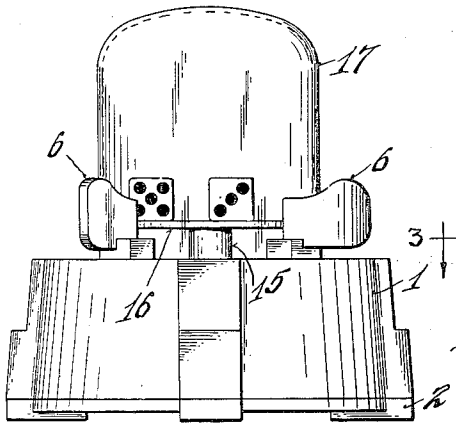


Fig. 1.

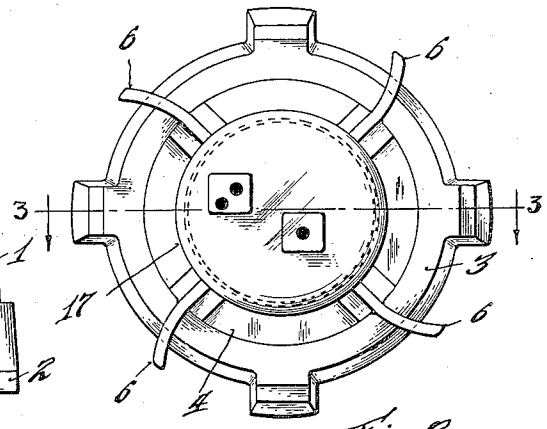


Fig. 2.

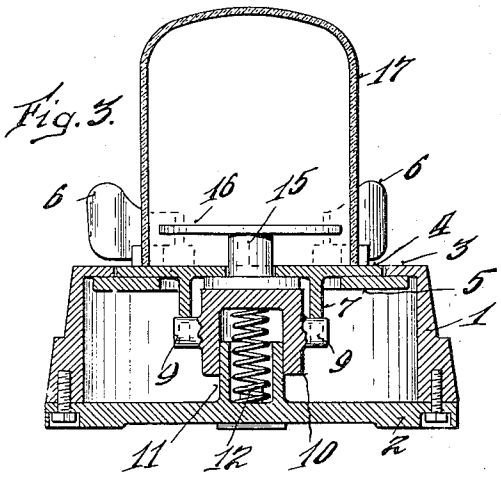


Fig. 3.

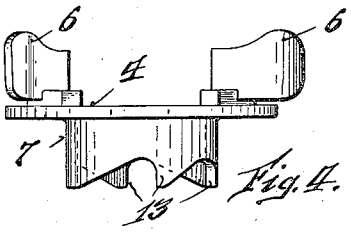


Fig. 4.

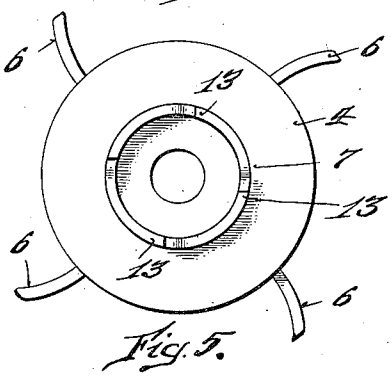


Fig. 5.

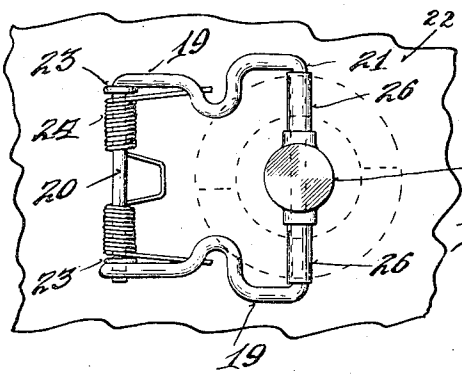


Fig. 6.

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DICE AGITATOR

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2 Claims. (Cl. 273—145)

1

This invention relates to a device for tumbling or agitating, tokens, dice and the like, possessing several plane faces or surfaces, each bearing indicia, for use in connection with game boards as an indicator or means operative by the players for determining or governing the plays or moves of the game and particularly to the means for impulsively moving a reciprocable tray upon which the elements to be tumbled are disposed and housed within a transparent enclosure. A device operative from several points thereabout, adapting the same to be stationed centrally of a game board for convenient availability for operation by each of several players from their positions about the game board.

An object of the invention is to provide means for administering an impact stroke against the underside of a reciprocable tray housed within a transparent enclosure, to tumble elements as dice loosely disposed thereon and in which the degree of stroke or force cannot be changed or varied through any maneuvering movement on the part of the operator.

Another object is to provide a dice tumbling and shaking device of simple and compact structure, operative by a rotative manipulator, having a plurality of radially extended finger or thumb holds, adapting the device to be mounted in a fixed position, as centrally of a table or game board respectively, presenting a finger hold available from each relative side of the table or game board.

Another object is to provide a device for tumbling or shaking dice and the like, disposed upon a tray and housed within a transparent enclosure, the tray mounted for reciprocal movement and a manually rotative wheel for determinately depressing and abruptly releasing a spring tensioned plunger movable centrally beneath the tray for forcibly striking the tray, the impact dispersing the dice therefrom from reassembly thereon.

Various other features and advantages of the improvement will be more fully set forth in the following description of the drawings forming a part hereof, illustrating a preferred embodiment of the invention, in which:

Figure 1 is a side elevation of the improved device.

Figure 2 is a top plan view thereof.

Figure 3 is a section on line 3, 3, Figure 2.

Figure 4 is a side elevation of the manually rotative impeller.

Figure 5 is a bottom plan view thereof.

Figure 6 is a plan view of a modified form of spring actuated trip hammer for imparting an impulsive stroke or impact against the underside of the reciprocable dice holding tray.

Referring to the drawings, 1 indicates a casing, shown as of cylindrical contour, although its

2

shape is optional and the form shown is one of design selection. The base end of the casing has a closure plate 2, removably fixed thereto, to facilitate in installation and assembly of the operative parts, housed within the casing. The opposite or upper end of the casing terminates with an inwardly extending lateral flange 3, providing a circular opening for the top side of the casing and an annular bearing support for a disk 4, as an element of a hand wheel or impeller against upward displacement by a ring plate 5, removably fixed to the underside of the disk and in bearing engagement with the underside of the flange 3 of the casing.

The upper side of the disk has a plurality of radially projected wings 6, integral therewith, four in number, equally spaced, being provided, each serving as a thumb or finger hold for manually rotating the handwheel. The plural number of wings permits the unit to be stationed in the center of a table or game board, with a wing directioned and conveniently accessible to each of several players positioned about the table or game board, and thereby avoid the transfer of the unit from one player to another.

The lower side of the disk 4, has a sleeve or hub 7, extending centrally therefrom having its outer end or edge cam toothed and in bearing contact with a pair of diametrically disposed lugs or gudgeons 9, radially projecting from a thimble form of plunger 10, concentric with the sleeve and having its closed or upper end telescopically engage therein.

The bore of the plunger is of square form for slidably telescopically engaging over a correspondingly contoured tubular stud 11, projecting upwardly from the center of the base plate 2, as a means for non-rotatively confining the plunger. A spring 12, is interposed between the plunger and the base plate and socketed within the bore of the stud 11, for exerting an upward pressure against the plunger. Upon a partial rotation of the hand wheel, the cam toothed edge of the sleeve or hub 7, will depress the plunger due to the inclined edges or surfaces of the teeth 13, in bearing contact with the lugs 9, of the plunger until the shouldered or perpendicular end of the teeth is reached, whereupon the plunger is abruptly released for a reverse or impact imparting stroke to a degree determined by the depth of the teeth. The plunger being provided with a pair of diametric lugs, for simultaneously engaging with relative cam teeth at respectively opposite sides of the plunger, a balanced condition prevails for a smooth depressing action of the plunger.

The head end of the plunger is in abutting contact with a flat-headed end of a shank 15, projecting centrally from the underside of a tray or table 16. The shank 15, of the tray centrally

traverses an aperture centrally in the disk 4 of the handwheel, the tray therefore is loosely coupled to the impeller. The tray, and disc or other objects to be tumbled loosely disposed thereon are enclosed by a transparent dome-shaped shell 17, seated upon the top side of the disk of the handwheel and confined by the perpendicular inner ends of the wings or finger holds 6.

The head of the shank of the tray normally is compressively engaged between the plunger and disk of the hand-wheel, which stabilizes the tray while idle and is instantly gripped after each impulse or impact imparting stroke of the plunger, so that the dice are susceptible to rebound under the descending force for an additional tumbling or shaking effect, before coming to rest upon the tray. The tray may be disposed in a horizontal plane or slightly inclined therefrom for varying effects the dice striking the tray after having been cast or expressed therefrom. The cam surface of the teeth for depressing the plunger can also be shaped to continue the binding connection of the parts in starting the rotative movement of the handwheel for a slight rotative movement of the tray to alter its position, particularly when the tray is disposed in an inclined or angular plane.

In the arrangement shown, embodying four thumb wings, and a corresponding number of cam teeth for the handwheel, an operation is effected in a quarter revolution of the impeller and the teeth limit the rotation in one direction characteristic to a turnstile. The wings therefor are always successively brought to a common rest position for convenient accessibility from the several sides of a table or game board. It is preferable, however, that the number of cam teeth be such as to be in diametric pairs for synchronous action upon the plunger for dependability and smoothness of operation.

In the modification shown in Figure 6, the impact is in the form of lever or hammer, produced from a piece of wire, bent in approximately rectangular configuration, integrally providing a pair of arms 19—19, connected at their opposite ends by cross bars 20, 21, the cross bar 20, as the axis for the hammer, is pivotally mounted upon a base 22, by a pair of staples 23—23. The cross bar 20, has a spring 24, coiled thereabout, with the intermediate portion thereof looped to form a laterally extending tongue for a bearing contact upon the base, and the opposite ends of terminals of the spring, extend tangentially for connection with a relative arm of the hammer.

The cross bar 21, as the head of the hammer, has a knob 25, centrally thereof and fixed thereto for striking against the underside of the tray. The bar at each of the opposite sides of the knob, respectively carries a roller 26, for bearing contact with a relative cam tooth of the rotative impeller. Upon rotating the hand wheel the cam teeth depress the hammer and abruptly releases the same for impacting against the underside of the tray substituting for plunger shown in Figure 3.

Normally the tray is in an elevated position and frictionally bound to the impeller by the pressure of the plunger impingingly holding the head end of the shank of the tray in contact with the underside of the disk 4 of the handwheel. Therefore in a starting movement of the handwheel there is a tendency to rotatively shift the tray. As the plunger is depressed by the action

of the inclined portion of the cam teeth 13, the tray correspondingly descends until the shoulder end of the pair of teeth is reached, whereupon the plunger is instantly released and snaps upwardly, elevating the tray until the head end of the shank at the lower side of the tray again impinges against the underside of the plate or disk 4 of the handwheel, the impact, as the parts come together, expresses and disperses the dice from the tray and being confined within the transparent enclosure will descend for reassembly upon the tray. The reciprocal stroke of the plunger is definite and uniform for each operation, governed and determined by the depth of the cam teeth and as the retreating movement of the plunger is governed by the relaxing pressure of the spring, there is no opportunity for the player in a manipulating movement of the handwheel to change or vary the degree of plunger stroke or its force of movement, nor is it possible to effect any change in action by the rate of handwheel rotation.

Having described my invention, I claim:

1. A game device, comprising; a hollow base, a handwheel journaled in the base, a reciprocal dice supporting tray carried by said handwheel and enclosed by a transparent shell on said handwheel, a spring urged plunger within the base for reciprocating said tray, the handwheel having cam teeth for cooperation with the plunger for depressing and abruptly releasing the same in a rotative cycle of the handwheel, the retreat stroke of the plunger percussively repulsing the tray with the dice thereon for an impact to expel the dice from the tray for reassembly thereon.

2. A game device, comprising: a hollow base, a handwheel rotatively seated in the top of the base, having a plurality of wings extending radially therefrom to provide finger holds for manually rotating the handwheel and a hub axially extending from the lower side thereof within the base, the outer end of the hub formed with a series of cam teeth, a dice supporting tray above the handwheel having a headed shank axially extending from its lower side traversing said handwheel and axially reciprocable therein, with the head of the shank contacting the lower side of the handwheel to limit its movement, and a spring urged plunger within the base concentric with the hub of the handwheel with its head end contacting the head of the shank of the tray and having a pair of diametric lugs extending therefrom for cooperation with the cam teeth of the hub of the handwheel for depressing the plunger in the rotative movement of the handwheel and to abruptly release the same, to deliver a percussive blow against the tray to tumble the dice thereupon.

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