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ACTION TOY

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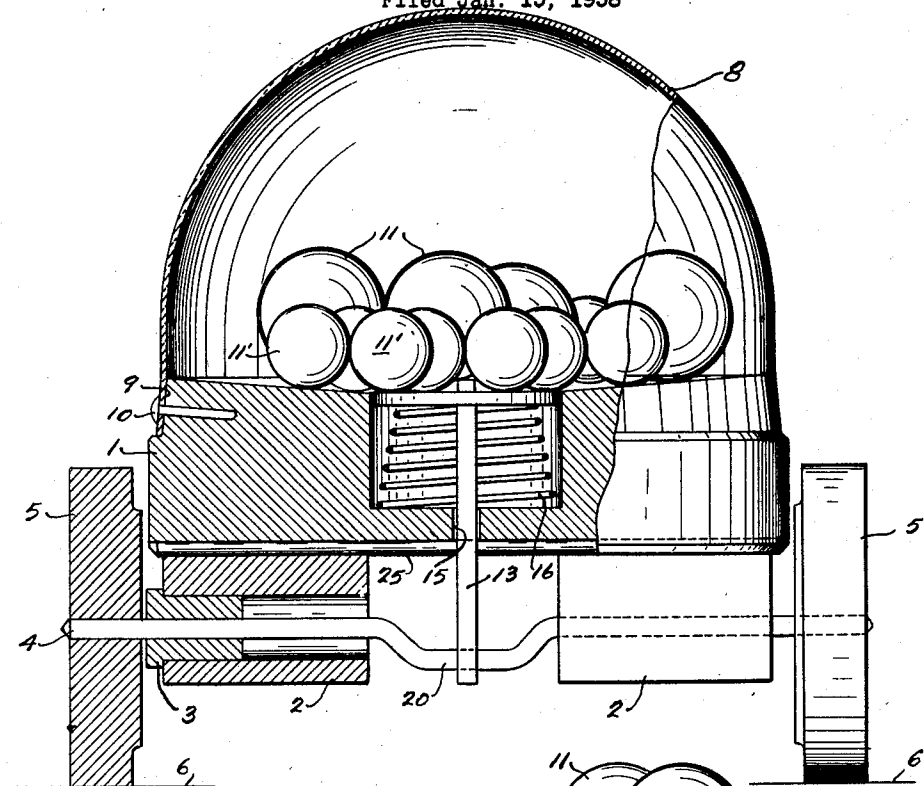


Fig. 1

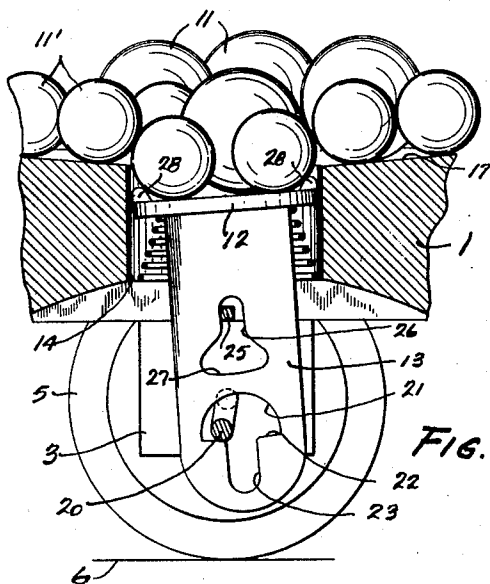


Fig. 2

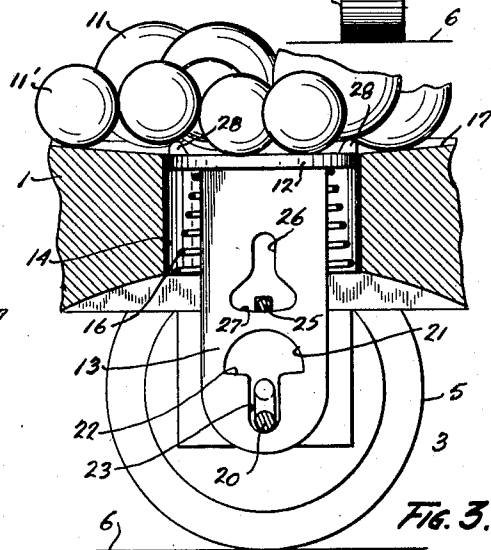


Fig. 3

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ACTION TOY

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This invention relates generally to the amusement device art, and more particularly to a new and useful wheeled action toy for young children.

It is a primary object of this invention to provide an action toy imparting a random popping action to a number of members confined in a generally transparent enclosure, as the toy is rolled along a supporting surface, all in an intriguing manner simulating both visually and aurally the action of a corn popping machine.

Another object of this invention is to provide a toy which will produce the foregoing action when it is moved backwardly as well as when it is moved forwardly.

It is also an object of this invention to provide the foregoing in an attractive, durable toy, constructed of relatively inexpensive and readily assembled components, and having no sharp projections or other potentially dangerous parts whereby it is safe for use by very young children.

An action toy constructed in accord with this invention is characterized in one aspect thereof by the provision of confining means comprising a generally dome-shaped, substantially transparent housing, a number of members loosely confined therein, and means for intermittently and randomly popping said members within said housing as the toy is moved along a supporting surface.

In another aspect thereof, an action toy constructed in accord with this invention is characterized by the provision of a base, a generally dome-shaped and substantially transparent housing member on said base, a number of members loosely confined in said housing member, a popping mechanism positioned in said base generally centrally of said housing member, and means actuating said mechanism for intermittently popping said members within said housing member as the toy is moved along a supporting surface, the portion of said base adjacent said mechanism being formed to cause said members to move toward said popping mechanism and return thereto subsequent to being popped thereby.

The foregoing and other objects, advantages and characterizing features of a toy constructed in accord with this invention will become clearly apparent from the ensuing detailed description of a presently preferred embodiment thereof, reference being made to the accompanying drawing illustrating such embodiment and forming a part hereof wherein like reference numerals denote like parts throughout the various views and wherein:

Fig. 1 is a front view, partly in elevation and partly in section, of a toy constructed in accord with this invention;

Fig. 2 is a fragmentary sectional view thereof, taken at right angles to Fig. 1, showing the popping mechanism in its cocked position just prior to popping some of the ball members upwardly in the housing; and

Fig. 3 is a view similar to Fig. 2 but showing the popping mechanism in its normal position of rest.

In the presently preferred form thereof, a toy constructed in accord with this invention is in the nature of a wheeled cart, comprising a carriage having a base 1 of generally circular plan view form and carrying on its

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under surface generally diametrically opposed bearing blocks 2 bored to receive axle bushings 3 through which extends an axle 4 carrying a pair of wheels 5 adjacent the opposite ends thereof. In this way, the toy is adapted

5 to be rolled across a floor or other supporting surface, indicated at 6, and for convenience in manipulating the toy a push stick or other handle (not illustrated) can be screwed into or otherwise secured to the base plate 1, to extend upwardly and rearwardly therefrom at substantially right angles to axle 4.

10 The base 1 supports and forms part of a ball confining housing including a generally hemispherical, dome shaped member 8 of substantially transparent material, such as for example a clear acetate or other suitable plastic, the open bottom of dome 8 fitting on a shouldered upper edge portion 9 of base 1 and the dome 8 being secured thereto as by nails 10 or other suitable fastening. A number of ball members, preferably of different diameters, comprising for example several relatively large size balls 11 and several smaller size balls 11', are loosely confined within the housing defined by base 1 and dome 8, for being popped upwardly therein.

To impart the desired popping action to the balls 11 and 11' there is provided a popping mechanism including a poppet member having a disc like head 12 and a flat, centrally depending push rod stem 13 lying in a plane at substantially right angles to the plane of disc 12. Disc 12 is slip fitted within a socket 14 formed in base 1, preferably centrally of dome 8, with stem 13 depending therefrom through a slot 15 on the bottom of socket 14. A coiled spring 16 bears at one end against the bottom of socket 14, and at its other end against the underside of the poppet head 12, thereby urging poppet head 12 into a normal position of rest with its upper surface substantially level with the upper surface 17 of base 1, to form therewith the bottom wall of the ball confining housing.

The base member surface 17 is dished, or inclined toward the center thereof, whereby the ball members 11 and 11' are caused by gravity to roll toward the poppet head 12 to rest thereon and cluster therearound as clearly illustrated in the drawings.

The poppet member is intermittently retracted to load spring 16, and then suddenly released to pop upwardly those of ball members 11 and 11' which are on head 12, by means including axle 4 which is provided with a crank portion 20 to function as a crank shaft. Poppet stem 13 is formed to provide a generally key-hole shaped opening therethrough, comprising a semicircular portion 21 having normally substantially horizontal shoulders 22 at each end thereof, the shoulders 22 being separated by a relatively deep, vertical groove or passage 23. The axle crank 20 extends through this stem opening, whereby as the toy is rolled across the supporting surface 6 axle 4 is rotated and causes crank 20 to swing through an arc within opening 21 and then against a horizontal shoulder 22, whereby continued rotation of crank 20 in that direction causes it first to retract the poppet member, as to the position illustrated in Fig. 2, which loads the spring 16 and thereby cocks the popping mechanism. Then, with continued rotation of crank 20 it slides over the shoulder 22 and into groove 23 whereby the energy stored in spring 16 is suddenly released, causing the poppet member to snap upwardly, popping those balls 11, 11' on head 12 upwardly toward the upper portion of dome 8.

Thus, as the toy is rolled along the supporting surface the poppet member is intermittently retracted and suddenly released, to pop those ball members 11 and/or 11' resting thereon upwardly in the chamber defined by base 1 and dome 8, and because the poppet mechanism is symmetrical this action occurs whichever direction of movement is imparted to the toy.

It will be observed that preferably the ball members are so dimensioned, relative to the poppet head 12, that in any instance more than one ball member will rest thereon, and that there are more ball members than can fit on head 12 at any one time. In this way, different ones of the group of ball members will be popped upwardly at different times, comprising a random selection of multi-sized ball members intermittently popped upwardly from substantially centrally of the housing and striking the plastic dome 8 which emits a dull, hollow sound, thereby providing a popping action and sound which closely resemble corn popping in a machine, the overall effect being highly intriguing, particularly to young children.

To confine and guide the poppet member there is provided a dowel 25 extending within a groove on the under surface of base member 1, generally in the direction of axle 4 through an opening 26 in stem 13, which opening is generally the reverse of the key hole opening, without shoulders 22. Thus, the dowel receiving opening has a relatively narrow, vertically elongated upper portion 26, and a laterally enlarged, somewhat arcuate bottom portion 27. As the poppet member is retracted against spring 16, stem 13 moves downwardly and dowel 25 enters the relatively narrow portion 26, tending to maintain the poppet member in proper vertical alignment. When the poppet member has been released, the arcuate portion 27 permits swinging thereof to accommodate the swinging motion of crank 20 in recess 23, and acts as a stop to retain the poppet member in socket 14 so that head 12 can not extend beyond and subsequently catch on the adjacent base portion 17. Also, upright tabs 23 preferably are provided on head 12, arranged in generally fore and aft alignment with stem 13, the tabs 28 each having a rounded upper edge and providing a vertically elongated bearing surface adapted to slide freely on the inner wall of socket 14, to insure against the poppet member head 12 catching therein. The details of the poppet mechanism are more fully set forth in and comprise part of the subject matter of copending application Ser. No. 593,533, now Patent 2,835,074 dated May 20, 1958.

The generally horizontal shoulders 22 provide the poppet member with a very sharp stroke, and it will be appreciated that the sharpness and pattern of the stroke can be varied by changing the contour of the key-hole shaped opening comprising portion 21, shoulders 22 and passage 23.

Thus, there is provided in accord with my invention a toy designed to impart an intermittent popping action to random ones of a collection of differently sized ball members, the mass of ball members intermittently erupting with randomly selected ones thereof spewing upwardly from the center of the pile and striking the dome 8, and with the other balls of the mass moving inwardly along the inclined surface 17 toward the poppet member as the centrally positioned balls are popped upwardly. There is provided an intermittent movement of all the ball members, both those that are directly actuated by the poppet member and the others which move by gravity action.

Of course, objects other than ball members 11, 11',

such as for example cubes, figure simulating members and the like, can be used. Also, member 8 need not necessarily have the particular shape illustrated in the drawing, and can be made of a material other than acetate or other plastic of that nature, such as for example wire mesh, perforated metal and the like. In addition, the popping action might find utility in a static toy, using a hand crank or the like.

While only a presently preferred embodiment has been disclosed in detail herein, I do not thereby intend that my invention be limited to such details. Instead, I appreciate that modifications and variations will occur to those skilled in the art, and I am aware that certain features of my invention can be used without the others, all without departing from the spirit of my invention and the intended scope of the appended claims.

Having fully disclosed and completely described my invention, together with its mode of operation, what I claim as new is:

1. An action toy comprising, a base, a generally dome shaped housing of substantially transparent material mounted on said base, axle means journaled on said base, wheel means carried by said axle means for rolling said toy across a supporting surface, said base having a vertical opening therein generally centrally of said housing, a plurality of ball members loosely confined in said housing, the upper surface of said base from said housing to said opening being sloped toward the latter so that said ball members will always tend to gravitate towards said opening, a poppet member having a head part positioned in said opening and of a diameter just slightly smaller than such opening, said head part being movable between a normal position substantially flush with the upper surface of said base and a retracted position below the surface of said base to form, with said opening, a well for receiving a portion only of the total number of said ball members, spring means normally urging said head part to said normal position thereof, and means for intermittently moving said head part to said retracted position thereof and then suddenly releasing the same for rapid return movement to its normal position under the action of said spring means, said head part, in its retracted position, being disposed below the surface of said base member by a distance substantially less than the diameter of said ball members and said ball members being of diameters less than the diameter of said well opening so that a plurality of ball members will rest upon said head part at any one time constituting a portion only of the total number of ball members whereby the popping action of the head part will not only impart a vertical motion to those ball members disposed within said well but will impart lateral action and motion to those ball members grouped about said well and contacting those ball members in the well with all of the ball members being moved on each action of the toy.

2. The toy according to claim 1 wherein said ball members are of various diameters.

References Cited in the file of this patent

UNITED STATES PATENTS

2,578,579	Mysels	Dec. 11, 1951
2,835,074	Crawford et al.	May 20, 1958