This invention relates to a toy.

It is the principal object of my invention to provide a toy which is capable of picking up a ball from the floor or elsewhere and then subsequently projecting it with considerable velocity.

It is a further object of my invention to provide such a toy which is in the form of a push toy having wheels and a handle, so that it is capable of being propelled along the floor. It may also, of course, be made self-propelling.

In essence, my invention contemplates a toy which is capable of automatically picking up a ball from the floor or elsewhere by merely being passed over the ball in a manner comparable to that of a vacuum cleaner, although the method of operation is entirely different. As movement of the toy along the floor is continued, it holds the ball for a short period of time and then project it outwardly with a considerable amount of velocity. My toy is adapted to repeat this action as often as desired and is also capable of holding several balls at the same time. If desired, either the pick-up or projecting action of my toy may be used independently from the other.

It is another object of my invention to provide a toy of the type described in which a single resilient member provides both the pick-up and projecting action, thus making the toy simple in construction and operation, as well as economical to manufacture.

It is a further object of my invention to provide such a toy which is capable of incorporating other actions or movements to stimulate animals, human beings, objects, etc. In the embodiment described and shown herein, the same wheels which are used in moving the toy operate additional mechanisms which add to the play value of the toy. It is accordingly an object of my invention to provide a toy having all of the advantages and benefits of the structure described above and hereinafter in the specification. My invention also comprises such other objects, advantages and capabilities as will later more fully appear and which are inherently possessed by my invention.

While I have shown and described a preferred embodiment of my invention, it should be understood that the same is susceptible of modification and change without departing from the spirit of my invention.

Referring to the drawings:

FIG. 1 is a perspective view of my toy in position for picking up a ball;

FIG. 2 is a sectional view of the same, taken along line 2-2 of FIG. 1;

FIG. 3 is a sectional view of the same, taken on line 3-3 of FIG. 2;

FIG. 4 is a sectional view of the same, taken on line 4-4 of FIG. 2.

A preferred embodiment which has been selected to illustrate my invention comprises a hollow substantially cylindrical body member 10, which may be formed of plastic or any other suitable material. An axle 11 extends longitudinally across the entire length of the body member 10 and is rotatably journaled in openings in the opposite sides of the body member 10. A pair of circular wheels 12 are fixedly mounted on opposite ends of the axle 11 adjacent to the sides of the body member 10. The axle 11 is slightly offset or eccentric with respect to the body member 10 for reasons described hereinafter. An elongated handle 14 is secured at one end to the body member 10, its other end being free. In use, a child grasps the free end of the handle 14 and Pushes it to move the body member 10 along the floor by rotating the wheels 12.

The lower front end of the body member 10 is provided with an open entrance 15. The bottom edge 16 of the entrance 15 is preferably located quite closely adjacent to the floor, while the upper edge 17 is disposed thereabove a distance somewhat greater than the diameter of a circular ball 18 which is used with my toy. A portion of the body member 10 beside and above the entrance 15 is inwardly depressed so that it will not interfere with the ball pick-up operation.

The ball 18 which is used with this embodiment of my toy is preferably of substantially the same size as a golf ball and table tennis ball. The ball 18 is preferably light in weight and may be formed of somewhat yieldable material in the manner of golf practice balls, table tennis balls and the like.

Mounted within the body member 10 is a resilient cylindrical sleeve 19. The opposite ends of the sleeve 19 are secured adjacent the periphery of a pair of circular inner wheels 34. The inner wheels 34 are mounted adjacent the opposite ends of the axle 11 within the body member 10. The inner wheels 34 are concentric with the axle 11 and rotate along with the axle 11.

In the embodiment shown in the drawings, the sleeve 19 comprises a tube or band of solid resilient material. It is contemplated, however, that the sleeve 19 may also be formed of slotted or perforated material or of bands of suitable resilient material. The sleeve 19 is rotatable formed of rubber or other material having suitable resilience. Instead of being hollow, the sleeve 19 may be formed of solid material such as foam rubber or plastic having the necessary properties of resilience.

The respective outer diameters of the sleeve 19 and the oppositely disposed substantially cylindrical interior walls of the body member 10 are such that the space between them is somewhat less than the diameter of the ball 18.

The body member 10 is provided with an exit opening 22, which is preferably disposed adjacent to the top of the body member 10. The exit opening 22 may be provided with a funnel 23, which projects upwardly and slightly forwardly from the body member 10. The diameter of the exit opening 22 and funnel 23 are somewhat greater than the diameter of the ball 18.

The interior walls of the body member 10 may be provided with inwardly extending spaced tracks or guide walls 24 which define a path somewhat wider than the diameter of the ball 18, such path leading from the entrance 15 to the exit opening 22.

In use, the toy is pushed along the floor by the child grasping the handle 14 and pushing it, causing the wheels 12 and axle 11 to rotate, so that the sleeve 19 is rotated within the body member 10. One or more balls 18 are placed upon the floor. The body member 10 is guided so that the open entrance 15 passes over one of the balls 18.

As the body member 10 approaches the ball 18, the periphery of the rotating sleeve 19 engages the top of the ball 18 and exerts downward pressure upon it, causing the ball 18 to be held. As the body member 10 continues to move and the sleeve 19 continues to rotate, the ball 18 is carried into the open entrance 15 and moves into the body member 10, where it is held between the periphery of the sleeve 19 and the adjacent portion of the inner wall of the body member 10.

As the sleeve 19 continues to rotate, it carries the ball 18 around the interior of the body member 10 from the entrance 15 to the exit opening 22. The tracks or guide walls 24 act as guides to prevent undesired intentional
or accidental lateral movement of the ball during its movement from the entrance 15 to the exit 22. The eccentric or offset relationship of the sleeve 19 with respect to the cylindrical inner walls of the body member 10 is arranged such that the periphery of the sleeve 19 moves closer to the inner walls of the body member 10 as the ball 18 approaches the exit 22. This necessarily applies greater pressure against the sleeve 19. When the ball 18 reaches the exit 22 and is free from contact with the inner wall of the body member 10, the sleeve 19 quickly snaps outwardly, projecting the ball 18 from the exit 22 out through the funnel 23 with a considerable amount of velocity.

This operation may be repeated as often as desired. Since the path from the entrance 15 to the exit 22 is relatively long compared to the diameter of the ball 18, it is possible to have several balls 18 within the body member 10 at the same time.

In order to increase the play value of the toy, it is possible for it to be constructed in such a manner as to resemble a cannon, an animal such as a whale or other suitable animal, a human figure such as a clown or any of an endless variety of other forms.

In the embodiment shown in the drawings, the body member 10 has been provided with a plurality of movables 30, which are automatically projected and retracted with respect to the body member 10 as the toy moves. Each of the eyes 30 is mounted on the outer end of a circular shaft 31, which extends through an opening in the body member 10. Mounted on the inner end of the shaft 31 is a resilient washer 32, which is preferably formed of foam rubber or the like, and which is held between the inner wall of the body member 10 and a disk 33 which is secured to the inner end of the shaft 31.

Extending around the periphery of each of the inner wheels 34 is an undulating band 35, which is preferably formed of relatively resilient and easily yielding plastic material. As the shaft 31 rotates, the inner wheels 34 rotate, causing the lands and grooves of the undulating bands 35 to alternately engage the disks 33.

As the lands of the bands 35 engage the disks 33, the shafts 31 are moved outwardly, causing the eyes 30 to project outwardly from the body member 10. As the grooves of the bands 35 engage the disks 33, the resilient washers 32 exert pressure on the disks 33, causing the shafts 31 to move inwardly and cause the eyes 30 to be retracted back toward the body member 10. As the toy moves along the floor, the eyes 30 accordingly project and retract with respect to the body member 10 to increase the simulation of an animal or human figure.

I claim:
1. A toy for picking up and projecting a ball, said toy comprising a hollow body member, a horizontally directed axle extending through said body member, a pair of circular wheels mounted on the opposite ends of said axle adjacent the opposite sides of said body member, a resilient substantially cylindrical sleeve disposed within said body member and mounted for rotation by said axle, said body member having an open entrance disposed adjacent the lower front portion thereof, said body member having an exit opening disposed adjacent the upper portion thereof, said exit opening being spaced from said entrance, said body member having inner walls extending from said entrance to said exit, said inner walls being substantially concentric with said sleeve and being spaced therefrom by a distance less than the diameter of said sleeve, the periphery of said sleeve being spaced from the bottom of said wheels by a distance less than the diameter of said ball, whereby said sleeve is adapted to engage said ball when said entrance is moved over said ball, said sleeve adapted upon continued movement of said wheels to move said body member through said body member to said exit, said ball being held between said sleeve and the adjacent inner walls of said body member, the portion of the periphery of said sleeve engaged by said ball being inwardly depressed, the distance between said inner wall and the periphery of said resilient member decreasing as said exit is approached to increase the depression of said ball into said inner wall and the periphery of said resilient member, said exit being said exit is projected therefrom with considerable velocity merely by resilient outward movement of the depressed portion of said sleeve.
2. The structure described in claim 1, said sleeve and the inner walls of said body member being concentric but somewhat offset with respect to each other so that the distance between the periphery of said sleeve and the inner walls of said body member is substantially less adjacent said exit than adjacent said entrance.
3. A toy for picking up and projecting a ball, said toy comprising a hollow body member, a substantially cylindrical resilient member mounted within said body member for rotational movement relative to said body member, said body member having an open entrance adjacent the lower portion thereof and an exit opening spaced from said entrance, said body member having an inner wall extending from said entrance to said exit, said inner wall being substantially concentric with and spaced from the periphery of said resilient member by a distance somewhat less than the diameter of said ball, the periphery of said resilient member being spaced from the bottom of said body member by a distance somewhat less than the diameter of said ball, so that said resilient member will engage a ball disposed adjacent to said entrance and carry said ball into and through said body member from said entrance to said exit, said ball being held between the periphery of said resilient member and said inner wall, the portion of the periphery of said resilient member engaged by said ball being depressed, the distance between said inner wall and the periphery of said resilient member decreasing as said exit is approached to increase the depression of said ball into said resilient member adjacent to said exit, so that said ball upon reaching said exit is projected therefrom with considerable velocity merely by the outward movement of the depressed portion of said resilient member.
4. The structure described in claim 3, said resilient member and the inner wall of said body member being concentric but somewhat offset with respect to each other so that the distance between the periphery of said resilient member and the inner walls of said body member is progressively less from adjacent said entrance to adjacent said exit than adjacent said entrance.
5. A toy for projecting a ball, said toy comprising a body member, a substantially cylindrical resilient member mounted within said body member for rotational movement relative to said body member, said body member having an exit of greater diameter than the ball to be projected therefrom, said body member having an entrance spaced from said exit, said body member having an inner wall adjacent to said exit substantially concentric with the periphery of said resilient member and spaced therefrom a distance somewhat less than the diameter of said ball, said inner wall extended between said entrance and said exit, said exit being said exit upon rotation thereof relative to said body member to hold said ball between said resilient member and said inner wall and move said ball toward said exit, the portion of the periphery of said resilient member engaged by said ball being depressed, the distance between said inner wall and the periphery of said resilient member decreasing as said exit is approached to increase the depression of said ball into said resilient member adjacent to said exit, so that said ball upon reaching said exit is projected therefrom with considerable velocity merely by the resilient outward movement of the depressed portion of said member.
6. The structure described in claim 5, said resilient member and the inner wall of said body member being concentric but somewhat offset with respect to each other...
so that the distance between the periphery of said resilient member and the inner walls of said body member is progressively less from adjacent said entrance to adjacent said exit than adjacent said entrance.

7. A toy comprising a ball, said toy comprising a body member, a resilient member mounted within said body member, said body member having an entrance adjacent to said exit, said entrance spaced from said exit, said body member having an inner wall adjacent to said exit and spaced from said resilient member a distance somewhat less than the diameter of said ball, said inner wall extending between said entrance and said exit, said resilient member adapted to hold said ball between said resilient member and said inner wall, the portion of the periphery of said resilient member engaged by said ball being depressed, means for moving said ball toward said exit, the distance between said inner wall and the periphery of said resilient member decreasing as said exit is approached to increase the depression of said ball into said resilient member adjacent to said exit, so that said ball upon reaching said exit is projected therefrom with considerable velocity merely by the resilient outward movement of the depressed portion of said resilient member.

8. The structure described in claim 7, said resilient member and the inner wall of said body member being concentric but somewhat offset with respect to each other, so that the distance between the periphery of said resilient member and the inner wall of said body member is substantially less adjacent said exit than adjacent said entrance.

References Cited by the Examiner

UNITED STATES PATENTS

2,404,186 7/1946 Mariani ------------ 46—204 X
2,729,046 1/1956 Patterson.
2,792,955 5/1957 Sumner -------------- 214—356

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