April 5, 1960 C. L. MORSE 2,931,131

CHILDREN'S MARBLE TOY

Filed July 30, 1958 4 Sheets-Sheet 1

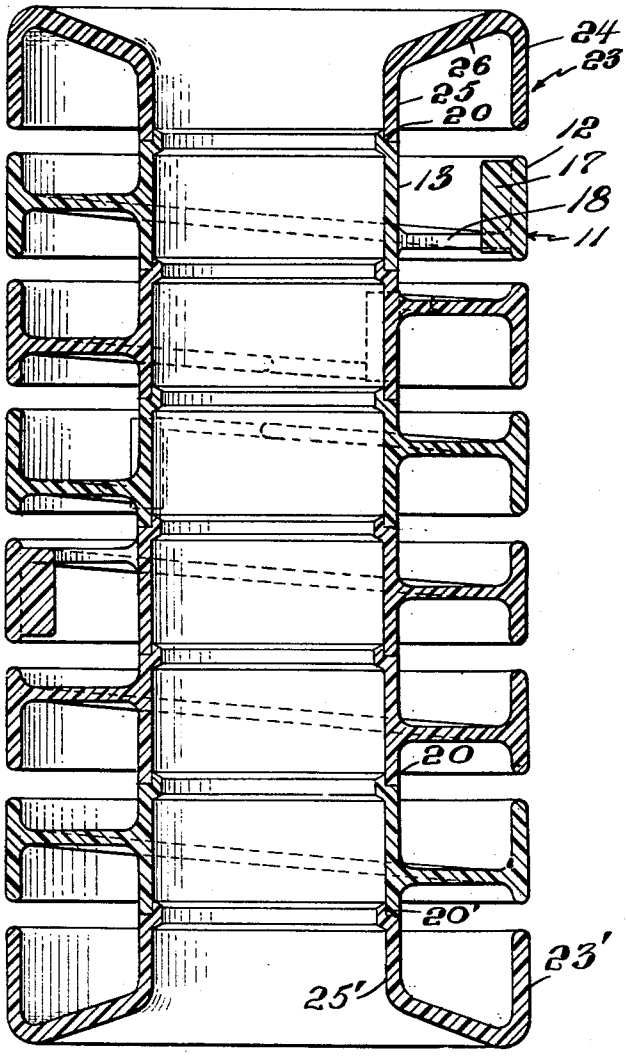



Fig. 1.

INVENTOR.
Charles L. Morse
BY
Barlow & Barlow
ATTORNEYS.

April 5, 1960 C. L. MORSE 2,931,131

CHILDREN'S MARBLE TOY

Filed July 30, 1958 4 Sheets-Sheet 2

Fig. 2.

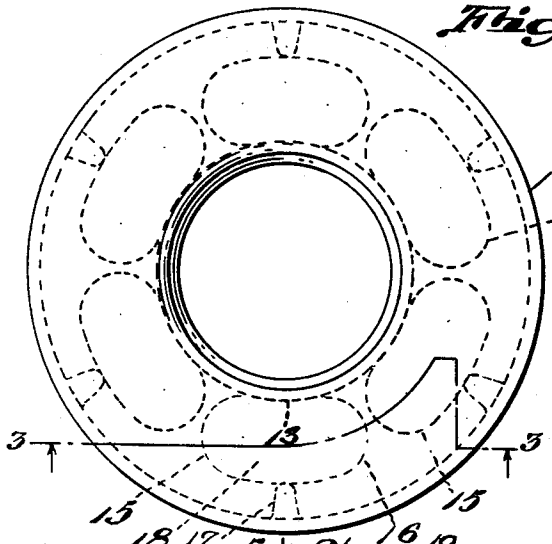
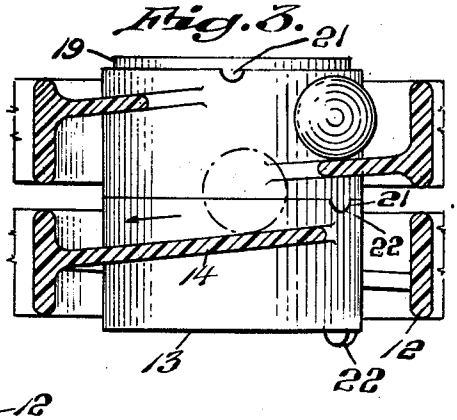



Fig. 3.



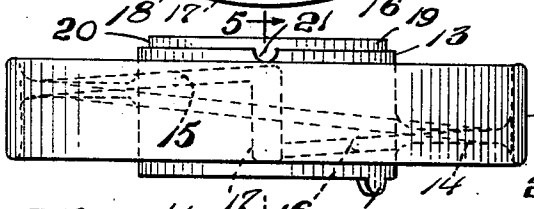




Fig. 4

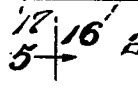



Fig. 5.

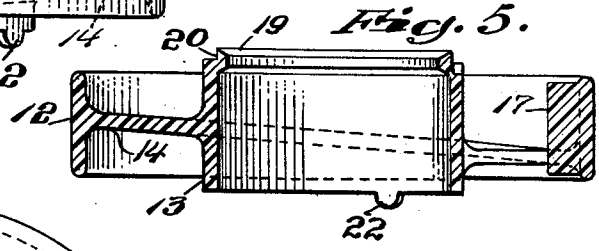



Fig. 7

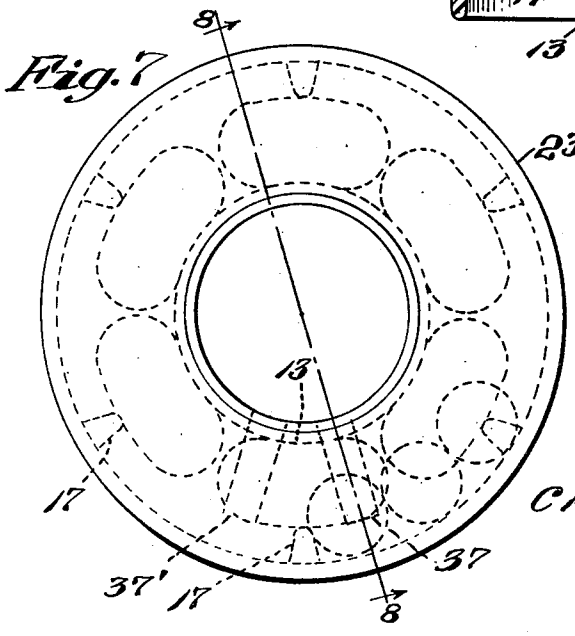
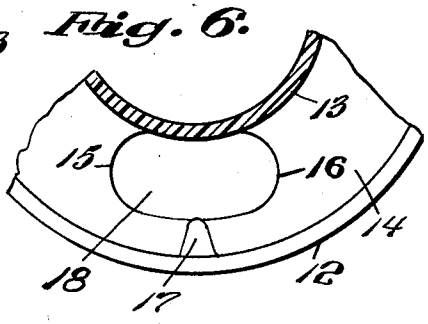



Fig. 6.




INVENTOR.
Charles L. Morse
BY
Barlow & Barlow
ATTORNEYS.

April 5, 1960 C. L. MORSE 2,931,131

CHILDREN'S MARBLE TOY

Filed July 30, 1958 4 Sheets-Sheet 3

Fig. 8.

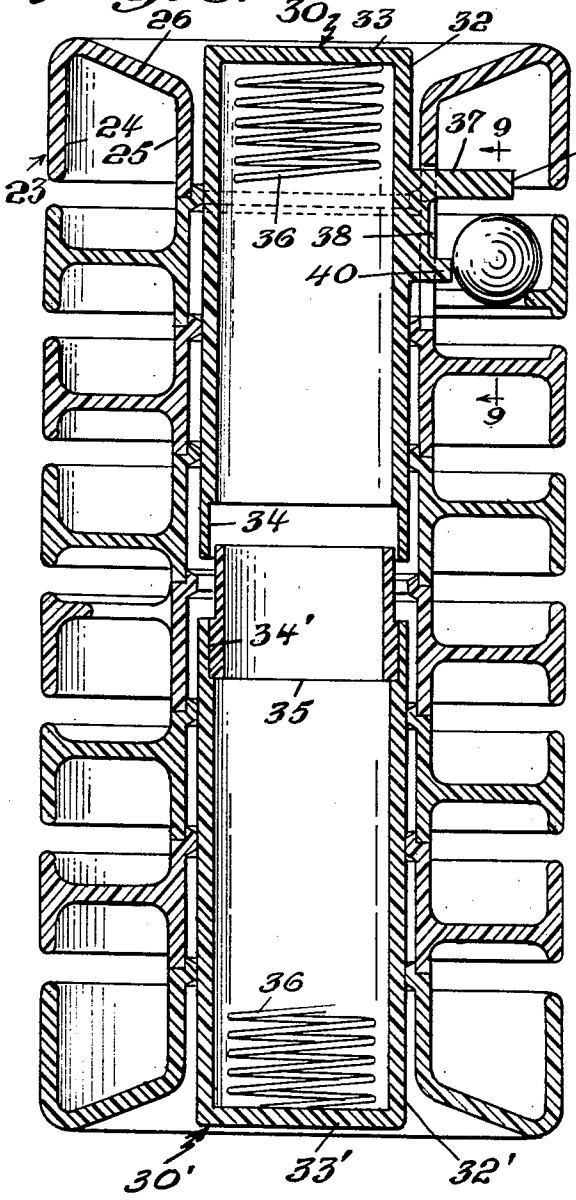
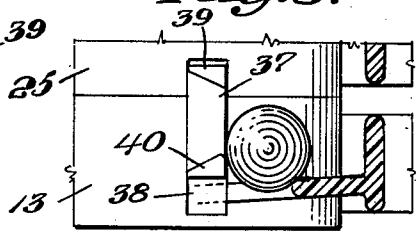



Fig. 9.



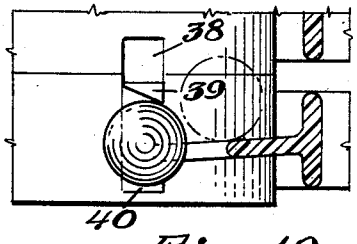




Fig. 10.

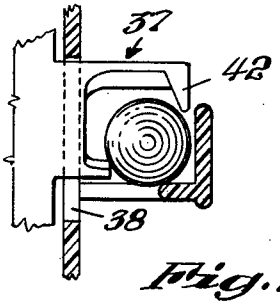



Fig. 11.

INVENTOR.
Charles L. Morse
BY
Barlow & Barlow
ATTORNEYS.

April 5, 1960 C. L. MORSE 2,931,131

CHILDREN'S MARBLE TOY

Filed July 30, 1958 4 Sheets-Sheet 4

Fig. 12.

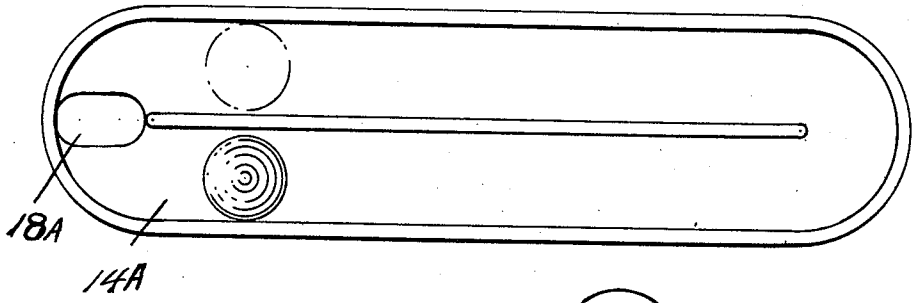



Fig. 13.

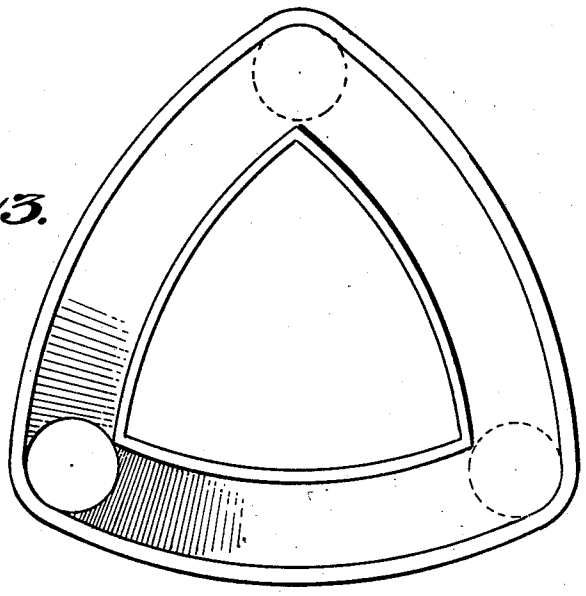
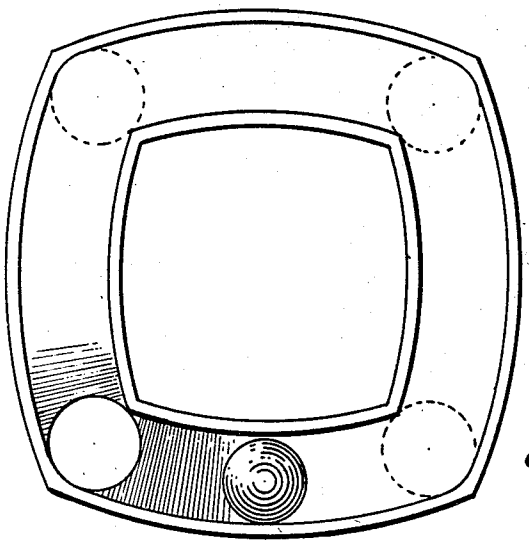


Fig. 14.



INVENTOR.
Charles L. Morse
BY
Barlow & Barlow
ATTORNEYS.

United States Patent Office

2,931,131

Patented Apr. 5, 1960



2,931,131

# CHILDREN'S MARBLE TOY

Charles L. Morse, South Dartmouth, Mass.

Application July 30, 1958, Serial No. 752,124

4 Claims. (Cl. 46—43)

This invention relates to a marble runway toy for children in the approximate age group of one to five.

An object of the invention is to provide a marble runway toy made of transparent material so as to enable the user to view the marbles as they roll along the track.

Another object of the invention is to provide a marble runway in which the marbles will be held captive against removal.

A further object is to provide a marble runway made of a plurality of sections of identical construction which have reversible trackways so the marbles may roll from either end of the toy.

A still further object of the invention is to provide a marble runway formed of sections stacked one upon the other and provided with means effective for accelerating the initial start of the rolling of the marbles upon release.

With these and other objects in view, the invention consists of certain novel features of construction as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings:

Figure 1 is a central longitudinal sectional view of a marble runway toy embodying the invention;

Figure 2 is an end view of the toy shown in Figure 1;

Figure 3 is a central sectional view of a fragmentary portion of the toy showing two adjacent sections of the marble tracks of the toy;

Figure 4 is an elevational view of one section of the toy;

Figure 5 is a central sectional view of the section of Figure 4;

Figure 6 is a fragmentary view partially in section showing the relation between the two ends of an individual section of marble track;

Figure 7 is an end view of another form of construction of the toy;

Figure 8 is a sectional view taken substantially along line 8—8 of Figure 7;

Figure 9 is a sectional view taken substantially along line 9—9 of Figure 8;

Figure 10 is a similar view showing the elements in different relation;

Figure 11 is a sectional view of a modified construction of marble escapement member; and

Figures 12, 13 and 14 are plan views of further modified marble runways.

Referring to the drawing in detail, it will be seen in Figure 1 that the toy is made up of a plurality of sections 11 of marble runways which are stacked one upon the other and provided with means that effect interengagement therebetween. The sections 11 may be formed from any suitable transparent material and preferably are made of transparent synthetic plastic molded to a desired form. Referring to Figures 4 and 5 it will be seen a section 11 comprises an outer cylindrical wall portion 12, an inner cylindrical wall portion 13 and a web portion 14 which extends from adjacent one end



of the section on a spiral or helix to adjacent the other end of the section. The web 14 spirals for nearly 360° which positions the ends of the web opposite each other but at different levels. Each end 15, 16 of the web terminates in a semi-circular arc which extends from wall 13 and then joins to a tapered vertical projection 17 which extends inwardly from the wall 12. The web portion 14 provides a spiral track for marbles to roll along. The ends of the web form in plan an elongated opening 18 through which the marbles roll from the track of one section onto the track of the adjacent section.

To facilitate section assembly, one end of wall 13 is provided with an axially extending flange portion 19 which forms a shoulder 20 having a diameter slightly smaller than the inner diameter or bore of wall 13. In stacking the sections one upon the other, the shoulder 20 is inserted within the bore of the wall of an adjacent section. The shoulder 20 is snugly received within the said bore and may be there secured as by an adhesive. The number of sections for each toy is dependent upon the height desired; in the present instance six sections are shown and the openings 18 are angularly spaced 60° apart, see Figure 2. Thus the end 16 of the lower portion of the track of an upper section is positioned above the upper end portion of the track of the next lower section inwardly of the end 15 thereof so that a marble may roll from the track of the said upper section on to the track of the next lower section. Each section 11 is similarly related so that marbles will transfer from one section onto the other. In order to accurately relate the sections, a detent 21 may be provided in one edge of wall 13 and a projection 22 at the other edge of said wall for engaging in the detent 21 of an adjacent section as seen in Figure 3.

The ends of the stack are closed by caps 23, 23' (Figure 1) each of which are substantially similar and comprise an outer cylindrical wall portion 24 and an inner cylindrical wall portion 25 which are connected to each other by a top wall 26 extending on an inward taper from the wall portion 24 to the wall portion 25. Inasmuch as a shoulder 20 is used for interengagement of the sections, the caps will differ in the respect that a shoulder 20' is provided at the free end of wall 25' of the bottom cap, while the inner wall portion 25 of the upper cap is adapted to seat in the flange end of wall 13, both caps being preferably adhesively secured to their adjacent sections. The caps are molded of the same material as the sections 11 and each is adapted to be used as the base of the toy. The space between the walls 24 and 25 provides a substantial deep annular recess into which the marbles drop from the track of the lowermost section 11 and thereby the recess forms a storage area.

It will be noted that the outer walls 12 of the sections 11 are of less extent than the inner walls 13, which provides a space between edges of adjacent sections and interrupts the continuity of the tracks between sections thereby creating a predetermined distance of drop from the track of one section to the track of an adjacent lower section. The dropping of marbles from one level to another enhances enjoyment and also tends to retard the rolling marbles. Initially, however, the marbles are retarded by the presence of a projection 17 against which the marbles strike at the end of the track prior to dropping from the track of one section onto the track of the next lower section. Thus the projection 17 may be referred to as a retarding element. After the marbles have rolled down the tracks of the sections and into the cap forming the base, the toy may be turned end for end and the marbles will roll down on the opposite face of the track of each section.

It will be apparent from the above that each face of the web portion 14 is similar and each face forms a

marble track which may be put into use by simply inverting the toy. It will also be seen that the marbles are held captive within the confines of the outer walls of the sections and caps so as to prevent handling of the marbles by the child playing with the toy. It will, of course, be understood that the marbles are inserted within the toy prior to one of the caps being positioned and cemented in place.

In Figures 7 to 11 I have illustrated a more advanced conception of this invention and provide means for controlling the release of the marbles at the ends of the toy. The sections **11** and end caps **23** are structurally basically similar to the above described construction and there is added thereto spring pressed plungers **30, 30'** which are inserted within the bore formed by the inner walls of said sections and caps. The plunger may be pressed inwardly from either end and is made from two shells **32, 32'** which are closed at one end by walls **33, 33'**. The bores of the shells are counterbored inwardly from the open ends thereof as at **34, 34'** and a sleeve **35** is inserted within the counterbored portion **34'** of shell **32'** and adhesively secured thereto. The sleeve projects beyond the shell and is reduced to provide sliding engagement within the counterbore **34** of shell **32**. A coil compression spring **36** is positioned within the shells and the ends thereof abut the walls **33, 33'** and tends to urge the shells apart.

An escapement member **37, 37'** extends radially from each shell **32, 32'** at a location thereon adjacent to the closed end portion thereof so as to project through an elongated opening **38** in wall **25** of cap **23** and which opening is continued in the wall portion **13** of the next adjacent section **11**. In this manner the shells are held within the bore of the sections **11** but are slidable relative thereto. The member **37** has a long finger **39** which in the rest position extends to above a marble engaged against member **37**. The member **37** is also provided with a shorter finger **40** which in the rest position is substantially in line with the lower end of the track and opposite the edge **16** of the track a distance less than the diameter of the marbles so as to block their dropping through the opening **18**. The shell **32'** is similarly provided with an escapement member indicated **37'** (see Figure 7) which is similarly constructed and related to the track of the section **11** adjacent thereto.

In operation let it be assumed that marbles are retained in the recess of end cap **23** and are prevented from progressing beyond the track of the top section. Plunger **30** is now pushed inwardly, carrying member **37** therewith, and finger **40** will be carried below the opening **18** of the top section **11**, so as to free one marble and allow the same to roll off the track and fall through opening **18**. During the inward movement of the shell **32**, the finger **39** will move to engage the marble just prior to being released from finger **40**. Upon further inward movement of the shell in the same direction, the finger **39** will exert a push on the marble to completely eject the same onto the track of the adjacent lower section. As will be seen in Figure 10, the next marble will lodge against the finger **39** as indicated in broken lines and will be blocked against dropping through opening **18**. Upon release of the plunger, the same will move to initial position under urge of spring **36** so as to position the shorter finger **40** in marble blocking relation.

In Figure 11 I have shown a slightly modified construction of escapement member which is identical to that previously described but provided with a hook portion **42** which aids in the acceleration of the drop of the marble from the track of the upper section.

It will be seen that the toy is reversible and either end may form the base for receiving the marbles. The toy has been shown and described as being of a general cylindrical shape. It is, however, contemplated to embody the invention as generally shown in Figure 1 in various shapes or forms. As for example, each section may be elongated with straight sides as shown in Figure 12 or the said sides may be arcuate. The web **14A** extends on a spiral and is provided at the end thereof with opening **18A** so that the marbles may drop from the track of one section onto the track of the section below. In Figure 13 I have shown a marble runway which is generally triangular in plan and in Figure 14, a marble runway is shown as being generally rectangular in plan, all of which embody my previously described construction.

I claim:

1. A marble runway toy comprising a plurality of stacked sections, each section having an outer wall portion, an inner wall portion, and a web portion extending between said wall portions, said wall portions being continuous and extending over an arc of 360°, said web portion providing a track for marbles to roll along, said track being formed on both top and bottom surfaces of said web portion, said web portion extending on an incline from adjacent one end of the section to adjacent the other end thereof, said sections being stacked one upon the other with the lower end of the web of an upper section extending over the upper end of the web of the next lower section and in spaced relation therewith so that marbles may drop from the web of one section to the web of the next lower section, the outer walls of said sections being spaced from each other a distance less than the diameter of marbles.

2. A marble runway toy comprising a stack of identical sections, a cap member at each end of the stack, each section having continuous outer wall and inner wall portions both extending over an arc of 360°, a web extending between said wall portions, said web extending on a spiral from one end of said section to adjacent the other end thereof, either face of said web providing a track for marbles to roll along, the lower end of the web of one section being positioned to extend over the upper end of the web of the next lower section and spaced therefrom a distance to provide a drop for marbles from one section to another section, each of said caps having a recess for receiving the marbles from the section adjacent thereto, and an abutment on each section extending between the ends of the web thereof in position to be engaged by a marble rolling off the web of one section onto the web of another of said sections, the outer walls of said sections being spaced from each other a distance less than the diameter of marbles.

3. A marble runway toy comprising a plurality of similar spiral marble track sections superimposed one upon the other with the lower end of the track of one section extending over the upper end portion of the track of the next lower section and spaced therefrom a distance sufficient to form an opening for marbles to drop from one section onto another, each of said sections having a transparent endless outer wall surrounding the track sections with the wall of one section extending axially in line with the walls of adjacent sections and spaced from each other a distance to hold said marbles captive in said toy, a spring pressed plunger positioned centrally of said sections, and an escapement member carried by said plunger and extending therefrom into the path of movement of marbles rolling along the spiral track of one of said sections, said plunger being adapted to be pressed to move said member out of the path of the marbles to allow the same to roll and drop in the next lower of said sections of track.

4. A marble runway toy as set forth in claim 3 wherein each track section extends on a spiral of an arcuate extent approaching 360°.

**References Cited** in the file of this patent

UNITED STATES PATENTS

| | | |
|---|---|---|
| 1,313,660 | Zipf | Aug. 19, 1919 |
| 2,752,725 | Unsworth | July 3, 1956 |
| 2,838,870 | Morse | June 17, 1958 |