May 14, 1946. G. B. HATCHER 2,400,410

MARBLE RUNWAY

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Fig. 1

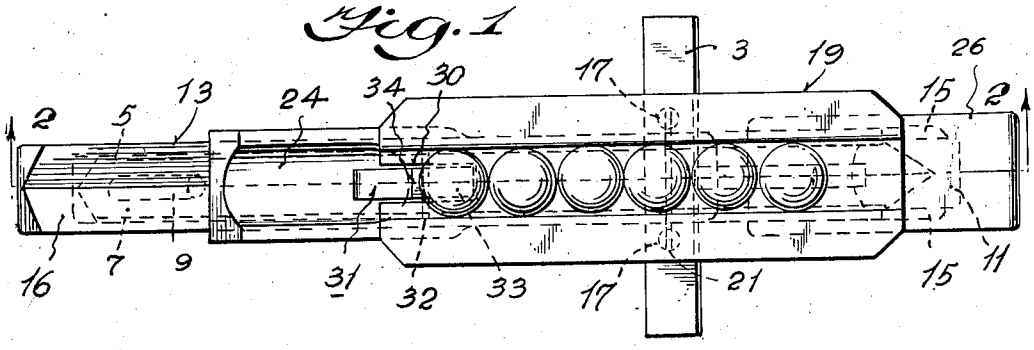


Fig. 2

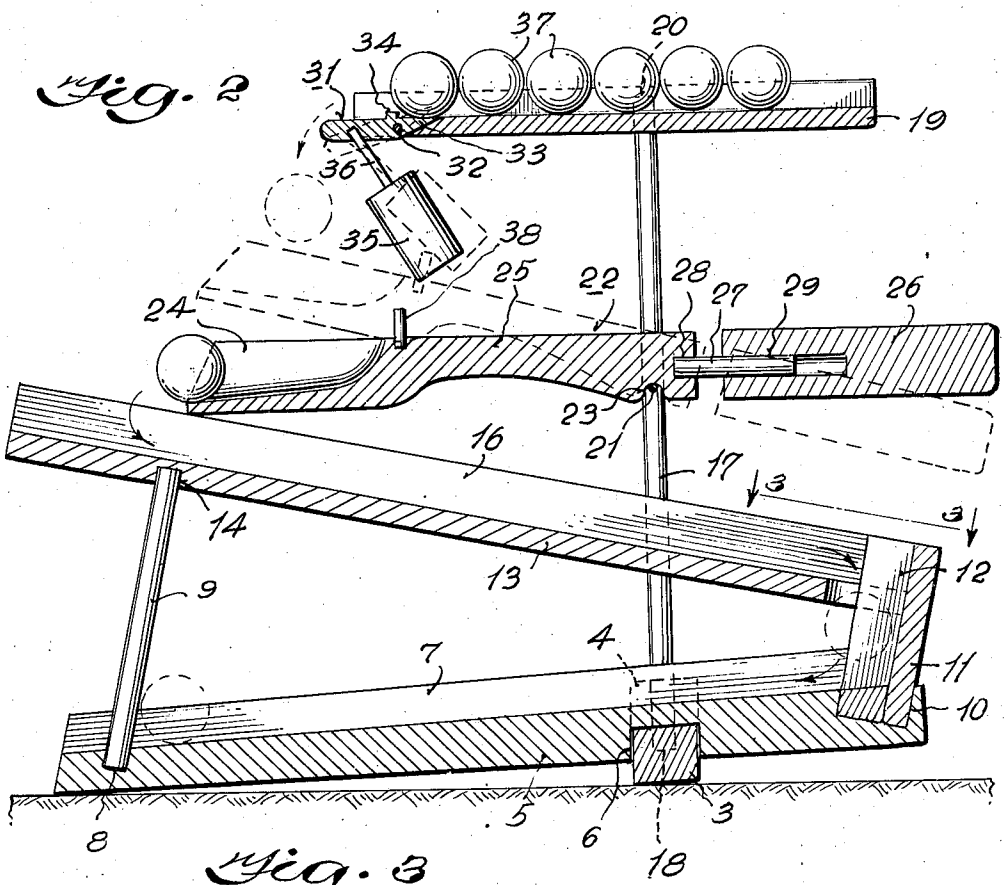
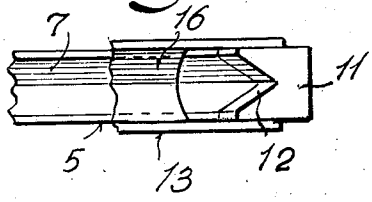


Fig. 3



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MARBLE RUNWAY

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5 Claims. (Cl. 46—43)

This invention relates to improvements in marble runways and more particularly to a toy of this character, the sections of which may be readily assembled or taken apart.

One of the objects of the invention is to provide a toy of simple and inexpensive construction and one which will afford amusement in the erection and operation thereof.

Another object of the invention is to provide a knock-down toy that may be readily packed in a relatively small container for shipment or storage, and which when in set-up condition will be automatically operated by marbles as they pass one by one down the troughs or channels of the same.

With foregoing objects outlined and with other objects in view which will appear as the description proceeds, the invention consists in the novel features hereinafter described in detail, illustrated in the accompanying drawing and more particularly pointed out in the appended claims.

In the drawing:

Fig. 1 is a top plan view of the marble runway.

Fig. 2 is a longitudinal vertical sectional view of the same taken on the line 2—2 of Fig. 1.

Fig. 3 is a horizontal sectional view of a detail taken on the line 3—3 of Fig. 2.

Referring to the drawing, 3 indicates a transverse base member having a slot or notch 4 intermediate its ends to receive a longitudinal base piece 5, provided with an intermediate notch 6 to interlock with the notched portion of the cross piece 3. The base piece 5 slopes toward one end thereof and is provided at its top with a longitudinal groove or trough 7, down which marbles may gravitate. The lower end portion of the section 5 is provided with a recess 8 to removably receive the lower end of a short post 9 which obstructs the lower end portion of the groove 7 and serves as a stop or abutment for the marbles. The higher end portion of the section 5 is provided with an upwardly opening notch 10 for the rigid support of a substantially vertical section 11 having a groove 12 which functions to direct downwardly traveling marbles into the groove 7.

An upper inclined section 13 which slopes in a direction opposite to that of the member 5, is provided near one end with a bottom recess 14 to detachably receive the upper end of the post 9. The opposite end portion of section 13 is bifurcated, as indicated at 15 in Fig. 1, and the fork thus provided grasps the upper end portion of the member 11. By the construction thus far described, the parts 5, 9, 11 and 13 when assembled, form a rigid structure which will guide a marble downwardly along a groove 16 of the upper member 13 to groove 12, and then to groove 7.

A pair of longer posts 17 are arranged at opposite sides of the section 13 and have their lower ends frictionally supported in recesses 18 in the base member 3.

A top trough or section 19 is rigidly supported in an inclined position by the upper ends of the posts 17 and for this purpose the member 19 is provided near its medial portion with bottom recesses 20 for the reception of the upper ends of the posts.

The posts are detachably connected to one another by a fulcrum bar 21 positioned above and extending across the section 13. The fulcrum bar rockably supports a see-saw section 22 having a transverse bottom notch 23 for the reception of the fulcrum bar. The see-saw section is provided at one end with a scoop-shaped extremity 24 designed to receive a marble from the lower end portion of the top trough 19 and to transfer it to the higher end portion of the section 13. The section 22 is preferably made in two parts 25 and 26, the latter serving as a counter-balance weight and being detachably and adjustably connected to the part 25 by means of a short pin 27 frictionally engaging recesses 28 and 29 in the parts 25 and 26 respectively.

The low end of the top trough 19 is bifurcated, as indicated at 30, for the reception of a gate 31, pivotally connected to the trough by a horizontal pin 32 and provided at its inner end with a tipping extension 33. The gate intermediate its ends, is provided with a transverse top abutment 34. A counter-weight 35 is rigidly connected to the outer end portion of the gate by means of a stem 36 which may be detached from the gate, and this counter-weight serves to normally hold the upper surface of the gate in a substantially horizontal position so as to obstruct downward rolling of marbles 37 off the lower end of the trough 19.

A finger 38 is fixed to and projects upwardly from the see-saw section, adjacent the scoop end thereof, and it acts against the counter-weight 35 to tip the gate and cause its tipping end 33 to propel a marble from the lower end of the trough 19 onto the scoop end of the see-saw member.

In operation, if we assume that the see-saw member 32 is in full line position, Fig. 2, and the trough 19 is charged with marbles, the see-saw can move in a clockwise direction to cause pin 38 to impinge against counter-weight 35 and thus

tip the gate so that a single marble resting on the tipping end **33** of the gate will be propelled onto the scoop **24**. At the same time, the next marble in the series will be halted in its rolling by the raised end **33** of the gate. The marble which falls on the scoop will overcome the weight **26** and cause the see-saw section to travel counter-clockwise so as to transfer the marble to the upper end of the section **13** from which it will roll down the grooves **16**, **12** and **7** in the order named, until halted by the post **9**. As soon as a marble rolls off the scoop **24**, the weight **26** will act to turn the see-saw in clockwise direction to cause it to again actuate the gate and repeat the operation.

From the foregoing it is believed the construction and operation of the device may be readily understood and it will also be apparent that the parts may be readily assembled or dismantled. It is also evident that changes may be made in the details of construction illustrated without departing from the spirit of the invention, as expressed in the following claims.

What I claim and desire to secure by Letters Patent is:

1. A toy of the character described, comprising a base member, a trough member detachably interlocked therewith and sloping in one direction, a second trough member arranged above the first-mentioned one, sloping in the opposite direction and having its lower end portion positioned adjacent to the upper end portion of the first-mentioned trough member, a see-saw member rockably supported immediately above the second trough member and having a scoop at one end to transfer a marble onto the upper end portion of the second trough member, a top trough mounted above the see-saw member and sloping toward the upper end portion of the second trough member, a gate pivotally mounted at the lower end portion of the top trough member and constructed to release marbles successively from the top trough member, and a counter-weight suspended from the gate and actuated by the see-saw member for successively releasing marbles from the top trough member to permit them to gravitate onto the scoop and to be transferred by the latter onto the upper end portion of the second trough member.

2. A toy as claimed in claim 1, in which posts are detachably connected to the base member and support the see-saw member and the top trough member.

3. In a toy of the character described, a top trough member supported to slope in one direction, a gate pivotally connected to the lower end portion of the trough member and provided with a tipping end arranged at one side of the pivot axis, said gate having an upper surface normally in alignment with the upper surface of the bottom of the trough, an abutment extending across the upper surface of the gate and forming an obstruction within the trough member above said axis, and a counter-weight depending from the gate and normally holding the same in a position where the abutment obstructs the trough.

4. In a toy of the character described, a transverse base member, oppositely sloping trough members supported by the base member and so arranged that a marble rolling from one of the trough members will roll onto the higher end portion of the other trough member, posts arranged at opposite sides of the trough members and having their lower ends detachably connected to the base member, a see-saw member positioned above the trough members and rockably supported by the posts for movement about a horizontal axis, a top trough member detachably connected to and rigidly supported by the posts, said top trough member sloping toward the higher end of one of the first-mentioned trough members, and a pivoted gate arranged at the lower end portion of the top trough member and actuated by the see-saw member for releasing marbles successively from the top trough member, the see-saw member being provided at one end with a scoop to receive a marble from the top trough member and transfer it to one of the other trough members.

5. A toy of the character described, comprising a base member, a trough member secured thereto and sloping in one direction, a second trough member arranged above the first-mentioned one, sloping in the opposite direction and having its lower end portion positioned adjacent to the upper end portion of the first-mentioned trough member, a see-saw member rockably supported immediately above the second trough member and having a scoop at one end to transfer a marble onto the upper end portion of the second trough member, a top trough mounted above the see-saw member and sloping toward the upper end portion of the second trough member, a gate pivotally mounted at the lower end portion of the top trough member and constructed to release marbles successively from the top trough, and a counter-weight suspended from the gate and actuated by the see-saw member for successively releasing marbles from the top trough member to permit them to gravitate onto the scoop and to be transferred by the latter onto the upper end portion of the second trough member.

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