

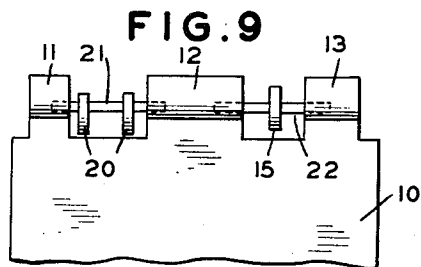
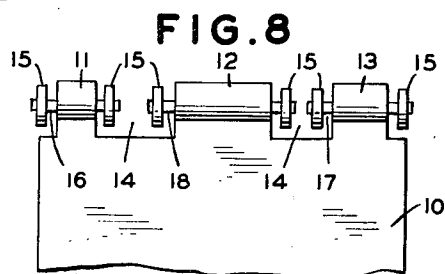
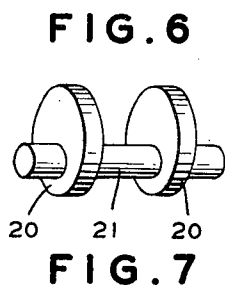
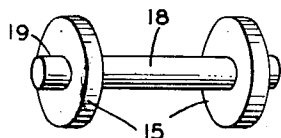
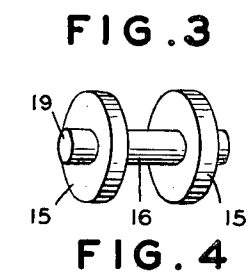
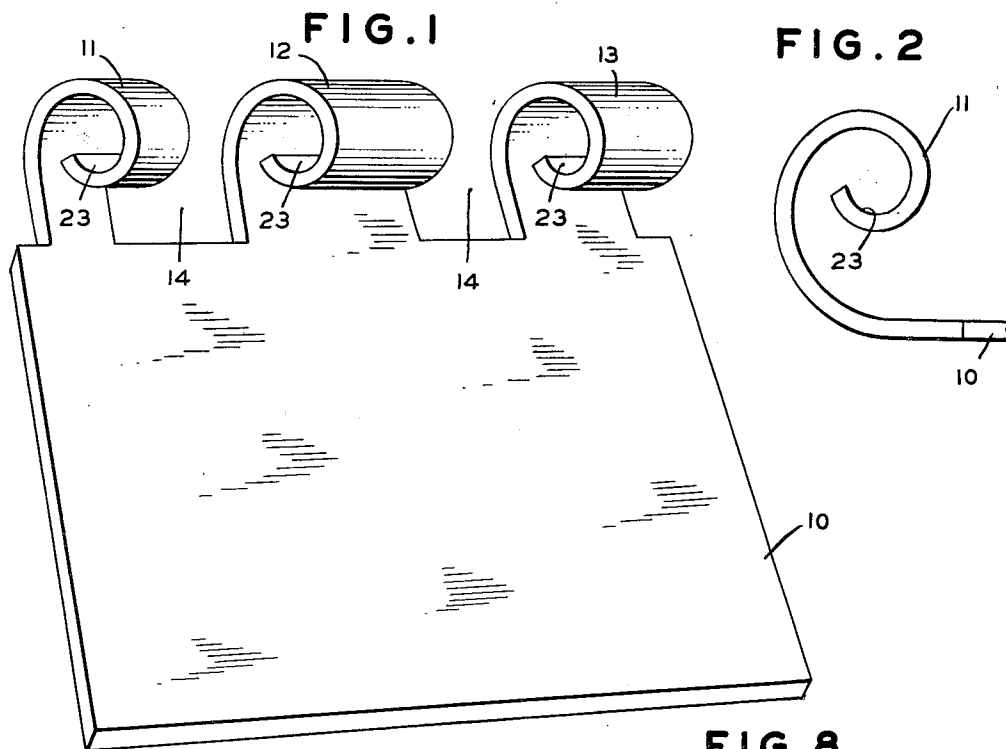
June 23, 1964

W. R. IRWIN

3,138,384

ALLEY AND MISSILE GAME COMBINATION

Original Filed April 22, 1955



INVENTOR.

BY *William R Irwin*

1

3,138,384

ALLEY AND MISSILE GAME COMBINATION
William R. Irwin, P.O. Box 155, Boulevard Station,
Bronx 59, N.Y.

Continuation of application Ser. No. 503,185, Apr. 22, 1955. This application Sept. 22, 1960, Ser. No. 57,844
14 Claims. (Cl. 273-108)

This invention relates to a game apparatus and has particular reference to an alley game employing rollable missiles and a structure capable of receiving, retaining and entrapping said missiles in part fortuitously, and in part by the skill of the player.

One of the objects of the invention is to provide a game of simple construction adapted to be played by one or more players.

Another object is to provide a game wherein the desire to excel is stimulated either through the attainment of a score as nearly perfect as possible when an individual plays the game by himself or when two or more players compete, one against the other, thus arousing the competitive instinct.

Another object is to provide a game, which even in a simple, inexpensive embodiment, serves to fulfill the aforesaid aims.

Other objects and advantages will hereinafter appear. The present application is a continuation of my earlier filed application of the same title, filed April 22, 1955, Serial No. 503,185 and since abandoned.

In accordance with the invention I provide a game structure and missiles the salient functional features of which will be apparent when considered in the light of the accompanying drawings, wherein:

FIG. 1 is a perspective view of the missile receiving and entrapping device according to the invention;

FIG. 2 is a partial side elevation of a curved arm of the device wherein provided missiles may be entrapped and come to rest;

FIGS. 3 to 7 are perspective views of various missiles that may be used in the game;

FIG. 8 is a partial plan view on a smaller scale of the missile receiving structure with missiles positioned therein; and

FIG. 9 is a partial plan view of the missile receiving structure with other missiles positioned therein.

Referring to the drawings in detail, the numeral 10 designates a floor board upon which any of the provided missiles may be rolled. Near the rear end, the board separates into three upwardly inclined sections which assume the form of modified involute curves, each of which is of a different width.

The numeral 11 indicates the curve of least width, 12 indicates the curve of greatest width and 13 indicates a curve of a width median between the width sizes of the curves 11 and 12.

The said involute curves are separated from each other on their internal sides by air spaces 14 which are cut out of the basic material from which the structure can be made, wood, plastic or metal being suitable for this purpose.

The various missiles may be constructed from the same materials used in the making of the above described device and consist essentially of different disc and shaft arrangements which differ from each other only in minor degree.

In FIGS. 3, 4 and 5 the missiles consist each of a pair of discs 15 connected by a round shaft 16, 17 or 18. Holes 19 are drilled through each of the discs and the shafts pressed therein for the simple construction of the rollable missiles.

In FIG. 6 the missile illustrated is similar to those shown in FIGS. 3, 4 and 5 except that the discs 20 have holes that are drilled off center to provide an eccentric

2

motion to the shaft 21 when the missile is rolled. Provision is made that the ends of the shaft 21 extend from the external sides of the discs so that a variation of play action may be obtained when the missile is rolled upon the runboard.

In FIG. 7 a missile is illustrated that consists of only one disc 15 and a shaft 22 that extends from either side of the disc.

In FIG. 8 the device of FIG. 1 is illustrated showing the missiles of FIGS. 3, 4 and 5 as they are most favorably positioned therein. The missile of FIG. 3 is shown in place in the involute of the curve 11. The missiles of FIGS. 4 and 5 are shown positioned in the involutes of the curves 13 and 12, respectively.

As shown in FIGS. 8 and 9, the pitch of the involutes is sufficient to permit the shafts of the missiles to pass around the curve of the involute into the central or eye portion but is not sufficiently great to permit the discs or rollers 15 or 20 to pass into the involute.

In playing the game each player in turn takes the missiles provided and rolls, snaps or otherwise projects the missiles, one by one, on the floor of the runboard.

As the missiles are rolled, one after another, on the runboard or alley, they encounter the upwardly inclined surfaces of one or another of the curved, modified involute ramifications or arms 11, 12 or 13 and either come to rest in one or another of the eyes 23 of the involutes of said arms, or, if the propelling force has been too great, the missiles spin out of the eye or eyes 23 and roll back to the runboard.

In the play of the game the main object is to cause the missiles to become positioned in the eyes of the involute curves as illustrated in FIGS. 8 and 9, the lengths of the shafts of the various missiles being proportioned according to the width of the arms 11, 12 and 13 and of the spaces 14 which separate the arms. Thus it will be noted that the widths of involutes 11, 13 and 12 is less than the spacing of the rollers of the missiles of FIGS. 3, 4 and 5, respectively, which are adapted to be received thereby, and the spacing between the involutes, as shown in FIG. 9 is greater than the spacing of rollers 20 of the missile of FIG. 6, for instance, but less than the spacing of the outwardly extending shaft ends whereby the missile may pass between the involutes with each of the shaft ends in engagement with one of the involutes 11 and 12. It is obvious that the most difficult placements of the missiles shown in FIGS. 3, 4 and 5 are within the eyes 23 of the involute curves of arms 11, 13 and 12 respectively as shown in FIG. 8.

100 is accounted a perfect score in the game, a score of twenty being credited to the player for the placement of each missile as shown in FIG. 8 and a score of twenty being credited to him for the placement of each missile as shown in FIG. 9.

Other scoring and penalties may be used as suits the desires of the players and while a preferred embodiment of the game is described and illustrated herein I do not desire to be limited to the embodiment described but contemplate all changes and modifications coming within the scope of the appended claims.

What is claimed is:

1. A game apparatus comprising a flat base member merging at one end thereof into a plurality of spaced apart upwardly and inwardly curved, substantially involute shaped extensions in a common plane which terminate in upwardly curved eye portions, and a rolling missile for propelling along the length of said base member to said involute extensions, said missile comprising roller means for rolling engagement with said base member and a cylindrical shaft of smaller diameter than said roller means extending outwardly from opposite sides thereof, the pitch of said involute extension being greater than

the diameter of said shaft to enable the receiving of the shaft between the convolutions of the involute, and less than the diameter of said roller means, said involute extensions being of less width than said base member, and spaced apart less than the length of the shaft of said missile, means involving adjacent involutes to enable a properly directed missile after rolling on said base member on said roller means to engage the end portions of the missile shaft and roll on the inner surfaces of adjacent involute extensions into said eye portions thereof whereby the missile may be retained in a position of rest therein.

2. A game apparatus including a flat base member merging at one end thereof into a plurality of spaced apart upwardly curved substantially involute shaped extensions, each of which are in a common plane and terminate in an upwardly curved eye portion, and a rolling missile adapted to be propelled along said base member to said involute extensions, said missile including a shaft having a pair of spaced apart discs, and with the end portions of said shaft extending beyond said discs, the pitch of said involutes being greater than the diameter of said shaft to enable the shaft to be received between the convolutions of said involutes and less than the diameter of said discs, at least two adjacent ones of said involute extensions being spaced apart less than the length of said shaft but greater than the distance between the outer faces of said missile discs and the width of at least one of said involute extensions being less than the spacing between the discs of said missile and means including said involute extensions to enable a missile directed in one manner after rolling on said base member on the peripheries of said discs to engage the ends of the shafts thereof with two adjacent involutes and thereafter roll on the shaft into the eye portions thereof and come to rest therein and a missile directed in another manner after rolling on said base member on the peripheries of said discs to engage the center portion of said shaft with a single involute and thereafter roll on said shaft into the eye portion and come to rest therein.

3. The combination as set forth in claim 2 and means including the inertia of a missile rolling too fast whereby the same passes out of the eye portion of an involute and rolls in a reverse direction down said involute to said base member.

4. The combination as set forth in claim 2 and means whereby a missile rolling too slow will have insufficient inertia to come to rest in said eye portion but will roll in a reverse direction down said involute to said base member.

5. A game apparatus comprising a flat base member merging at one end thereof into a pair of spaced upwardly and inwardly curved substantially involute shaped extensions, each of which terminates in an upwardly curved eye portion, and a rolling missile adapted to be propelled along the length of said base member to said involute extensions, said missile comprising a pair of spaced discs for rolling engagement with said base member and a cylindrical shaft of smaller diameter than said discs interconnecting said discs and extending outwardly from each side thereof, the pitch of said involutes being greater than the diameter of said shaft so as to receive the shaft between the convolutions of the involutes, and less than the diameter of said roller means, said involute extensions being of less width than said base member and the spacing of said extensions being less than the length of said shaft but greater than the width of said roller means whereby a properly directed missile can roll on said base member on said roller and on the inner surface of each of said involute extensions on said shaft with said roller means passing between said spaced extensions, and one of said extensions being of less width than the spacing of said discs whereby said discs can pass to either side of said extension with said shaft in rolling engagement with the inner face of the extension.

6. A game apparatus as defined in claim 5 in which said shaft is eccentrically disposed relative to said spaced discs.

7. A game apparatus comprising in combination a rolling missile, a structure of a spiral curve merging into a flattening curve and said flattening curve merging to a horizontal flat, said flat comprising a base support for the said combined spiral and flattening curves structure, said rolling missile to be propelled along said flat to said combined flattening and spiral curves structure, said spiral curve with its center and beginning comprising an upturned eye portion, said spiral curve receding in definite proportion and pitch around, above and below said center and beginning of said spiral curve until at a fixed point below said center the said spiral curve evolves into said flattening curve, said missile comprising two roller disc means for rolling engagement with said flat and a cylindrical shaft of smaller diameter than said two roller disc means and connecting said two roller disc means, the pitch of said spiral curve being greater than the diameter of said cylindrical shaft to enable the receiving of said shaft between the convolutions of said spiral curve and less than the diameter of said roller disc means, the width of said spiral and flattening curves being of less spacing than the length of said cylindrical shaft of said missile, each of said two roller disc means extending from said cylindrical shaft with one disc on each side of the lesser width area of said spiral and flattening curves and serving to maintain said cylindrical shaft in engaged alignment with the shaft supporting surfaces of said spiral and flattening curves, and said eye portion of said spiral curve beginning comprising means wherein said missile after being propelled across said flat through rolling engagement thereupon by said disc means and upon ascending said combined flattening and spiral curves structure through rolling engagement therewith and thereupon by said cylindrical shaft may be retained in a position of rest therein.

8. The combination as set forth in claim 7 and means including the inertia of a missile rolling too fast whereby the same passes out of the eye portion of a spiral and rolls in a reverse direction down said spiral and said flattening curves to said flat.

9. The combination as set forth in claim 7 and means whereby a missile rolling too slow will have insufficient inertia to come to rest in said eye portion but will roll in a reverse direction down said spiral and flattening curves to said flat.

10. A game apparatus comprising in combination a rolling missile, a structure of a solid spiral curve merging into a solid flattening curve and said flattening curve merging into a horizontal flat, said flat comprising a base support for the said combined solid spiral and solid flattening curves structure, said rolling missile to be propelled along said flat to said combined flattening and spiral curves structure, said spiral curve with its center and beginning comprising an upturned eye portion, said spiral curve receding in definite proportion around, above and below said center and beginning until at a fixed point below said center the said spiral evolves into said flattening curve, said missile comprising two roller disc means for rolling engagement with said flat and a cylindrical shaft of smaller diameter than said two roller disc means and connecting said two roller disc means, the pitch of said spiral curve being greater than the diameter of said cylindrical shaft to enable the receiving of said shaft between the convolutions of said spiral curve and less than the diameter of said roller disc means, the width of said solid spiral and solid flattening curves being of less spacing than the length of said cylindrical shaft of said missile, each of said two roller disc means extending from said cylindrical shaft with one disc on each side of the lesser width area of said spiral and flattening curves and serving to support and maintain said cylindrical shaft in engaged alignment with the shaft supporting surfaces of said solid spiral and solid flattening curves, and said upturned eye portion of

5

said solid spiral curve beginning comprising means wherein said missile after being propelled across said flat through rolling engagement thereupon by said disc means and upon ascending said combined solid flattening and solid spiral curves structure through rolling engagement therewith and thereupon by said cylindrical shaft may be retained in a position of rest therein with the length of said cylindrical shaft being in continuous, contiguous engagement with the solid width of said eye portion of said spiral.

11. The combination as set forth in claim 10 and means including the inertia of a missile rolling too fast whereby the same passes out of the eye portion of a spiral and rolls in a reverse direction down said solid spiral and solid flattening curves to said flat.

12. The combination as set forth in claim 10 and means whereby a missile rolling too slow will have insufficient inertia to come to rest in said eye portion but will roll in a reverse direction down said solid spiral and solid flattening curves to said flat.

13. The combination as set forth in claim 1 in which the said substantially involute shaped extensions are of such solid construction as to enable the retention of said

6

missile in the eye portion thereof of an individual extension, the cylindrical shaft of said missile being in continuous, contiguous engagement with the solid width of said eye portion of said involute.

14. The combination as set forth in claim 2 in which the said substantially involute shaped extensions are of such solid construction as to enable the retention of said missile in the eye portion thereof of an individual extension, the cylindrical shaft of said missile being in continuous, contiguous engagement with the solid width of said eye portion of said involute.

References Cited in the file of this patent

UNITED STATES PATENTS

15	507,667	Taylor	Oct. 31, 1893
	1,102,986	Healey	July 7, 1914
	2,446,702	Heath	Aug. 10, 1948
	2,580,616	Spiegel	Jan. 1, 1952
20	2,678,515	Desiderio	May 18, 1954

FOREIGN PATENTS

429,146	Germany	May 18, 1926
468,757	Canada	Oct. 17, 1950