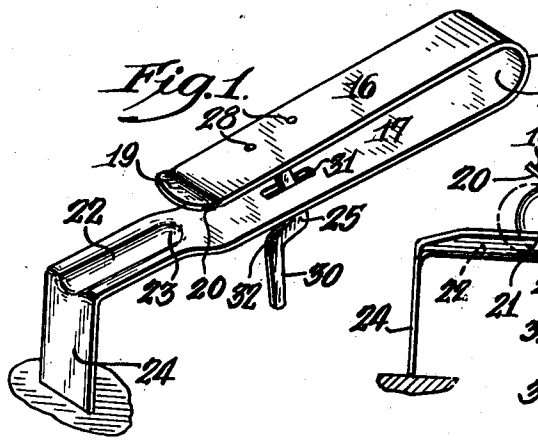
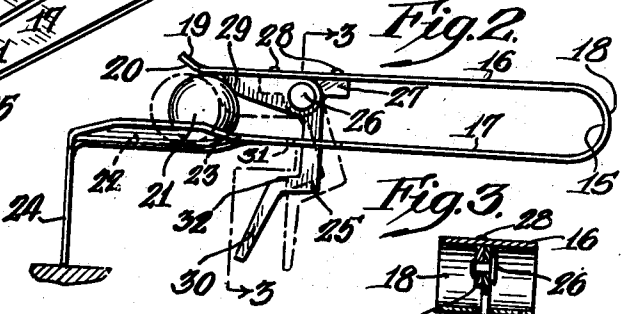
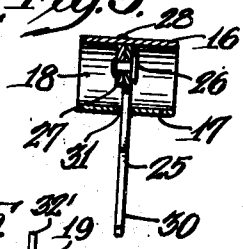
April 2, 1940. W. GADKE 2,195,838

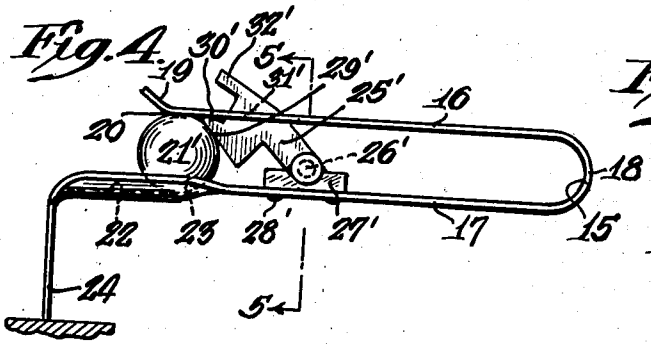
MARBLE SHOOTER

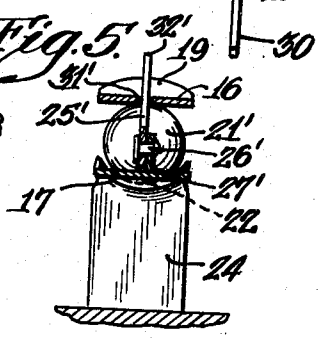
Original Filed July 29, 1936

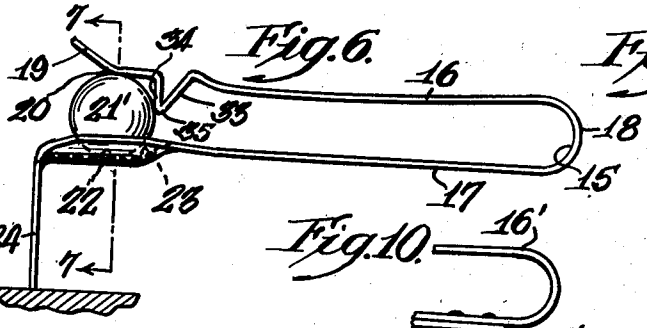


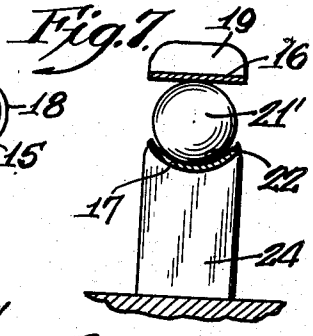


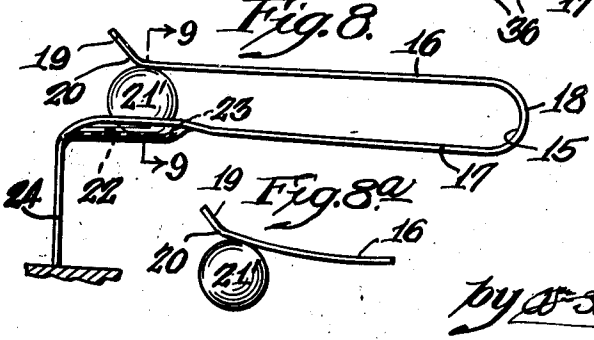


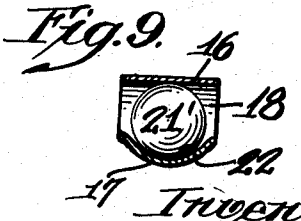












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Attorneys.

Patented Apr. 2, 1940 2,195,838

UNITED STATES PATENT OFFICE

2,195,838

MARBLE SHOOTER

William Gadke, Philadelphia, Pa.

Application July 29, 1936, Serial No. 93,174
Renewed September 1, 1939

3 Claims. (Cl. 124—10)

My invention relates to a marble shooter, a toy intended for use with games involving obstacle marble shooting or obstacle marble return through devious paths and in children's games that include marble shooting.

A purpose of the invention is to provide a shooter of the character indicated adapted to easy and inexpensive manufacture and well suited to the intended use.

A further purpose is to discharge a marble out of a shooter from a loaded position in which it is held compressed between an abutment and which is preferably a flat spring and most desirably between the two spring jaws of a laterally compressed U spring. The compression is normally effected by hand compression of the jaws rearwardly of the marble.

A further purpose is to register a marble centrally between and longitudinally of the cooperating spring jaws of a flat spring U, in the loaded position thereof, by providing one of the jaws with a trough formation toward its outlet.

A further purpose is to provide one of the jaws with an abutment to stop inward loading movement of a marble at its registered loaded position.

A further purpose is to use a trigger or the like, mechanically to advance a marble from its loaded position to that for an automatic spring discharge.

A further purpose is laterally to compress the spring arms of a U spring against an intervening marble and to cause discharge of the marble by alteration of the angle at which the arms engage the marble.

A further purpose is to use a mechanical starter mounted on one arm of a spring U marble shooter to prevent undue spreading of the U arms, by providing locking engagement between the starter and the other arm at the desired limit of spreading.

Further purposes will appear in the specification and in the claims.

I have elected to show a few only of the different forms of my invention, selecting forms however that are practical and efficient in operation and which well illustrate the principles involved.

Figure 1 is a perspective view of a desirable embodiment of the invention.

Figure 2 is a side elevation of the structure of Figure 1 showing parts and a marble in loaded and discharging positions, respectively in full-line and dot-and-dash lines.

Figure 3 is a section of Figure 2 taken upon the line 3—3 thereof and looking in the direction of the arrows.

Figure 4 is a view generally similar to Figure 2 but illustrating a somewhat different embodiment of the invention.

Figure 5 is a section of Figure 4 taken upon the line 5—5 thereof looking in the direction of the arrows.

Figures 6 and 7 are views corresponding respectively to Figures 2 and 3 or to 4 and 5, illustrating another form; Figure 7 being a section of Figure 6 upon the line 7—7 thereof.

Figures 8 and 9 are views corresponding, respectively, to Figures 2 and 3, to Figures 4 and 5 or to Figures 6 and 7 to illustrate another desirable form; Figure 9 comprising a section of Figure 8 taken upon the line 9—9 thereof looking in the direction of the arrows.

Figure 8*a* is a fragmentary view which may correspond with a second position of the parts of a modified form of Figure 8.

Figure 10 is a fragmentary view of a portion of a shooter similar to that shown in Figures 1, 2, 4, 6, 8 and 8*a* but illustrating a modification.

Like numerals refer to like parts in all figures.

Describing in illustration but not in limitation and referring to the drawing:

The shooter, in the illustrated embodiments of the invention, comprises a spring U bent to form from a flat spring stock, the cooperating upper and lower arms of the U being connected and laterally spaced at their rearward ends by the body portion of the U. In Figures 1–3 the U is seen at 15, comprising upper and lower arms 16 and 17 joined by body 18.

At its forward and free end the upper spring arm 16 is flared at 19 sharply away from the lower spring, being bent at 20 diagonally outward from its position in the U. The upper arm clamps the marble 21 across between it and a preferably channeled rest 22 in the bottom arm. When the U has been compressed by grasp in the hand, i. e. when the arms of the U have been pushed toward each other so as to bring the spring pressure upon the marble, the latter is ejected by reason of the spring pressure and either because of alteration in the relative angles of the arms of the U so as to wedge the marble out or by reason of a lever to start the marble, shifting it to a position where the angles of the arms will eject the marble.

In the lower arm 17 the rest 22 is provided to register the marble in the central portion of the U spring, with the trough 23 at the inner end

which is used to register the marble when in the loaded position.

Desirably the lower arm 17 is extended forwardly beyond the wedge portion 28 of the upper arm and bent downwardly at 24 for use in spacing the marble above the floor or table during discharge.

As illustrated in Figures 2 and 3 and in Figures 4 and 5, I may mount a mechanical starter on one or either of the arms, preferably using the mechanical starter to limit the spread of the arms, by being mounted on one and locking with the other at the desired limit of spread.

In Figures 2 and 3 the mechanical starter comprises a lever 25 that pivots at 26 to a tab 27 rigidly fastened at 28 to the upper spring arm 16. The lever is of bell-crank type and on its upper arm presents a nose 29 to fit between the bottom of the arm 16 and the curved surface of the marble so that when the lever is angularly moved by rearward pressure against a trigger portion 30 the nose 29 forwardly presses the marble into its discharge position, the discharge position being that in which the points of engagement of the upper and lower arms 16 and 17 with the marble 21 are angularly spaced from one another on the marble less than 180°. The lever 25, pivotally mounted on the upper arm and passing through a slot 31 of the lower arm is extended forwardly at 32 to limit the spread of the arms by engaging the lower surface of the lower arm at the desired limit of spread.

In the form of Figures 4 and 5 a lever 25′ pivots at 26′ to a tab 27′ fastened to the lower arm 17, and presents a nose 29′ to fit between the bottom of the arm 16 and the curved surface of the marble so that when the lever is angularly moved by downward pressure against a trigger portion 30′ the nose 29′ presses the marble into its discharge position, the discharge position as already described for the other form being that in which the points of engagement of the upper and lower arms 16 and 17 with the marble 21′ are angularly spaced from one another less than 180°.

The lever 25′, pivotally mounted on the lower arm and passing through a slot 31′ of the upper arm is extended forwardly at 32′ to limit the spread of the arms by engaging the upper surface of the upper arm at the desired limit of spread.

In the form of Figures 6 and 7 the upper arm is provided with a down bend at 33, the forward surface of which, at its lower edge, definitely registers the marble at its discharge position, and the lower edge at 34 of this bend functions as the nose members 29 and 29′ already described in that it is slightly advanced when the spring arms are compressed, with also an angular deflection of the lower surface 35 where the upper arm engages the marble, the small advance of the marble by reason of its being pushed somewhat forward by the cam surface at 34 and the angular shift of the cam surface at 35 bring about conditions for discharge, to wit, such that the angular spacing of the points of engagement of the upper and lower arms 16 and 17 with the marble are adequately less than 180° and with adequate compression between the upper and lower arms.

In the form of Figures 8 and 9 the mechanical starter has been omitted and the spring U made preferably of lighter stock than is desirable in the other forms.

The marble registers in shooting position by the inner end 23 of the trough 22 and for discharge a player compresses the arms back of the marble until the angular deflection of the arm surfaces at the points of marble engagement all such as to bring angular spacing between these surfaces adequately less than 180° as measured on the marble.

The simplicity and lightness of the structure of Figures 8 and 9 make it in many cases a very desirable form.

The upper arm 16 in some instances is bent to form a depending curve at its central longitudinal portion. The front end which engages the marble, in this figure, is spread outwardly at its engaging point when the marble is put in place for shooting. This is clearly shown in Figure 8a. The reference characters are the same in Figure 8a as in Figure 8.

In Figure 10 I have illustrated a modification in which the upper arm 16′ is made of spring material and the lower arm 17′ is of non-spring material. In this form the upper and lower arms are fastened together at 36 by rivets or other suitable fastenings.

It will be apparent that my shooter can be adapted to many uses such as in bagatelle or other marble games in which a marble is shot from a discharge pocket to be deposited in one of a number of recesses or apertures.

It will also be apparent that my shooter can be used in playing any of the usual games of marbles to replace hand shooting.

I have found that a person can become quite expert in timing and accuracy when using the device. The forward end 24 providing a very desirable positioner when playing any game of marbles.

It will also be apparent that by use of my improved shooter, girls will be placed on an equal basis with boys in playing marble games, because the knack of shooting marbles by the use of the thumb knuckle has not been so highly developed in the case of girls as with boys. When the user of my device positions a marble in the barrel or groove provided on the lower arm of my device, a definite position of height is established because of the downwardly projecting forward end resting upon the ground or table. The other aiming position to be then obtained is that of angular direction which I have found can be much more easily obtained by the use of my device than can be obtained by the use of a hand to locate a target.

I have also found that my device makes it much easier for a person to shoot the marble by the mechanical structure provided than by the use of the fingers.

In view of my invention and disclosure variations and modifications to meet individual whim or particular need will doubtless become evident to others skilled in the art to obtain all or part of the benefits of my invention without copying the structure shown and I therefore claim all such in so far as they fall within the reasonable spirit and scope of my invention.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. In a marble shooter, a flat U spring having spring arms and an intermediate body connecting and laterally spacing the arms at their adjacent ends, one arm extending outwardly beyond the other and having an inwardly concave longitudinal trough longitudinally overlapped by the said other arm for registering the marble at

its loaded position in combination with a mechanical starter forwardly pressing the marble out of its loaded position, said starter comprising a bell-crank lever pivoted to the lower side of the said other arm, one leg of the lever extending forwardly from the pivot to present a wedge surface to a marble at its loaded position and the other and operating leg of the bell crank extending downwardly through the said one arm, the said one arm having a perforation to pass the said operating leg..

2. In a marble shooter, a flat U spring having spring arms and an intermediate body connecting and laterally spacing the arms at their adjacent ends, one arm extending outwarlly beyond the other and having an inwardly concave longitudinal trough longitudinally overlapped by the said other arm for registering the marble at its loaded position in combination with a mechanical starter forwardly pressing the marble out of its loaded position, said starter comprising a lever pivoted intermediate and on one of the arms, having a wedge surface for presentation to the marble forwardly of the pivot and having an operating extension passing through one of the arms at a perforation thereof.

3. In a marble shooter, a flat U spring having spring arms and an intermediate body connecting and laterally spacing the arms at their adjacent ends, one arm extending outwardly beyond the other and having an inwardly concave longitudinal trough longitudinally overlapped by the said other arm for registering the marble at its loaded position in combination with a mechanical starter forwardly pressing the marble out of its loaded position, said starter comprising a lever pivoted intermediate and on one of the arms, having a wedge surface for presentation to the marble forwardly of the pivot, having an operating extension passing through the other of the arms at a perforation thereof and interlocking at the said last named other arm to limit the spread of the arms.

WILLIAM GADKE.