March 22, 1966 F. T. COFFEY, SR 3,241,541

MARBLES GUN

Filed April 18, 1962

Fig. 1.

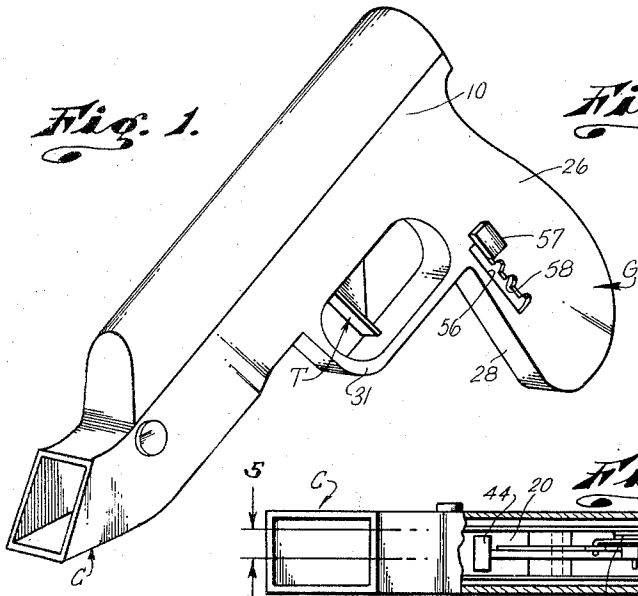


Fig. 2.

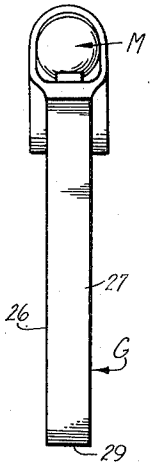


Fig. 3.

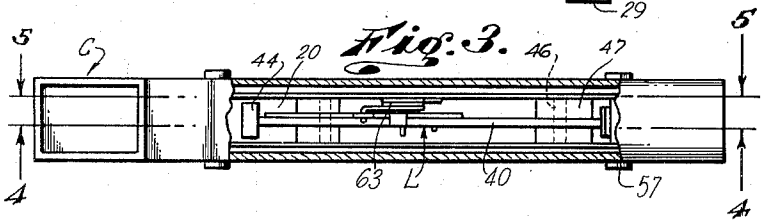


Fig. 6.

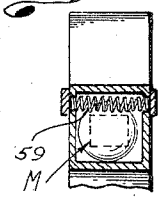


Fig. 4.

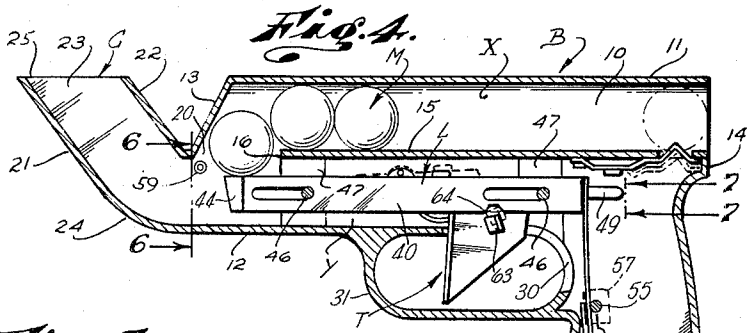


Fig. 5.

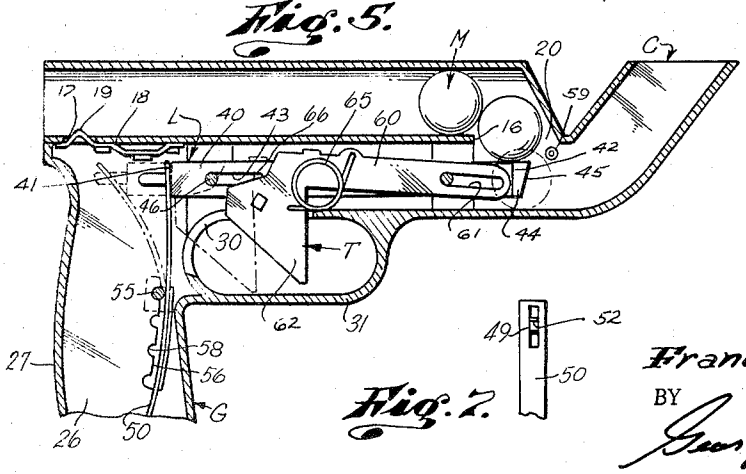
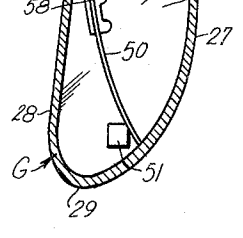


Fig. 7.



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MARBLES GUN

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This invention relates to a marbles gun and is more particularly concerned with a propulsion or catapulting machine for use in playing the game of marbles.

Marbles is a well known game played by children, wherein small balls of marble or like material and commonly referred to as "marbles," are propelled by the persons engaged in the game, across a predetermined and marked-off or defined area of a flat, horizontal surface, such as the ground. The marbles are propelled so as to hit and/or drive other, like, marbles or balls, arranged within the area, out of said area. There are many variations of the game of marbles, but one fundamental rule which must be followed is, that the player must propel the marble across the surface from a stationary point or location. That is, he cannot cast or loft the marble through the air and cannot throw the marble, as by swinging his arm. This last requirement necessitates that the marble be engaged between certain of the fingers of the player's hand, usually between the thumb and index finger, and that necessary forces be exerted onto and through the marble by the player's fingers so as to cause it to leave the player's hand in a desired direction and with sufficient velocity to accomplish playing of the game.

Unfortunately, many children do not have the strength, coordination, dexterity, or nimbleness required to play the game of marbles or to successfully compete with their playmates. As a result, these children are often ostracized and criticized by their more fortunate playmates.

An object of my invention is to provide a manually operable marble propelling mechanism, for use in playing marbles, which a child can use without breaking the fundamental rules of the game, that is, that the marble cannot be lofted and the hand must remain stationary.

Another object of my invention is to provide a machine, hereinafter referred to as a "gun," which is such that small, weak, or handicapped children can partake in playing marbles with their playmates, but which is such that it does not provide such children with an undue advantage over their more skilled and capable playmates.

Another object of my invention is to provide a marbles gun of the character referred to having an elongate body with front and rear ends, a barrel or discharge chute at the front end of the body, a hand grip depending from the rear end portion of the body, a spring-actuated marble propelling mechanism within the body and said hand grip, and a trigger for said mechanism depending from the body forward of the hand grip and engageable by a finger.

A further object of the present invention is to provide a marble propelling mechanism having means for varying the force at which the marbles are propelled.

It is a further object of this invention to provide a marbles gun of the character referred to wherein the barrel or discharge chute is angularly related to the body so that its lower side occurs in a common horizontal plane with the lower or bottom end of the handle, and so that the marble or marbles discharged from the gun are propelled across the plane surface and are not lofted.

It is a further object of my invention to provide a marbles gun of the character referred to having novel means for retaining a supply of marbles and for feeding the marbles into engagement with the propelling mechanism, one at a time.

Another object of my invention is to provide a gun of the character referred to which is simple, highly effective and dependable in operation, and which is both easy and economical to manufacture.

The various objects and features of my invention will be more fully understood from the following detailed description of a typical preferred form and application of my invention, throughout which description reference is made to the accompanying drawings, in which:

FIG. 1 is a perspective view of my new marbles gun;

FIG. 2 is a rear elevational view of my new construction;

FIG. 3 is a top view of my new marbles gun which portions broken away to better illustrate certain details of construction;

FIG. 4 is a sectional view taken as indicated by line 4—4 on FIG. 3;

FIG. 5 is a sectional view taken as indicated by line 5—5 on FIG. 3;

FIG. 6 is a sectional view taken as indicated by line 6—6 on FIG. 4; and

FIG. 7 is a view taken substantially as indicated by line 7—7 on FIG. 4.

The present invention relates to a hand-operated mechanism or machine for propelling small balls in playing the game of marbles.

The machine will hereinafter be referred to as a "gun" and the small balls will be referred to as "marbles."

The gun A that I provide includes an elongate body B having flat side walls **10**, a rounded top wall **11**, a bottom wall **12**, front and rear end walls **13** and **14**, and a central, horizontally-disposed partition **15**, extending between the side walls and from the rear wall to the forward portion of the body where it terminates at a forward edge **16**. The partition **15** defines an upper longitudinal chamber X and a lower longitudinal chamber Y in the body.

The upper chamber X is slightly greater in lateral and vertical extent than the marbles M and is open at its rear end to freely receive the marbles.

In the case illustrated, a detent means D is provided in the rear chamber X to prevent displacement of marbles from the rear, open end of the chamber. The means D is shown as including an aperture **17** in the partition and a leaf spring **18** fixed to the bottom side of the partition and having an upwardly-projecting part or portion **19** extending through the aperture and into the chamber X. The part or portion **19** of the means D normally yieldingly prevents the marbles M from moving longitudinally in the chamber X, past the aperture **17**, but is such that the marbles can be easily and conveniently urged forwardly and into the chamber, past the means D, by light pressure exerted on the marbles by one's fingers.

The forward edge **16** of the partition **15** terminates rearward of the front wall **13** a distance slightly greater than the diametric extent of the marbles M and cooperates with the said front wall and the side walls of the body to define an opening or passage **20** establishing communication between the upper end lower chambers X and Y and through which the marbles M, in the chamber X, are free to drop.

Projecting forwardly and upwardly from the front end of the body is an elongate, barrel-like discharge chute C having forwardly and upwardly-inclined front and rear walls **21** and **22**, flat side walls **23** and a curved bottom wall **24**. The upper end of the chute is open. The side walls **23** are joined integrally with and project forwardly from the lower forward ends of the side walls **10** of the body. The bottom wall **24** is in the nature of a continuation of the bottom wall **12** of the body and fairs into or joins with the front wall **21** of the chute.

The lower edge of the rear wall **22** of the chute con-

verges with the lower edge of the front wall 13 of the body.

The lower rear end of the chute establishes communication with, and is, in effect, a forwardly and upwardly inclined extension of the lower chamber Y of the body.

In the case illustrated the upper end of the chute is truncated so that its open end occurs in substantially the same horizontal plane as the top 11 of the body B.

Depending from the rear of the body B is a hand grip G. The grip G has a pair of flat side walls 26 depending from the side walls 10 of the body, a rear wall 27 continuously downwardly from the rear wall 14 of the body, a front wall 28 and a rounded bottom wall 29.

The upper portion of the front wall 28 and the portion of the bottom wall 12 of the body adjacent the front wall 28 are provided with a forwardly and downwardly-disposed slot-like opening 30, to freely receive a trigger T, as will hereinafter be described.

A suitable trigger guard 31 is provided to extend forwardly from the handle, adjacent the lower end of the opening 30 and then upwardly to join the body at a point spaced forwardly of the front end of the opening 30.

The structure thus far described is preferably formed of plastic in accordance with conventional plastic manufacturing methods and procedures.

Arranged within the chamber Y and handle H is a spring-loaded drive means L to drive or urge the marbles M forwardly from the forward end of the chamber Y and outwardly through the chute C.

The means L includes an elongate drive bar or slide 40 having front and rear ends 41 and 42 and a pair of longitudinally-spaced, slotted openings 43. The slide 40 is provided at its forward end with a block-like marble-engaging head 44, formed of rubber, or the like, and provided with a flat, forwardly and upwardly-inclined front surface 45. The slide 40 is shiftably supported in the chamber Y by a pair of longitudinally-spaced support pins 46 fixed to and extending between longitudinally-spaced, opposing block 47 formed on the inner surfaces of the side walls 10 of the body. The pins 46 project through the slotted openings 43 in the slide. The blocks 47 serve to freely slidably engage the opposite sides of the slide and to maintain it in a vertical plane and in the center of the chamber Y.

The rear end 41 of the slide is provided with a rearwardly-projecting spring-retaining projection 49.

Arranged in the handle or hand grip G is an elongate, vertically-disposed leaf spring 50. The lower end of the spring 50 is engaged against the rear side of a laterally, inwardly-projecting stop 51 provided on one of the side walls of the handle, at the rear portion thereof. The upper end of the spring 50 bears against the rear end 41 of the slide 40 and is provided with a slot opening 52 through which the retaining projection 49 on the slide is engaged. Arranged in the forward central portion of the handle G is a vertically shiftable fulcrum bar 55 which occurs adjacent and bears against the rear side of the spring 50 at the central portion thereof. The bar 55 is in the form of a simple, cylindrical pin, the ends of which project through elongate, vertically-extending, registering, slotted openings 56 in the side walls of the handle. The ends of the bar or pin are provided with finger-engaging and retaining pads 57, which pads slidably engage the outside surfaces of the handle.

The rear edges of the openings 56 are provided with vertically-spaced, forwardly-opening pin or bar-receiving notches 58.

With the vertically shiftable fulcrum bar set forth above, it will be apparent that vertical positioning of the bar and the resulting effective force of the spring on the slide can be effectively varied or adjusted, as circumstances require, by engaging the pads 57 on the bar, between one's fingers, urging the bar forwardly against the resistance of the spring 50 and out of engagement in certain of the notches 58, then sliding the bar longitudinally in the slots, either upwardly or downwardly, as circumstances require, and then releasing the pads and allowing the spring to urge the bar rearwardly into engagement in other adjacent and related notches 58.

The forward end of the slide 40 normally projects forwardly and beyond the forward end or edge 16 of the partition 15 in the body, so that the marbles M in the chamber X, at the opening 20 defined by said edge 16, side walls 10 and front wall 13, is prevented from dropping into the lower chamber Y.

The slide is stopped in its forward, normal position by the pins 46 which are engaged by the rear ends of the slot openings 43 in the slide 40.

Upon rearward shifting of the slide in the body relative to the pin 46 and against the resistance of the spring 50, the forward portion of the slide is shifted out of position below the opening 20 establishing communication between the chambers X and Y and allowing the marble in the chamber X at said opening to drop into the chamber Y, forward of the head 44 on the slide 40.

To normally prevent shifting of the marble in the chamber Y forwardly and outwardly therefrom, I provide a keeper spring 59 in the upper forward end of the chamber Y, where it communicates with the chute C. The spring 59 extends laterally between the side walls 10 of the body and yieldingly engages the upper forward portion of the marble in the chamber Y. The spring 59 is shown as an elongate coil spring having its opposite ends engaged in aligned openings in the side walls 10 of the body.

When the slide has been urged rearwardly in the manner set forth above, and against the resistance of the spring 50, and a marble M has shifted into the chamber Y, it will be apparent that upon releasing the slide, so that it is urged and shifted forwardly by the action of the spring 50, the marble M is engaged by the head 44 on the slide and is driven past the spring 59 into and through the chute C to be discharged therefrom and across the surface with which the gun is related.

The bottom wall 24 of the chute serves to change the direction of travel of the marble so that its direction of travel is parallel with the central axis of the chute, and the inclined front surface 45 of the head 44 on the slide imparts sufficient desired english on the marble so that as it is driven out of the chamber Y across the bottom wall 24 and thence outwardly from the chute, the marble will not jump or hop, but will move smoothly and directly through and out of the chute.

The slide 40 can be shifted from its forward to its rear position in any desired or suitable manner, and is releasably held in its rear position and against the resistance of the spring 50 by the trigger means T, referred to above, which trigger means can vary widely in form and construction. The trigger means T is basically a simple, manually-releasable latch means.

In the particular case illustrated, the trigger means T serves to urge the slide 40 rearwardly and to release the slide when it has reached its rearmost position.

The trigger means T is shown as including an elongate, longitudinally-disposed arm 60 arranged in the chamber Y to occur adjacent one side of the slide 40. The forward end of the arm 60 is provided with an elongate slot 61 through which the forward support pin 46 projects. The slot 61 is equal in longitudinal extent with the slotted openings 43 in the slide and with the travel of the slide.

The relationship of the pin 46 in the slot 41 serves to pivotally secure the forward end of the arm in the body and yet allow for limited longitudinal movement of the arm in the body and relative to the slide.

Depending from the rear end of the arm 60 is a finger-engaging tab or trigger 62, which trigger depends through the opening in the bottom of the body and into the confines of the trigger guard, as clearly illustrated throughout the drawings.

The trigger 62 is provided with a laterally projecting ear or dog 63, which dog engages in a downwardly-open-

ing notch **64** in the bottom edge of the slide **40**. The dog **63** and notch **64** in the bottom edge of the slide **40** are so positioned or arranged that the dog enters the notch when the slide and the arm of the trigger means are in their forwardmost position.

A rat-trap type spring **65** is carried by the arm intermediate its ends to bear against the bottom wall of the body and to normally yieldingly urge and pivot the arm upwardly and the dog thereon into engagement in the notch in the slide.

The trigger **62** is further provided with a rearwardly and downwardly-inclined cam face or edge **66** at its upper rear portion, which surface normally occurs forward of the rear support pin **46** carried by the body, as illustrated in FIG. 5 of the drawings.

When the trigger means T and slide are urged rearwardly, the cam **66** initially engages the lower side of the rear support pin **46**. Upon continued rearward movement of the trigger means T, the arm **60** is urged downwardly against the resistance of the spring **65** and the dog **63** is urged out of engagement in the notch **64**, by the action of the cam, with the result that the slide is disconnected or released from the trigger means and is free to shift forwardly and to drive a marble M in the chamber Y therefrom, as clearly illustrated in phantom lines in FIG. 5 of the drawings.

It will be apparent from the above that the loading, that is, urging the slide rearwardly against the spring **50** and allowing a marble M to enter the chamber Y, and releasing the slide, to drive the marble from the construction, is accomplished by the single motion of urging the trigger **62** rearwardly relative to the body and handle.

The force required to be exerted on the trigger **62** to urge the slide rearwardly, is controlled by the positioning of the fulcrum bar related to the spring **50**, as described above.

For the purpose of describing the structure that I provide, I have stated in the preceding descriptive matter and in FIGS. 2 to 7 of the drawings have shown, the body of my marbles gun being horizontally disposed and the chute C thereof being forwardly and upwardly inclined. In practice, however, and as illustrated in FIG. 1 of the drawings, the chute C is horizontally disposed, the body B is rearwardly and upwardly inclined. The front wall **21** of the chute, when the gun is thus arranged, is, in fact, the bottom wall of the chute and is intended to establish flat bearing engagement on the playing surface on which the gun is used.

In the preferred carrying out of my invention, the bottom end of the handle H occurs on or is in the same plane as the wall **21** of the chute, and so that it engages the playing surface when the wall **21** of the chute is engaged on said playing surface.

With the above relationship of parts, the body and the handle establish an arch or bridge over the playing surface and define sufficient space above the said playing surface to freely accommodate those portions of the player's hand which occur forward of the handle and below the body. The above relationship of parts also enables the player to urge the gun into firm engagement on the said playing surface, for steadying the gun against uncontrolled movement of the player's hand when his energy is being directed to pulling the trigger, as well as to enable steady aiming of the gun.

Having described only a typical preferred form and application of my invention, I do not wish to be limited or restricted to the specific details herein set forth, but wish to reserve to myself any variations or modifications that may appear to those skilled in the art and fall within the scope of the following claims.

Having described my invention, I claim:

1. A marble gun of the character referred to including, an elongate body with front and rear ends and inclined rearwardly and upwardly, an elongate, horizontally disposed discharge chute at the forward end of the body with a lower playing surface-engaging surface, a handle depending from the rear end of the body, a marble-propelling means within the body to urge marbles in the body forwardly and outwardly from the body and through the chute, an actuating means for the propelling means carried by the body and having a finger-engaging trigger depending from the body forward of the handle, said lower end of the handle occurring in the same horizontal plane as the lower surface of the chute.

2. A marble gun of the character referred to including, an elongate body with front and rear ends and defining upper and lower longitudinal chambers and inclined rearwardly and upwardly, an elongate, horizontally-disposed, forwardly-opening discharge chute at the forward end of the body communicating with the lower chamber and having a lower playing surface-engaging side, a handle depending from the rear end of the body, a plurality of marbles in the upper chamber, an opening establishing communication between the upper and lower chambers at the front end of the body and through which a marble in the upper chamber can enter the lower chamber, a marble-propelling means in the lower chamber of the body to urge a marble in the lower chamber forwardly and outwardly from the body and through the chute and actuating means for the propelling means carried by the body and having a finger-engaging trigger depending from the body forward of the handle, said lower end of the handle occurring in the same horizontal plane as the lower side of the chute.

3. A marble gun of the character referred to including, an elongate body with front and rear ends, a forwardly-opening discharge chute at the front end of the body and an elongate handle depending from the rear end of the body, a marble arranged in the front end of the body, a marble-propelling means in the body to urge the marble from the body and through the chute, said propelling means including, an elongate slide supported in the body for longitudinal movement only and having a head at its forward end to engage the marble, an elongate spring extending longitudinally of the handle and projecting into the body to engage the rear end of the slide, an anchor block in the lower end of the handle to engage and hold the lower end of the spring, a fulcrum bar in the handle to occur rearward of and engage with the spring between its upper and lower ends, said spring being biased to normally yieldingly urge the side forwardly in the body and to engage the marble, and a trigger means carried by the body and engaged with the slide to urge the slide rearwardly in the body against the resistance of the spring and away from the marble and to release the slide for forward movement in the body and having a finger-engaging trigger depending from the body forward of the handle.

4. A structure as set forth in claim **1**, wherein said marble-propelling means includes, an elongate slide supported in the body for longitudinal movement only and having a head at its forward end to engage a marble in the forward end of the body, an elongate spring extending longitudinally of the handle and projecting into the body to engage the rear end of the slide, an anchor block in the lower end of the handle to engage and hold the lower end of the spring, a fulcrum bar in the handle to occur rearward of and to engage the spring between its upper and lower ends, said spring being biased to normally yieldingly urge the slide forwardly and into engagement with the marble, a trigger means carried by the body and releasably engaged with the slide to urge the slide rearwardly in the body against the resistance of the spring and away from said marble and to release said slide for forward movement in the body and having a finger-engaging trigger depending from the body forward of the handle.

5. A marble gun as set forth in claim **1**, wherein, said propelling means includes, an elongate slide supported in the body for longitudinal movement only and having a head at its forward end to engage a marble in the forward end of the body, an elongate spring extending longitudi-

nally of the handle and projecting into the body to engage the rear end of the slide, an anchor block in the lower end of the handle to engage and hold the lower end of the spring, a fulcrum bar in the handle to occur rearward of and to engage the spring between its upper and lower ends, said spring being biased to normally yieldingly urge the slide forwardly and into engagement with the marble, a trigger means carried by the body and releasably engaged with the slide to urge the slide rearwardly in the body against the resistance of the spring and away from said marble and to release said slide for forward movement in the body, and having a finger-engaging trigger depending from the body forward of the handle.

6. A marble gun of the character referred to including an elongate body with front and rear ends, a forwardly-opening discharge chute at the forward end of the body and an elongate handle depending from the rear end of the body, a marble arranged in the front end of the body, a marble-propelling means in the body to urge the marble from the body and through the chute, said propelling means including an elongate slide supported in the body for longitudinal movement only, and having a head at its forward end to engage the marble, an elongate spring extending longitudinally of the handle to project into the body and engage the rear end of the slide, an anchor block in the lower end of the body to engage the lower end of the spring, a vertically-shiftable fulcrum bar in the handle to occur rearward of and engage the spring between the upper and lower ends, said spring being biased to normally urge the slide forwardly and into engagement with the marble and a trigger means carried by the body and releasably engaged with the slide to urge the slide rearwardly in the body against the resistance of the spring and away from said marble and to release the said slide for forward movement in the body upon reaching its rearmost position, and including a finger-engaging trigger depending from the body forward of the handle, said vertically-adjustable fulcrum bar including an elongate, horizontally-disposed pin extending transverse the handle and projecting through vertical slotted openings in opposite side walls of the handle and having finger-engaging pads at its opposite ends to occur adjacent the outer surfaces of said side walls of the handle.

7. A marble gun of the character referred to including, an elongate body with front and rear ends, a forwardly-opening discharge chute at the front end of the body and an elongate handle depending from the rear end of the body, a marble arranged in the front end of the body, a marble-propelling means in the body to urge the marble from the body and through the chute, said propelling means including, an elongate slide supported in the body for longitudinal movement only and having a head at its forward end to engage the marble, an elongate spring extending longitudinally of the handle and projecting into the body to engage the rear end of the slide, an anchor block in the lower end of the body to engage and hold the lower end of the spring, a fulcrum bar in the body to occur rearward of and engage with the spring between its upper and lower ends, said spring being biased to normally yieldingly urge the slide forwardly in the body and to engage the marble, and a trigger means carried by the body and engaged with the slide to urge the slide rearwardly in the body against the resistance of the spring and away from the marble and to release the slide for forward movement in the body and having a finger-engaging trigger depending from within the body forward of the handle, said trigger means including, an elongate bar having front and rear ends arranged in the body adjacent one side of the slide, means mounting the front end of the bar in the body for pivotal and longitudinal movement, spring means normally yieldingly urging the rear end of the bar upwardly in the body, said trigger fixed to and depending from the rear end of the bar, a laterally-projecting dog on the trigger and engaged in a downwardly-opening notch in the lower side of the slide to establish driving engagement between the trigger and the slide, and a cam surface on the trigger engageable with the part in the rear portion of the body when the trigger and slide are urged rearwardly in the body and adapted to urge the trigger downwardly and the dog from engagement in the notch.

8. A marbles gun of the character referred to including, an elongate body with front and rear ends and defining upper and lower longitudinal chambers and inclined rearwardly and upwardly, an elongate, horizontally disposed, forwardly opening discharge chute at the forward end of the body communicating with the lower chamber and having a lower playing surface engaging side, a handle depending from the rear end of the body, a plurality of marbles in the upper chamber, and an opening establishing communication between the upper and lower chambers at the front end of the body and through which a marble in the upper chamber can enter the lower chamber, a marble propelling means in the lower chamber of the body to urge a marble in the lower chamber forwardly and outwardly from the body and through the chute, said marble propelling means including, an elongate slide supported in the lower chamber of the body for longitudinal movement only and having a head at its forward end to engage the marble in the lower chamber, an elongate spring extending longitudinally of the handle and projecting into the body to engage the rear end of the slide, an anchor block in the lower end of the body to engage and hold the lower end of the spring, a fulcrum bar in the handle to occur rearward of and to engage the spring between its upper and lower ends, said spring being biased to normally yieldingly urge the slide forwardly and into engagement with the marble in the lower chamber, and a trigger means carried by the body and releasably engaged with the slide to urge the slide rearwardly in the body against the resistance of the spring and away from the marble and to release the slide for forward movement in the body when the slide reaches its rearmost position and having a finger engaging trigger depending from the body forward of the handle.

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