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BALL IMPELLERS

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Fig. 1.

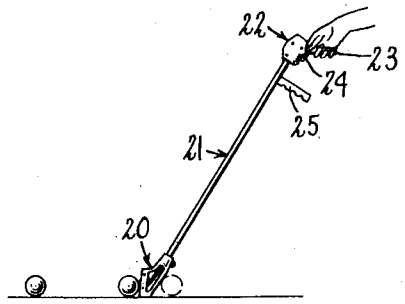


Fig. 2.

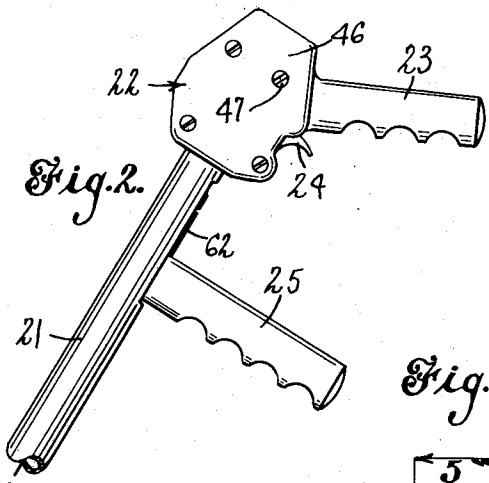


Fig. 3.

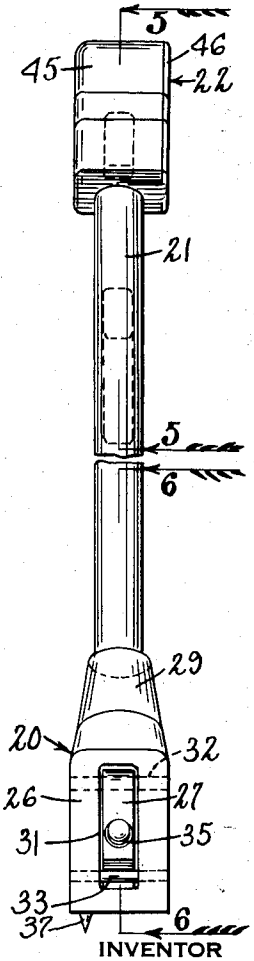
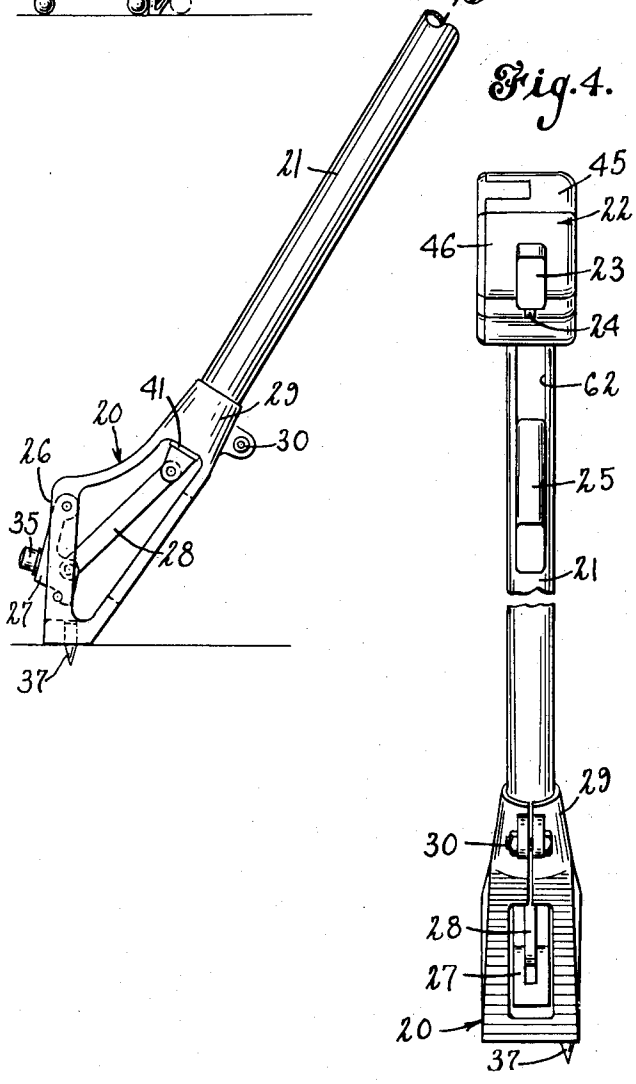


Fig. 4.



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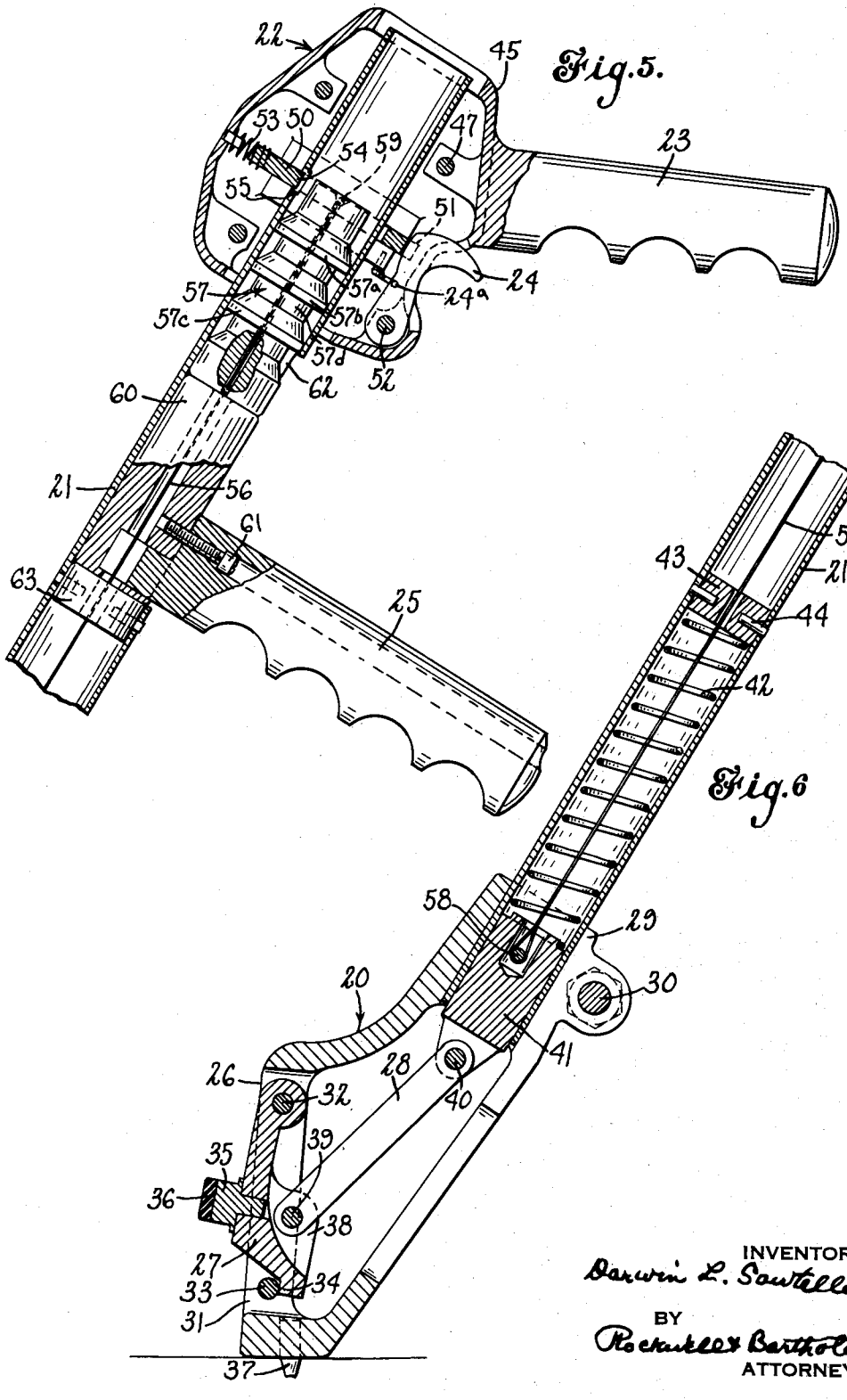


Fig.5.

Fig.6

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Fig. 8.

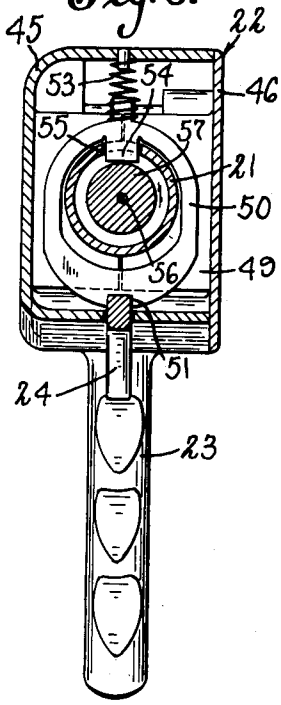


Fig. 7.

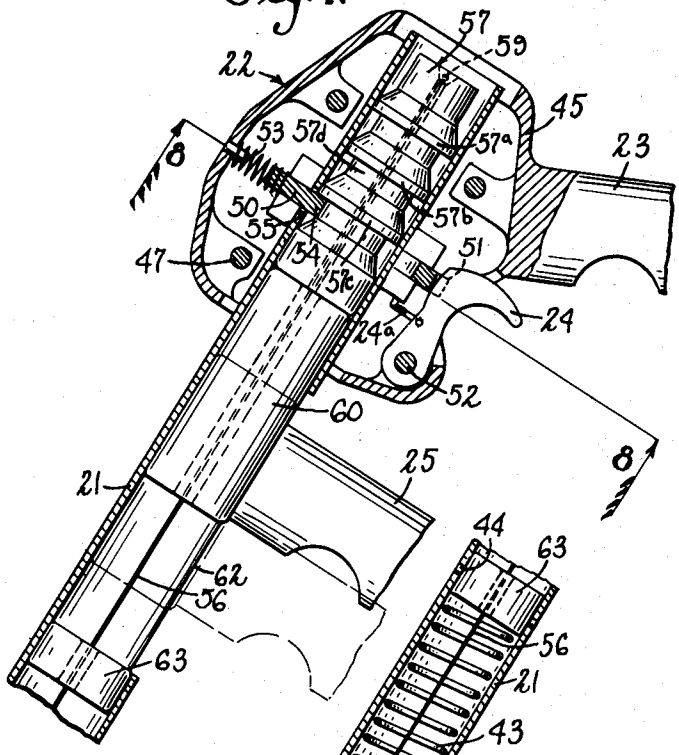
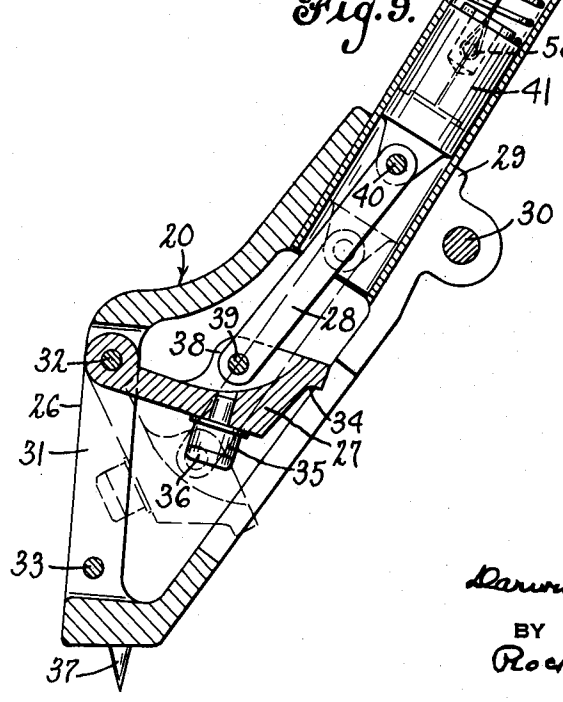


Fig. 9.



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Fig.10.

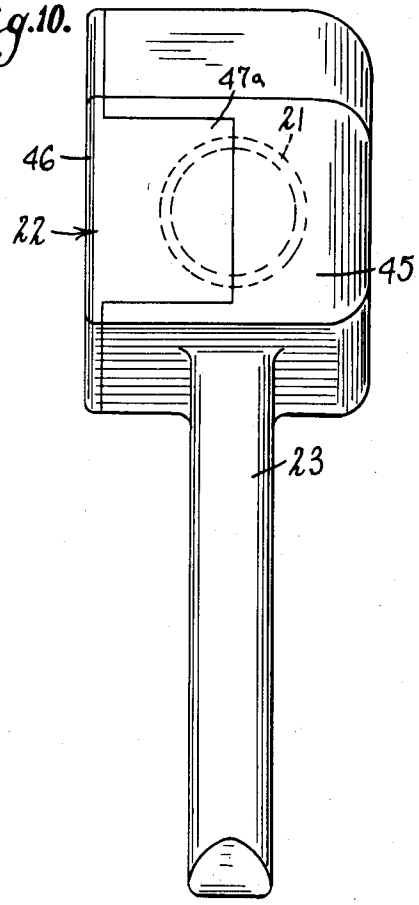


Fig.11.

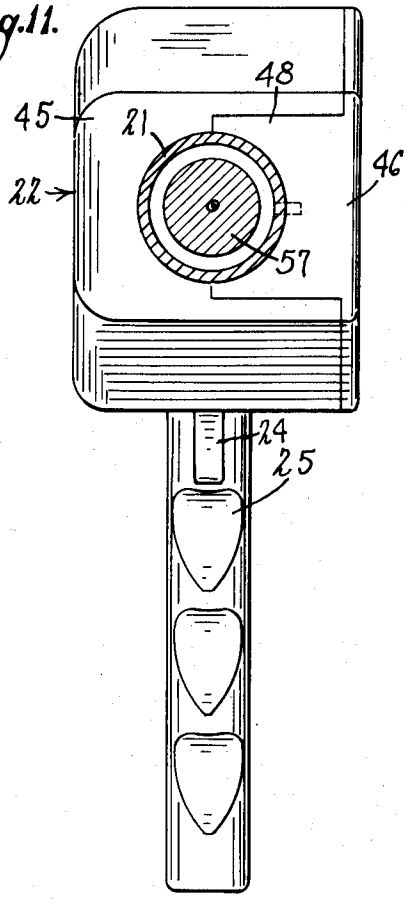
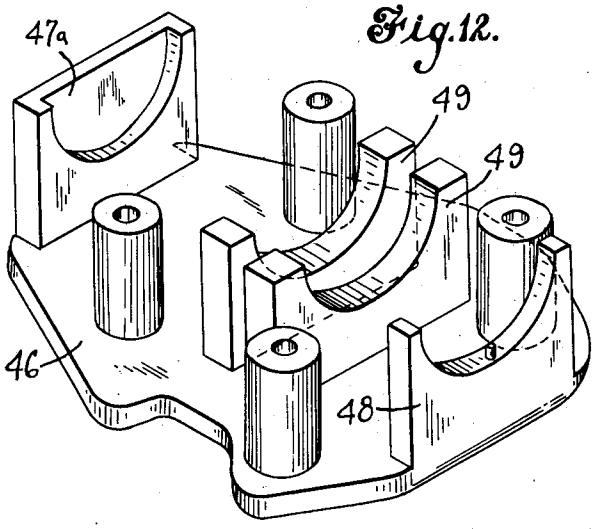


Fig.12.



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BALL IMPELLERS

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Application May 26, 1952, Serial No. 289,952

4 Claims. (Cl. 273—129)

This invention relates to ball impellers, and more particularly to a device particularly adapted for impelling a ball over the surface of a suitable lawn pool court.

The device is, in general, characterized by a head adapted to be placed in contact with the ground behind the ball, and equipped with a striker held under spring tension, and which, when released, strikes the ball and moves it forwardly over the ground, the said head being connected to the lower end of a shank member, and the shank member being equipped adjacent the upper end with means for manipulating the device and controlling its operation.

One object of the invention is to provide an improved device of this general type suitable for use in playing the game of lawn pool, and similar games in which it is desirable to dispense with manual strokes for impelling a play ball.

Another object is to provide an improved arrangement and construction of a striking head and a spring mechanism located in a hollow shanklike member extending from the head.

Another object is to provide an improved mechanism whereby the striker device is energized or cocked and released.

In the accompanying drawings:

Fig. 1 is a side elevation on a small scale showing a device equipped with my improvements, the same being shown in playing position;

Fig. 2 is an enlarged side elevation, partly broken away, of the device shown in Fig. 1, the striker being in the released position;

Fig. 3 is a front elevation corresponding to Fig. 2;

Fig. 4 is a rear elevation of the same article;

Figs. 5 and 6 are, respectively, longitudinal sections on lines 5—5 and 6—6 of Fig. 3;

Fig. 7 is a view similar to Fig. 5, showing the position of the parts when the impelling spring is energized to the maximum;

Fig. 8 is a section on line 8—8 of Fig. 7;

Fig. 9 is a sectional view of the lower part of the device showing the parts in a position corresponding to that of Fig. 7;

Fig. 10 is an end view of the device looking toward the upper end;

Fig. 11 is a section taken through the shank immediately beneath the upper housing; and

Fig. 12 is an inside perspective view of one of the housing sections.

In the embodiment selected for illustration, the structure is characterized by a striker head adapted to be placed in contact with the ground behind the ball, said head being connected at the upper end to a hollow shank member, which, in the playing position, is at an acute angle to the ground surface, the upper end of the shank having attached thereto a housing equipped with a rearwardly extending handle by means of which the device can be lifted and placed in playing position. Extending from the housing in close proximity to the handle is a portion

of a trigger which controls the release of a coil spring located in the hollow shank, the release of the spring being effective to release a striking member in the head and permit the striking member to strike and propel the ball. Extending rearwardly from the shanklike member at a point near the housing is a cocking handle by means of which the striker is cocked. In the present form the striker is a pivoted member pivoted at its upper end in a head portion which, in the playing position, is substantially upright, said pivoted striker having at its lower part a link connection with a slidable member mounted in the lower end portion of the hollow shank.

In the drawings, the head of the device or implement is indicated at **20**, the hollow shank member, which is preferably of tubular form, at **21**, the housing at the upper end of the shank member at **22**, the handle extending from the housing at **23**, the trigger at **24**, and the movable cocking handle at **25**. The forward face of the head **20**, which in the playing position is substantially upright, is indicated at **26**, the pivoted striker is indicated at **27**, and the link connecting the striker with the spring mechanism is indicated at **28**.

The shank member **21** is in the form of a tube which extends into a bore provided in a sleevelike member **29** at the upper end of the head **20**, the parts **20** and **21** being fastened together in a suitable manner as by means of a bolt **30** passing through suitable lugs on portion **29**, said portion **29** being split so that by tightening the bolt **30** the tubular member can be firmly clamped in place. The head **20** is preferably made of skeleton structure, as shown in the drawings, the forward face or wall **26** having a window **31** in which the striker is positioned and being open at the sides and bottom but closed at the top.

The striker **27** is pivoted in the head by a crosspin **32** located in the upper part of the window **31**, and the forward swing of the striker can be limited in a suitable manner as by providing a crosspin **33** in the lower end portion of the window which is engaged by a lip **34** at the lower end of the striker. In this form the pivoted striker is equipped with a separate striker member **35** generally in the form of a pin having at the forward end a cushioning layer **36** of suitable material adapted to make contact with the ball. If desired, the lower extremity of the head **20** may be provided with suitable means for locating it relatively to the ground, for example, a pointed locating pin such as shown at **37**.

At the rear face of the striker **27** the same is provided with a kerf **38** in which is located the lower end of the link **28**, said link being pivoted to the striker by a pivot pin **39** extending across the kerf. Similarly a pivot pin **40** at the upper end of the link is positioned in a kerf provided in the lower end of a plunger **41** that is movable within the tubular shank member, and is acted upon by a coil spring **42** interposed between the plunger **41** and a partition plug **43** fixed in the shank member by suitable means such as fastening pins **44**.

Referring now to the upper end portion of the device, it will be noted that the handle **23** is preferably made integral with one section **45** of the housing **22**. This housing is divided laterally into two sections, one of which is the section **45** and the other of which is the section **46**, said sections being interconnected by suitable means such as four screws **47** having nicked heads which are accessible at one face of the housing, namely, that shown in Fig. 2, the other ends of the screw being completely enclosed. The housing member **46** is provided at the upper end of the housing with a rectangular portion **47a** fitting a notch in the other section, and at the opposite end section **46** has a yokelike portion **48** adapted to fit over the tubular shank member and to clamp it in a semicircular recess provided in the other housing section. It will be seen from Fig. 12 that intermediate of

its ends section 46 has two inwardly projecting lugs in the form of yokes, indicated at 49, which fit about the tubular member. The section 45 of the housing has mating lugs abutting the lugs 49, and the four lugs thus provided serve as a guideway for a sliding sear, indicated at 50, which sear is adapted to move crosswise with respect to the housing and is in embracing relationship to the tubular member and is provided at the right-hand side (Fig. 5) with a notch 51 in which a portion of the trigger 24 is received. The trigger 24 is pivoted in the housing by means of a pin 52 and has a spring 24a. A spring 53 arranged in the left-hand side of the housing (Fig. 5) presses the sear in the direction of the tubular shaft. The sear member is in the form of a frame that is somewhat ringlike in character, the notch 51 being at the periphery and the sear at the opposite side being provided with an inwardly extending lug 54 extendable through a slot 55 in the tubular shank. The spring 53 presses the sear in the direction of the trigger, and normally holds the catch lug 54 of the sear in the position shown in Figs. 7 and 8, which is the cocking position of the sear.

The plunger 41, movable in the lower part of the tubular member, is connected by an elongated flexible connecting member such as a wire 56 with a shouldered slidable plunger or bolt 57 in the upper end portion of the tubular member. The wire 56 is attached to the plunger 41 at 58, and extends upwardly through the spring coil 42, the partition 43, and through other members hereinafter mentioned, and through the sliding plunger member 57, and has its upper extremity attached to the upper end of member 57, as indicated at 59. The plunger member 57 cooperates with the sear 50 in the manner hereinafter described. Immediately below the plunger 57 in the tubular member is a sliding cylindrical member or plunger section 60 rigidly attached to the cocking handle 25 by suitable means such as a fastening screw 61. The handle 25 extends out of the tubular member through an elongated slot 62 provided in the tubular member, as shown in Fig. 4. The handle 25 can move upwardly and downwardly with reference to this slot 62, the upward movement being a cocking movement, as hereinafter described, and the downward movement being a movement under gravity to permit the handle 25 to drop to the position shown in Fig. 5 when the handle is released after cocking. The downward movement of the handle 25 is limited to the position shown in Fig. 5 because of the provision of a plug or partition 63 in the tubular member. An upward pull on the handle 25 causes the shouldered plunger 57 to be pushed upwardly for cocking the gun.

In the present form, the striker can be cocked in any of three different positions by reason of the fact that the plunger 57 is provided with three spaced shoulders 57a, 57b and 57c, spaced lengthwise along the plunger, the arrangement being such that, when the shoulder 57a is engaged with the upper surface of the sear lug 54, the spring 42 will be compressed to a certain degree, the extent of compression being progressively increased as the sear is engaged respectively with the shoulders 57b and 57c. When the spring is compressed to the greatest extent, as shown in Fig. 7, the pivoted striker will be in the position shown in Fig. 9, and when the spring is compressed to the least extent, the striker will have the position shown in dotted lines in Fig. 9, and intermediate these two positions there is a third position corresponding to the position of engagement of shoulder 57b with the sear. By this arrangement the player can have a certain amount of choice and exercise judgment in respect to the amount of force that is suitable for impelling the ball under a given set of conditions, and obviously this adds to the interest in the game being played.

The shoulders 57a, 57b and 57c are preferably of the form or profile shown in the drawings, each being separated from the adjacent one by a cylindrical portion 57d

of the plunger member. Each shoulder has a cylindrical peripheral surface engaging the inner surface of the tube, and each has at one side of said surface a face engageable with the sear lug and at the opposite side of said cylindrical surface an inclined surface suitable for camming the sear to a released position as the plunger 57 is moved in an upward direction.

It is considered advantageous to provide grooves in the lower surfaces of the handles 23 and 25 to accommodate the fingers of the operator.

In playing the game it is considered best practice to cock the device by moving the sliding handle 25 upwardly to the extent required for what seems to be the optimum effect in propelling the ball. The implement is then handled by means of the fixed handle 23 so as to place it in the inclined position shown, for example, in Fig. 1. In this position the trigger can be conveniently operated by the forefinger of the hand grasping the handle 23. The striker when released moves forwardly in an arc of such radius as to project the ball forwardly in a straight line. It is preferable to set the forward end of the striker pin somewhat rearwardly of the ball in order to achieve the best results. The ball will preferably be a somewhat elastic ball of approximately the size of an ordinary baseball.

The device herein described is constructed of metal, but it is quite feasible to make a number of parts of the device of plastic material or other kinds of material.

The device herein described is of relatively simple construction, and its character is such that it is admirably adapted to the playing of lawn pool and other games in which a ball is to be propelled across the ground or other surface.

It is to be understood that the illustrated construction is by way of example only, and that various modifications and changes in the details may be made without departing from the principles of the invention or the scope of the claims.

What I claim is:

1. In a device such as described, a tubular elongated shank member having upper and lower ends, a striker head or frame connected to the lower end of said member and which when said head is placed against the ground for impelling the ball with said shank member in an inclined position presents a substantially upright frame portion closed at the top and bottom, a forwardly movable swinging striker member mounted in said frame portion and pivoted to the top part thereof, a housing carried by the upper end of said shank member and having a rearwardly directed manipulating handle, spring means for actuating said striker member enclosed in part in said shank member and operably connected to said striker member and including a plunger slidable in said shank member and a link pivotally connected to the lower end of the plunger and to the lower part of the striker member, said spring means extending partially into said housing and including a spring which is under compression when the device is cocked, and cocking and releasing means for said spring means in said housing adjacent said manipulating handle.

2. In a device such as described, an elongated tubular shank member having upper and lower ends, an open upstanding striker head or frame connected to the lower end of said member and having a lower end for placement against the ground when said shank member is in a downwardly inclined position, a striker member movably mounted in the forward portion of said striker head for impelling the ball and having an uper end pivoted to the upper part of said striker head, a housing carried by the upper end of said shank member, spring means in said shank member for actuating said striker member connected at the lower end to the lower end of said striker member and having an upper end extending into said housing, a manipulating handle extending rearwardly from said housing, cocking and releasing means

for said spring means, and a movable hand-grip member operable to energize said spring means mounted on the device below but in proximity to said manipulating handle.

3. In a device such as described, the combination of an elongated tubular shank member, a head or frame at the lower end of said shank member adapted to rest at its lower end against the ground when the shank member is in an upwardly inclined position, said head or frame having an upstanding open front portion closed at the top and bottom and at the sides, a striker member movably mounted in said open front portion for forward ball-impelling movement and pivoted in said portion adjacent the top thereof and having a lower portion equipped with a ball-contacting projection, spring-pressed means within the tubular member for actuating said striker member, a link pivotally connecting said spring-pressed means with the lower part of said striker member, trigger-released controlling means for said spring-pressed means carried by the upper end of said shank member, said spring-pressed means including a spring which is under compression in the cocked position of the device, a manipulating handle for the device located at the upper end of said shank member, and a movable member for compressing said spring mounted on the device adjacent said manipulating handle.

4. A device for use in lawn pool and similar games,

comprising an elongated hollow shank member in the nature of a staff having a frame at the lower end for placement against the ground when the upper end portion of the device is grasped by a person standing on the playing surface, said frame being an open frame having an upstanding front portion closed at the top and bottom, a striker member pivotally mounted in said frame and pivoted to the top part of said front portion and having a forwardly movable projecting ball-impelling lower portion, means operatively associated with said frame for limiting the forward movement of said lower portion, and spring-pressed means for actuating said striker member connected to said device and located in said shank member and cockable and releasable by manipulation from the upper end portion of said shank member.

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