P. H. LYNCH.

GOLF PRACTICE MACHINE.

APPLICATION FILED OCT. 23, 1912.

1,074,880.

Patented Oct. 7, 1913.

2 SHEETS—SHEET 1.

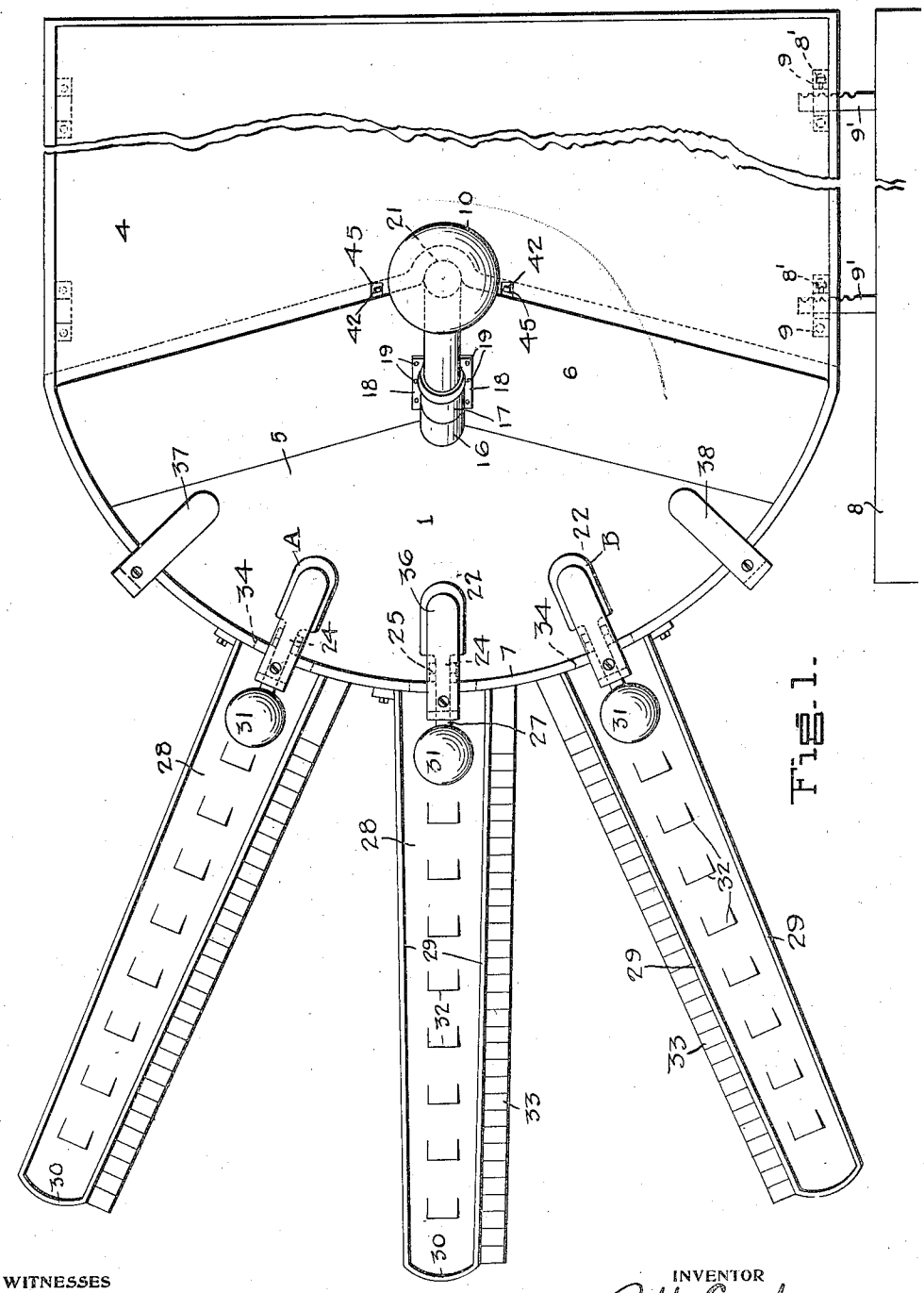


Fig. 1.

WITNESSES

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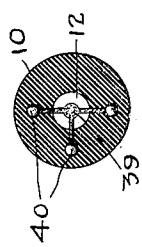


Fig. 4.



Fig. 5.

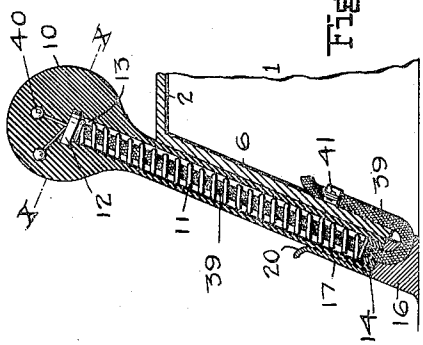


Fig. 3.

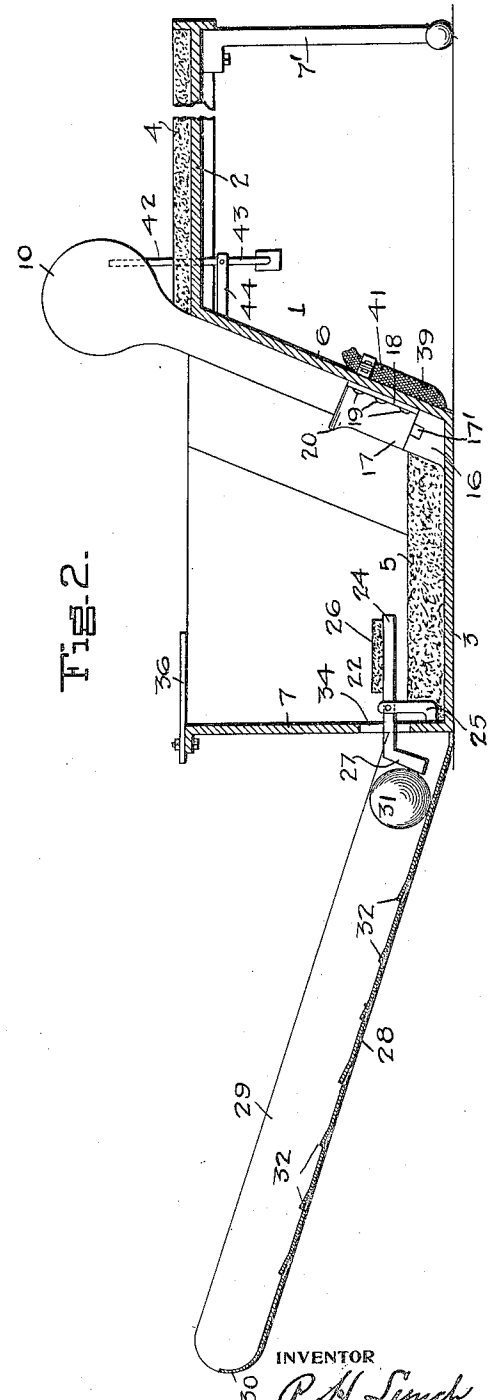


Fig. 2.

WITNESSES

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PATRICK H. LYNCH, OF NEW YORK, N. Y.

GOLF-PRACTICE MACHINE.

1,074,880. Specification of Letters Patent. Patented Oct. 7, 1913.

Application filed October 23, 1912. Serial No. 727,309.

To all whom it may concern:

Be it known that I, PATRICK H. LYNCH, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Golf-Practice Machines, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to an amusement apparatus, and with respect to its more specific features, to a machine designed to simulate or take the place of the playing of the game of golf.

One of the objects of the invention is the provision of a simple device wherewith the game of golf may be practiced either indoors or outdoors.

Another object of the invention is the provision of a practical device wherewith the character of stroke given the projectile in the game of golf may be indicated.

Another object of the invention is the provision of an apparatus wherewith golf strokes may be practiced indoors without liability of striking the surrounding exterior objects.

The invention accordingly consists in the features of construction, combinations of elements and arrangement of parts which will be exemplified in the construction hereinafter set forth, and the scope of the application of which will be indicated in the following claims.

In the accompanying drawings forming part of this specification, disclosing the preferred embodiment of the invention, and wherein similar reference characters refer to similar parts throughout the several views, Figure 1 is a plan view of the apparatus; Fig. 2 is a side elevation partly in section; Fig. 3 is a detail vertical section through the projectile and adjacent parts; Fig. 4 is a section on the line X—X of Fig. 3, and Fig. 5 is an end view of the bottom portion of the projectile, partly in section.

Referring now more specifically to the drawings, the numeral 1 indicates a horizontal frame comprising an upper substantial platform 2 and a lower platform 3; each of these platforms being surmounted or covered by pads or cushions 4 and 5, respectively. The pads may be made of felt, stuffed canvas or other suitable material, the pad 4 being designed to simulate the ground and the pad 5 being designed to serve as a cushion to yieldingly withstand shock and avoid noise. The upper and lower platforms 2 and 3, in the present embodiment, are connected by an inclined wall 6 which, as will hereinafter appear, serves as a guide to direct a projectile into a predetermined position. The platforms 2 and 3 and the guide 6 are preferably cast as an integral metallic structure having legs 7′ so that when set up it will maintain an erect position with the platforms 2 and 3 generally horizontally disposed, balls of rubber being placed on the legs to hold the device from sliding. When used in the open, the apparatus is preferably sunk into the ground so that the platform 2 is flush with the surface of the ground.

The numeral 7 indicates a curved retaining wall formed integral with the frame and extending to the height of the platform 2. The wall 7 prevents the earth from encroaching upon the space between said wall and the wall 6, when the frame is sunk in the ground. When in a room or other confined space the platform 2 will be above the floor, and in order that the player may stand upon a level with the platform 2, as is most usual in making a stroke in the game of golf, a horizontal stand 8 is provided to which the frame 1 may be removably and adjustably connected by means of straps 9 bolted to the bottom of the platform, between which and the platform enter bars 9′ connected to the stand 8, set screws 8′ serving to adjustably removably secure the frame 1 and stand 8 in relative fixed position. In this way it will be noted that the frame 1 may be disconnected from the stand 8 and turned completely around so that its farthest side may be arranged adjacent the stand and these elements connected in this position for left hand players.

A captive projectile is provided and is designed to assume a predetermined position relative to the platform 2 such that it may be struck with a golf club in the hands of a player. In the preferred embodiment, the projectile comprises an objective portion, or ball 10 in the nature of a sphere

simulating in size and shape a golf ball of the usual construction. The ball portion of the projectile is yieldingly supported and guided by a flexible elastic shaft preferably comprising a coiled spring 11 attached at its upper end to the inside of a collar 12, the ball being provided with an opening 13 into which the free end of the spring 11 extends; the fit of the collar and spring within the recess 13 being designed to be close in order to avoid undue play between the ball and shaft. The resilient shaft 11 is removably fixed preferably at one end to the frame 1 adjacent the guide 6 by means of a collar 14 fast to the lower end of the spring, said collar having oppositely projecting lugs 15, the collar resting upon a base-piece 16 projecting upwardly from the platform 3 at an incline. In the preferred construction the base-piece 16 is provided with a transverse recess 17′ in its upper surface into which the lugs 15 extend when the collar 14 rests upon the base. A socket-piece 17, having flanges 18, is placed over the spring 11 and rests upon the base 16, the lower edge of the socket-piece being designed to engage the upper edges of the lugs 15, so that when the socket-piece is fixed in position the spring 11 will be held not only from longitudinal displacement at its lower end, but also from rotary movement. Bolts 19 serve to removably secure the socket-piece 17 to the wall 6 of the frame 1.

By the above construction it will be noted that the flexible shaft is fixed at its lower portion to the frame while its upper portion is free to move or swing in different directions away from the wall 6 and the platform 2. The socket 17 preferably extends upwardly a substantial distance and has a flaring inner upper portion or surface as at 20, so that the shaft 11, when flexed, will take a gradual curve at this point, the uniform curvature of the spring tending thus to be preserved. Instead of a metallic spring shaft 11, an elastic rubber shaft of proper consistency may be substituted. Or the spring shaft may be inclosed in an elastic rubber casing forming a continuation of the ball 10, as illustrated.

The fixture for the lower portion of the spring 11 is located centrally longitudinally of the frame 1, preferably closely adjacent the wall 6; and when the spring is fastened in place, as described, its upper or free portion preferably rests against said wall. In the preferred embodiment the wall 6 extends in opposite directions from the central portion of the platform and intersects said central portion at an angle, the intersection of the oppositely extending portions being slightly rounded, forming a depression in the wall 6 providing a seat 21 for the projectile. The angularity of the laterally extending portions of the wall is such that the wall projects somewhat forwardly on opposite sides of the seat, so that should the spring 11, after being flexed, contact with said wall, said spring will be guided into its seat. By this construction the wall 6 provides a guide for the spring on opposite sides of the seat.

By the construction thus far described, when the projectile is struck by a club in the hands of a player and moved away from its seat, the spring 11 will be flexed, turning substantially at the surface 20; and no matter in which direction the projectile may be moved, the spring will tend to restore it to its predetermined position in its seat, the walls 6 serving to guide it to its seat in case it should rebound in such a manner as not to be directly seated. The projectile thus comprises an upstanding vibratory or swinging shaft, a portion of which is held in a stationary position and a portion of which is free and constantly tends to assume a predetermined position with its upper end extending above the platform; and by the association of the projectile with the platform 2 any of the strokes of golf may be made, the projectile automatically assuming a predetermined position for another stroke after each stroke.

In connection with the projectile means are provided to, in a measure, identify or determine the character of stroke applied to the projectile, to simulate the flight and the lie of the ball. To this end, a series of indicators is provided, the indicators representing the flight and lie etc. of the ball, comprising targets 22 disposed in front of the projectile and preferably arranged in an arc of a circle, as illustrated. As all of the target indicators are similar in construction a description of one will suffice for all.

Each indicator comprises a target 22 consisting of a lever arm 24 pivoted on a bracket 25, the rear end of said lever arm being provided with a pad or cushion 26, and the other end of the lever arm terminating in a propelling or hammer head 27 lying on the opposite side of the wall 7 within the confines of a trough or guideway, comprising an inclined bottom portion 28, upstanding sides 29 and an end stop portion 30. An indicating ball 31 is located in each trough and may be placed to lie against the hammer 27. The lever arm 24 is so located that when the projectile is struck with sufficient force to be flexed and arrive at the plane of the target, the objective, or ball portion of the projectile, will strike the target and propel the indicator ball 31 along the surface of the trough. The bottom of the trough is provided with suitable retaining devices 32 at different points, to temporarily hold the projectile at the point to which it has been propelled, and a scale 33 is provided to indicate the distance to which the projectile

may have been propelled, the distance being intended to be proportional to the power and character of the stroke. The ball may be dislodged from the retainers by the club, whereupon it will roll into position against the propelling head. In the preferred embodiment the ball of the central indicator is made lighter than the others as the stroke operating these latter is supposed to be inaccurate.

Preferably three of the indicators of the character referred to are provided and radially arranged with reference to the seat 21. The wall 7 is provided with openings at 34 through which the targets may pass from one side to the other thereof when being inserted in position, said openings also providing play for the target levers.

The levers 24, brackets 25 and indicator troughs are removably connected, as by bolts or screws, to the wall 7, so that the apparatus may be packed in a small compass and for other purposes, as will hereinafter appear.

It will be observed that when the projectile is struck, the stroke is not directly toward the targets, but may be merely in the vertical plane thereof, but the projectile will be flexed, as described, and the ball portion thereof will be caused to move toward the indicators or targets, and thus the spring 11 serves to guide the objective portion of the projectile toward the target, when once it is moved in line therewith, and at the same time the spring limits the space passed through by the projectile. In case the projectile is not struck with sufficient force to reach the target, it is desirable to still indicate the character of stroke, and to this end auxiliary indicators are provided in the vertical plane of each target. In the preferred embodiment, on the top of the wall 7 is secured a flexible element, such as a piece of celluloid or a thin brass plate 36 adapted to vibrate when struck, but which offers no substantial resistance to the passage of the projectile to the target. The auxiliary indicators 36 may be used alone, when it is not desired to play a game, under which circumstances the target indicating apparatus may be omitted.

The target indicators and the auxiliary indicators are preferably disposed radially of the predetermined position of the target, so that when operated they may determine the character of the stroke given the projectile. Assuming that the player attempts to strike the projectile with intent to drive it directly to the central target, he may inadvertently drive it either to one side or the other of the objective point, and the lateral target A will thus indicate that he has "sliced" the ball, while the lateral target B will indicate that he has "pulled" the ball. The auxiliary indicators above the targets will indicate similar results, and additional auxiliary indicators 37 and 38 may be provided to indicate a "slice" out of bounds or a "pull" out of bounds, as the case may be.

The objective portion 10 of the target is preferably made of substantially the same material and consistency as the usual golf ball, and in order to prevent an undue longitudinal expansion of the spring 11, and at the same time avoid accident in case said spring should break, the objective portion of the projectile is connected to the frame by a flexible, preferably non-elastic device, such as a cord 39. Preferably the cord is provided with a plurality of independent points of connection with the ball 10, in the present instance three. Three strands of cord may be provided, and the ends of these cords knotted or otherwise provided with an enlarged portion, as at 40, and the knots are associated with the ball so that one knot shall be located on the opposite side of the center from the face struck by the club, the two other knots preferably lying on axes at right angles thereto, as shown in Fig. 4. Thus the elasticity of the struck face of the ball is preserved, while at the same time a plurality of attaching devices is provided. The cord 39 passes through openings in the collars 12 and 14 and through a guideway in the base piece 16, and may be anchored to the frame in any suitable manner, as by means of a clamping device 41 in which the cord may be firmly held.

In order to indicate when the ball is struck deep enough to avoid "topping", another auxiliary indicator is provided comprising a light yoke 42, the ends of the horns of which terminate just below the horizontal central plane of the ball 10, the yoke having a stem 43 passing through the platform 2, and pivoted on a bracket 44, the platform having slots 45 to permit vibration of the yoke. When the yoke does not move, the stroke has been high enough to "top" the ball and the stroke is bad.

The operation of the device will be obvious from the foregoing description. Thus by the above described construction is accomplished, among others, the objects hereinbefore stated.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the language used in the following claims is intended to cover all of the generic and specific features of the invention herein de-

scribed and all statements of the scope of the invention, which, as a matter of language, might be said to fall therebetween.

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

1. In an apparatus of the character described, in combination, an indicator, a projectile, and means connected thereto adapted to guide the projectile to the indicator when the projectile is moved in line with said indicator.

2. In an apparatus of the character described, in combination, an indicator, a projectile comprising a coil spring shaft adapted to operate the indicator, and means for holding a portion of said shaft in stationary position.

3. In an apparatus of the character described, in combination, an indicator, a frame, a coil spring one end of which is fixed to the frame, a ball carried by the free end of the spring, and a flexible nonelastic device independently connecting the ball and frame.

4. In an apparatus of the character described, in combination, an indicator, a frame, a coil spring one end of which is affixed to the frame, a ball carried by the free end of the spring, and a flexible nonelastic device independently connecting the ball and frame, a portion of the flexible nonelastic device being embedded in the ball.

5. In an apparatus of the character described, in combination, an indicator, a frame, a coil spring, means connecting one end of the coil spring and the frame, and means to fix the position of a portion of said spring.

6. In an apparatus of the character described, in combination, an indicator, a frame, a coil spring, means connecting one end of the coil spring and the frame, and a socket connected to the frame and into which the spring extends.

7. In an apparatus of the character described, in combination, an indicator, a frame, a coil spring, means connecting one end of the coil spring and the frame, and a socket piece removably connected to the frame and into which the spring extends.

8. In an apparatus of the character described, in combination, a plurality of indicators, a projectile seat and a projectile comprising a flexible shaft adapted to occupy said seat.

9. In an apparatus of the character described, in combination, a plurality of indicators, a projectile seat, a projectile comprising a flexible shaft adapted to occupy said seat, and means adapted to guide the projectile to said seat.

10. In an apparatus of the character described, in combination, a projectile comprising a stationary flexible shaft adapted to automatically assume predetermined position when at rest, a plurality of indicators radially arranged relatively to said predetermined position, each indicator comprising a target adapted to be struck by said projectile, a guideway, and a ball adapted to be moved on the guideway by the operation of said target.

11. In an apparatus of the character described, in combination, a projectile comprising a stationary flexible shaft adapted to automatically assume a predetermined position when at rest, a plurality of indicators radially arranged relatively to said predetermined position, each indicator comprising a target adapted to be struck by said projectile, a guideway, a ball adapted to be moved on the guideway by the operation of said target, and a scale to measure the movement of the ball.

12. In an apparatus of the character described, in combination, a frame comprising a substantially horizontal platform, and a projectile comprising an upstanding flexible shaft fixed to the frame, said shaft being adapted to automatically assume predetermined position relative to said platform when at rest.

13. In an apparatus of the character described, in combination, a frame comprising a substantially horizontal platform, a projectile comprising an upstanding flexible shaft fixed to the frame, said shaft being adapted to automatically assume predetermined position relative to said platform when at rest, and a plurality of indicators spaced from said platform and radially arranged relatively to said predetermined position.

14. In an apparatus of the character described, in combination, a frame comprising a substantially horizontal platform, a projectile comprising an upstanding flexible shaft fixed to the frame, said shaft being adapted to automatically assume predetermined position relative to said platform when at rest, and a plurality of indicators spaced from said platform in a different horizontal plane and radially arranged relatively to said predetermined position.

15. In an apparatus of the character described, in combination, a frame comprising a substantially horizontal platform, a projectile comprising an upstanding flexible shaft fixed to the frame, said shaft being adapted to automatically assume predetermined position relative to said platform when at rest, and a plurality of indicators in a different horizontal plane and spaced from and connected to the platform and radially arranged relative to said predetermined position.

16. In an apparatus of the character described, in combination, a projectile comprising a stationary flexible shaft, means to

cause said projectile to automatically assume constant predetermined position when at rest, a plurality of targets radially arranged relatively to said predetermined position and adapted to be struck by said projectile when moved from its predetermined position, means to indicate when a target is struck, and auxiliary indicators adapted to indicate the direction of movement of the projectile.

17. In an apparatus of the character described, in combination, a projectile comprising a stationary flexible shaft, means to cause said projectile to automatically assume constant predetermined position when at rest, a plurality of targets radially arranged relatively to said predetermined position and adapted to be struck by said projectile when moved from its predetermined position, means to indicate when a target is struck, and flexible auxiliary indicators adapted to be struck by the projectile to indicate the direction of movement of the projectile.

18. In an apparatus of the character described, in combination, a projectile, and a pivoted vibratory indicator disposed adjacent the projectile to be operated when the projectile is correctly struck.

19. In an apparatus of the character described, in combination, a horizontal platform having a laterally disposed seat, a projectile comprising a generally upright resilient shaft fixed at one end and adapted to be flexed toward and from the side of the platform, and guides laterally extending from said seat and adapted to direct the shaft into said seat.

20. In an apparatus of the character described, in combination, a horizontal platform having a padded upper surface and a laterally disposed seat, a projectile comprising a generally upright resilient shaft fixed at one end and adapted to be flexed toward and from the side of the platform, and guides laterally extending from said seat and adapted to direct the shaft into said seat.

21. In an apparatus of the character described, in combination, a frame comprising horizontal surfaces in different planes, a resilient shaft fixed at one end adjacent the lower surface, and extending above the upper surface, in predetermined position when at rest, indicators comprising pivoted targets above the lower surface radially arranged relative to said predetermined position, and guide members extending laterally from said predetermined position and at an angle to each other and uniting in a seat defining said predetermined position.

22. In an apparatus of the character described, in combination, a frame comprising horizontal surfaces in different planes, each surface being padded, a resilient shaft fixed at one end adjacent the lower surface, and extending above the upper surface, in predetermined position when at rest, indicators comprising pivoted targets above the lower surface radially arranged relative to said predetermined position, and guide members extending laterally from said predetermined position and at an angle to each other and uniting in a seat defining said predetermined position.

23. In an apparatus of the character described, in combination, a projectile comprising a coil spring shaft, and means adapted to hold a portion of said shaft in stationary position.

24. In an apparatus of the character described, in combination, a coil spring shaft, means adapted to hold one end of the shaft in stationary position, a ball carried by the free end of said shaft, and a flexible non-elastic device, one portion of which is held in stationary position and another portion is embedded in said ball.

25. In an apparatus of the character described, in combination, a projectile comprising a flexible shaft, a ball secured thereto, and a cord comprising a plurality of strands having enlarged ends embedded in the ball, and means adapted to retain the portion of said cord remote from the ball in stationary position.

26. In an apparatus of the character described, in combination, an indicator, and a projectile comprising a resilient shaft, said shaft being so mounted relative to the indicator as to require flexing in order that the projectile may operate the indicator.

27. In an apparatus of the character described, in combination, an indicator, a projectile comprising a resilient shaft, said shaft being so mounted relative to the indicator as to require flexing in order that the projectile may operate the indicator, and a stop adapted to coöperate with said shaft and restrain vibration thereof on its return to position to be struck.

28. In an apparatus of the character described, in combination, an indicator, a projectile comprising a flexible shaft, a seat for said projectile when in position to be struck, and means adapted to return said projectile to said seat after being struck and to restrain vibration thereof on its return to striking position.

29. In an apparatus of the character described, in combination, an indicator, and a projectile comprising a resilient shaft so mounted relative to the indicator as to require flexing in order to operate the indicator, said indicator being in a different horizontal plane from the point of the shaft to be struck.

30. In an apparatus of the character described, in combination, a horizontal platform, a projectile comprising a resilient

shaft and a ball connected to said shaft adapted to be disposed above the surface of said platform, and an indicator disposed in a different horizontal plane from said ball and adapted to be operated by said ball, said shaft being so mounted as to require flexing in order that the ball may operate the indicator.

31. In an apparatus of the character described, in combination, a horizontal platform, a projectile comprising a resilient shaft and a ball connected to said shaft adapted to be disposed above the surface of said platform, an indicator disposed in a different horizontal plane from said ball and adapted to be operated by said ball, said shaft being so mounted as to require flexing in order that the ball may operate the indicator, and a stop adapted to coöperate with said shaft and restrain vibration thereof on the return of the ball to position above the platform.

32. In an apparatus of the character described, in combination, a horizontal platform comprising a seat, a projectile comprising a resilient shaft and a ball connected to said shaft adapted to be disposed above the surface of said platform adjacent said seat, and an indicator disposed in a different horizontal plane from said ball and adapted to be operated by said ball, said shaft being so mounted as to require flexing in order that the ball may operate the indicator.

33. In an apparatus of the character described, in combination, a horizontal platform comprising a seat, a projectile comprising a resilient shaft and a ball connected to said shaft adapted to be disposed above the surface of said platform, a plurality of indicators disposed in different horizontal planes from said ball and adapted to be operated by said ball, said shaft being so mounted as to require flexing in order that the ball may operate the indicators, said seat adapted to restrain vibration of said shaft on the return of the ball to position above the platform, and guides adapted to automatically direct the shaft to said seat.

In testimony whereof I affix my signature, in the presence of two witnesses.

PATRICK H. LYNCH.

Witnesses:

J. W. ANDERSON,

C. J. KULBERG.