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2,878,801

TOY CATAPULT DEVICE

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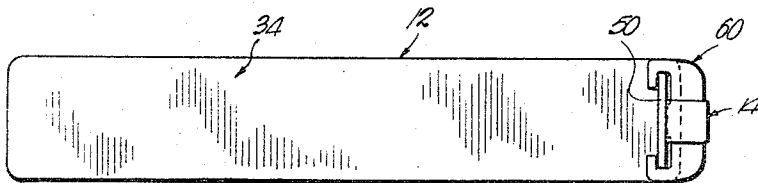


Fig. 1.

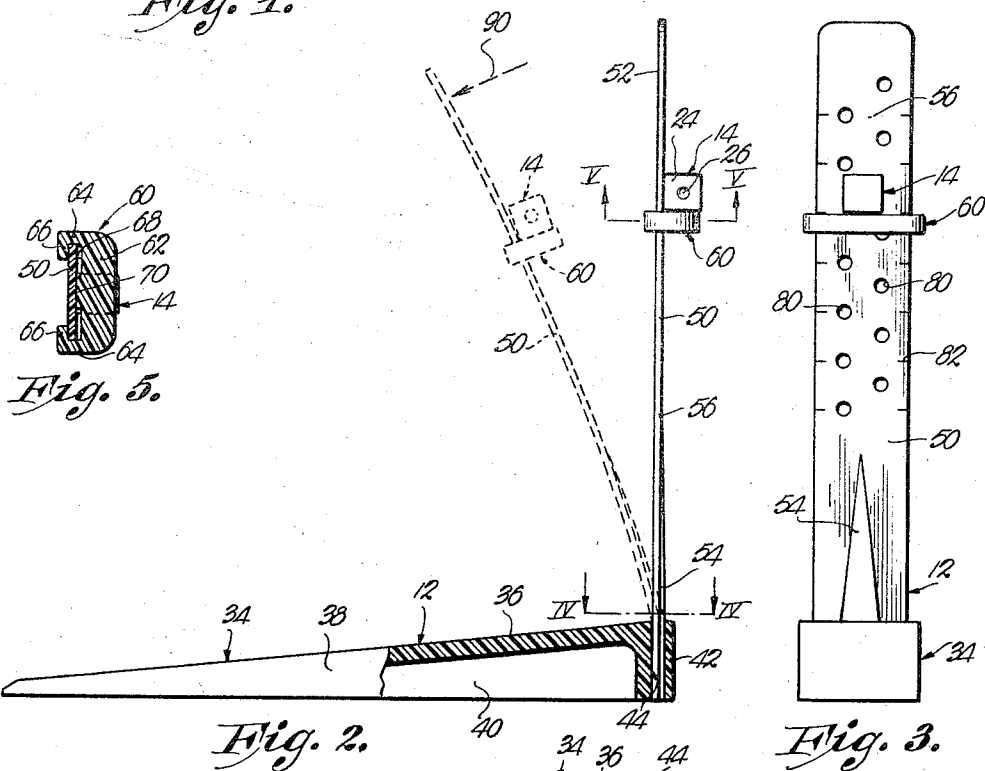


Fig. 2.

Fig. 3.

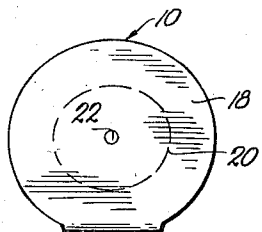


Fig. 6.

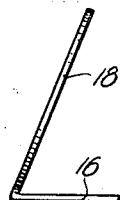


Fig. 7.

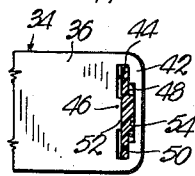


Fig. 4.



Fig. 8.

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TOY CATAPULT DEVICE

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1 Claim. (Cl. 124—7)

This invention relates to the field of games, and, more particularly, to a toy, or combination thereof, for playing a game of skill involving the propelling of a projectile toward a target.

The principal object of the invention is to provide such a game and the mechanical parts for playing same which are of structural nature rendering it possible for skill to play a major part in the game and also rendering it possible for the required mechanical devices to be manufactured at relatively low cost.

It is another important object of this invention to provide mechanical game playing structure adapted for positive and accurate action in propelling a projectile toward a target, which structure is of rugged and lasting nature while at the same time providing for certain fine adjustments required in utilizing skill to optimum advantage in connection with playing of the game.

It is another important object of the invention to provide an improved device for propelling a projectile by utilization of the catapult-like action of a resilient member.

It is another important object of the invention to provide catapult-like, projectile propelling structure having a normally upright, resilient, catapult arm provided with a projectile-supporting platform thereon, which platform is vertically shiftable relative to the arm for varying the effective length of the catapult arm action and which platform and arm are of lateral dimension permitting selective positioning of the projectile at various positions transversely of the arm for aiming purpose.

It is another important object of the invention to provide a substantially cubical projectile having a pair of opposed cavities therein which may be used in varying the trajectory of the projectile and which also render the manufacture of same in cubical form and out of solid plastic material feasible.

It is another important object of the invention to provide means for permitting the frictional locking of the projectile supporting platform in any given position on the catapult arm, but which will permit the ready adjustment of such platform to a different position when desired.

Still other important objects of the invention, including important details of construction, will be made clear or become apparent as the following specification progresses.

In the accompanying drawing:

Fig. 1 is a top plan view of the projectile propelling device forming a part of the invention;

Fig. 2 is a side elevational view of the device shown in Fig. 1, with parts being broken away and shown in section for clarity of illustration, and the arm being shown in dotted lines as it would be disposed in a cocked position ready to propel the projectile;

Fig. 3 is an end elevational view of the device;

Fig. 4 is a fragmentary cross sectional view taken on line IV—IV of Fig. 2;

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Fig. 5 is a cross sectional view taken on line V—V of Fig. 2;

Fig. 6 is a front elevational view of a suitable target for use as a part of the game;

Fig. 7 is a side elevational view of the target of Fig. 6; and

Fig. 8 is a central cross section of the cubical projectile per se, such projectile also appearing in Figs. 1, 2, 3 and 5.

The general idea of the game contemplated by this invention is that a number of targets such as generally designated 10 in the drawing will be suitably placed upon the floor some distance removed from one or more devices generally designated 12 in the drawing for propelling projectiles generally designated 14 toward the targets 10 for knocking over the latter, it being understood that each player may be provided with a projectile propelling device 12.

The targets 10 are preferably integrally formed of plastic material and include a normally horizontal base plate 16 having integral therewith and extending upwardly and rearwardly from the forwardmost edge thereof a substantially circular target plate 18 provided with suitable target markings 20 and 22 thereon. It will be apparent that, when a target 10 is struck by a projectile 14, the target 10 will be knocked over backwardly from its normal, upright position. The scoring of the game will be a function of the number of targets 10 hit or knocked down with a given number of "shots" of the projectiles 14.

The projectile 14 is preferably formed of plastic material as a solid cube 24 having a pair of opposed cavities 26 and 28 respectively formed in two opposed faces 30 and 32 of the cube 24. Cavities 26 and 28 serve two useful purposes. First, were such cavities 26 and 28 not provided, the shrinkage normally attendant upon the molding of plastic material into cubical form would distort the body 24 from the desired cubical form. Secondly, and perhaps of even greater pertinence with respect to the playing of the game contemplated by the invention is that the cavities 26 and 28 render the faces 30 and 32 of the cube 24 more resistant to the air medium through which the projectile 14 passes during its trajectory than the remaining faces of cube 24. This fact may be utilized in various fashions by a player in exercising his skill in connection with the game. If the projectile 14 is so disposed upon the device 12 (as will hereinafter be more fully treated) as to cause faces 30 and 32 to be generally parallel to the trajectory of the projectile 14, the cavities 26 and 28 will have a minimum effect upon the range and elevational aspects of the trajectory and will tend to produce a flatter trajectory than when the projectile 14 is disposed so that faces 30 and 32 thereof will be passing through positions normal to the trajectory as the projectile 14 rotates, as it normally will during flight. This is true because the projectile 14 will normally rotate in end-over-end condition as it leaves the device 12 so that if cavities 26 and 28 are rotating about an axis transverse to the trajectory the increased resistance to the air of faces 30 and 32 will tend to cause the projectile 14 to elevate more rapidly during the early part of the trajectory and to fall more sharply during the latter portion thereof.

Obviously, either the targets 10 or the projectiles 14 could be formed of material other than plastic, such as sheet metal in the case of targets 10 or wood in the case of the projectiles 14. Moreover, the cavities 26 and 28 in the projectiles 14 could conceivably be omitted without effecting the more general aspects of the game, although obviously the skill control over the shape of a trajectory for a given effective catapult arm length, such as is available in the preferred embodiment of the invention, would be eliminated.

Reference is next made particularly to Figs. 1 through 5 inclusive, wherein is illustrated the device 12 which comprises perhaps the most important portion of the improved structure provided by the invention. The device 12 includes a base 34 provided with a downwardly and rearwardly sloping top wall 36, a pair of opposed side walls 38 and 40 depending therefrom, and a forwardmost wall 42. As will be clear from Fig. 2, base 12 may be integrally formed of plastic material and may be hollow underneath the top wall 36 and between the side walls 38 and 40 thereof, in order to conserve material. Base 12 must, however, be of sufficient ruggedness to accommodate the holding weight of a player upon the top of wall 36 during use of the device 12 in playing the game, since the device 12 is thus normally held in a fixed position upon a floor or the like.

The forward wall portion 42 of base 12 is provided with a vertical slot generally designated 44 therein. Slot 44 is elongated in cross section with its longitudinal axis disposed transversely of the elongated base 12. Slot 44 is generally rectangular in cross section but has a projection 46 of wall 42 extending thereinto from the rear and also has a substantially rectangular enlargement 48 on the forward side thereof opposite projection 46.

A normally upright, elongated, strip-like, catapult arm 50 is preferably formed of metal, although same could conceivably be formed of laminated or solid plastic material, the controlling consideration being that it must be of suitably resilient nature. Arm 50 is preferably of thickness slightly greater than the distance from the forwardmost extremity of projection 46 to the forwardmost edge of the main rectangular portion of slot 44. Thus, the lower portion of elongated arm 50 is adapted to be received within slot 44 only when arm 50 is slightly bent or flexed from its normal condition transversely thereof. However, when arm 50 is so flexed from its normal position and inserted within slot 50 and the transverse flexing force then removed, arm 50 will tend to return to its normally flat configuration pressing the rearmost face 52 thereof into tight frictional engagement with the forwardmost extremity of projection 46. By such means the arm 50 is tightly, but releasably held within the slot 44 adjacent the lowermost end of the arm 50.

Since the arm 50 is subjected to repeated longitudinal flexing in connection with its catapult-like action, and since a substantial amount of such longitudinal flexing tends to occur under normal conditions at a zone of arm 50 just above the upper face of base 12, arm 50 is preferably reinforced by the provision of a generally triangularly shaped rib 54 on the lower portion of the front face 56 of arm 50 so as to increase the thickness of the latter throughout the zone of maximum strain to thereby prevent material fatigue and breakage. It may be noted that the enlargement 48 of slot 44 accommodates such rib 54 without contact between the latter and the structure of base 12.

A vertically slidable projectile-supporting platform generally designated 60 is provided on the arm 50 and includes an elongated forward portion 62 adapted for supporting the projectile 14 on the upper surface thereof, such forward portion 62 extending completely across the arm 50 transversely of the latter. Platform 60 also includes a rearwardly extending portion 64 at each end of the forward portion 62, portion 64 extending around the lateral edges of the arm 50 and to the rear thereof where they are each interconnected with an inward extension 66. Inward extensions 66, rearwardly extending portion 64 and forward portion 62 thus define a slot 68 in the platform 60 of generally T-shaped cross section having its cross portion disposed laterally of arm 50 and its leg portion disposed in rearwardly extending relationship thereto. The forward portion 62 of platform 60 is provided with a rearwardly extending projection 70 and interrupts the otherwise rectangular cross section of the cross portion of slot 68 in substantially the same manner that projection

46 extended into the slot 44 of base 34. Similarly also, the distance between the rearmost extremity of projection 70 and the forwardmost extremities of inward extension 66 is somewhat less than the thickness of arm 50 so that the platform 60 is in tight frictional engagement with the arm 50 except when the latter is flexed transversely thereof to break the engagement between the arm 50 and the rearward extremity of projection 70, and the forward extremities of inward extension 66.

It will thus be apparent that by the construction described, the platform 60 is rendered readily movable to various positions along the length of arm 50 upon the transverse flexing of the latter, but is adapted to be positively held in any position on arm 50 when the flexing of the latter is released.

It will be apparent that the device 12 may be made in various sizes; however, when the width of the arm 50 is of substantial magnitude it is found desirable to provide arm 50 with a number of perforations 80 therein, in order to decrease the air resistance of the arm 50 itself during its swinging movement in connection with the catapult action for which it is employed. Although the provision of such perforations 80 may be deemed optional with arms 50 of lesser width, where such dimension of the arm 50 becomes appreciable, their provision is definitely to be preferred. It may also be noted that the forwardmost face 56 of arm 50 may be provided with graduations or markings 82 for aiding the player in positioning or repositioning the platform 60 at a particular place on the arm 50 and that such markings 82 may be further calibrated to indicate the overall range of the trajectory to be expected with the platform in a given position relative thereto.

It will be understood that, in operation, the arm 50 is emplaced within base 34, the platform 60 is adjusted to a suitable position along arm 50, the projectile 14 is placed upon the platform 60 at a lateral position upon the latter depending upon the desired azimuth deflection of the trajectory from the longitudinal axis of the base 34, and that the arm 50 is then pulled rearwardly by the player (normally through contact of a finger with the upper extremity of arm 50) to a position such as illustrated in dotted lines in Fig. 2. It will be understood that the solid line position of the arm 50 in Fig. 2 is its normal configuration and that the dotted line position will be assumed only under conditions of the application of external force in the direction indicated by the arrow 90. Although one degree of flexing of the arm 50 is shown in dotted lines in Fig. 2 for purposes of illustration, it will be understood that such flexing may be varied by the player to control the range or trajectory of the projectile 14.

Upon release by the player of the holding force along direction 90 upon arm 50, the latter will, by virtue of its resilience, swing rapidly forwardly toward its normal, upright position and will slightly "overshoot" the latter before returning to such normal position. As the arm 50 ceases its forward swinging movement the projectile 14 upon platform 60 will, since it is resting loosely thereon, continue or be thrown forwardly toward the target 10 in a trajectory determined by the positioning of platform 60, the degree of flexing of arm 50 and the positioning of the cavities 26 and 28 upon the projectile 14 itself. If a given shot proves to be a miss, the player may on the next trial vary one of the aforementioned perimeters to change the trajectory through which the projectile 14 will travel.

It will be apparent that certain minor modifications and changes could be made from the exact structure described for purposes of illustration without materially departing from the true spirit and intention of the invention. Accordingly, it is to be understood that the invention shall be deemed limited only by the scope of the appended claim.

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Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

In apparatus for playing a game of skill, a toy catapult device comprising an elongated, floor-engaging base having a substantially vertical slot therein adjacent one end thereof; an elongated, strip-like, resilient, normally straight, normally vertical catapult arm, a portion of said arm adjacent one end thereof being releasably received and frictionally held, within said slot; a platform mounted on the arm for longitudinal shifting movement along the latter and having a flat, normally horizontal, upwardly facing surface which is elongated transversely of the arm; a substantially cubical projectile resting on the upwardly facing surface of said platform, said surface being of sufficient length greater than an edge dimension of said cubical projectile to permit disposition of the latter upon said surface in various positions with respect to the transverse dimension of the arm; and means for releasably

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holding the platform in any position of its longitudinal shifting movement upon the arm.

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