Aug. 4, 1931. A. S. LITTLEFIELD 1,817,491

MECHANICAL TOY

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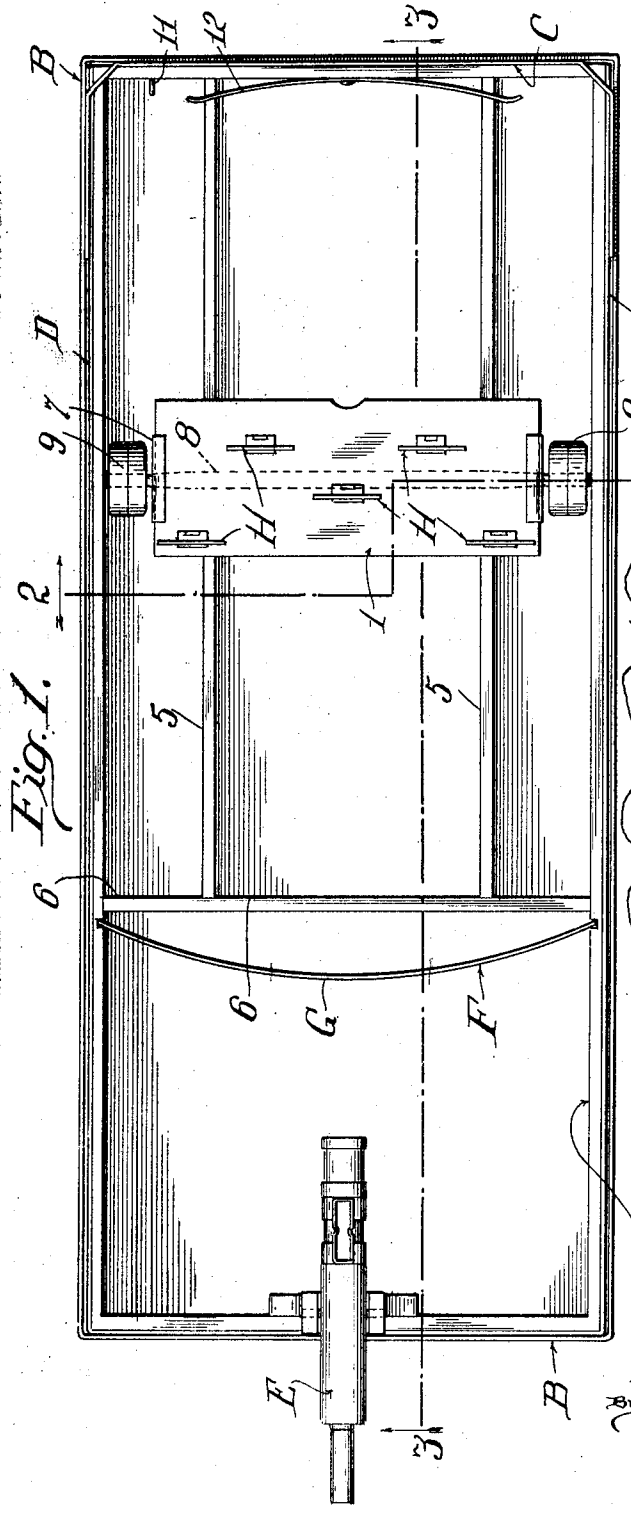


Fig. 1.

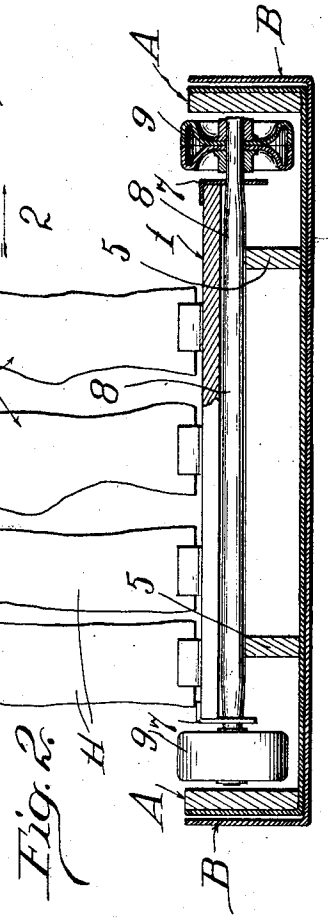


Fig. 2.

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MECHANICAL TOY

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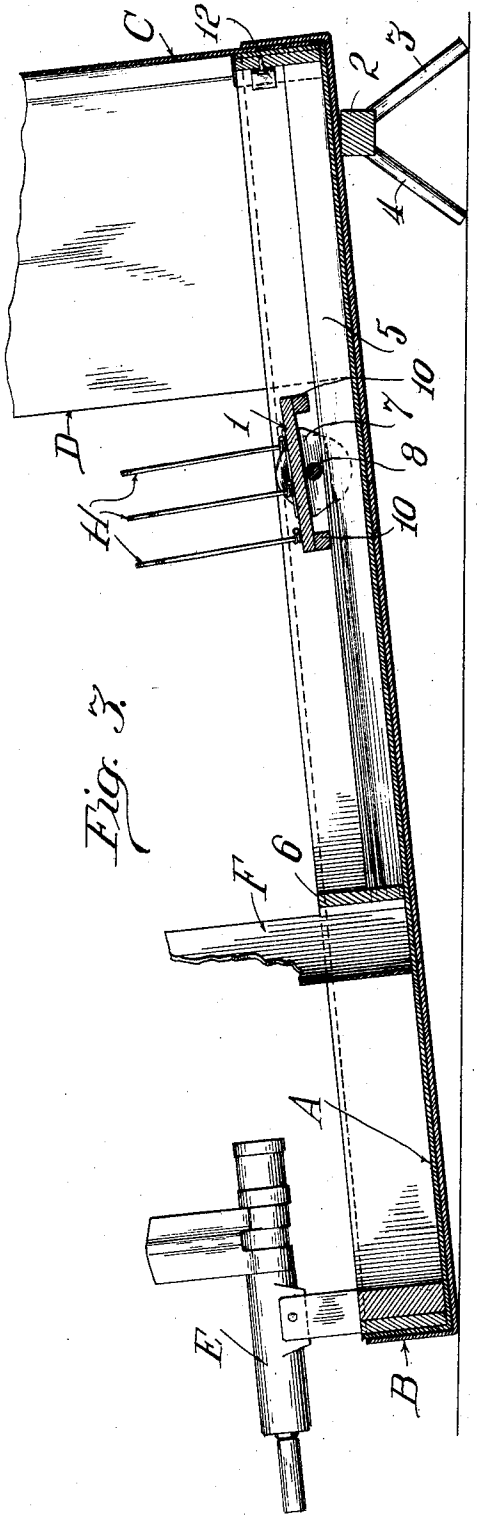


Fig. 3.

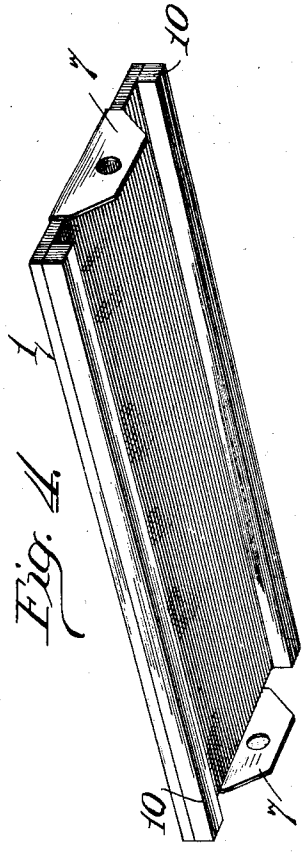


Fig. 4.

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MECHANICAL TOY

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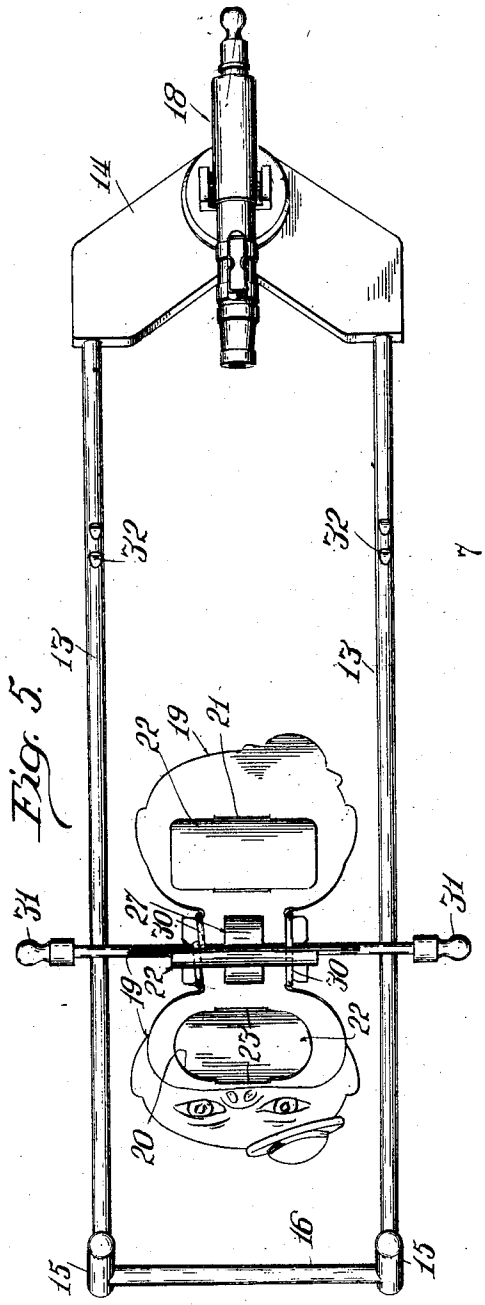


Fig. 5.

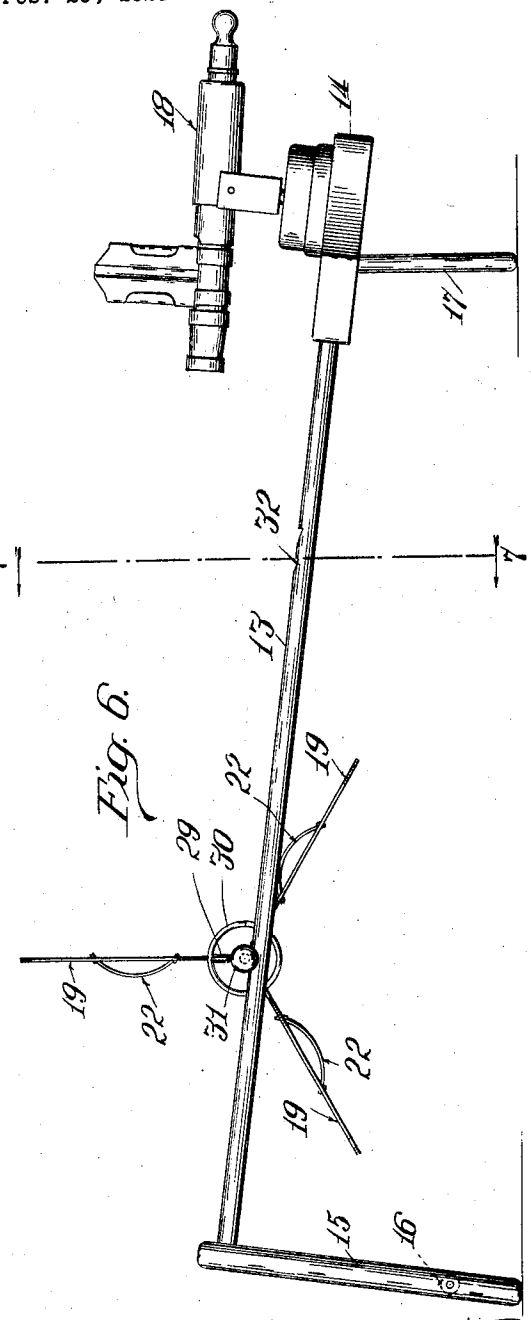


Fig. 6.

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Fig. 7.

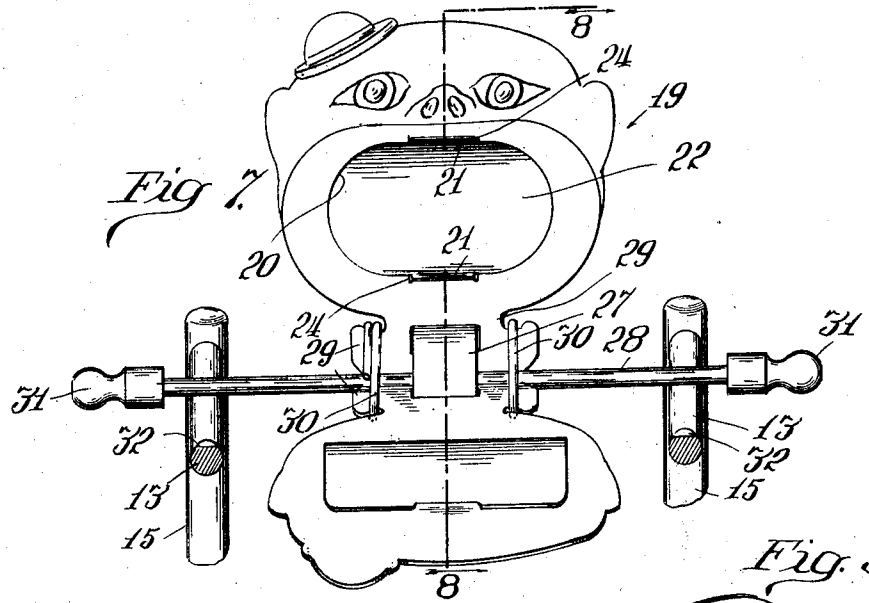


Fig. 8.

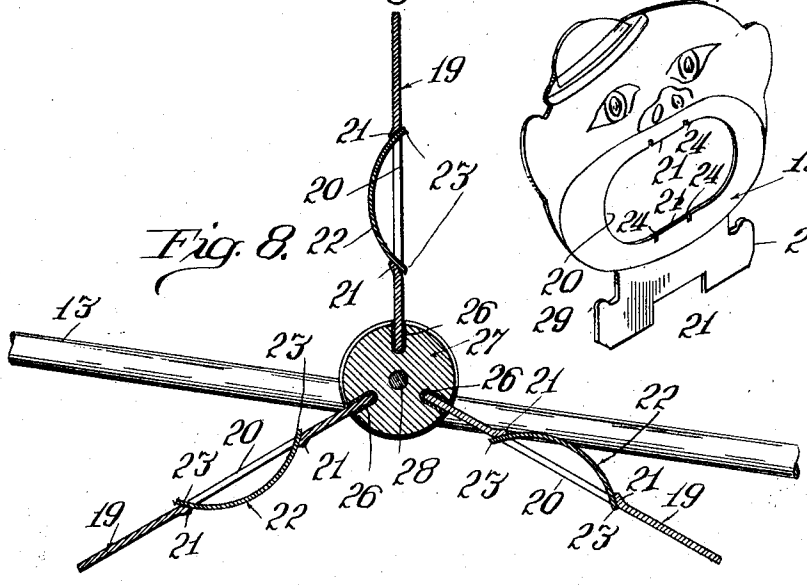


Fig. 9

Fig. 10.

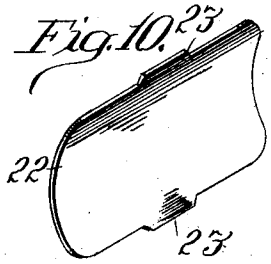


Fig. 12.

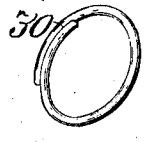
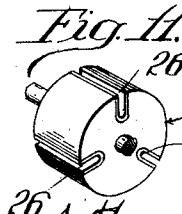


Fig. 11.



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Patented Aug. 4, 1931 1,817,491

UNITED STATES PATENT OFFICE

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MECHANICAL TOY

Application filed February 20, 1928. Serial No. 255,513.

This invention relates to mechanical toys and particularly to that type of game apparatus known as a "gun and target" toy, the present improvement being particularly directed to the carriage or movable platform of the apparatus or toy illustrated in Figs. 16 to 19, inclusive, of Letters Patent No. 1,641,977, issued Sept. 13, 1927, and the base portion of the receptacle of said apparatus.

The main object of the present invention is to provide a toy of the particular type last above referred to wherein the carriage for the target figures moves by gravity in one direction at an automatically controlled speed and wherein coacting means are provided on the carriage and base for permitting the former to be easily and properly initially positioned for travel, the invention further including means other than gravity for starting said platform.

In the accompanying drawings illustrating several embodiments of the invention:

Fig. 1 is a plan view of a game apparatus or mechanical toy constructed in accordance with the invention.

Fig. 2 is a transverse section of the same.

Fig. 3 is a longitudinal section of the same showing the base element tilted as in use.

Fig. 4 is a perspective view of the platform or carriage employed.

Fig. 5 is a plan view of another embodiment of the invention.

Fig. 6 is a side elevation of the same.

Fig. 7 is a vertical transverse section of the same on the line 7—7 of Fig. 6.

Fig. 8 is a fragmentary vertical longitudinal section of the same on the line 8—8 of Fig. 7.

Fig. 9 is a perspective view of one of the target carriers.

Fig. 10 is a perspective view of one of the targets.

Fig. 11 is a perspective view of the hub member for the target carriers.

Fig. 12 is a perspective view of one of the rings used for retaining the target carriers on the hub member.

The device, in the embodiment shown in Figs. 1 to 4 inclusive, includes a shallow, oblong receptacle A for which a cover B is provided, the latter being shown in the drawings in inverted position and containing the member A. This arrangement provides a convenient means for supporting a back-stop wall C having side wings D, the lower edge portions of which are inserted and held between the peripheral wall of the member A and the similar portion of the member B. A toy gun E is pivotally and detachably mounted at the other end of the member A and between said gun and the back-stop wall there is detachably mounted what I term a fortress wall F provided with a gap G midway of its side edges through which projectiles from the gun must pass to hit target Figures H hinged to the carriage or platform, which is indicated by the character I, and is adapted to travel between the back-stop wall and the fortress wall. The target figures H are arranged in rows from one side edge portion of the platform I to the other side edge portion, the figures of the several rows being arranged in staggered relation to each other so that each figure of each row is free to fall backward upon being hit by a projectile.

In the aforesaid Letters Patent the foregoing several elements are provided, together with manually operable means for causing the platform to travel, the arrangement being such that the target figures approach the gun and the gunner is intended to shoot at said target figures while in motion, the outermost of said figures moving out of range of the projectiles behind the side portions of the fortress wall as said platform approaches the latter. Consequently, the gunner, to make the maximum score, must hit the side figures while in range as the middle figures remain always within range.

Manual operation of the platform requires that one of the players effect the same while another acts as gunner and, as the speed of operation will vary somewhat with each operator and thus permit unfairness in play, it is obviously desirable that means be provided for controlling the speed of travel of the platform 1 and also that means be provided for permitting the game to be played by a single instead of a plurality of players.

To this end I provide a knockdown support for the rear end of the base so that the latter will be tilted toward its gun end. The support 2 herein illustrated consists of a stick of wood having two openings for the reception of legs 3 disposed adjacent the ends of said stick and an intermediate opening for the leg 4, this constituting a simple and cheap expedient for which, of course, any other suitable support may be substituted, it being preferable to provide means on said stick 2 and the cover B for detachably securing said stick to the latter so that the whole base may be always tilted at the same angle.

Parallel with the side walls of the member A and equally spaced from the latter are rails 5 which extend from the rear wall to the intermediate wall 6 of said member.

The platform 1 is provided at its side edges with downwardly extending flanges 7 having openings in which the shaft 8 is rotatable, said shaft being equipped at its ends with rather heavy wheels 9 which are non-rotatably mounted thereon and act as fly or balance wheels, the shaft riding on the rails 5 upon which it is supported at a sufficient elevation to permit free rotation of the wheels 9. Secured to the lower face of the platform 1 bordering the front and rear edges thereof are ribs 10, the forward one of which is adapted to contact lightly with the rails 5 to retard travel of the carriage. The said front and rear edges of said carriage are parallel with the axis of the shaft 8 and the rails 5 are disposed perpendicularly or at right angles to the rear wall of the member A so that when the rear edge of the carriage is forced into contact with the rear wall of the receptacle A the former will be in one respect properly positioned for travel. The wheels 9 are disposed between the respective rails 5 and the side walls of the member A and, to permit proper travel of the carriage, must be spaced from said side walls so that neither the hub nor the rim of a wheel nor an end of the shaft 8 contacts with a side wall. For easy adjustment of the position of the carriage 1 relatively to the side walls of the member A, I provide on the rear wall of the latter a stop pin 11 against which one side edge of the carriage 1 is forced at the time that its rear edge is forced against the rear wall.

In order to prevent too rapid travel of the carriage 1, the inclination of the member A should be approximately as shown and at this inclination the carriage is apt not to start automatically. To start the same digitally has the disadvantage incident to manual operation of the carriage, viz.: that the starter may give it quite an initial momentum, the degree of which would vary and result in unfairness to the successive gunners besides probably also resulting frequently in positioning the carriage otherwise than required for continuous travel over the whole length of the rails. I therefore provide on the rear wall one or more light flat springs 12 which normally project therefrom and are forced into contact therewith when the carriage is forced against said wall, said springs acting to start said carriage when released and imparting thereto the same degree of initial momentum at each operation, the force exerted by the bow-spring 12 shown being just sufficient to overcome the inertia of the carriage at the instant of its release.

It will be noted that the shaft and balance wheels of the platform constitute the portion of greatest weight, the balance wheels by their weight overcoming resistance to travel due to the contact of a corner of the platform with the rails and acting also to govern the speed of travel of said platform.

The embodiment of the invention shown in Figs. 5 to 12 inclusive differs from that shown in Figs. 1 to 4 inclusive, in many details without, however, departing from the broad idea of providing a traveling target which moves toward the gun.

In place of the shallow receptacle of Figs. 1 to 4, the device of Figs. 5 to 12 includes a knock-down skeleton frame which comprises parallel side rails 13, the ends of which engage in dowel-pin fashion in the end rail 14 at their forward ends and in the legs 15 at their rear ends, the latter being joined adjacent their lower ends by the cross-bar 16. The end rail 14 is V-shaped and is supported upon legs 17 which are shorter than the legs 15 so that when the device is placed upon a horizontal surface the side rails 13 will be inclined.

Upon the end rail 14 the gun 18 is mounted substantially as in Figs. 1 and 2.

The targets of this embodiment consist of wing members 19 which may be formed and embellished to represent heads with open mouths or other openings 20 which are bordered by means or devices 21 for detachably associating the targets 22 with said wing members to constitute closure for the openings 20. In the instance illustrated the members 19 and 22 are made of cardboard or similar light, flexible material, the members 22 being provided midway of their upper and lower edges with short tongues or flanges 23 and the top and bottom walls of the openings 20 are provided with recesses 24 spaced from each other a distance less than the width of the tongues or the flanges 23, said recesses bordering tongues 25 which are bent into offset relation to the body portions of said members 19. The targets 22 are concavo-convex and so flexible that they may be flexed to curvature of smaller radius so that one of the flanges or tongues 23 may be passed over the end of a tongue 25 after the other tongue 23 is engaged between the other tongue 25 and the body member 19, or,

by slightly flexing the member 22 the same may be moved laterally into engagement with the tongues 25. Obviously this part of the structure may be changed and varied without departure from the invention.

The wing members 19 are engaged in radial slots 26 in the hub member 27 which is non-rotatably mounted on the carrier shaft 28 which constitutes the traveling target carrier of this structure. The wing members include the projections 29 at opposite sides over which expansible rings 30 are sprung to retain said wing members engaged with the member 27.

On the ends of the shaft 28 are knobs or other elements 31 which are spaced from each other a distance sufficient to permit the rails 13 to be received therebetween, said elements 31 serving only to limit the lateral movement of the shaft 28 relatively to said rails. The latter are provided with recesses 32 into which the shaft 28 drops to stop its travel.

In use, the shaft 28 is disposed in contact with the upper ends of the legs 15 as a starting point, the object in play being to direct projectiles from the gun to strike the members 22 to thereby detach them from the members 19. The inclination of the rails 13 causes the shaft 28 to travel by gravity along the said rails, said shaft being thus rotated and rotating the members 19. The latter act similarly to the weight members on the ends of the shaft shown in Figs. 1 to 4 but, by reason of their large area, act as fans the rotation of which is atmospherically resisted to govern the speed of rotation of said shaft and its consequent speed of travel. Obviously considerable skill is required by the gunner to displace all of the targets 22 during travel of the shaft 28 from the legs 15 to the notches 32.

I claim as my invention:

1. A mechanical toy including tiltable rails, a gravity actuated platform equipped with a rotatable shaft riding on said rails, a portion of said platform contacting with said rails to retard travel thereof, and balance wheels on said shaft adapted to govern speed of travel of the latter.

2. A mechanical toy including a tiltable base equipped with rails, a platform equipped with a rotatable shaft riding on said rails, coacting means associated with said rails and said platform for permitting accurate adjustment of the position of the platform relatively to the rails, and means associated with said coacting means for imparting initial movement to the carriage following adjustment of its position on the rails.

3. A mechanical toy including a tiltable base equipped with rails, a platform equipped with a rotatable shaft riding on said rails, coacting means associated with said rails and said platform for permitting accurate adjustment of the position of the platform relatively to the rails, means on said shaft for governing the speed of rotation thereof, and means associated with said coacting means for imparting initial movement to the carriage following adjustment of its position on the rails.

4. A mechanical toy of the type specified comprising a tiltable base, parallel rails thereon, a manually operable projectile projecting device pivotally mounted upon the lower end portion of said base, a member mounted between the ends of said base and extending transversely thereof, there being a recess midway of said member through which projectiles are adapted to pass, a platform adapted to travel by gravity on said rails from the upper end of the latter toward said member, means associated with said platform for governing speed or travel thereof, and target elements mounted on said carriage in a row extending over the entire width of said platform, the portions of said member at opposite sides of the recess therein constituting baffles preventing projectiles from striking the outer target elements of the row as said platform approaches said member.

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