

Nov. 11, 1952

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2,617,652

CHANGEABLE ROTATING TARGET

Filed Oct. 4, 1951

2 SHEETS—SHEET 1

Fig-1

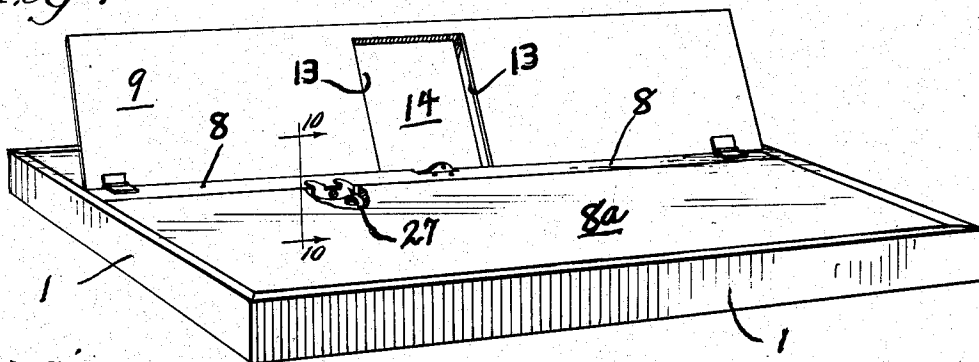
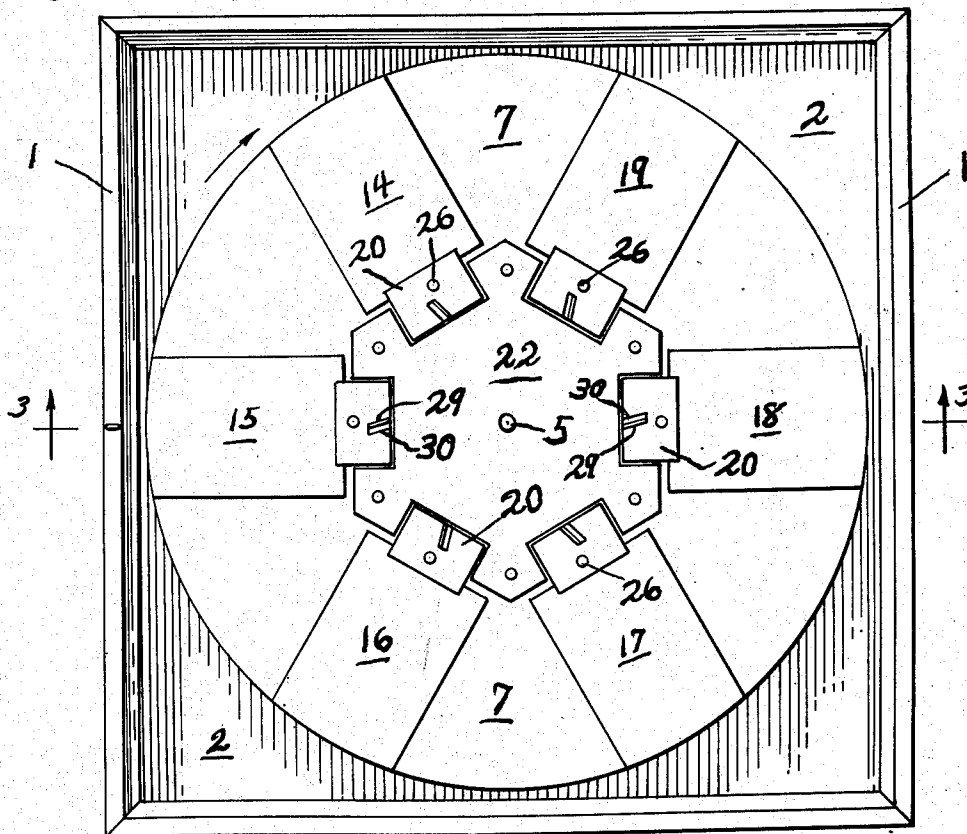


Fig-2



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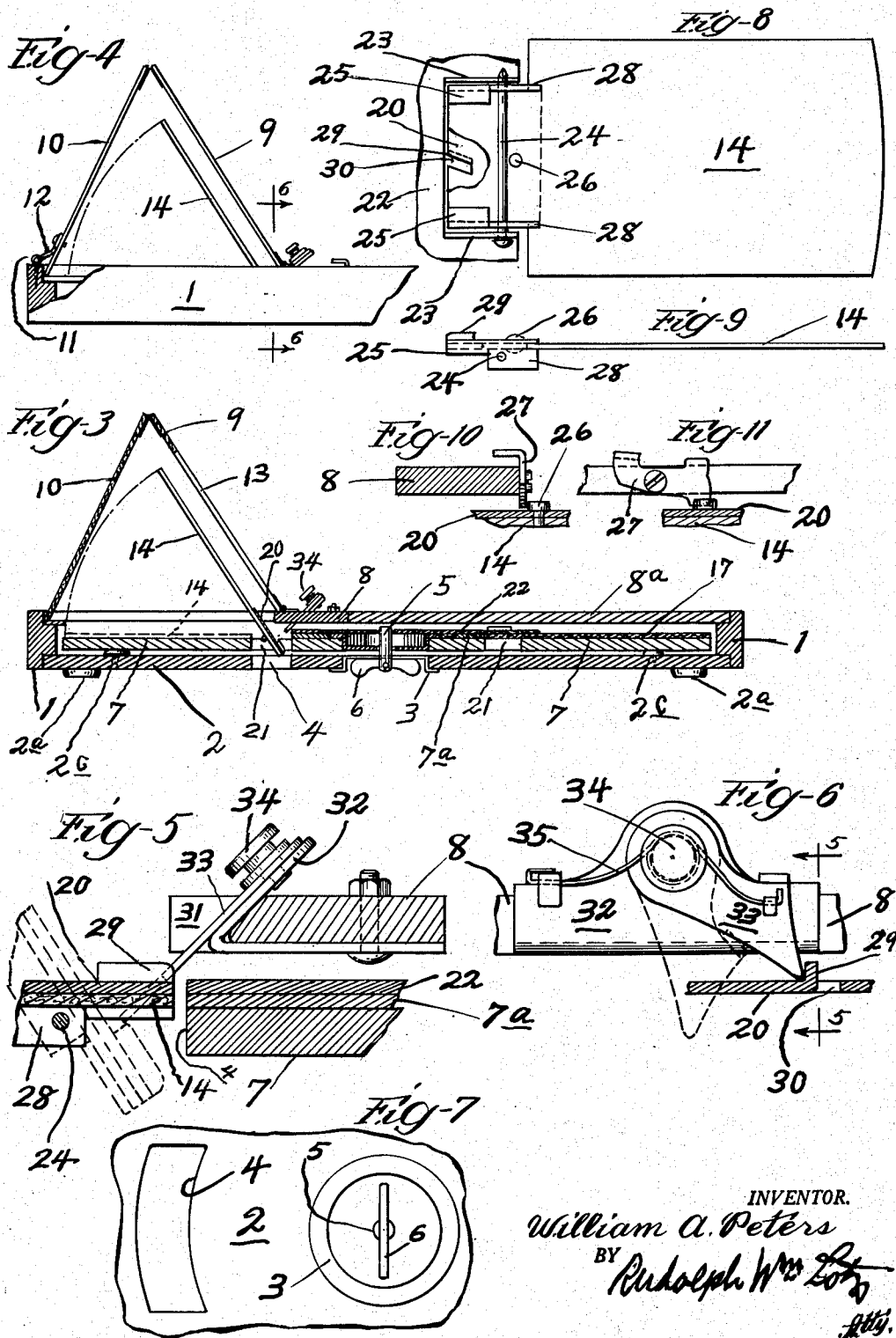
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CHANGEABLE ROTATING TARGET

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2 SHEETS—SHEET 2



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CHANGEABLE ROTATING TARGET

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6 Claims. (Cl. 273—102.1)

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The main objects of this invention are:

First: To provide a very simple spring motor actuated toy which can be produced at low cost and contained in a suitable carton of small height and is of light total weight, besides being durable and easily operated by children ranging from about age two and over, and

Second: During the operation of which target plates mounted pivotally upon an intermittently rotating carrier, consisting of a turntable in the embodiment of the invention illustrated in the accompanying drawings, spring up from horizontal to substantially vertical positions successively at a given point in the travel of the carrier and stop the movement of the latter until the vertically disposed target is returned to its horizontal position, either digitally or by impingement of a projectile projected from a suitable toy pistol or equivalent against the insignia bearing face of the exposed target to thereby cause the carrier to move to the position wherein another target is caused to become vertically disposed.

In the accompanying drawings illustrating the preferred type of embodiment of the invention—

Fig. 1 is a perspective view of a toy constructed in accordance with the invention fully assembled in readiness for operation.

Fig. 2 is a plan view of the same with top plate and parts connected therewith removed, and this figure shows the structure turned ninety degrees relative to its position in Fig. 1.

Fig. 3 is a vertical cross-sectional view of the assembled toy shown in Fig. 1, taken on the line 3—3 of Fig. 1.

Fig. 4 is a fragmentary side elevation of the structure looking at the left side of Fig. 1, and drawn on a larger scale than Fig. 1.

Fig. 5 is a fragmentary detail vertical sectional view on an enlarged scale, taken on the line 5—5 of Fig. 6 with parts shown in side elevation.

Fig. 6 is a view partly in elevation and partly in vertical section, taken on the line 6—6 of Fig. 5.

Fig. 7 is a fragmentary bottom plan view on an enlarged scale, of the bottom plate of the frame structure, showing the bottom plate and winding key of the spring motor of the toy mounted upon said bottom plate, and an arcuate slot in the latter concentric with shaft and said bottom plate of said motor.

Fig. 8 is a detail bottom plan view of a hinge member and a plate secured to the same, six of said hinge members and plates being shown in top plan in Fig. 2.

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Fig. 9 is a side elevation of the hinge member and plate shown in Fig. 8.

Fig. 10 is a fragmentary detail vertical sectional view, on an enlarged scale, taken on the line 10—10 of Fig. 4.

Fig. 11 is a fragmentary detail vertical sectional view taken on the line 11—11 of Figs. 4 and 10.

In the instance illustrated, the toy comprises a rectangular frame 1 which may be made of wood or other suitable material and of any desired dimensions, the same being T-shaped in cross-section, as shown at left-hand end of Fig. 3.

Suitably secured marginally in the lower rabbet of said frame, is a bottom plate 2 of any suitable material upon which a conventional type of spring motor, having a dished and annularly flanged bottom plate 3 is mounted, as shown in Fig. 7, said plate 2 being provided with an arcuate slot 4 concentric with and spaced from said plate 3.

The bottom plate is equipped with suitable supports 2-a at corner portions as shown in part in Fig. 3.

The shaft 5 of said motor, equipped with a winding key 6 at its lower end, is rigidly secured at its upper end to the center of a flat circular turntable 7, spaced from and parallel with the plate 2, and opposed to and spaced from the rib of the frame 1, as shown in Figs. 3 and 2, respectively.

A cross bar 8 (Fig. 1) is secured at its ends to the side rails of the frame 1, between their ends and parallel with end rails, with top surface flush with that of the frame 1.

A removable plate 8-a is disposed between the bar 8 and one end rail of the frame and rests along three edges upon the mid-rib of the frame 1 and is thus spaced from the turntable 7.

A plate 9, of sheet material, is suitably hinged along its lower edge to the bar 8, and a similar plate 10 is hinged along its upper edge to the upper edge of the plate 9 and when said plates 9 and 10 are disposed in the position of Figs. 3 and 4, the lower edge of plate 10 rests upon the mid-rib of the end rail of the frame 1, which bears an eye member 11 to receive a hook member 12 (Fig. 4) pivotally mounted upon the plate 10 to hold said plates in the position of Figs. 3 and 4.

The plate 9 is provided with the rectangular recess 13, shown in Figs. 1 and 3, for reasons set forth later herein.

The turntable 7 carries a series of six equally spaced apart target plates 14 to 19 respectively (Fig. 2) in the instance illustrated, which will

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bear suitable pictures of animals or any other objects to be shot down by projectiles emanating from suitable toy pistols or the like, by those who use the toy, each of said plates being secured at its inner end portion to a hinge member 20 pivotally engaged with the turntable 7 at points spaced equally from the shaft 5 of the motor (Fig. 2) as best shown in detail in Fig. 8, and also at right-hand end portion of Fig. 3, wherein the hinge member 20 is shown as overhanging a slot 21 in the turntable 7. The number of said slots 21 in the turntable 7 are six and are spaced from the axis of the shaft 5 the same as is true of the arcuate slot 4 of the plate 2, so that during rotation of the turntable 7, said slots become disposed successively in register with said slot 4, for reasons set forth herebelow.

A sheet metal member 22 is riveted to the turntable 7 centrally thereof, as shown in Fig. 2, the same being hexagonal, in the instance illustrated and is provided midway of each straight peripheral edge with a radial rectangular recess, the side edges of which are equipped with vertical downwardly projecting flanges 23, shown at left-hand end of Fig. 8, and are equipped with openings constituting bearings for the end portion of hinge pintles 24 which pass through openings in the downwardly projecting parallel side flanges of the hinge members 20, shown in inverted position in Fig. 8.

The target plates 14—19 may be of any desired shape and size along their exposed portions but must be equipped with tongues at their inner end portions, as in Fig. 8, for engagement by over-turned flanges 25 of the hinge members 20, to which they are secured by rivets 26, the upper ends of which project appreciably above the upper faces of the hinge members 20, and same are spaced equally from the axis of the turntable 7 for cooperation with a digitally operable rockable stop member 27, shown in Figs. 10 and 11, to stop rotation of the said turntable while the winding key of the spring motor is being operated to tension the spring thereof, the motor structure being shown diagrammatically only in Fig. 3.

In Fig. 8, a hinge member 20 and parts connected therewith are inverted, the side flanges 28 of said member 20 being shown with a hinge pin 24 passing therethrough, and a target plate tongue-portion overlapped by over-turned flanges 25 of the member 20.

In Figs. 2, 3, 5 and 6, each hinge member is shown to be equipped with upstanding flange 29 bordered by a recess 30 from one side edge of which said flange 29 is bent up and extends angularly to the side edges of the member 20.

In Fig. 8, the side flanges of the recess in the plate 22 through which the end portions of the hinge pintle 24 pass, are not shown, but from Fig. 2 it will be noted that the hinge members' side edges and flanges of the members 20 are spaced slightly from the side edges of the recesses in plate 22 into which they project.

In Fig. 8, a part of the tongue of the target plate 14 is broken out to show the recess 30 and flange 29 by a full and a dotted line.

As indicated by arrow in Fig. 2, the turntable is rotatable clockwise only, and is held in the position of Fig. 2 by engagement of the rivet 26 which secures the plate 14 to a hinge member 20 with the member 27 when the latter is disposed in the position of Fig. 11 to prevent rotation of the turntable while the motor spring is being tensioned by operation of the member 6.

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The recess 13 in the plate 9 and the arcuate slot 4 in the plate 2 are disposed midway between the target plates 14 and 19 while the turntable remains in the position of Fig. 2.

5 The cross bar 8 is provided with a recess 31 midway between its ends which is provided with an inclined inner wall as shown in Fig. 5; said recess being directly opposed to the recess 13 in the plate 9.

10 Mounted upon the bar 8 is a V-shaped sheet metal plate 32, to which a rocking member 33 is pivotally secured by means of a set screw 34, shown in detail in Figs. 5 and 6, said member 33 being held in the full line position of Fig. 6 by means of a light spring 35 in a conventional manner, thus maintaining the lower pointed end of the member 33 in the path of travel of the flanges 29 of all hinge members 20 of the target plates 14—19 successively, said member 33 operating to turn the members through a predetermined arc during movement of the member 33 from its full to its dotted line position of Fig. 6 and thus becomes disposed out of engagement with said flange 29 for spring return to its full line position.

25 In the instance illustrated, the member 33 turns the member 20 opposed to it to cause the target secured thereto to be turned up to the position shown in Figs. 3 and 4, and in dotted lines in Fig. 5, wherein the lower pointed end portion of member 33 is shown in dotted line to have attained its dotted line position of Fig. 5 and out of engagement with the flange 29.

30 When this last-named position of the member 33 has been attained, the innermost end of the hinge member 20 last engaged thereby will project through a slot 21 of the turntable 7 and into the arcuate slot 4 of the plate 2, shown in Fig. 3, to left of the motor, and at about the instant that a target plate is turned up to position of Figs. 3 and 4, the hinge member 20 thereof is motor-spring pressed against the end wall of the slot 4 disposed in its path and is thus held frictionally in the position of Fig. 5 until restored to its horizontal position by a missile, mentioned above, or in any other manner.

45 By increasing or decreasing the length of the flanges 29 of the hinge members and the recess 30 thereof, the arc of movement of the target plates may be increased or decreased.

50 Obviously, as soon as a target plate is restored to horizontal position, the turntable 7 will rotate and thus cause a next succeeding target plate to be turned up so long as the motor spring remains sufficiently tensioned to accomplish this.

55 While the preferred embodiment of the invention herein illustrated and described, and wherein the target and all other plates are composed of suitable material other than metal or other expensive material of which there may be a shortage, as at the present time, the structure is open to be otherwise embodied in a number of respects without departing from the invention as defined in and by the appended claims.

I claim:

65 1. A toy of the type specified comprising a suitable frame structure including a base plate, a conventional type of manually wound spring motor mounted upon said base plate, a carrier for a target plate operatively connected with said motor for actuation thereby, a target plate pivotally mounted upon the carrier for movement from horizontal to upright position, a stop member on the frame structure disposed in the path of said target plate when the latter is upright, 70 a projection on the target plate adjacent its piv-

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otal axis, and a device mounted on the frame structure and disposed in the path of said projection when the target plate is in horizontal position to cause the target plate to be turned to upright position an instant before it engages said stop member.

2. A structure, according to claim 1, wherein said device on the frame member is a spring-held oscillatory member which is turned by the said projection while it remains engaged therewith, to effect turning of the target plate to upright position and thereby disposes the said projection out of its path, and thereby causing said device to be spring returned to its initial position.

3. A mechanical toy comprising a frame structure, a conventional type of spring motor mounted thereupon, a traveling carrier actuated by said motor, a plurality of spaced apart plates pivotally connected adjacent to an end of each with said carrier for movement successively from initially substantially horizontal to upright positions at a given point in their travel, a stop member on the frame structure disposed in the path of an upright plate, and cooperative devices on said plates and said frame structure operating to cause one of said plates to be turned to upright position as it closely approaches engagement with said stop member.

4. A structure, according to claim 3, wherein said cooperative devices comprise a projection on each plate and a springheld rocking arm pivotally secured at one end to the frame structure and having its free end maintained yieldably in the path of said projections for actuation by the latter to cause its outer end to bear upon the plate adjacent its pivotal axis as said plate approaches said stop member to turn the same to upright position.

5. A mechanical toy comprising a frame structure, a conventional type of spring motor mounted thereupon, a traveling carrier actuated by said motor, a plurality of spaced apart plates pivotally connected adjacent to an end of each with said carrier for movement successively from initially substantially horizontal to upright positions at a given point in their travel, a stop member on the frame structure disposed in the path of an upright plate, a projection on each plate spaced from its pivotal axis and disposed

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uprightly when the plate is disposed horizontally, a rockable arm pivotally mounted at one end upon said frame structure adjacent to said stop member and spring-held to maintain its free end yieldingly in the path of travel of said projections for movement thereby through an arc of predetermined length during which said free end is caused to bear upon the face of said plate between said projection and the pivotal axis thereof to turn said plate to upright position and thereby render said arm free to being spring returned to its initial position, all plates being free to pass said stop member when horizontally disposed.

6. A toy comprising a frame structure, a conventional type of spring motor mounted thereupon, a horizontally disposed turntable connected with and actuated by said motor, a plurality of initially horizontally disposed target plates mounted upon the top of said turntable radially of and equally spaced from each other and the axis of said turntable and pivotally connected between their ends with the latter for movement successively from initial to upright position at a predetermined point in the rotation of said turntable, a stop formation on the frame structure disposed in the path of the lower end portion of an upright plate, whereby to stop rotation of the motor and frictionally maintain the same in upright position, and a member mounted upon the frame structure above the turntable and in the path of a part of the portion of each plate nearest the axis of rotation of the turntable, and operating to turn the plate to upright position as it nears said stop formation, said upright plate being free to pass said stop formation when returned to initial position.

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