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[21]	Appl. No.	698,840
[22]	Filed	Jan. 18, 1968
[45]	Patented	Oct. 13, 1970

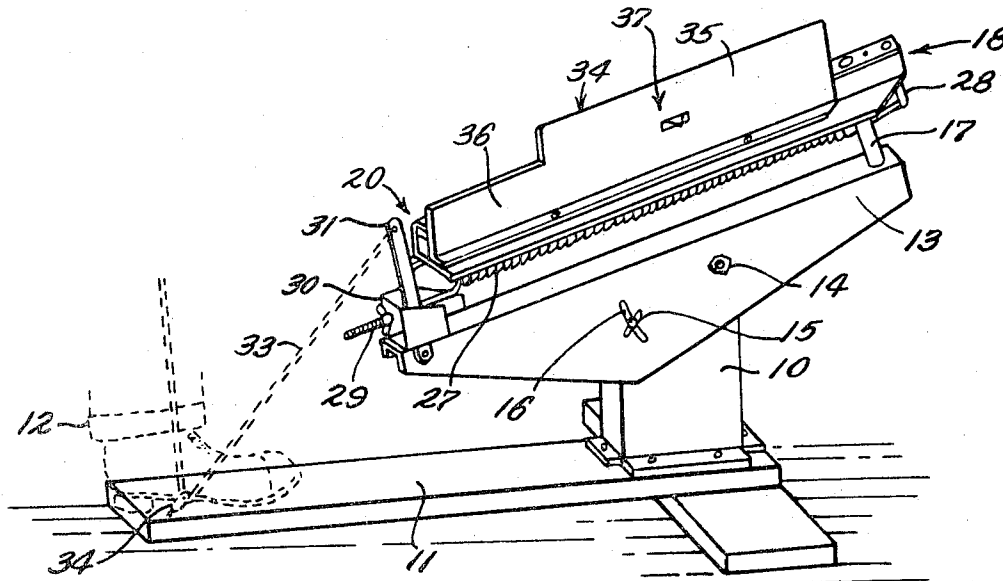
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1,093,524	4/1914	Best	124/8
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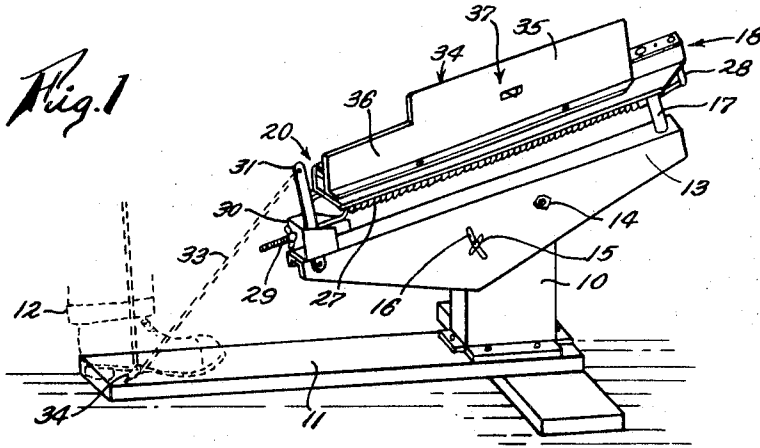
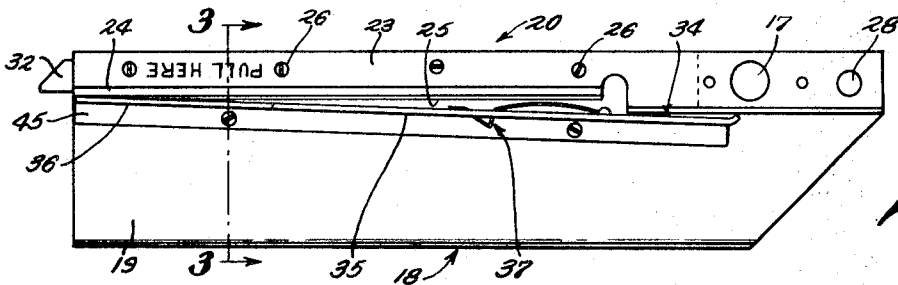
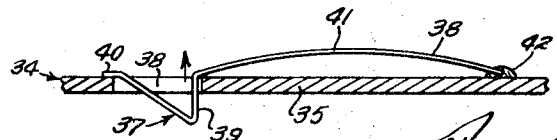
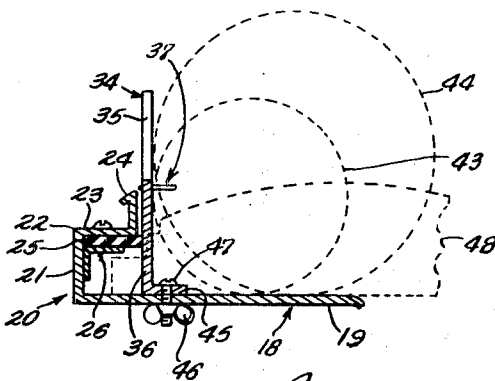
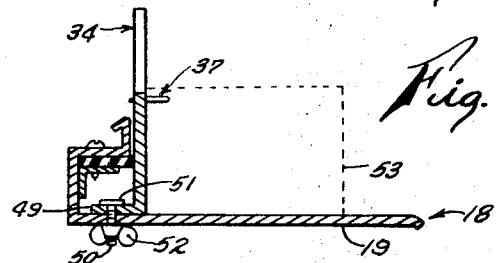
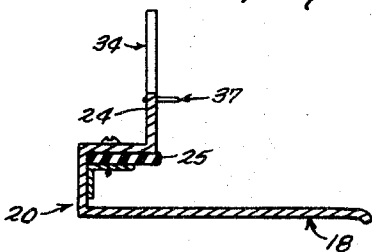
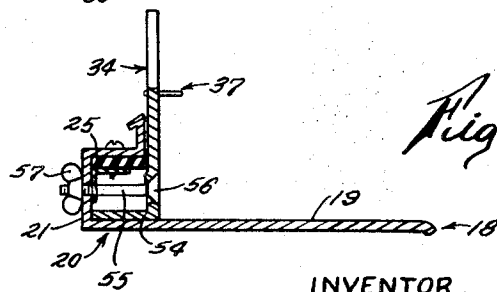
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[54] **TARGET TRAP THROWING ARM ATTACHMENT**
4 Claims, 7 Drawing Figs.

[52]	U.S. Cl.....	124/41, 124/8, 124/36, 124/34
[51]	Int. Cl.....	F41b 3/04
[50]	Field of Search.....	124/8, 9, 6, 7, 4, 41, 36, 34, 42, 43

ABSTRACT: A target trap throwing arm attachment for throwing projectiles. The throwing arm has a spring stop that is mounted on the arm so as to prevent a projectile from falling off of the throwing arm. When the throwing arm is released from a cocked position the projectile on the throwing arm will push against the spring because of centrifugal force and cause the spring to move out of the path of the projectile.





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TARGET TRAP THROWING ARM ATTACHMENT

The present invention relates to target traps and is particularly directed to a target throwing arm construction capable of holding and throwing targets having a variety of shapes.

The standard targets for trap and skeet shooting are clay discs or "birds" which are relatively expensive when used in quantities. For the purpose of learning to shoot or for the improvement of shooting skills, less expensive targets have been used and to this end projectile objects such as beer cans, oil cans, blocks of wood, and the like, have been employed as substitutes for the clay birds.

It is an object of this invention to provide a trap throwing arm capable of mechanically holding and throwing targets having a variety of forms and weights, including standard birds, into any number of predetermined trajectories.

Another object of the invention is to provide a novel rail accessory and associated target holding stop for a trap arm that will effectively eject targets of various forms at any selected trajectory angle.

Other features, objects and advantages of this invention will become apparent from the following description and from the accompanying drawings illustrating preferred embodiments of my said invention.

In the drawings wherein like reference numerals indicate similar parts throughout the several views:

FIG. 1 is a perspective view of a target trap showing one form of my target throwing arm associated therewith.

FIG. 2 is a top plan view of the target throwing arm depicted in FIG. 1.

FIG. 3 is an enlarged section taken on line 3-3 of FIG. 2.

FIG. 4 is an enlarged detail view, in section, of the target holding stop.

FIGS. 5, 6 and 7 are sections similar to FIG. 3, each showing a modification of my target trap throwing arm.

The target trap illustrated in FIGS. 1-4 of the drawings is in many respects conventional and similar to the target trap disclosed in my U.S. Pat. No. 2,925,077, granted Feb. 16, 1960. The target trap has a standard 10 mounted upon a T-shaped base 11 that is preferably steadied by the user's foot 12. A channel-shaped frame 13 is pivotally mounted upon the upper end of the standard by a pivot bolt 14, the frame being adjustably fixed in selected inclined position by a wing nut 15 threaded in the standard and received in an arcuate slot 16 in the frame. The forward end of the frame has journaled therein a shaft 17 that has fixed to its upper end the forward end of a target throwing arm, generally indicated in the drawing by the reference numeral 18.

The throwing arm 18 has a target support plate 19 formed with a target propelling rail 20 extending upwardly from the trailing edge of the plate. The rail is constructed by turning the trailing portion of the plate upwardly to form an upstanding rear wall 21, the upper end of the rear wall being integrally joined by a curved portion 22 to a forwardly projecting flange 23. An upstanding flange 24 is integrally joined to the leading edge of the flange 23, it being noted with reference to FIG. 3 that a flexible conventional target rub strip 25 is mounted by screws 26 beneath the flange 23 and projects beyond the flange 24 toward the leading edge of the arm.

The target throwing arm is spring loaded for target impelling operations by means of a heavy, contractile spring 27 having one end connected to a pintle 28 mounted in the forward end of the carrier arm, the rear end of the spring being connected to an adjustable tension bolt 29 which passes through a bracket 30 mounted on the rear end of the frame 13. The throwing arm is releasably held in spring loaded target throwing position by means of a latch arm 31 pivotally mounted in the bracket, the upper end of the arm being adapted to releasably engage behind a catch 32 projecting from the rear end of the throwing arm 18. A latch release cord 33 is secured to the upper end of the arm and may be passed around a pulley 34 secured to the base 11.

The novel rail accessory and associated target holding stop that provides a trap throwing arm capable of mechanically holding and throwing targets having a variety of forms and

weights including standard clay targets consists of an upstanding, auxiliary target propelling plate 34 mounted upon the target support plate 19 in engagement with the rub strip 25 on the leading side of the rail 20. As best shown in FIGS. 1 and 3 of the drawings the planar forward portion 35 of the target propelling plate 34 extends a substantial distance above the rail 20 while the rear planar portion 36 of the plate 34 extends upwardly flush with said rail. Centrally of the forward portion 35 and on a level with the upper edge of the rail is a target holding stop 37, said stop comprising a longitudinal slot 38 (FIG. 4) formed through the portion 35 and the resilient stop constituted by a single piece of spring wire 38 bent to form a triangularly shaped, target engaging portion 39 that projects through and beyond the slot 38 toward the leading edge of the arm, a terminal end 40 of the wire bearing against the rear face of the portion 35 and a bowed opposite wire portion 41 which has its end fixed to the rear face of the portion 35 by a solder spot 42.

With reference to FIGS. 1 and 2, it will be noted that the rear portion 36 of the target propelling plate 34 forms a hand hold for cocking the throwing arm while both the front and rear portions provide a target propelling surface for small cans 43 or relatively larger cans 44, both sizes being engageable behind the stop 37 because of its intermediate position on the propelling plate 34 of the target throwing arm 18.

The target propelling plate 34 is preferably detachably mounted upon the target throwing arm 18 by the formation of a flange 45 on the bottom of the propelling plate which faces toward the leading edge of the arm and is disposed at right angles to the plate. The flange is secured to the throwing arm by a plurality of wing nuts 46 and cooperating bolts 47, it being noted with reference to FIG. 3 that the heads of the bolts do not interfere with the sliding movements of the can sizes 43 and 44 and that upon their removal along with the propelling plate 34 the throwing arm is conditioned to impel standard "birds" 48 in the usual manner. It will therefore be understood that the rail 20 backs up and re-enforces the upstanding, auxiliary propelling plate 34 when the trap is used to throw unconventional objects, such as cans 43 and 44, and when a trap like that shown in FIGS. 1-6 of the drawing is to be used to throw standard targets 48, said propelling plate 34 is detached from the throwing arm 18 whereby the rail 20 then serves as the impelling means for these conventional targets.

In the modification shown in FIG. 5 it will be noted that the target propelling plate 34 can be mounted by a flange 49 turned toward the trailing edge of the throwing arm, said flange being detachably mounted thereon by means of bolts 50 having heads 51 spot welded to the flange, said bolts cooperating with the wing nuts 52 bearing against the underside of the plate. With this form of detachable mounting objects having rectangular forms, indicated in the drawing by their reference numeral 53, may be thrown and the mounting means will not interfere with the sliding motion of the objects on the arm during the throwing operation.

In FIG. 6 there is shown a further modified mounting means for the target propelling plate 34 on the throwing arm, said means comprising a flange 54 turned toward the trailing edge of the arm and having its longitudinal edge in abutment with the inside face of the wall 21 of the rail 20. A carriage bolt 55 has its head 56 countersunk in the target propelling plate 34, said bolt extending laterally through the plate and the wall 21 and cooperating with a wing nut 57 to securely fasten the propelling plate to the throwing arm and against the rub strip 25 of the rail 20.

In FIG. 7 there is shown a modified form of the invention wherein the target propelling plate 34 is formed integral with the flange 24 on the rail 20 to provide a target throwing arm that will propel all sizes and kinds of objects such as the standard "birds" and large or small tin cans or other rectangularly shaped forms. The throwing arm in this modification has the rub strip 25 located below and out of contact with the surfaces of tin cans to be thrown by the auxiliary target plate on said arm, but engages standard "birds" when the latter are to be thrown by the arm.

In the operation of my target trap the frame 13 is set at an inclination to obtain the desired trajectory for the target object by loosening, and after adjustment, tightening the wing nut 16. The throwing arm 18 is then cocked by gripping the rail 20 at the opening formed by the reduced portion 36 on the propelling plate and then pulling the arm against the action of the spring 27 into the position shown in FIG. 1 with the catch 32 engaged behind the latch arm 31. In many instances the degree of inclination and the very limited area contact between the target objects such as cans 43 or 44 to be thrown and the throwing arm surfaces would cause the target object to slide off the arm and the object is therefore placed on the throwing arm above the stop 37 which holds it in place before the arm is released by the release cord 33. Upon release of the throwing arm the target will push against the stop 37 because of the centrifugal force set up by the circular motion of the arm, said action instantly depressing the stop due to its light spring action, and allowing the target to slide longitudinally along the propelling plate into its predetermined trajectory.

It will therefore be understood that I have provided a target throwing arm that will throw regulation clay "birds" and a simplified yet rugged target propelling plate for the arm that will throw targets having a variety of forms into any desired trajectory.

I claim:

1. An attachment for the throwing arm of a target trap, said arm having a target support plate rotatably mounted at one end for spring operated target throwing movements and including a channel-shaped rail positioned along the longitudinal, trailing edge of said target support plate, said rail having

a forwardly projecting flange; the improvement that consists of an auxiliary target propelling plate connected to and projecting upwardly from the forward edge of the flange and disposed normal to the target support plate, a stop projecting from the central portion of the target propelling plate toward the leading edge of the target support plate, yieldable means retractably maintaining the stop in projected auxiliary target holding condition on the target propelling plate, and a detachable means mounting the target propelling plate on the target support plate.

2. An attachment as set forth in claim 1 wherein the propelling plate has a mounting flange formed along its lower portion in face-to-face engagement with the target support plate, and the detachable means fastens the mounting flange to the support plate with the propelling plate abutting the forward edge of the rail flange.

3. An attachment as set forth in claim 1 wherein the propelling plate has a mounting flange formed along its lower portion in face-to-face engagement with the support plate and extending into the channel shaped rail, and the detachable means fastens the lower portion of the propelling plate to the rail and against the forward edge of the rail flange.

4. An attachment as set forth in claim 1 wherein the propelling plate has a slot formed through its central portion and the stop consists of a length of spring wire having a V-shaped end projected through the slot, and the yieldable means is a bow shaped portion formed on the wire connected at one end to the V-shaped end portion and having its opposed end fastened to the trailing face of the propelling plate.

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