

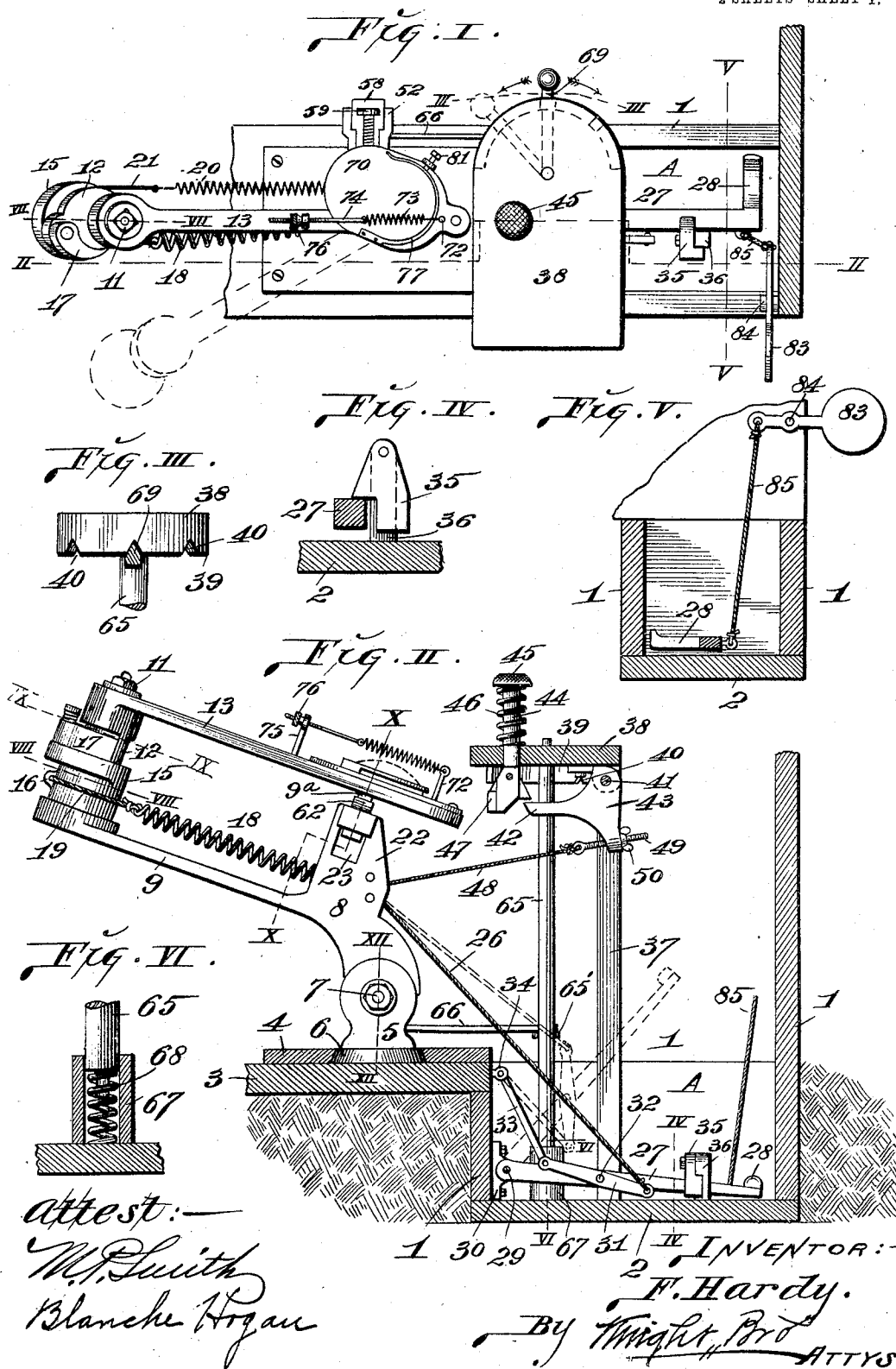
No. 792,823.

PATENTED JUNE 20, 1905.

F. HARDY.
TARGET TRAP.

APPLICATION FILED FEB. 1, 1904.

2 SHEETS—SHEET 1.



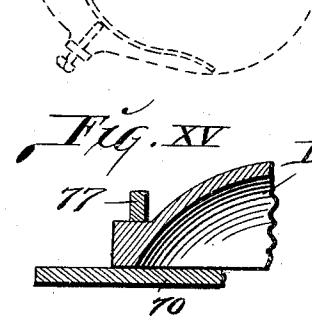
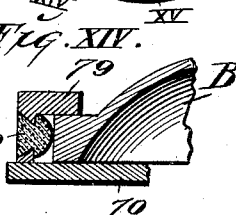
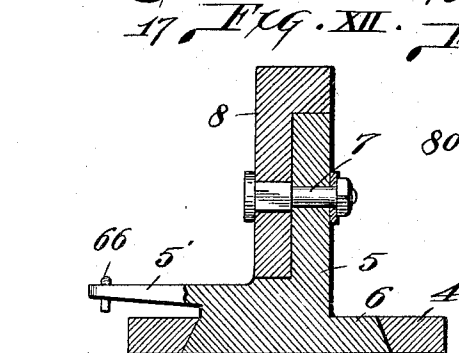
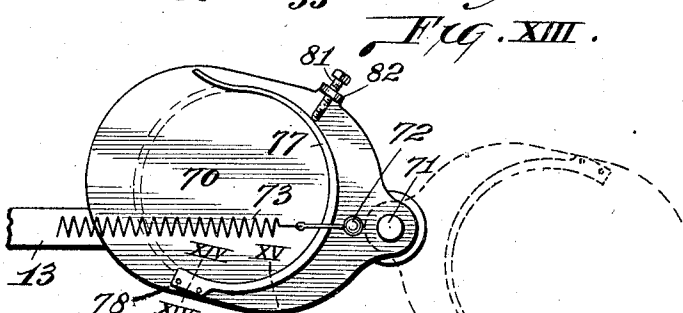
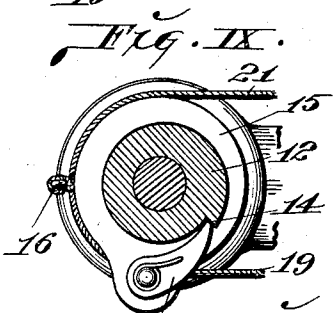
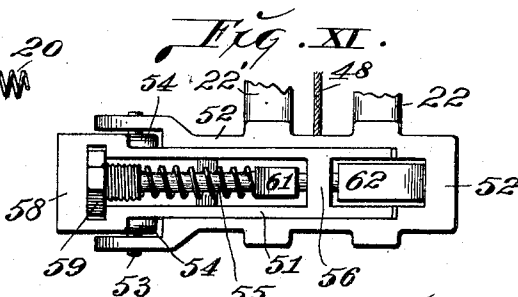
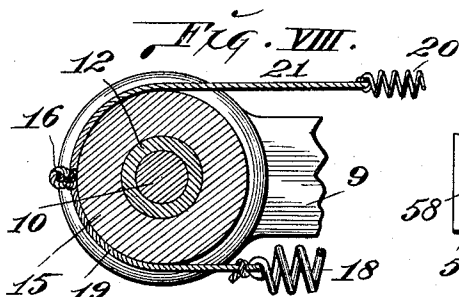
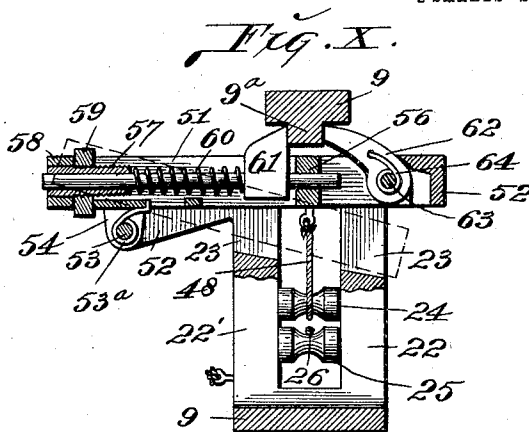
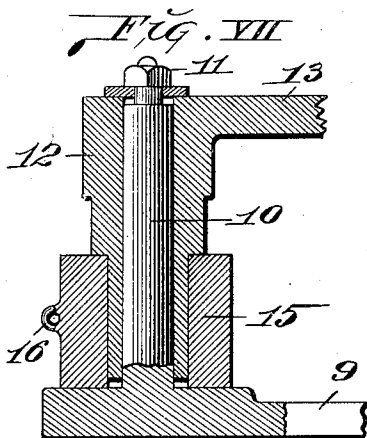
No. 792,823.

PATENTED JUNE 20, 1905.

F. HARDY.
TARGET TRAP.

APPLICATION FILED FEB. 1, 1904.

2 SHEETS—SHEET 2.



attest:—
M. Smith.
Blanche Hogan

Inventor:—
F. Hardy.
By Wright, Bro. & Co. attys.

UNITED STATES PATENT OFFICE.

FREDERICK HARDY, OF MOUNTPLEASANT, TENNESSEE.

TARGET-TRAP.

SPECIFICATION forming part of Letters Patent No. 792,823, dated June 20, 1905.

Application filed February 1, 1904. Serial No. 191,630.

To all whom it may concern:

Be it known that I, FREDERICK HARDY, a citizen of the United States, residing in Mount-pleasant, in the county of Maury and State of Tennessee, have invented certain new and useful Improvements in Target-Traps, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to a trap for throwing targets for sharpshooters or sportsmen; and it has for its object to provide a trap of the kind named that may be operated entirely by a single person, the construction being such that the target-carrying throw-arm is automatically returned to a fixed point after a target is thrown, and mechanism being provided by which the throw-arm-actuating spring is placed under tension to store power therein while the throw-arm remains in its fixed position, and the provision of means by which the throw-arm may be instantly released to be rotated and to discharge the target placed therein under the action of the previously-set power-spring.

The invention consists in features of novelty hereinafter fully described, and pointed out in the claims.

Figure I is a top or plan view of my trap. Fig. II is a vertical section taken on line II II, Fig. I, showing the trap in side elevation. Fig. III is a vertical section taken on line III III, Fig. I, with parts adjacent to said line shown in elevation. Fig. IV is an enlarged vertical section taken on line IV IV, Fig. II. Fig. V is a vertical section taken on line V V, Fig. I. Fig. VI is an enlarged vertical section taken on line VI VI, Fig. II. Fig. VII is an enlarged vertical section taken on line VII VII, Fig. I. Fig. VIII is an enlarged cross-section taken on line VIII VIII, Fig. II. Fig. IX is an enlarged section taken on line IX IX, Fig. II. Fig. X is an enlarged vertical section taken on line X X, Fig. II. Fig. XI is a top view of the throw-arm-retaining mechanism. Fig. XII is an enlarged vertical section taken on line XII XII, Fig. II. Fig. XIII is an enlarged top view of the target-carrier. Fig. XIV is an enlarged section

taken on line XIV XIV, Fig. XIII. Fig. XV is an enlarged section taken on line XV XV, Fig. XIII.

A designates a pit in which a portion of the mechanism for operating my trap is located, the pit being provided with a lining-wall 1 and floor 2.

3 is a platform on which the trap-support is mounted. On the platform 3 is a recessed plate 4, that receives a swivel 5, the base 6 of which is preferably tapered outwardly, as seen in Figs. II and XII, so that while the swivel is capable of oscillation in the recess in the plate 4 it is held from disengagement therewith. In the upright of the swivel 5 is a clamp-bolt 7.

8 designates the main support of my trap, which is pivoted to the swivel 5 by the clamp-bolt 7, so as to be subject to being tilted vertically on the axis furnished by said bolt. The support 8 is provided with an arm 9, to the outer end of which is fixed a post 10, that at its upper end bears a nut 11.

12 designates a pivot member or sleeve loosely fitted to the post 10 and confined thereon by the nut 11. Extending from the pivot member 12 is a throw-arm 13, and in the pivot member is a notch 14, the utility of which will be hereinafter specified.

15 designates a drum loosely mounted on the main support-arm 9 and arranged concentrically with the pivot member 12, to which it is loosely fitted. The drum 15 is provided with an eye 16, and mounted on the drum is a spring-actuated pawl 17, that is arranged to enter the notch 14 in the pivot member 12, as seen in Figs. II and IX.

18 designates a main power-spring that is connected at one end to the drum 15 by a cord or other flexible connection 19, that is secured to the drum-eye 16. The opposite end of the spring 18 has connected to it means for expanding it, which will hereinafter be described.

20 designates a return-spring that is preferably weaker than the main power-spring 18. One end of this spring 20 is united by a cord 21 or other flexible connection to the drum-eye 16, and the other end of the spring is united to the main throw-arm support 8.

22 and 22' designate a pair of uprights

spaced apart, as seen in Fig. X, and provided at the upper ends with transverse slots 23. Rotatively mounted between the uprights 22 and 22' are sheaves 24 and 25.

5 26 designates a pull-cord connected to the main power-spring 18 and leading therefrom over the sheave 25, this pull-cord being extended to lever mechanism by which the cord is put under strain to expand the power-spring. The lever mechanism just mentioned
10 consists of a foot-lever 27, that is provided with a foot-arm 28 at its free end and has its opposite end pivoted at 29 to a bracket 30, secured to the lining-wall 1 of the pit A, as seen
15 in Fig. II.

31 is a rocker pivoted at 32 intermediate of its ends to the foot-lever 27. One end of this rocker receives the connection of a link 33, that is united to a fixed pivot-support 34, and
20 the opposite arm of the rocker receives the connection of the pull-cord 26, by which the power-spring 18 is placed under tension.

35 is a detent that is pivoted to a post 36 and is arranged in the path of downward travel
25 of the foot-lever 27, so that it will engage said lever, as seen in Fig. IV, and retain it in lowered position after it has been depressed by pressure upon the foot-piece 28.

37 designates uprights positioned in the pit
30 A and extending above said pit. These uprights support a table 38, at the under side of which is a semicircular flange 39, containing a plurality of notches 40. (See Figs. II and III.)

35 42 designates a trigger pivoted at 41 to a bracket depending from the table 38. This trigger is furnished with an arm that extends beneath the table and a downwardly-projecting arm 43.

40 44 is a push-rod operating loosely through the table 38 and provided at its upper end with a button 45. The push-rod 44 is surrounded by a lift-spring 46, positioned between said table and button, by which the rod is normally upheld. In the lower end of the push-rod 44 is a gravity-dog 47, that is designed
45 to engage the trigger-arm 42.

48 is a pull-cord that is adjustably connected to the trigger-arm 43 by an adjustment-
50 screw 49, provided with a set-nut 50. The pull-cord 48 passes beneath the sheave 24, hereinbefore referred to, and is connected to a swinging latch-carrier 51, as seen in Fig. X.

52 designates a frame surmounting the slot-
55 ted uprights 22 and 22'. In this frame is mounted a pivot-pin 53, to which one end of the latch-carrier 51 is journaled by ears 54.

55 is a rod extending longitudinally through the latch-carrier 51 and mounted in a cross-
60 piece 56 and an exteriorly-screw-threaded sleeve 57, that is seated in the rear transverse portion 58 of the latch-carrier. On the sleeve 58 is a nut 59, that is held from longitudinal movement in the latch-carrier and is designed
65 to be rotated to reciprocate the sleeve 57 in-

wardly or outwardly in the rear portion of the latch-carrier to vary the tension of a spring 60, that is mounted on the rod 55.

61 is a buffer mounted on the rod 55 and resting against the spring 60, so that it is yield-
70 ingly held when subjected to pressure.

62 designates a latch that is rockingly mount-
ed on a pivot-pin 63, mounted in the free end of the latch-carrier. The free end of this latch is normally upheld by a spring 64.
75

The latch 62 and buffer 61 are designed to receive the engagement of the throw-arm 9 when said arm moves into a position coincident therewith, the engagement of such parts being provided for by a lug 9^a, projecting
80 downwardly from the throw-arm, as seen in Figs. II and X. In such engagement the throw-arm moves in the direction of the arrow indicated in Fig. X and on passing over the free end of the latch 62 comes in engage-
85 ment with the buffer 61 and is held confined between said members during which time the latch-carrier is upheld in horizontal position by the spring 53^a on the pivot-pin 53.

For the purpose of varying the angle of
90 the main support 8 and its arm 9, on which the throw-arm of the trap is mounted, I provide a vertical rock-shaft 65, that is connected to the swivel 5, on which the main support 8 is mounted, by a connecting-rod 66, that is
95 united to crank-arms 5' and 65', projecting, respectively, from the swivel 5 and rock-shaft 65. The upper end of the rock-shaft 65 is journaled in the table 38, and its lower end is seated in a box 67. (See Figs. II and VI.)
100 In the box 67 is a lift-spring 68, by which said rock-shaft is normally upheld. Projecting from the upper end of the rock-shaft is a crank-handle 69, that is positioned beneath the flange 39 below the table 38. When it is
105 desired to change the angle of the throw-arm support and vary the direction in which a target is thrown by the trap, the crank-handle 69 is grasped and pressed downwardly, thereby disengaging it from one of the notches
110 40 in the flange 39, in which it was previously seated. This action forces the rock-shaft 65 downwardly against the action of the lift-spring 68, and the shaft may then be rocked in a horizontal direction to oscillate
115 the swivel 5 and the support 8 in connection therewith through the medium of the connecting-rod 66. When the desired point of adjustment is reached, the crank-handle is released, thereby permitting the rock-shaft to
120 rise and the crank-handle to enter the adjacent notch 40 in the flange 39.

70 designates a target-carrier plate that is rotatably mounted on the free end of the throw-arm 13, to which it is connected by the
125 pivot-pin 71. On this plate is a stud 72, offset from the pivot-pin 71, to secure leverage, aside from the pivotal connection of the carrier-plate to the throw-arm. The stud 72 receives the connection of a throw-spring 73,
130

that is united to an adjustment-rod 74, mounted in a post 75 and bearing an adjustment-nut 76.

77 is a spring target-engaging jaw that is fixed at 78 to the carrier-plate 70 and at such point is provided with an overhanging flange 79. Seated in the fixed end of the spring-jaw 77 is a buffer 80, that receives the edge of a target B when located on the carrier-plate and positioned beneath the overhanging flange 79. The free portion of the spring-jaw 77 is elevated from the carrier-plate 70 sufficiently to permit the entrance of the rim or edge of the target thereunder, as seen in Figs. II and XV.

81 is a set-screw that passes through an ear 82, carried by the carrier-plate 70, and bears against the free portion of the spring-jaw 77, this set-screw being designed for service to press the free portion of the spring-jaw inwardly, so that it will be properly positioned to overhang the rim of the target resting on the carrier-plate.

83 designates a rocking indicator that is pivoted at 84 to the wall of the pit A and is united to the foot-lever 27 by a connecting-cord 85. This indicator is designed to be thrown upwardly and outwardly beyond the side of the pit-wall, as seen in Figs. I and V, when the foot-lever has been depressed by the operator in setting the trap, thereby furnishing notice to the marksman for whom the target is to be thrown that the trap is set and ready for discharging the target.

In the practical use of my trap the operation is as follows: In setting the trap the operator places a foot upon the foot-piece of the foot-lever 27 and by depressing said foot-lever exerts a strain upon the pull-cord 26, thereby drawing the power-spring 18 into expanded condition, as seen in Fig. II. At this time the throw-arm is retained in a fixed position by the engagement therewith of the buffer 61 and latch 62, as seen most clearly in Fig. X. During the downward movement of the foot-lever the leverage action upon the pull-cord 26 is enhanced and the distance of throw of the foot-lever necessary is diminished, due to the presence of the interposed rocker 31, that by connection to the lever and pull-cord and having one end thereof held by the link 33 acts to compound the leverage action for the actuation of the pull-cord. During the operation of expanding the power-spring 18 and storing power therein the drum 15, to which said spring is connected, is held from rotation, due to engagement of the pawl 17 in the notch 14 of the throw-arm pivot member 12, and therefore when the foot-lever 27 has been sufficiently depressed to become engaged by the detent 35 the power-spring will remain in the expanded condition into which it has been stretched. The target is then placed on the target-plate 70 to be engaged by the spring-jaw 77, which plate is normally held in the

inwardly-disposed position (illustrated in Figs. I, II, and XIII) by the spring 73 connected thereto. The throw-arm 13 is then released in the following manner: By pressing downwardly upon the button of the push-rod 44 the gravity-dog 47 is brought into engagement with the free arm of the trigger 42. The said trigger is thereby rocked rearwardly, causing strain to be exerted on the pull-cord 48, with the result that the pull-cord draws the latch-carrier 51 downwardly into the position seen in dotted lines, Fig. X, thereby moving the buffer 61 out of engagement with the throw-arm, so that said throw-arm is freed to swing in a circular path with its pivot member 12 to discharge the target on the carrier-plate, after which it continues to swing until the latch-carrier is again reached, previous to which the latch-carrier is moved into elevated position under the action of its lifting-spring 53^a. The throw-arm will then ride over the latch 62 and become engaged between the latch and the adjacent buffer to be again confined thereby ready for the next action of setting the trap. It is to be noted in connection with the actuation of the trigger 43, through the medium of which the latch-carrier 51 is operated, that it is entirely free of any direct connection with the push-rod 44 and dog 47, that engage therewith, and that therefore immediately following the tripping of said trigger by the movement of the push-rod the trigger is freed to permit of its immediately rocking back to its normal position, and therefore the latch-carrier is unrestrained in any degree that would prevent its resuming its normal horizontal position to receive the throw-arm returning thereto. Immediately after the throw-arm has been operated, as stated, the return-spring 20 acts to rotate the drum 15, thereby taking up the slack in the connections between the drum and the power-spring-actuating leverage mechanism. When the throw-arm is swung to discharge the target, the carrier-plate 70 is thrown outwardly, due to centrifugal action, and as a consequence makes a complete rotation on its pivot, during which the target is discharged when the carrier reaches the point indicated by dotted lines in Fig. XIII. During rotation of the carrier-plate 70 its motion is accelerated by the throw-spring 73 connected thereto, due to the connection of said spring to the stud 72 in a position offset from the point of pivotal mounting of the carrier-plate. This acceleration takes place at the point where the stud 72 passes a longitudinal line extending through the throw-arm 13 and at the instant of discharge of the target. After the trap has been operated in the manner described the foot-lever 27 is released by pressing the detent 35 to one side by the operator's foot, and the lever is thereby permitted to rise into the elevated position (seen in dotted lines,

Fig. II,) ready to receive the next downward pressure to again store power in the power-spring 18 by placing it under tension.

A target-trap constructed in accordance with my invention provides for the setting of the trap-throwing mechanism by the operator's foot, leaving both of his hands free, so that he may introduce the targets with the left hand and change the angles with the right hand simultaneously, and this being done trips the trigger at the call to throw the target.

I claim as my invention—

1. In a target-trap, the combination of a throw-arm support, a throw-arm rotatably mounted on said support, a spring-controlled member for actuating said throw-arm, a power-spring connected to said member, compound leverage mechanism by which said spring is placed under tension, and means for holding and releasing said throw-arm, substantially as set forth.

2. In a target-trap, the combination of a throw-arm support, a throw-arm rotatably mounted on said support, means for actuating said throw-arm, and means for holding and releasing said throw-arm, consisting of a loosely-mounted carrier, a buffer mounted in said carrier, and a spring-actuated latch, substantially as set forth.

3. In a target-trap, the combination of a throw-arm support, a throw-arm rotatably mounted on said support, means for actuating said throw-arm, and means for holding and releasing said throw-arm consisting of a swingingly-mounted latch-carrier, a buffer mounted in said carrier, and a spring-controlled latch, substantially as set forth.

4. In a target-trap, the combination of a throw-arm support, a throw-arm rotatably mounted on said support, means for actuating said throw-arm, and means for holding and releasing said throw-arm, consisting of a swingingly-mounted spring-controlled latch-carrier, a buffer mounted in said carrier, a spring-controlled latch mounted in said carrier, and means for swinging said carrier, substantially as set forth.

5. In a target-trap, the combination of a throw-arm support, a throw-arm rotatably mounted on said support, means for actuating said throw-arm, and means for holding and releasing said throw-arm, consisting of a spring-controlled swinging latch-carrier, a spring-controlled latch in said carrier, a buffer in said carrier, a spring for resisting the movement of said buffer, and means for adjusting said spring, substantially as set forth.

6. In a target-trap, the combination of a

throw-arm support, a throw-arm rotatably mounted on said support, an oscillatory member to engage and move said throw-arm, a power-spring connected to said oscillatory member, a return-spring connected to said oscillatory member, a lever, a connecting-cord leading from said power-spring, and a rocker pivoted to said lever and having said spring-connecting cord united thereto, whereby the leverage action upon said spring-connecting means is compounded, substantially as set forth.

7. In a target-trap, the combination of a throw-arm support, a throw-arm rotatably mounted on said support, means for actuating said throw-arm, and means for holding and releasing said throw-arm, consisting of a spring-controlled swinging latch-carrier, a spring-controlled latch in said carrier, a buffer in said carrier, a spring for resisting the movement of said buffer, and means for adjusting said spring, substantially as set forth.

8. In a target-trap, the combination of a throw-arm support, a throw-arm rotatably mounted on said support, latch mechanism with which said throw-arm engages, and means for moving said latch mechanism, consisting of a pull-cord, a trigger to which said pull-cord is connected, and means for operating said trigger, substantially as set forth.

9. In a target-trap, the combination of a throw-arm support, a throw-arm rotatably mounted on said support, means for actuating said throw-arm, and means for varying the angle of said throw-arm support, consisting of a rock-shaft, means for connecting said throw-arm support and rock-shaft, a crank-handle carried by said rock-shaft, and a notched member for receiving the engagement of said crank-handle, substantially as set forth.

10. In a target-trap, the combination of a rotatable throw-arm, means for actuating said throw-arm, a target-carrier plate rotatably mounted on said throw-arm, a semicircular spring-jaw having one end fixed to said carrier-plate, and a buffer carried by said jaw at its fixed end, substantially as set forth.

11. In a target-trap, the combination of a rotatable throw-arm, means for actuating said throw-arm, a carrier-plate pivoted to said throw-arm, a spring-jaw having one end fixed to said carrier-plate, and its other end free, and a set-screw for adjusting the free end of said jaw, substantially as set forth.

FREDERICK HARDY.

In presence of—

NELLIE V. ALEXANDER,
BLANCHE HOGAN.