No. 871,443. PATENTED NOV. 19, 1907.

J. B. RICHARDSON.

TARGET TRAP.

APPLICATION FILED MAR. 22, 1906.

4 SHEETS—SHEET 1.

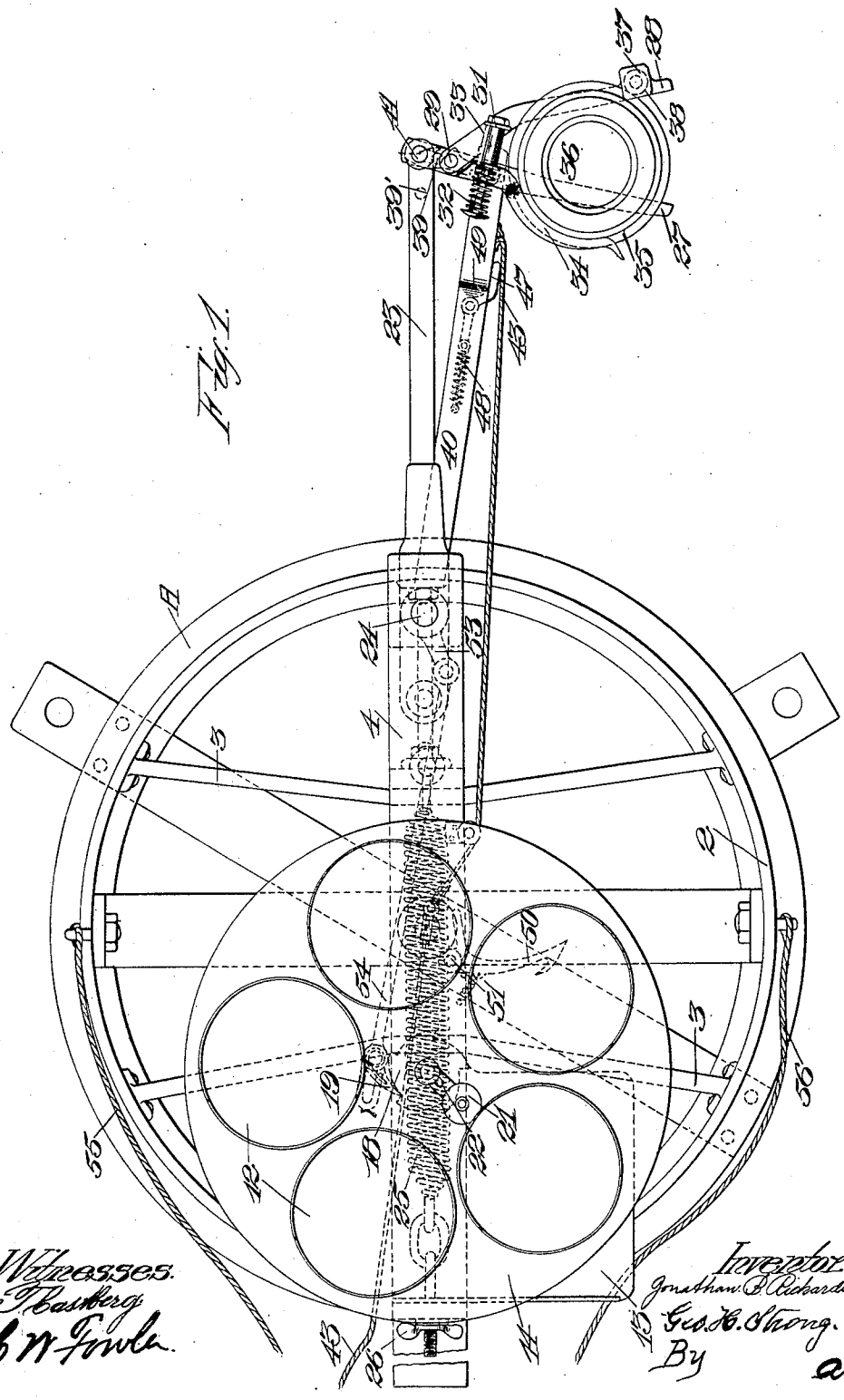


Fig. 1.

Witnesses.
Tasberg
C. W. Fowle.

Inventor
Jonathan B. Richardson.
Geo. H. Strong.
By
Atty

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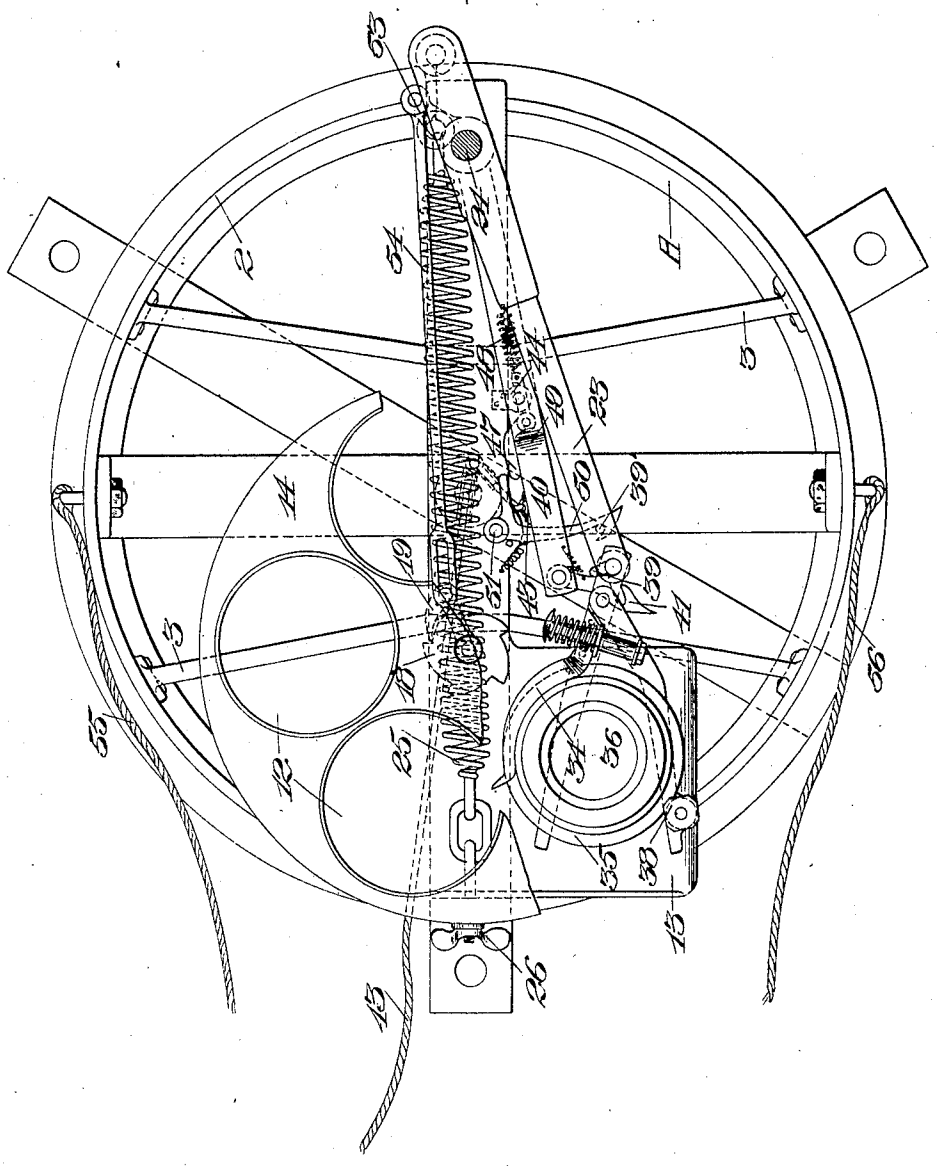
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4 SHEETS—SHEET 2.

Fig. 2.



Witnesses.
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4 SHEETS—SHEET 3.

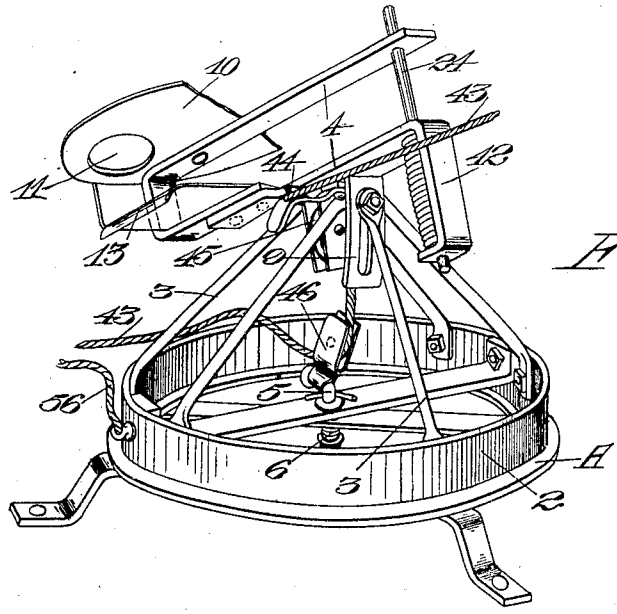


Fig. 3.

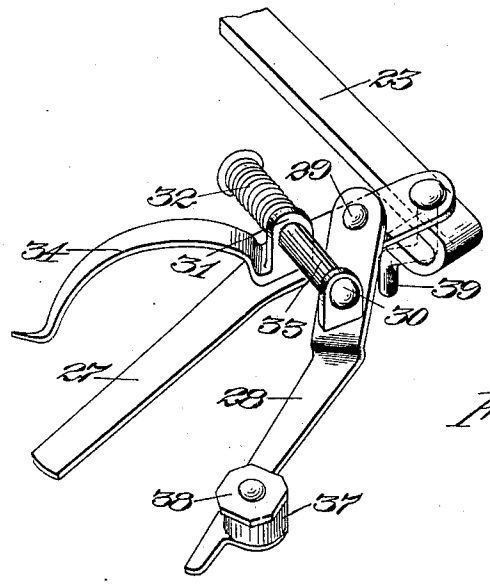


Fig. 4.

Witnesses:
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4 SHEETS—SHEET 4.

Fig. 5.

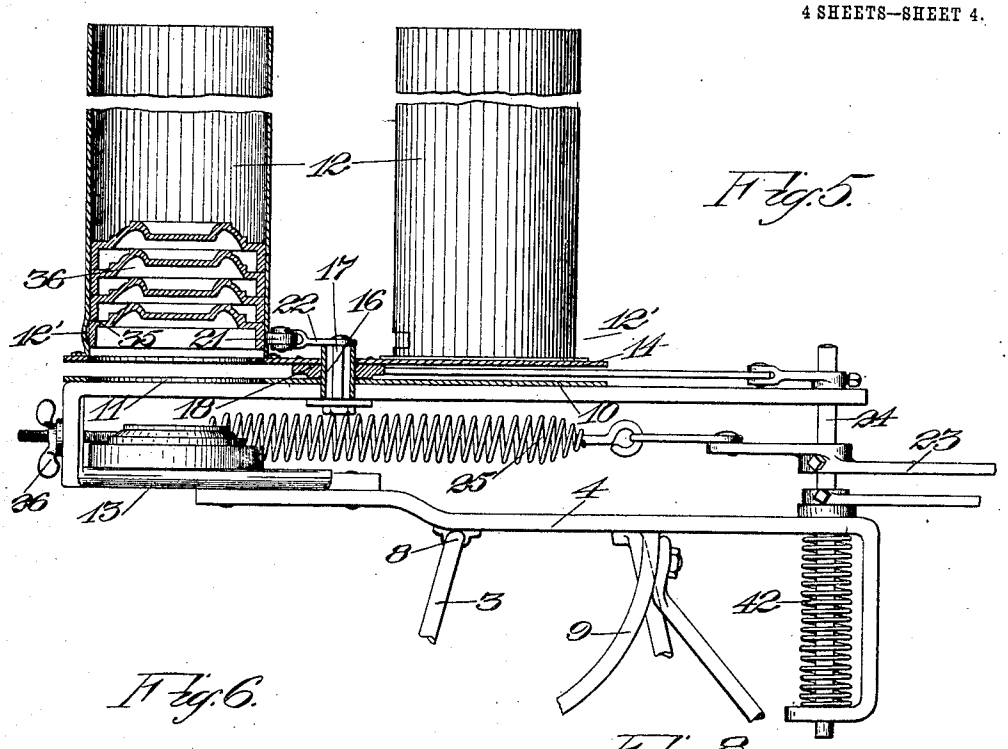


Fig. 6.

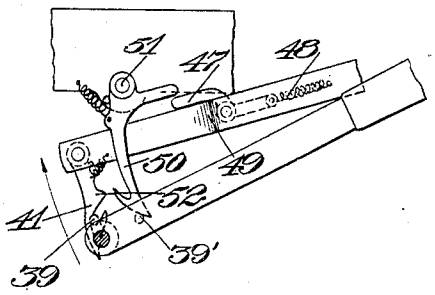


Fig. 8.

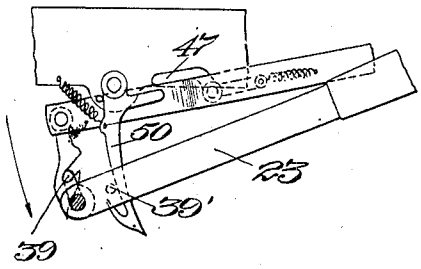


Fig. 7.

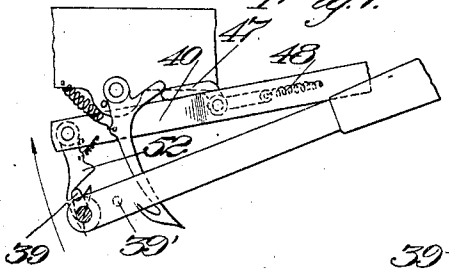
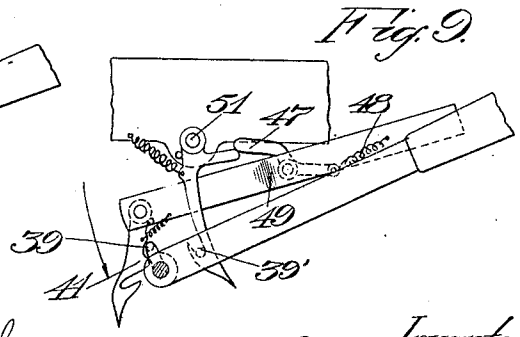


Fig. 9.



Witnesses.
T. Castberg
L. A. Howe

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By Geo. H. Strong.
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THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JONATHAN B. RICHARDSON, OF SANTA MARGARITA, CALIFORNIA.

TARGET-TRAP.

No. 871,443. Specification of Letters Patent. Patented Nov. 19, 1907.

Application filed March 22, 1906. Serial No. 307,388.

To all whom it may concern:

Be it known that I, JONATHAN B. RICHARDSON, a citizen of the United States, residing at Santa Margarita, in the county of San Luis Obispo and State of California, have invented new and useful Improvements in Target-Traps, of which the following is a specification.

My invention relates to target throwing devices for use in trap shooting.

Its object is to provide a simple, practical trap of the magazine type, which requires no one at the trap during the shooting, but which can be set to take a target and be tripped to throw the target by means of a single pull-cord operated from a distance; in which the magazine chambers shall be self-feeding; and which trap will permit the angle of flight and the direction of flight to be changed and the speed of flight to be varied as desired.

The invention consists of the parts and the construction and the combination of parts as hereinafter more fully described and claimed, having reference to the accompanying drawings, in which—

Figure 1 is a plan view of my trap with throwing and setting arms in released position, but with a target in position in the grippers. Fig. 2 is a plan view of same with some parts broken away showing the throwing arm in set position ready to throw a target. Fig. 3 is a perspective of the base and supporting frame omitting parts of the apparatus. Fig. 4 is a perspective of the gripper or target carrier. Fig. 5 is a side elevation in partial section of part of the apparatus. Figs. 6—7—8—9 are diagrammatic views of the throwing and setting arms in their different views preceding and succeeding the picking up of a target.

A represents a base of suitable construction adapted to be secured in fixed position.

2 is a turntable pivoted to the base and carrying the supporting standards 3 which uphold the body portion 4 of the trap. The turntable is pivoted to the base by the king-bolt 5 which is mounted by a stiff spring 6 arranged below the base and between the base and nut for the purpose of absorbing shock when the target is thrown.

The body 4 is pivoted at one end at 8 to the standards 3 and the other end carries a slotted segment 9 with which a bolt, connected with the standards, engages for the purpose of varying the angle of the body and thereby to change the angle of flight of the targets as will be better understood later. Except for this vertical adjustment of the body 4, the latter is rigid with the standards and turntable, and turns with the turntable. The part 4 constitutes a supporting frame for the magazine and throwing apparatus.

10 is a base plate which is rigidly fixed to the frame 4 and has an opening 11 to one side through which targets are adapted to be dropped singly from the revolving magazine 12, upon the shelf 13.

The magazine comprises a metal casing having a plurality of vertical radially-arranged open-ended chambers or pockets, and which pockets are also open to the center of the magazine to facilitate loading. The magazine casing is fixed to a bottom disk 14, which has a series of rigidly arranged perforations corresponding to the pockets, and these perforations and pockets are adapted to register successively with the opening 11 in the plate 10 on the step by step revolution of the magazine. The bottom part 14 of the magazine has a central perforation to receive a short sleeve or pipe section 16; and a bolt 17 passes through the sleeve and plate 10 and is secured in the frame 4 and forms with sleeve 16 a pivot for the magazine to turn about. The underside of the magazine is provided with a ratchet 18 which is operated intermittently by a dog 19. This dog is operated coördinately with the operation of the throwing and setting mechanisms, by the slotted connecting rod 54 as will be described shortly. Each pocket in the magazine is adapted to contain from twenty to thirty targets, and each pocket is adapted to drop one target onto shelf 13 each time that it comes over hole 11. The plate 10 forms a floor for the targets in the pockets to rest upon, except when a pocket is over the opening 11. A soft rubber roller 21 is mounted on a lengthwise slotted-arm 22 which is adjustably locked in position by bolt 17. This arm 22 is adapted to be adjusted radially with respect to opening 11 so as to cause roller 21 to engage successively the second target from the bottom in each pocket, as each pocket comes along, to support the column of targets above the opening 11 while allowing the bottom target in that pocket which is immediately over hole 11 to drop through onto the shelf 13. The arm 22 is slotted to render it adjustable so as to adapt the roller to engage a target and press

it with sufficient force against the opposite concavity 12′ in the side of the magazine to hold up the column of targets.

The targets are of the ordinary disk type, Fig. 5 such as are commonly employed for trap shooting. The target after being deposited on shelf 13 is seized and thrown by the following mechanism:

23 represents a throwing arm which is pivoted proximate to its inner end on a shaft 24 which is journaled in the frame 4. The shorter end of the throwing arm is connected with the main-spring 25, which latter is made adjustable as at 26 to enable the speed of the throwing arm to be varied to throw targets with more or less force as desired. The outer, longer end of the arm 23 carries the target carrier and grip which comprises two members 27—28; the part 28 being pivoted to the part 27 as at 29. A bolt 30 is slidable in guides 31 on parts 27—28, and a spring 32 encircles the portion of the bolt beyond one guide 31, and a spacing sleeve 33 encircles the bolt between the guides 31 and limits the approach of the members 27—28 toward each other. The inner member 27 carries a curved prong 34 which lies in a plane above and parallel with the member 27, and is adapted to engage over the top of the rim 35 of a target 36. The opposed member 28 carries near its outer end a rubber stud 37 to engage the opposite side of the target from prong 34; and this stud has a top late 38 to engage over the top of the rim 35 of the target. The spring 32 presses the grip-members 27—28 always toward each other while the sleeve 33 limits this movement of approach so as to insure the proper engagement of a target by the parts 34—37. The member 27 is fixed rigidly to a crank 39 which is journaled in arm 23.

40 is the setting arm which is fixed rigidly to the shaft 24 and carries the latch-member 41 which is adapted to engage the crank 39 and pull the grippers around to seize a target which has been deposited on shelf 13. The main-spring 25 tends always to carry the throwing arm into line with said spring, a coil-spring 42 which has one end fixed to shaft 24 and the other fixed to the support 4, operates normally to carry the setting arm in the same direction with the throwing arm to enable the latch 41 to engage with the crank 39.

The setting arm is operated from a distance, usually about 16 yards from the trap, by a single pull-cord 43 which is fastened to the arm near latch 41 and passes through and around suitable direction sheaves 44—45—46 on the turnable part of the apparatus. The tension of the spring 42 is sufficient to cause the arm 40 to straighten with respect to frame 4 and to pull back the cord to allow the device to be re-set after each discharge of a target.

Attached to the setting arm 40 is a spring-actuated trip lever 47 indicated in Figs. 1—6—7—8—9. The pivotal movement of the lever 47 in opposition to its spring 48 is limited by suitable means as the stop 49 formed by a bend in the arm 40. When the setting arm is pulled in by the cord 43, the outer end of the trip lever 47 presses against the inner end of a spring-actuated latch member 50 which is pivoted as at 51 to a fixed part of the frame 4. This initial engagement with the latch member 50 simply operates to rock the latter as in Figs. 6—7, which swings back again into the position shown in Fig. 8 to engage a pin 39′ just as the target has been seized by the gripper. This latch 50 will now hold the throwing arm against the tension of the main-spring 25 until such time as it is desired to throw the target. The latch 41 is disengaged from the crank 39 in order to allow the target to be thrown by slightly slacking up on the setting arm which causes the trip lever 47 to pass by the end of the latch 50 as shown in Fig. 9 to assume the set position shown in Fig. 2.

It will be noted that the latch 41 has a hump 52 proximate to its engaging notch over which the crank 39 rides when the arm 40 is slacked up. To throw the target the cord 43 is pulled in again which causes the trip 47 to again rock the latch lever 50 and release the throwing arm; the force of the throwing arm causing the crank 39 to strike the hump 52 and thereby knocking the latch 41 back so that it does not catch the crank. After the target is thrown the setting lever 40 is allowed to go back to initial position by slacking the cord until the latch 41 again catches onto the crank 39; the setting lever and cord being pulled back by the spring 42. When the setting arm is drawn in against the combined tension of springs 42 and 25, the target gripper is held in proper position by reason of the construction and arrangement of the gripper, crank 39 and latch 41, so that as the grip approaches the target which has been deposited upon shelf 13 the member 27 will pass under the target, and the prong 34 and top-plate 38 will simultaneously engage the top of the rim 35 on opposite sides of the target; the latter being suitably supported at the back on the shelf 13, and the spring 32 allowing the grip members to properly open out to seize the target. The rubber standard 37 offers sufficient friction on that side of the target, when the latter is being released, to cause the other side of the target to slip out first, and thereby giving the target a spinning motion in its flight through the air.

The discharge of the target from the carrier after the release of the throwing arms, as before described, is effected by centrifugal force. The magazine is given a step by step rotative movement coördinately with the operation of the throwing arm by means of

the crank arm 53 on shaft 24, and the rod 54 which connects crank 53 with the pawl 19. The number of teeth in the ratchet 18 corresponds to the number of chambers in the magazine; each time that the setting arm 40 is given a full oscillation, the pawl 19 is operated to turn the magazine one step and bring a fresh pocket over hole 11 to deposit a target on shelf 13; the timing of the movement of the magazine corresponding to the oscillations of the setting arm so that there will always be a target in position on the shelf 13 in readiness for the carrier.

The direction of flight of the target is changed at will by means of the cords or chains 55—56 which attach to opposite sides of the turntable 2. These cords 55—56 are operated from the same point that the pull-cord 43 is. Thus with the exception of filling the magazine and of occasionally varying the angle of the frame 4 to throw high or low birds, the operation can be entirely worked from a distance; a single cord 43 serving to both set and spring the trap and the cords 55—56 permitting the direction of throw of every target to be varied, if desired.

Having thus described my invention, what I claim and desire to secure by Letters Patent, is—

1. In a target trap the combination of a base, a turntable mounted thereon, a frame on the turntable and turnable therewith, a rotary magazine on the frame, a throwing-arm, a setting-arm, target-grip mechanism on the throwing-arm, and a single cord connected with the setting-arm to set the trap and to spring it.

2. In a target trap the combination of a suitable support, a throwing-arm, a setting-arm, target-grip mechanism on the throwing-arm, a rotary target-magazine having a plurality of pockets, means for singly positioning the targets with respect to said grip means, and a single cord with suitable connections with said grip mechanism to operate the latter to grip the target, set said arm and release said arm to throw the target.

3. In a target trap, the combination of a suitable support, a spring-actuated throwing-arm, target grip mechanism on the throwing-arm, a rotary, target-magazine having a plurality of pockets open at the bottom, a bottom-plate on which the targets in the pockets are normally supported, said plate having an opening through which the targets may drop, a support for receiving the dropped targets, means to permit the dropping of but one target at a time through said opening, means to give said magazine a step by step movement, and means to actuate the throwing-arm and target-grip-mechanism.

4. In a target trap the combination with a suitable support, of a spring-actuated-throwing-arm, a spring-actuated setting-arm, a target-grip, a crank-shaft pivoted on the throwing-arm and rigidly connected with the target-grip, a latch-member on the setting-arm and engageable with the crank-shaft, and means to oscillate said setting arm.

5. In a target trap the combination of a suitable support, a spring-actuated-throwing-arm, a crank-shaft journaled on the arm, a target-grip fixed to said shaft and turnable therewith, said grip comprising coacting grip-members, a target support, and means engageable with said crank to oscillate the throwing-arm and engage said grip members with a target on said support.

6. In a target trap, a spring-actuated throwing-arm, a crank-shaft journaled on the throwing-arm, a target-grip carried by the crank-shaft, a target-support, detachable connections between the setting-arm and said crank, and means to rock the setting-arm to engage said grip with the target on said target-support.

7. In a target trap, a spring-actuated throwing-arm, a setting-arm, a crank-shaft journaled on the throwing-arm, a target-grip carried by the crank-shaft, a target-support, detachable connections between the setting-arm and said crank, means to rock the setting-arm to engage said grip with a target on said target-support, and mechanism operated by said last-named means to release the throwing-arm to discharge the target.

8. In a target trap, a spring-actuated throwing-arm, a crank-shaft on the throwing-arm, a grip-member rigidly connected with said crank-shaft, a coöperating grip-member pivoted to the first-named grip member, a target support, means engaging the crank-shaft to rock the throwing-arm and engage said grip-members with a target on said support, means to hold the throwing-arm against the tension of its spring, and means to release the throwing-arm to discharge the target.

9. In a target trap, a spring-actuated throwing-arm, a crank-shaft on the throwing-arm, a grip-member rigidly connected with said crank-shaft, a coöperating grip-member pivoted to the first-named grip-member, a target support, means engaging the crank-shaft to rock the throwing-arm and engage said grip-members with a target on said support, means to hold the throwing-arm against the tension of its spring, means to release the throwing-arm to discharge the target, said means for rocking and releasing said throwing-arm including a spring-actuated setting-arm, and a single pull-cord connected with said setting-arm.

10. In a target trap, a spring-actuated throwing-arm, a crank-shaft on the throwing arm, a grip-member rigidly connected with said crank-shaft, a coöperating grip-member pivoted to the first-named grip-member, a target support, means engaging the crank-shaft to rock the throwing-arm and engage

said grip-members with a target on said support, means to hold the throwing-arm against the tension of its spring, means to release the throwing-arm to discharge the target, said means for rocking and releasing said throwing-arm including a spring-actuated setting-arm having a pivoted latch-member thereon, and a pull-cord connected with the setting arm.

11. In a target trap, a spring-actuated throwing-arm, a target-grip pivoted thereon, a spring-actuated setting-arm, a latch-member pivoted on said setting-arm and engageable with said grip, a pull-cord to set the throwing-arm, and latch-mechanism engageable with the throwing-arm to hold the latter in set position.

12. In a target trap, a spring-actuated throwing-arm, a target-grip pivoted thereon, a spring-actuated setting-arm, a latch-member pivoted on said setting-arm and engageable with said grip, a pull-cord connected with said latch-member to set the throwing-arm, latch-mechanism engageable with the throwing-arm to hold the latter in set position, and means operated by said pull-cord to release the throwing-arm from said latch-mechanism.

13. In a target trap, a spring-actuated throwing-arm, a target-grip pivoted thereon, a spring-actuated setting-arm, a latch pivoted on the latter and engageable with the grip, a pull-cord connected with the setting-arm to operate the latter and set the throwing-arm, detachable means for holding the throwing-arm in set position, and means operated through the medium of said pull-cord to release the throwing-arm from its set position.

14. In a target trap, a throwing-arm, a target-grip pivoted on said arm, said target-grip comprising two spring-actuated coöperating members, one of which is pivoted on the other, one of said members having a curved-prong to engage the top of one side of a target, the other of said members having a stud to engage the opposite side of the target, means for supporting a target in the path of said members, and means connected with the member which is pivoted to the throwing-arm to operate the latter to cause said members to pick up a target.

15. In a target trap, a throwing-arm, a target-grip pivoted on said arm, said target-grip comprising two spring-actuated coöperating members, one of which is pivoted on the other, one of said members having a curved-prong to engage the top of one side of a target, the other of said members having a stud to engage the opposite side of the target, means for supporting a target in the path of said members, and means connected with the member which is pivoted to the throwing-arm to operate the latter to cause said members to pick up a target, said means for operating said grip-members and throwing-arm including a spring-actuated setting-arm.

16. In a target trap, a throwing-arm, a target-grip pivoted on said arm, said target-grip comprising two spring-actuated coöperating members, one of which is pivoted on the other, one of said members having a curved-prong to engage the top of one side of a target, the other of said members having a stud to engage the opposite side of the target, means for supporting a target in the path of said members, means connected with the member which is pivoted to the throwing-arm to operate the latter to cause said members to pick up a target, said means for actuating said throwing-arm and grip including a setting-arm, a latch-member engageable with the grip, and a pull-cord connected with the said setting arm.

17. In a target trap, a spring-actuated throwing-arm, a crank-shaft carried by said arm, a grip-member fixed to the crank-shaft, a coöperating spring-actuated grip-member pivoted to the first-named grip-member, a setting-arm, a latch pivoted to the setting-arm and engageable with the crank-shaft, a pull-cord to oscillate the setting-arm to set the throwing-arm, means to hold the throwing-arm in set position, and means to release the throwing arm.

18. In a target trap, a spring-actuated throwing-arm, a crank-shaft carried by said arm, a grip-member fixed to the crank-shaft, a coöperating spring-actuated grip-member pivoted to the setting-arm and engageable with the crank-shaft, a pull-cord to oscillate the setting-arm to set the throwing-arm, and means operated by said pull-cord to release the throwing-arm from its set-position.

19. In a target trap, a spring-actuated throwing-arm, a target-grip pivoted thereon, a spring-actuated setting-arm, a latch-member pivoted on the setting-arm and engageable with said grip, a pull-cord connected with said setting-arm to operate the throwing-arm, and means operated through the medium of said pull-cord to hold the throwing-arm in set position and to release said throwing-arm.

20. In a target trap, the combination of a suitable frame mounted on a revoluble support, means for permitting the change of the angle of said support relative to a horizontal plane, a rotatable magazine on said support, a spring-actuated throwing-arm on the support, target-grip mechanism on the throwing-arm, means for positioning the targets with respect to the said grip-mechanism, means to operate the throwing-arm to engage a target with the grip-mechanism, means to release the throwing-arm, and means for giving the magazine a movement coördinate with the actuation of the throwing-arm.

21. In a target trap, the combination of a

suitable frame mounted on a revoluble support, means for permitting the change of the angle of said support relative to a horizontal plane, a rotatable magazine on said support, a spring-actuated throwing-arm on the support, target-grip mechanism on the throwing-arm, means for positioning the targets with respect to the said grip-mechanism, means to operate the throwing-arm to engage a target with the grip-mechanism, means to release the throwing-arm, and means for giving the magazine a movement coördinate with the actuation of the throwing-arm, said means for operating the throwing-arm and magazine including a single pull-cord.

22. In a target trap, the combination of target carrying and throwing means, of a rotary magazine, said magazine having a chamber open at the bottom, a stationary-plate over which the magazine is revoluble, said plate having a hole corresponding to the magazine-chamber and through which hole a target may drop, a support for the target beneath the hole, and means for operating the magazine coördinately with the actuation of the target-throwing means.

23. In a target trap, the combination with target carrying and throwing means, of a rotary magazine having a chamber to contain a plurality of targets, said chamber open at the bottom, a plate beneath the magazine and having an opening corresponding with the opening in the bottom of the chamber and through which a target may drop into position with respect to said target carrying and throwing means, means to prevent more than one target passing through said opening in said plate at one time, and means for rotating the magazine.

24. In a target trap, the combination with target carrying and throwing mechanism, of a rotatable magazine having a plurality of magazine chambers open at the bottom, a plate beneath the magazine and having an opening registerable successfully with the chambers on the rotation of the magazine and through which opening targets may drop into position with respect to said carrying and throwing mechanism, means to prevent the passage of more than one target at a time through said opening, and means for giving the magazine a step by step rotative movement.

25. In a target trap, the combination of a base, a turn-table mounted thereon, a hinged body turnable in a vertical plane mounted on said turn-table, and a rotatable magazine on said body, target carrying and throwing mechanism, means for operating the magazine coördinately with the operation of the said target carrying and throwing mechanism to deliver targets singly to said carrying and throwing mechanism, and means for operating said target carrying and throwing mechanism.

26. In a target trap, the combination of a base, a turn-table mounted thereon, a hinged body turnable in a vertical plane mounted on said turn-table, and a rotatable magazine on said body, target carrying and throwing mechanism, means for operating the magazine coördinately with the operation of the said target carrying and throwing mechanism to deliver targets singly to said carrying and throwing mechanism, and means for operating said target carrying and throwing mechanism, said last-named means including a single pull-cord.

27. In a target trap, the combination of a base, a turn-table mounted thereon, a hinged body turnable in a vertical plane mounted on said turn-table, and a rotatable magazine on said body, target carrying and throwing mechanism, means for operating the magazine coördinately with the operation of the said target carrying and throwing mechanism to deliver targets singly to said carrying and throwing mechanism, means for operating said target carrying and throwing mechanism, said last-named means including a single pull-cord, and means connected with the turn-table to operate the latter from a distance to vary the direction of flight of the targets.

28. In a target trap, the combination of a base, a turn-table mounted thereon, a body or frame carried by the turn-table, a rotatable magazine on said frame, a spring-actuated throwing-arm, a spring-actuated setting-arm, pivoted grip-mechanism on the throwing-arm, a latch-member on the setting-arm engageable with said grip-mechanism, and a pull-cord connected with said setting arm.

29. In a target trap, the combination of a base, a turntable, target-throwing mechanism in the turntable, a king-bolt connecting the turntable to the base and providing a pivot for the table to turn about, and a spring surrounding the bolt and interposed between a stop on the bolt and the base to absorb shock when the throwing mechanism is released.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JONATHAN B. RICHARDSON.

Witnesses:

F. A. BRIZZOLARA,

D. A. FERRARI.