

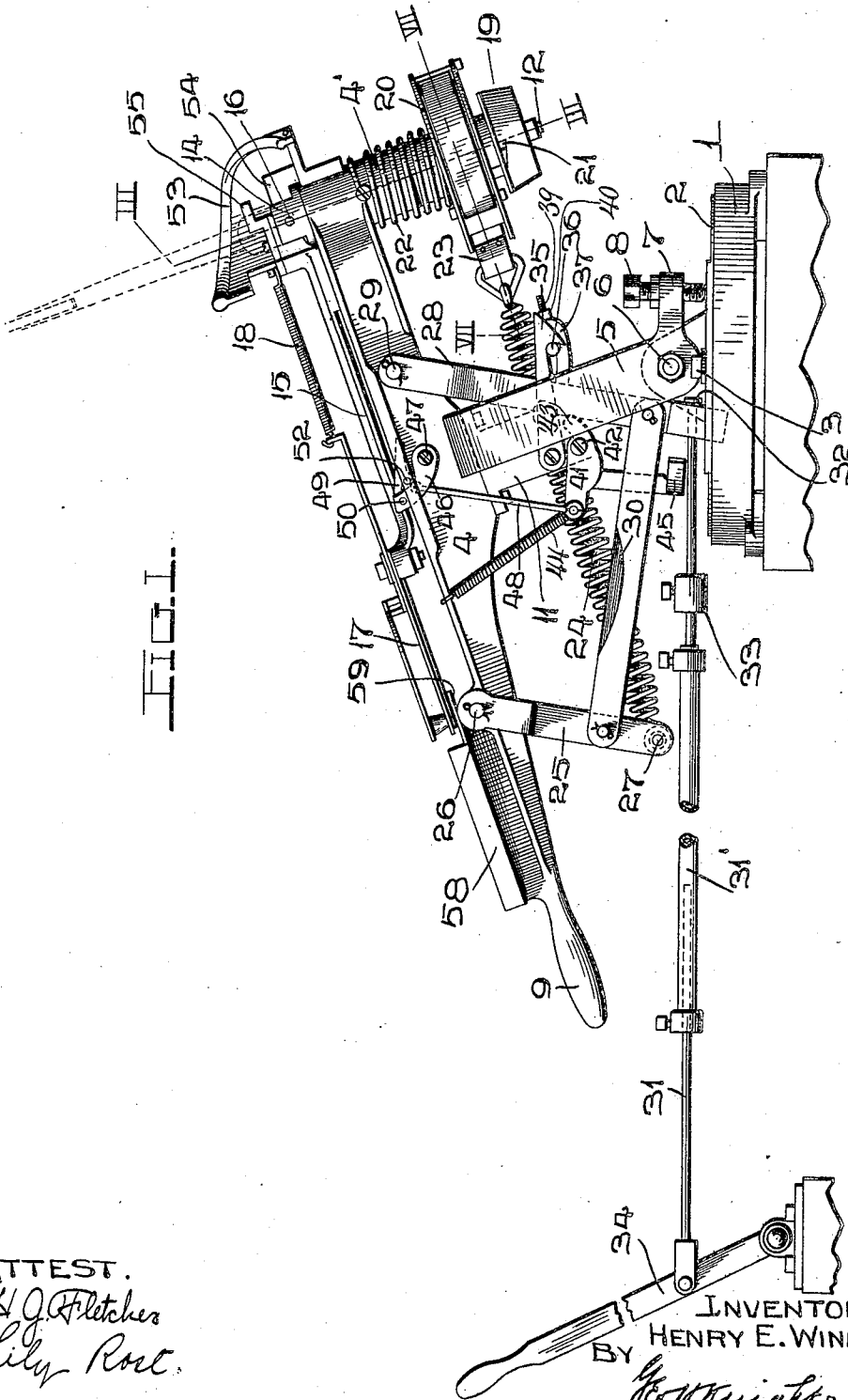
No. 886.669.

PATENTED MAY 5, 1908.

H. E. WINANS.
TARGET TRAP.

APPLICATION FILED MAY 25, 1907.

4 SHEETS—SHEET 1.



ATTEST.
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4 SHEETS—SHEET 2.

FIG. II.

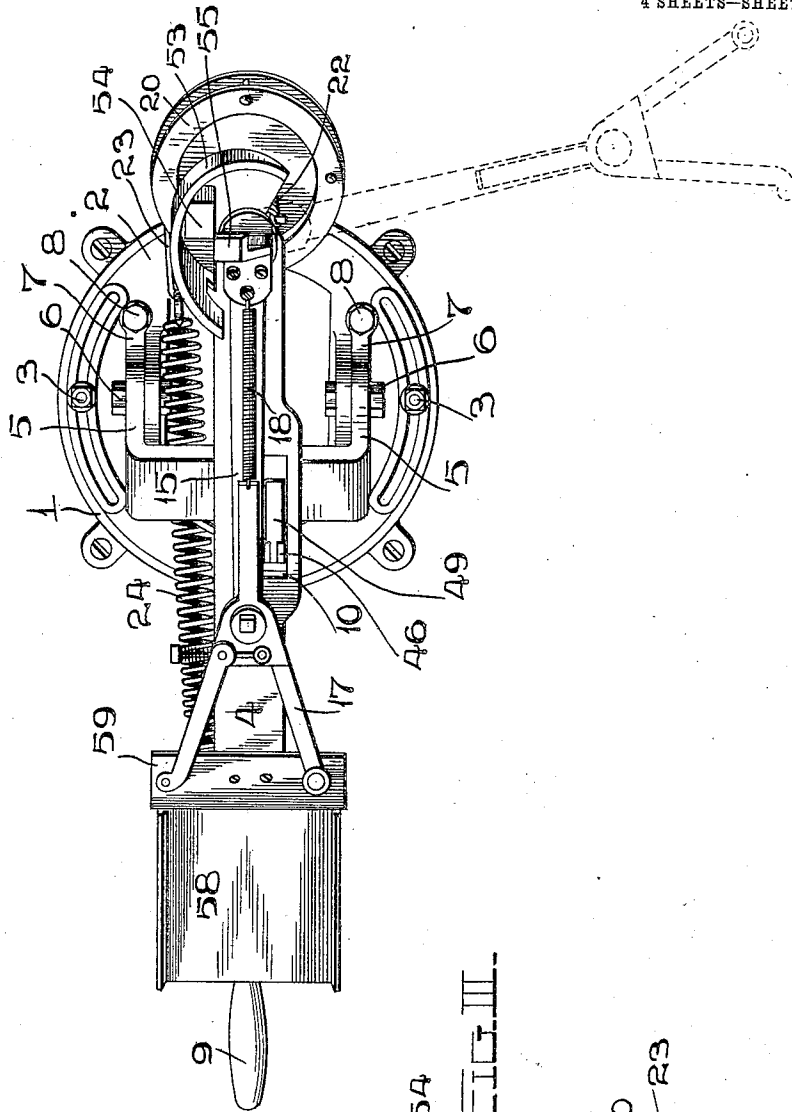
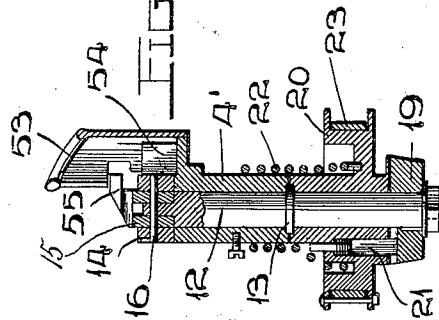


FIG. III.



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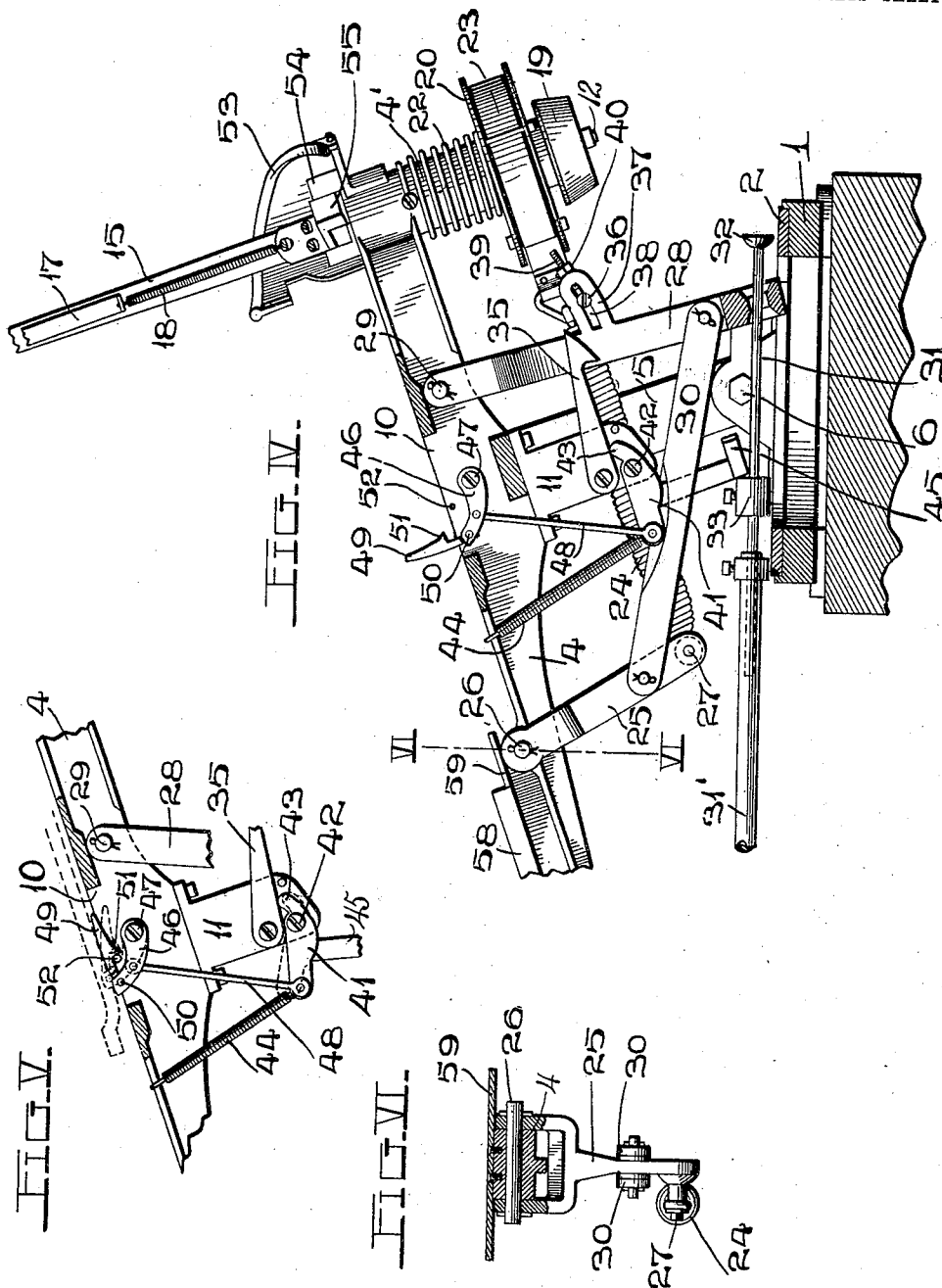
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4 SHEETS—SHEET 3.



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4 SHEETS-SHEET 4.

FIG. VII.

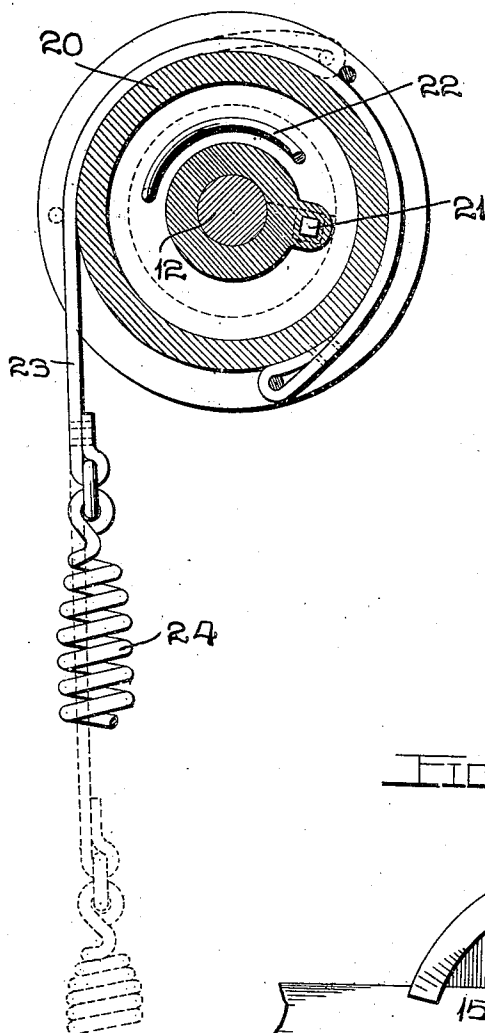


FIG. VIII.

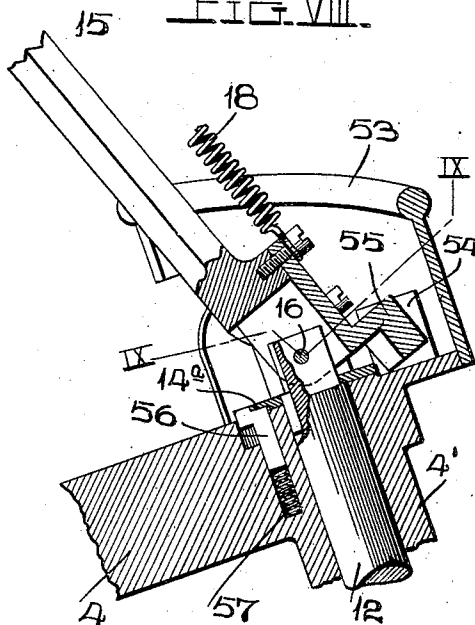
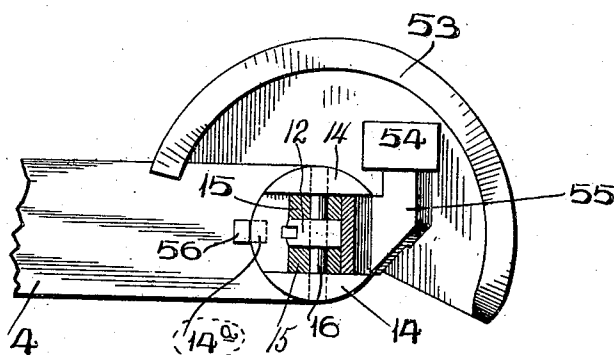


FIG. IX.



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UNITED STATES PATENT OFFICE.

HENRY E. WINANS, OF UPPER ALTON, ILLINOIS.

TARGET-TRAP.

No. 886,669.

Specification of Letters Patent.

Patented May 5, 1908.

Application filed May 25, 1907. Serial No. 375,676.

To all whom it may concern:

Be it known that I, HENRY E. WINANS, a citizen of the United States of America, and a resident of Upper Alton, in the county of Madison and State of Illinois, 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 that character of target traps used for throwing disk targets for sportsman's practice.

The invention has for its object the production of a simple and efficient target trap in which the main spring is readily set for power action and means whereby it is instantaneously placed in action when the target is to be thrown; also including novel means for the control of the throw arm previous to its release for target throwing action and during its return to target receiving position.

Figure I is a side elevation of my target trap. Fig. II is a top or plan view of the trap. Fig. III is a vertical cross section taken on line III—III, Fig. I, through the rear end of the trap frame and the mechanism associated with the shaft operable in said frame, the said shaft being shown partly in section and partly in elevation. Fig. IV is a view partly in elevation and partly in section of the working members of the trap shown in the positions assumed when the throw arm has been released and is returning to the target receiving position, after the target has been thrown thereby. Fig. V is an elevation of the trigger operated mechanism used for restraining the throw arm upon its return to the target receiving position. Fig. VI is a vertical cross section taken on line VI—VI, Fig. IV. Fig. VII is an enlarged cross section taken on line VII—VII, Fig. I, through the drum to which the main spring is connected and the shaft on which said drum is mounted. Fig. VIII is an enlarged longitudinal vertical section taken through the rear end of the trap frame and the parts located at said end of the frame, the throw arm being illustrated in the position assumed just previous to its falling into target-receiving position. Fig. IX is a view partly in plan of the forward end of the trap frame and partly in a horizontal section taken on line IX—IX, Fig. VIII.

1 designates the base of my trap upon which is mounted a rotatable bed-ring 2

which supports the frame of the trap and is adapted to be turned upon the base for the purpose of varying the direction in which the targets are thrown from the trap. The bed-ring is held in fixed positions relative to the base by set bolts 3 which connect said parts and are operable in slots in the bed-ring.

4 designates the frame of the trap which is provided with supporting legs 5 pivoted at 6 to the bed-ring in order that the frame may be tilted relative to a horizontal line drawn therethrough for the purpose of varying the angle at which the targets are discharged from the trap. The legs 5 are provided at their lower ends with forwardly extending arms 7 in which are mounted adjustment screws 8 adapted to rest upon the bed-ring 2 and through the medium of which the legs, and consequently the trap frame, are held at angles to a horizontal line and adjusted to said angles. The frame 4 is provided at its rearward end with a handle 9 and at a point above its supporting legs with a longitudinal slot 10, as seen in Figs. II, IV and V. Adjacent to the supporting legs and at the lower side of the frame 4 is a bracket leg 11.

12 designates a vertical shaft that is loosely mounted in the forward end of the frame 4 and which extends above said frame, as seen in Figs. I, III and VIII, and also to a position beneath a sleeve extension 4' located at the lower side of said frame. At the upper end of the shaft 12 is a head 14 which is slotted transversely and in which the rear end of a throw arm 15 is pivotally mounted at 16. This throw arm is adapted to be carried in a complete circle by the shaft 12 and also adapted to partake of a rise and fall movement during its travel in a circle in the manner and for the purpose to hereinafter appear. The throw arm has mounted upon its free end a target carrier 17 of any ordinary type and for which no invention is herein claimed. The carrier is pivoted to the throw arm in the usual manner and controlled by a resistance spring 18 that connects it to the rear portion of the arm.

19 designates a ratchet wheel fixed to the lower end of the shaft 12.

20 is a drum loosely fitted to the shaft above the ratchet wheel and the hub of which extends upwardly to a position adjacent to the lower end of the frame sleeve 4' but which is held out of contact with said sleeve as seen in Fig. III, due to the provision

of an annular rib 13 upon the shaft 12 that serves to receive the end thrust of the hub of the drum whereby the degree of frictional action against the upper end of the hub of the drum is materially lessened relative to the degree of friction that would take place in the event of said hub being permitted to bear against the lower end of the frame sleeve above it.

The features of construction just described are of material importance with respect to the ease of rotation of the drum 20.

21 is a spring controlled pawl that is vertically positioned in the drum 20 and is arranged for engagement with the ratchet wheel 19 for the purpose of causing said drum to impart rotative movement to said ratchet wheel and the shaft to which it is fixed.

22 is a return spring surrounding the frame sleeve 4' and the hub of the drum 20, the said spring having its ends attached to said members and being adapted to return said drum to its normal position after it has performed its office of rotating the shaft 12.

23 is a pull strap having one of its ends attached to the drum 20 and which is normally wrapped around said drum.

24 designates a main spring that is connected to the pull strap 23.

25 is a pull arm pivoted at 26 to the frame 4 and to which the main spring is connected at 27.

28 is a pull lever that is pivoted to the frame 4 at 29 and which is connected to the pull arm 25 by one or more links 30 that unite said members in a manner to provide for the compounding of leverage in the main spring expanding mechanism, comprising the parts just described and which, as will be observed, include the pull arm 25 to which the main spring is attached.

31 designates an operating rod that is loosely fitted in the lower end of the pull lever 28 so as to be susceptible of backward and forward movement in said lever and the rod is provided at its rear end with a head 32, (see Figs. I and IV) which is adapted to engage the pull lever when the operating rod is drawn forwardly. Upon the operating rod is a trip button 33, the utility of which will be herein explained. The operating rod is connected to a hand lever 34, by which it is manipulated and the rod is preferably composed of sections that include a tubular member 31', in which the other members of the rod are adjustably mounted, thereby providing for the extension and contraction of the operating rod to suit the demands of the users of the trap.

35 designates a latch that is pivoted to the bracket leg 11, depending from the frame 4. This latch is adapted to engage a keeper 36 that is adjustably mounted in an arm 37 carried by the pull lever 28. This keeper is rendered adjustable in said arm by reason of

the arm being provided with a slot 38 in which the keeper is movably positioned and the keeper being carried by an adjustment screw 39 that extends through the end of the arm and bears a set nut 40. The keeper is adjustable rearwardly and forwardly relative to the latch 35 and it will therefore be seen that the keeper may be so set in the arm of the pull lever as to render it necessary to exert either greater or less pull upon the pull lever and greater or less degree of expansion in the main spring 24 to regulate its power in placing the spring under tension and causing it to be held while under tension by the latch 35.

41 designates a trigger that is pivoted at 42 to the bracket leg and which is provided at its upper end and forward of its pivotal point, with a nose 43 that is adapted to engage the latch 35, but is normally spaced apart from said latch, as seen in Fig. I, being held in such position by a retracting spring 44 that connects the trigger to the frame 4. The trigger 41 is provided at its lower end with extensions 45 that are adapted to be engaged by the trip button 33 on the operating rod 31, for the purpose of actuating said trigger when the operating rod is moved forwardly as illustrated in Fig. IV, for the purpose of lifting the latch 35 and also for the purpose of actuating throw arm controlling members that will next be described.

46 designates a stop arm that is pivoted to the main frame 4 at 47 and is operable in the slot 10 in said frame. The stop arm is connected to the trigger 41 by a pull rod 48, that serves to move the stop arm upwardly into the path of travel of the throw arm 15 when the trigger is released from the action of the trip button 33, after it has been operated thereby and is returned to its normal position by the retracting spring 44.

49 is a catch finger that is pivoted to the stop arm 46 at 50, and which is provided with a shoulder 51 that is arranged for engagement with the trip pin 52 mounted in the main frame 4 and extends transversely of the slot 10 in said frame.

When the trigger 41 is moved forwardly the stop arm 46 is drawn downwardly and as a consequence the throw arm which normally rests in a position alongside of said arm and is restrained thereby, is freed to partake of its target throwing movement. A continued movement of the trigger causes the stop arm to be still further depressed with the result of causing the shoulder of the catch finger to be carried into engagement with the trip pin 52 and as a consequence the catch finger is, after being moved from the position indicated in dotted lines to the position indicated in full lines in the same view, thrown into upright position, as seen in Fig. IV to serve the purpose in said last-named position of catching the throw arm when it

returns to its normal or target receiving position. As soon as the trigger 41 is released due to the trip button of the operating rod being again moved forwardly, said trigger is returned to its normal position by the retracting spring 44, and as a consequence the throw arm stop members are caused to resume their normal positions, the stop arm 46 moving upwardly into position in front of the throw arm and the catch finger falling into a position over said stop arm, as seen in Fig. 1.

53 designates a retarding member that is mounted upon the front end of the main frame 4 and the upper surface of which is in such position as to be engaged by the throw arm 15 when said throw arm is completing its movement after the target has been discharged therefrom and whereby the momentum of said arm is broken for the purpose of stopping the circular movement of the arm by the time that it has completed its circular course of travel and is to be returned to target receiving position. In order that the retarding member may have the desired effect, it is made in the shape of a segment of a helix, or in other words, its topmost edge against which the throw arm rides has the form of a section of a spiral body in which the base of the section is located at the point of first contact of the throw arm therewith, and the top of the section is located at a considerably greater degree of elevation than the first named point and above the main frame of the trap.

It will be seen that by the use of a retarding member of the shape described, the throw arm is moved upwardly out of its original course of travel when in target throwing action from the position indicated in dotted lines Fig. II to the position seen in full lines Figs. IV and VIII and in dotted lines Fig. I, with the result of breaking the momentum as stated, due to the change of position of the arm and consequent greater resistance to the movement thereof.

54 designates a stop lug that surmounts the main frame of the trap adjacent to the head of the throw arm carrying shaft 12, and 55 is an arm carried by the throw arm 15 at its rear end and adapted to engage said stop lug when the throw arm has completed its circular movement and has passed beyond the uppermost and rearward end of the retarding member 53 and whereby the circular movement of the arm is caused to be discontinued in order that the arm may fall into a position back of the stop arm 46 by which it is to be held until it is again released for target throwing action.

56 is a latch bolt that is loosely mounted in a vertical position in the forward portion of the trap frame 4, adjacent to the head of the throw arm carrying shaft 12 and beneath which is a lift spring 57 that tends to force

said bolt in an upward direction. This latch bolt is adapted to engage the head of the throw arm shaft by entering into a notch 14^a in said head, so located as to receive the bolt when the throw arm is brought into a position above the main frame of the trap, after it has served its target throwing office. The latch bolt, by engagement with the head of the shaft serves to restrain said shaft from rotation until the throw arm has resumed a position that will cause it to engage with the stop arm 46, and as the throw arm continues its downward movement it bears against the latch bolt and depresses it out of engagement with the head of the throw arm shaft to again release said shaft.

58 designates a table upon which the targets are placed to be fed into the carrier 17.

59 is a buffer ledge located back of the table 58 upon the main frame and adapted to receive the carrier 17 when the throw arm descends to target receiving position and on which the carrier rests as the targets are introduced thereinto. This buffer ledge has the utility of affording means against which the arms of the carrier strike when they fall and whereby the arms of the carrier are caused to be straightened in the event of their having bent during target throwing action, this straightening effect being produced due to the impact of the carrier arms against the buffer ledge.

The operation of my trap is as follows: When the trap is to be set, the operating rod 31 is first drawn rearwardly with the result of a pull being exerted upon the pull lever 28, whereby said lever is moved rearwardly to a sufficient degree to cause the latch 35 to become engaged with the keeper stud 36 carried by said lever. During the action just stated, the link or links 30 operate to move the pull arm 25 rearwardly and cause said arm to exert a pull upon the main spring 24 with the result of expanding said spring and placing it under tension. At this time the drum to which the main spring is attached, the shaft 12 and the parts associated with it, including the throw arm, remain at rest and in a condition to become operative under the action of the main spring, as soon as the throw arm is released from the restraint offered by the stop arm 46. To cause a target which has been placed in the carrier 17 to be discharged due to the operation of the throw arm, the operating rod 31 is thrown forwardly until the trip button 33 on said rod comes into engagement with and actuates the trigger 41. The first action that takes place when said trigger is operated, is the downward movement of the stop arm 46 from the position shown in Fig. I to the position shown in full lines Fig. V. This degree of movement of the arm provides for the release of the throw arm which throw arm is then freed to be rotated in a circular path

under the action of the main spring which exerts power upon the drum 20 and causes said drum to in turn act through the medium of the latch wheel 19 to impart rotation to the throw arm shaft 12. The throw arm then performs its office and returns to its normal position to be caught and brought to rest by the parts as hereinbefore described. Immediately following the actuation of the stop arm 46 and the operation of the throw arm, a continued movement of the trigger 41 causes the nose 43 of said trigger to move into engagement with the latch 35 whereby said latch is disengaged from the keeper stud 36 of the pull lever and the main spring is released in order that the drum 20 may be returned to its normal position by the return spring 22.

1. In a target trap, the combination of a throw arm, rotatable means to which said throw arm is pivoted transversely of the axis of said means and by which means said arm is rotated in a circular path, and a retarding member located in the path of travel of said throw arm and adapted to divert it from its initial course during movement thereof, substantially as set forth.

2. In a target trap, the combination of a throw arm, rotatable means to which said throw arm is pivoted transversely of the axis of said means and by which means said throw arm is rotated in a circular path, and a retarding member by which said throw arm is elevated out of its initial course during its movement, substantially as set forth.

3. In a target trap, the combination of a throw arm, rotatable means to which said throw arm is pivoted transversely of the axis of said means and by which means said throw arm is rotated in a circular path, and an upwardly curved retarding member arranged in the path of travel of said throw arm and by which the arm is diverted from its initial course of movement, substantially as set forth.

4. In a target trap, the combination of a throw arm, rotatable means to which said throw arm is pivoted transversely of the axis of said means and by which means said throw arm is rotated, and a retarding member of semihelical shape arranged in the path of travel of said throw arm and by which said throw arm is diverted from its initial course of movement, substantially as set forth.

5. In a target trap, the combination of a throw arm, rotatable means to which said throw arm is pivoted transversely of the axis of said means and by which said throw arm is rotated, a retarding member extending upwardly relative to the path of travel of said throw arm, and means for stopping the rotation of said throw arm after it is separated from said retarding member, substantially as set forth.

6. In a target trap, the combination of a

frame, a throw arm, rotatable means mounted in said frame to which said throw arm is pivoted transversely of the axis of said means, a retarding member by which said throw arm is diverted from its initial course of movement, and an arm carried by said throw arm arranged for engagement with said frame after the arm has become separated from said retarding member, substantially as set forth.

7. In a target trap, the combination of a throw arm, means to which said throw arm is pivoted transversely of the axis of said means and by which said arm is rotated, a retarding member arranged in the path of travel of said throw arm and by which said arm is diverted from its initial course of movement, and a trigger operated mechanism arranged in the path of travel of said throw arm and adapted to receive said throw arm after it is freed from said retarding member, substantially as set forth.

8. In a target trap, the combination of a frame, a horizontally rotatable throw arm, rotatable means mounted in said frame to which said throw arm is pivoted and by which said arm is rotated, a vertically movable stop arm pivoted to said frame, a catch finger pivoted to said stop arm, and means for actuating said stop arm to free said throw arm and move said catch finger upwardly into the path of travel of said throw arm, substantially as set forth.

9. In a target trap, the combination of a frame, a throw arm, means supported by said frame for rotating said throw arm, a stop arm pivoted to said frame, a catch finger pivoted to said stop arm, a trip member arranged to be engaged by said catch finger, and means for actuating said stop arm to move it out of the path of travel of said throw arm and move said catch finger into the path of travel of said throw arm, substantially as set forth.

10. In a target trap, the combination of a frame, a shaft rotatably mounted in said frame, means for rotating said shaft, a throw arm pivotally mounted in said shaft and adapted to be rotated thereby, and a latch bolt mounted in said frame and arranged for engagement with said shaft, substantially as set forth.

11. In a target trap, the combination of a frame, a throw arm, throw arm carrying means rotatably supported by said frame, a main spring connected to said throw arm carrying means, a pull arm to which said main spring is connected, a pull lever connected to said pull arm, means for operating said pull lever, a latch for engagement with said pull lever when the main spring is placed under tension, and means for releasing said throw arm and said pull lever, substantially as set forth.

12. In a target trap, the combination of a frame, a throw arm, throw arm carrying

means rotatably supported by said frame, a main spring connected to said throw arm carrying means, a pull lever formed with an arm and having connection with said main spring, a keeper adjustably mounted in the arm of said pull lever, and a latch for engagement with said pull lever when said main spring is placed under tension, substantially as set forth.

10 13. In a target trap, the combination of a frame, a throw arm, throw arm carrying means rotatably supported by said frame, a main spring connected to said throw arm carrying means, a pull lever having connection with said main spring, a latch for engagement with said pull lever, a stop member for controlling the movement of said throw arm, a trigger for actuating said stop member and said latch, and an operating rod
20 loosely mounted in said pull lever provided

with a trip member for engagement with said trigger, substantially as set forth.

14. In a target trap, the combination of a frame, a throw arm, means supported by said frame for rotating said throw arm and to which said arm is pivoted transversely of the axis of said means to permit the vertical movement of said arm, a retarding member supported by said frame and extending upwardly therefrom in the path of travel of said throw arm, a target carrier carried by said throw arm, and a buffer ledge supported by said frame and adapted to receive said target carrier after said throw arm is separated from said retarding member, substantially as set forth.

HENRY E. WINANS.

In the presence of—

BLANCHE HOGAN,
WM. H. SCOTT.