No. 624,044. Patented May 2, 1899.

A. M. JENKINS.

TARGET TRAP.

(Application filed Mar. 9, 1898.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1.

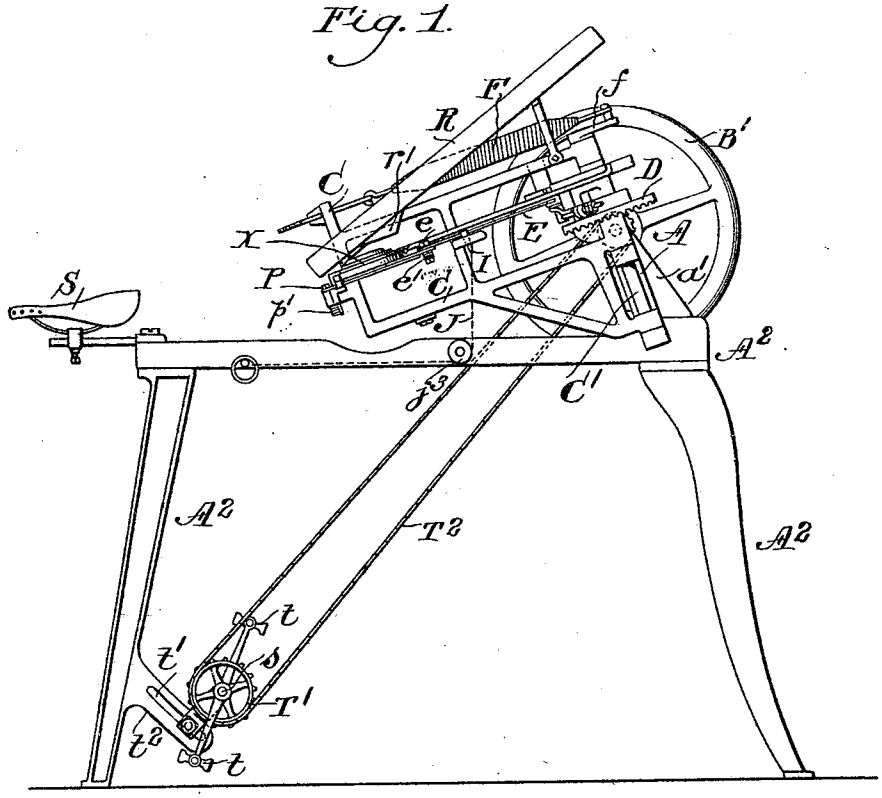


Fig. 4.

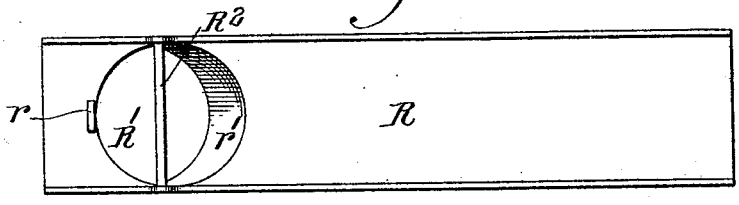
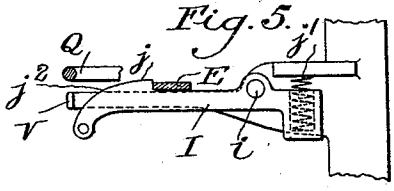


Fig. 5.



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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3 Sheets—Sheet 2.

Fig. 2.

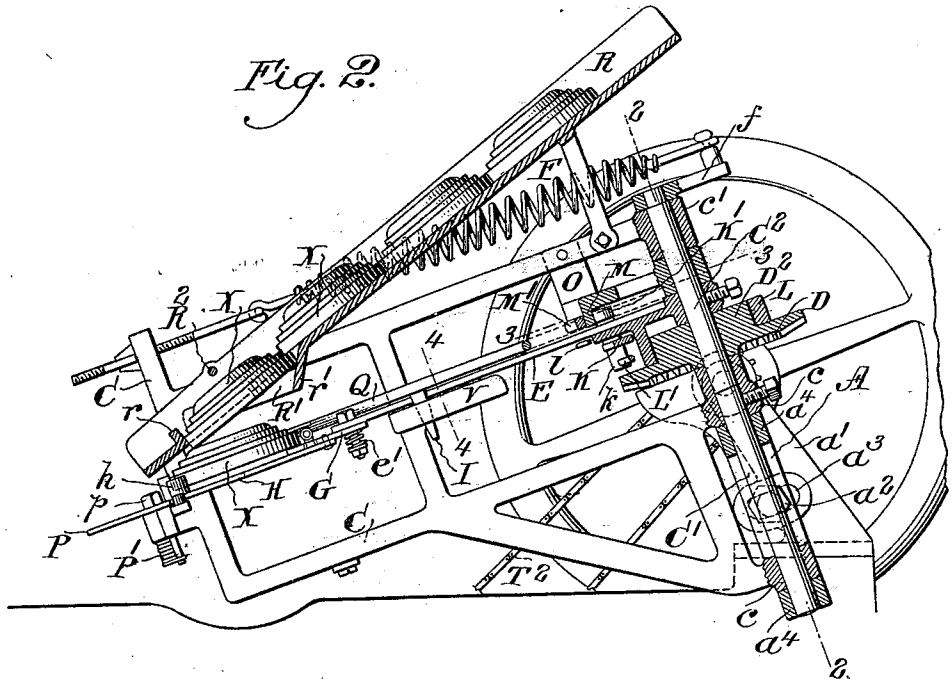
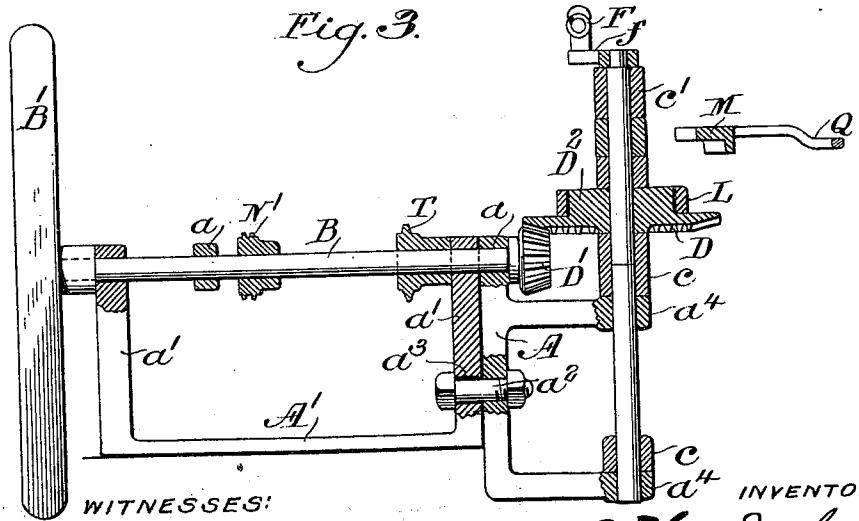


Fig. 3.



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(No Model.) 3 Sheets—Sheet 3.

Fig. 6.

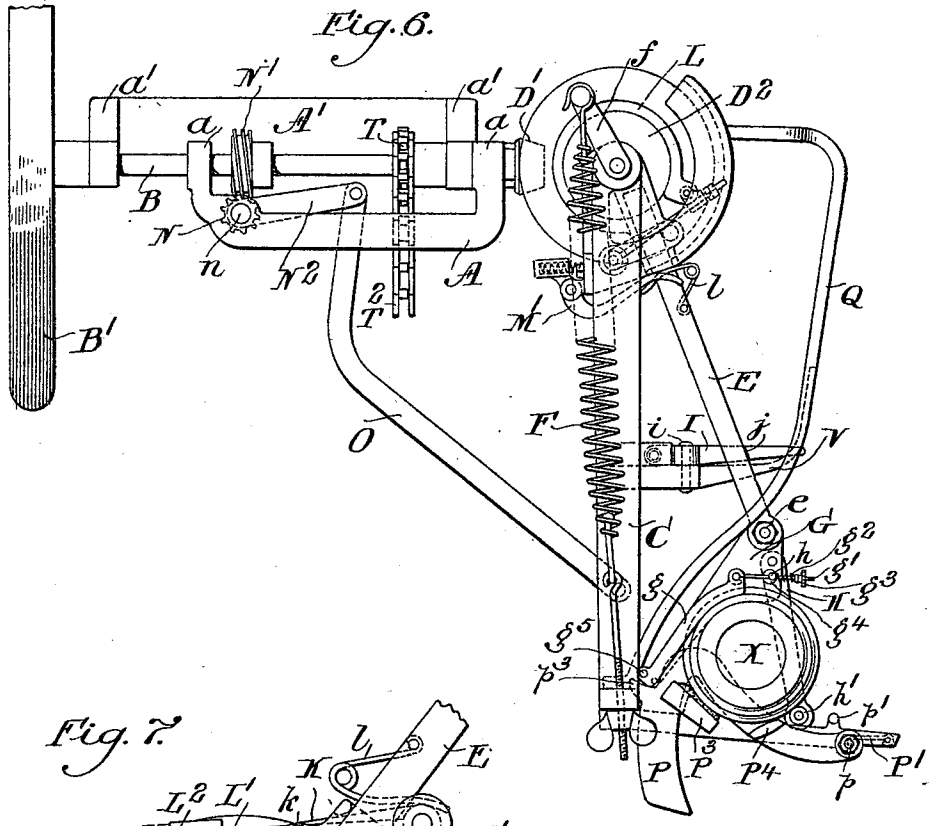


Fig. 7.

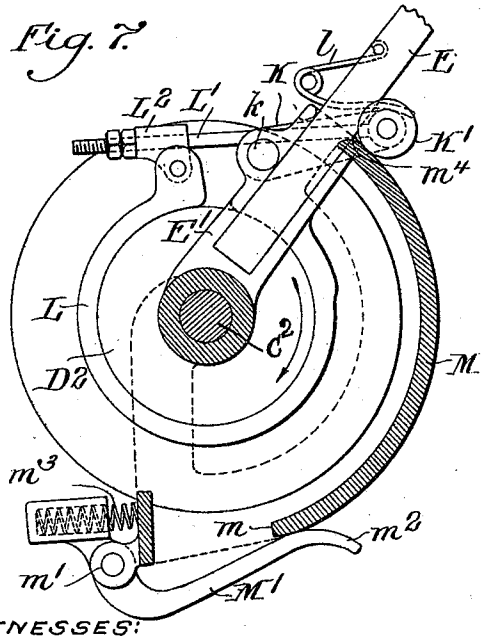
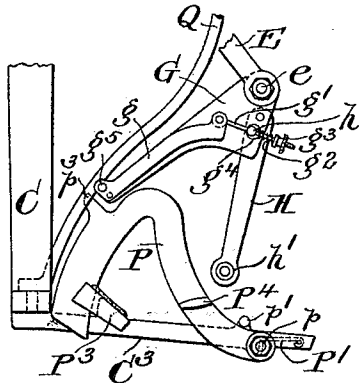


Fig. 8.



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UNITED STATES PATENT OFFICE.

ARTHUR M. JENKINS, OF MORRISTOWN, PENNSYLVANIA, ASSIGNOR TO THE CLEVELAND TARGET COMPANY, OF CLEVELAND, OHIO.

TARGET-TRAP.

SPECIFICATION forming part of Letters Patent No. 624,044, dated May 2, 1899.

Application filed March 9, 1898. Serial No. 673,167. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR M. JENKINS, of Morristown, Montgomery county, Pennsylvania, have invented an Improvement in Target-Traps, of which the following is a specification.

My invention relates to target-traps designed for ejecting clay disks for purpose of marksmanship; and it consists of the improvements which are fully set forth in the following specification and are shown in the accompanying drawings.

In automatic target-traps it is desirable that the clay disks should be ejected in such a manner as to resemble most closely the flight of a bird and also that the direction or "quarter" in which they are thrown shall be variable. It is also desirable that the disks may be thrown with facility and rapidity and that there shall be as little hand operation as possible.

It is the object of my invention to accomplish these results in an automatic trap of simple construction requiring the least amount of hand operation.

A part of my invention relates to mechanism for automatically retracting or drawing back the ejector-arm after the target is ejected therefrom to return it into position to automatically receive the next target. Heretofore this operation has usually been effected by the manipulation of special devices for that purpose, imposing labor upon the operator and entailing material delay. By my improvements the return of the ejector after the throwing of the disk is rendered entirely automatic, and the labor and delay heretofore necessary are avoided. In carrying out this part of my invention I employ, in combination with the swinging ejector and devices for operating it, such as a spring, a continually-driven part and means, such as a brake, controlled by the ejector for automatically making a driving connection between the driven part and the ejector after it has completed its forward movement and ejected the disk, to retract the ejector, and to release it after it has been retracted and locked into position to receive the next disk or target.

My invention enables the targets to be thrown with very great rapidity.

Another part of my invention relates to devices for automatically oscillating or rocking the frame which carries the ejector, whereby the angle or quarter in which the disk is discharged is constantly varied without the necessity of employing any mechanism that must be independently operated for that purpose. In carrying out this part of my invention I employ an oscillating or rocking frame on which the ejector and its operating devices are carried, and by means of suitable driving connections between this oscillating frame and a driving device, such as a shaft, a constant oscillation of the frame is obtained.

In the preferred embodiment of my invention the driven device for retracting the ejector and the devices for oscillating the rocking frame are driven from a shaft actuated by the operator seated on the frame through sprocket wheels and chain in a manner similar to the driving of a bicycle. To maintain a constant and substantially uniform movement of these devices, this driving-shaft may be provided with a fly-wheel, which renders it possible for the operator to operate the trap and eject the targets with great rapidity and ease.

My invention also relates to improvements in the construction of the ejector and the devices for controlling it and to improvements in the magazine and means for supplying the targets to the ejector, whereby the targets may be fed automatically and without the delay and labor necessary to the operation of any special appliances for feeding the targets, such as have heretofore usually been employed. A swinging spring-actuated arm provided with a pivoted target-carrier in which upon the release of the arm it is thrown forward to automatically throw the target from the carrier has been used heretofore in a target-trap, and a part of my invention relates to the combination with such a trap of means for automatically retracting the arm after it has been actuated.

My invention also relates to the combination, with such an arm, of an oscillating frame carrying said arm and acting to render the direction of flight constantly variable. It

also relates to the combination, with such an arm, of a magazine for automatically supplying targets to the carrier thereof.

My invention also embraces various improvements in construction and combinations of parts, which are hereinafter fully described and claimed.

I shall now refer to the accompanying drawings for the purpose of more particularly describing my invention.

Figure 1 is a side elevation of a target-trap embodying my invention. Fig. 2 is a longitudinal sectional view of a portion of the same enlarged. Fig. 3 is a transverse vertical sectional view on the line 2 2 of Fig. 2. Fig. 4 is a plan view of the magazine. Fig. 5 is a vertical sectional view on the line 4 4 of Fig. 2, showing the details of the arm engaging and releasing catch. Fig. 6 is an enlarged plan view of a portion of the trap with the magazine removed. Fig. 7 is a horizontal sectional view, enlarged, on the line 3 3 of Fig. 2 with the spring-arm in a different position from that shown in Fig. 6; and Fig. 8 is a detail view of a portion of the target-engaging devices.

The supporting and swinging frames.—A is a supporting-frame which carries the swinging frame on which the operative parts of the trap are mounted. This supporting-frame A is journaled, as at $a\ a$, to a shaft B, carried in arms $a'\ a'$ of a stationary frame A'. The frame A may be rocked on the journals a to adjust its angular elevation and may be secured in adjusted position by a bolt a^2 and slot a^3 between the frame A and one of the arms a'. (See Figs. 2 and 3.)

C is the frame which carries the operative parts of the trap. It is pivotally connected with the supporting-frame A by a short shaft C', carried in arms $c\ c$ of the frame C and journaled in arms $a^4\ a^4$ of the frame A, thus enabling the frame C and the devices carried by it to swing on the frame A.

C^2 is a shaft journaled in arms $c\ c'$ in the upper portion of the frame C and arranged above the short shaft C'. The ejector-arm E is carried by the frame C, and to enable the direction in which the target is ejected therefrom to be varied I employ devices for swinging or oscillating the frame C on the shaft C'. As shown, these devices are constructed to maintain the frame C in constant swinging motion or oscillation, so that the directions in which the targets are ejected will be constantly varied.

N is a worm-wheel carried on a stud n, journaled in the frame A adjacent to the shaft B and engaging a worm N' thereon.

N^2 is a crank on the stud n of the worm-wheel N, connected by a link O with the frame C. As the shaft B rotates it drives the worm-wheel N through the worm N' and, through the crank N^2 and link O, rocks the frame C and the devices carried thereby on the shaft C'. As the shaft B is constantly rotated, a constant oscillation of the frame C is maintained.

The ejector-arm and the devices for operating it.—E is the ejector lever or arm adapted to receive the target at its free end and when thrown outward to release and eject it by centrifugal force. I have shown this arm fastened at its inner end to the shaft C^2 and extending rearwardly and operated by a spring.

F is the spring for operating the ejector, connected at one end with a crank f on the shaft C^2 and at its other end with a portion of the frame C. The connection with the frame C may be made adjustable, as shown, to regulate the tension of the spring.

At the outer end of the arm E is a carrier adapted to receive and hold the target until it is released therefrom by centrifugal force. As shown, this carrier consists of a jaw composed of a member G, pivotally connected with the end of the arm E, as at e, and a second member H, pivoted to the member G and connected with a rib g thereon by a pin g', hinged to the rib g and extending through a lug h on the member H, with a spring g^2 between the lug h and an adjusting-nut g^3 on the outer end of the pin g', by the adjustment of which the tension of the spring g^2 may be regulated. In the drawings I have shown the member H pivoted on the lower side of the member G, with the lug h extending through a slot g^4 in the latter. This slot thus serves to limit the movements of the member H, and two extremes of which are shown in Figs. 6 and 8, respectively. On the end of the member H is a projection, preferably constructed as a roller h', between which and the rib g the target-disk X is held, as shown in Fig. 6. A spring e' on the pivot e or wrist-joint of the member G with the arm E imposes a frictional resistance and prevents the jaw swinging outward until the tension of the spring is overcome by centrifugal force.

It will be understood that I do not mean to limit myself to the particular construction of the spring-jaw described, the details of which may be modified without departing from the invention.

I is a catch adapted to lock the lever or arm E against movement until released. This catch is also constructed to automatically reëngage and lock the arm when it returns. As shown, this catch consists of a lever pivoted, as at i, to a bracket V of the frame C and having a projection j, adapted to engage and hold the arm E. (See Fig. 5.) A spring j' between the inner end of the lever I and a portion of the frame C maintains the lever or catch I in a normally-raised position. The nose of the projection j is beveled, as at j^2, so that the arm E in returning may ride over it into reengagement. A pull-chain or cord J, connected with the outer end of the catch I, shown passing over a guide j^3 on the stationary frame A^2, Fig. 1, enables the catch to be operated to release the arm E and permit it to be thrown

outward by the action of the spring F. This pull may be operated at a distance from the trap, as is now usual.

P is a target-support for receiving and supporting the target until it is grasped by the jaws G H. As shown, this support consists of a frame pivoted, as at p, to a bracket extension C^3 of the frame C, adjacent to the position assumed by the jaws G H when the ejector-arm is retracted. A spring P′ between the extension C^3 and the frame P maintains the support normally protracted in position to receive and support the target, and a stop p' on the bracket C^3 limits the outward movement. Lugs P^3 P^4 (which may be faced with rubber or other frictional material) are carried by the frame P and act to support the edge of the target on the outer side while it is being engaged by the jaws G H. A lug p^3 on the frame is adapted to be struck by the jaw G to rock the frame P on its pivot when the jaws are engaging the target.

Q is a guide extending from the guide M to a point occupied by the jaws G H when retracted. This guide Q is employed to rock the jaws G H on the wrist-pin e and restore them to the position shown in Fig. 6 when they are brought back into position to receive the target. When the arm E reaches the limit of its outward throw, the centrifugal force throws the jaws G H around on the wrist-pin e into a more or less acute angular position with reference to the arm E, and as the arm E is retracted (in the manner hereinafter described) the finger G, through a lug g^5 thereon, runs in contact with the guide Q, and the jaws G H are turned back on the wrist-pin e into the position shown in Fig. 6. The end of the bracket V may be formed into a guide and support over which the arm E passes as it is retracted.

From the foregoing description the operation of the ejector in receiving and ejecting a target will be readily understood. The target X rests upon the supporting-frame P, (which occupies the position shown in Fig. 8,) with the outer edge resting against the lugs P^3 P^4 thereof. As the arm E is moved back the jaws G H, which are drawn together by the spring g^2, are forced in contact with the opposite sides of the target. At the same time the finger G strikes the lug p^3 and forces the support P back, as shown in Fig. 6. At the end of the movement the target is grasped between the rib g and roller h' of the jaws G H, and when the catch I is released the arm E is projected forward by the spring F with a quick throw. The centrifugal force throws the jaws G H around on the wrist-pin e, and at the same time overcomes the tension of the spring g^2 and releases the target, which is sent flying through the air with a spinning sailing movement. It will be observed that the mechanical effect produced by the ejection of the target from between the fingers of the pivoted jaws G H is identical with that obtained in hurling a disk from the fingers, as the jaws G H correspond with the index-finger and thumb, between which the edges of the disk are grasped, and the motion of the wrist is produced by the wrist-pin e.

The magazine and target-feeding devices.—The targets may be supplied in any convenient manner, without departing from the invention, so far as its other features are concerned. I prefer, however, to supply the targets automatically and to avoid the use of complicated mechanism for controlling the supply, and a part of my invention relates to these devices.

R is an inclined guide trough or frame having a flat base and side walls and of a width sufficient to permit the targets to pass freely. This guide-trough is arranged upon the frame C, with an opening R′ of a size sufficient for the passage of a target located immediately above the target-support P. At the inner side of the opening R is a stop r, and the opposite side may be formed with an inclined depending lip r'. The magazine is so arranged that when one target is resting upon the support P the next target will have partially descended through the opening R′, being located between the stop r and lip r', with its front edge resting upon the top of the target on the support P or in the jaw G H, as shown in Fig. 2. As the lower target is carried away by the jaw G H the upper target will immediately descend through the opening R′ upon the support P, which immediately moves forward under the action of the spring P′ into position to receive it, and is thus held in position to be engaged by the jaws G H when the arm E is retracted, as heretofore described. The inclined lip r' imparts to the target as it descends through the opening R′ a slight forward movement, so as to bring it into exact position. As this second target descends through the opening R′ the next target in the series drops into the place formerly occupied by it, with the front edge resting on its top.

A bar R^2, across the trough over the opening R′, acts as a guard to prevent displacement of the target in the opening R′, which might be caused by any jar due to the sudden removal of the lower target by the arm E. New targets are from time to time supplied to the magazine as the targets are discharged therefrom.

The devices for automatically retracting the ejector.—D is a bevel-gear mounted loosely on the shaft C^2 and engaging a bevel-gear D′ on the shaft B. The shaft B is rotated constantly and drives the bevel-gear D and its hub D^2 constantly in the direction indicated by the arrow in Fig. 7.

B′ is a fly-wheel on the shaft B to maintain a constant and uniform rotation thereof and to enable the ejector to be retracted quickly without the expenditure of undue labor by the operator.

K is a lever pivoted, as at k, to the inner end of the arm E or to the socket E′, which

carries it, (see Fig. 7,) and is provided on its free end with a bearing or roller K'.

L is a clutch or friction band encircling the hub D^2 of the bevel-gear D and connected at one end with the shank of the arm E and at the other end with the free end of the lever K by a pin or link L', which I have shown as a pin hinged at one end to the lever K and adjustably connected at the other end with a piece L^2, hinged to the end of the brake-band. A spring *l* on the arm E is arranged to act on the lever and put it under tension when the lever is thrown outward, as shown in Fig. 7.

M is a segmental guide carried by the main frame C and describing an arc about the shaft C^2, adjacent to the inner end of the arm E and terminating at a point *m* adjacent to the position occupied by the arm E when drawn back, as shown in Fig. 6.

M' is a guide-finger extending over the open end of the guide M. As shown, this guide-finger consists of a lever pivoted, as at *m'*, to a portion of the frame, having its outer end m^2 bent or curved upward and held in a normally-closed position, with its end against the end *m* of the guide M by a spring m^3, interposed between the rear end of the lever and the stationary frame.

The operation of these devices for attracting the spring-arm is as follows: When the arm E is thrown outward by the action of the spring F, it is thrown by the tension of the spring beyond the normal position to which the spring F would bring it to a state of rest, thus putting the spring under tension, and the spring in restoring equilibrium draws the arm E backward to a greater or less extent. The guide M is so arranged that its outer end m^4 (which may be beveled as shown) will strike the roller K' of the lever K when the arm E is thus drawn back and force the lever outward. The spring *l* acts on the lever and holds the roller K' in contact with the guide M. This movement of the lever K will tighten the clutch-band L upon the constantly-rotating hub D^2, and by the friction thus created the arm E will be carried back by the rotating hub D^2, the frictional driving connection being maintained so long as the roller K' is traveling on the outside face of the guide M. When the roller K reaches the inner end *m* of the guide M, it will pass under the finger M', which will rock the lever K into the position shown in Fig. 6, instantly relieving the tension of the clutch-band L and breaking the driving connection between it and the rotating hub D^2. As the arm E is brought into this position it is reëngaged by the catch I and locked in position to throw the next target. In this position the roller K', which has passed beyond the end *m* of the guide M, is behind the guide, and on the forward movement of the spring-arm E it will travel behind the guide, with the clutch-band L maintained open, so that the arm E may move forward freely under the action of the spring F. The fly-wheel B' performs a special function in enabling the ejector E to be easily and quickly retracted without imposing excessive labor on the trap-operator in driving the shaft B. It is apparent that the instant the clutch L is applied increased work is imposed on the shaft B, and as the hub D^2 in retracting the arm E puts the spring F under tension this work increases proportionally to the increase in the tension on the spring F. As this resistance is suddenly applied by the automatic application of the clutch, its tendency would be to stop the rotation of the shaft B and to impose greatly-increased labor on the operator. To obviate this effect and to enable the shaft to be driven at a uniform speed, I employ the fly-wheel B', the momentum of which is sufficient to overcome the suddenly-applied resistance due to the application of the clutch L and the tension of the spring F. By these means the constantly-rotating hub D^2 is automatically brought into driving engagement with the spring-arm and retracts it after each forward movement. I do not mean to limit my invention to the particular devices shown for accomplishing this automatic engagement of the ejector-arm with the rotating hub, as my invention comprehends, broadly, the combination, with an ejector-arm and means for moving it outward to eject the target, of a rotating part and automatic devices for throwing the ejector-arm into driving connection with such rotating part to automatically retract the arm after it has ejected the target.

The driving devices.—The shaft B may be driven in any convenient manner. For this purpose, however, I prefer to employ a sprocket wheel and chain operated through a pedal-shaft by an operator seated on the target-frame. I have shown the stationary supporting-frame A' supported on a framework A^2, provided with a seat S for the operator.

T is a sprocket-wheel on the shaft B, driven from a sprocket-wheel T', mounted in the lower part of the frame A^2, through a sprocket-chain T^2. The sprocket T' may be driven by the operator on the seat S through the usual crank-shaft *s* and pedals *t*. To enable the chain T^2 to be adjusted, the sprocket-wheel T' may be journaled in an adjustable frame movable in a slot *t'* in a bracket t^2 of the frame A^2.

I do not mean to limit my invention to the details of construction which have been shown, as they may readily be varied without departing from it.

What I claim as new, and desire to secure by Letters Patent, is as follows:

1. In a target-trap, the combination with an ejecting-arm and means for actuating it, of devices for automatically retracting the ejector-arm after it has been actuated to eject the target.

2. In a target-trap, the combination with an ejecting-arm and means for actuating it, of a driven part, and means for automatically

throwing the ejecting-arm into driving connection with the driven part to retract it after it has been actuated to eject the target.

3 In a target-trap, the combination with an ejecting-arm and means for actuating it, of a driven part, and mechanism controlled by the ejecting-arm to throw said driven part into driving connection with the ejecting-arm and retract it after it has been actuated to eject the target.

4. In a target-trap, the combination with an ejecting-arm and means for actuating it, of a driven part, means for automatically throwing the ejecting-arm into driving connection with the driven part to retract it after it has been actuated to eject the target, and means for automatically breaking said driving connection after the arm has been retracted.

5. In a target-trap, the combination with an ejecting-arm and means for actuating it, of a driven part, a clutch adapted to act on said driven part and controlled by the ejector, and means for actuating said clutch to throw the ejector into driving connection with said driven part after it has been actuated to eject the target.

6. In a target-trap, the combination with an ejecting-arm and means for actuating it, of a driven part, a clutch adapted to act on said driven part and controlled by the ejector, means for actuating said clutch to throw the ejector into driving connection with said driven part when it has been actuated to eject the target, and means for automatically releasing said clutch after the ejector has been retracted.

7. In a target-trap, the combination with an ejector and means for actuating it, of a driven part, a clutch adapted to act on said driven part, a movable connection between said clutch and the ejector, and a guide adapted to act on said movable connection to apply the clutch and retract the ejector after it has been actuated to eject the target.

8. In a target-trap, the combination with an ejector and means for actuating it, of a driven part, a clutch adapted to act on said driven part, a movable connection between said clutch and the ejector, and a guide adapted to act on said movable connection and apply the clutch and retract the ejector after it has been actuated to eject the target, and terminating at a point to relieve the tension on said movable connection and release the clutch when the ejector has been retracted.

9. In a target-trap, the combination with an ejector and means for actuating it, of a driven part, a clutch adapted to act on said driven part, a movable connection between said clutch and the ejector, a guide adjacent to said movable connection and extending through a portion of the arc described by said ejector in its movement, and means to direct said movable connection on the one side of said guide on its forward movement, and on the other side of said guide on its backward movement, whereby said guide will actuate said movable connection to apply the clutch and retract the ejector after it has been actuated to eject the target but will permit said ejector to move forward freely without the application of said clutch.

10. In a target-trap, the combination with an ejector and means for actuating it, of a driven part, a clutch carried by the ejector and adapted to act upon the driven part, and means for automatically applying said clutch on the rebound of the ejector to cause the retraction thereof by said driven part.

11. In a target-trap, the combination with an ejector and means for actuating it, of a rotating hub, a clutch carried by said ejector and adapted to act on said hub, a movable connection between said clutch and the ejector, and a guide M terminating at a point *m*, and adapted to act upon said movable connection and apply the clutch after the ejector has been actuated to eject the target, whereby said ejector is automatically retracted, and to release said clutch when the movable connection reaches the point *m*.

12. In a target-trap, the combination with an ejector and means for actuating it, of a rotating hub, a clutch carried by said ejector and adapted to act on said hub, a movable connection between said clutch and the ejector, a guide M terminating at a point *m*, and adapted to act upon said movable connection and apply the clutch after the ejector has been actuated to eject the target, whereby said ejector is automatically retracted, and to release said clutch when the movable connection reaches the point *m*, and a guide adjacent to the point *m* to guide said movable connection behind the guide M when the ejector is retracted, and enable the ejector to move forward without operating the clutch.

13. In a target-trap, the combination with an ejector and means for actuating it, of a shaft, driving devices for operating said shaft, a driven part operated by said shaft, and means for automatically throwing the ejecting-arm into driving connection with the driven part to retract it after it has been actuated to eject the target.

14. In a target-trap, the combination of an oscillating frame, an ejector, and means for actuating it carried by said frame, a driving device, and power-transmitting connections between said driving device and the oscillatory frame, to impart a continuous oscillation thereto.

15. In a target-trap, the combination of an oscillatory frame, an ejector and means for actuating it carried by said frame, a power-driven shaft and driving connections, embracing a worm and worm-wheel, between said shaft and the oscillatory frame to impart a continuous oscillation thereto.

16. In a target-trap, the combination of an oscillating frame and means to maintain said frame in a state of oscillation, with an ejector and means for actuating it carried by said oscillating frame.

17. In a target-trap, the combination of a supporting-frame having provision for angular adjustment, an oscillating frame carried thereby and oscillating thereon on an inclined upright axis, means to maintain said oscillating frame in a state of oscillation and an ejector and means for actuating it carried by said oscillating frame.

18. The combination in a target-trap of an inclined upright axis, an oscillating frame carried thereby, means to impart a continuous oscillation to said frame, and an ejector and means for actuating it carried by said frame and oscillating therewith.

19. In a target-trap, the combination of a swinging ejector having a spring-jaw connected therewith by a wrist-joint, and an extended guide Q in contact with which the spring-jaw moves through a portion of its movement, adapted to restore said spring-jaw to normal position to receive a target when the ejector is retracted.

20. In a target-trap, the combination of an ejector having a spring-jaw adapted to engage a target, and a target-support independent of the ejector located in front thereof and in substantial line therewith, and adapted to hold and support a target in the plane of the clamping-jaw while it is being engaged thereby.

21. In a target-trap, the combination of an ejector having a spring-jaw adapted to engage a target, and a movable target-support independent of the ejector located in front thereof and in substantial line therewith, and adapted to hold and support a target in the plane of the clamping-jaw while it is being engaged thereby and to be struck and moved by the spring-jaw in the act of taking the target.

22. In a target-trap, the combination of an ejector having a spring-jaw adapted to engage a target, and a movable target-supporting frame independent of the ejector located in front thereof and in substantial line therewith and provided with a supporting-lug adapted to act upon the edge of the target and hold said target while it is being engaged by the spring-jaw.

23. In a target-trap, the combination of an ejector having a spring-jaw adapted to engage a target, and a movable target-supporting frame independent of the ejector located in front thereof and in substantial line therewith and provided with the supporting-lugs P^3, P^4 adapted to act upon the edge of the target and hold said target while it is being engaged by the spring-jaw.

24. In a target-trap, the combination of an ejector having a spring-jaw adapted to engage a target, a movable target-supporting frame independent of the ejector located in front thereof and in substantial line therewith, so as to support the target substantially in the plane of the spring-jaw, and a spring acting on said frame and normally pressing it forward in position to receive the target.

25. In a target-trap, the combination of an ejector having a spring-jaw adapted to engage a target, a target-support independent of the ejector located in front thereof and in substantial line therewith so as to support a target substantially in the plane of the clamping-jaw, and a target-feeding trough having a target-feeding aperture located immediately above said target-support.

26. In a target-trap, the combination of an ejector having a jaw adapted to engage a target, a target-support independent of the ejector located in front thereof and in substantial line therewith so as to support the target substantially in the plane of the jaw, and a feeding-trough located over the support and having an unobstructed feeding-aperture immediately above it provided with an inclined depending lip r', whereby the foremost target may descend through said aperture and rest upon the support, with the next target located in said aperture resting upon the upper surface of said target on the support.

27. In a target-trap, the combination of an ejector having a jaw adapted to engage a target, a movable target-support independent of the ejector located in front thereof and in substantial line therewith so as to support the target substantially in the plane of the jaw and adapted to be moved backward by said ejector in the act of taking the target, and a feeding-trough located over the support and having an unobstructed feeding-aperture immediately above it whereby the ejector in the act of removing the target from the support will move said support backward, and upon its forward movement after removing the target will permit the support to move forward into position to receive the next target through the aperture of the support.

28. In a target-trap, the combination of an oscillating frame, means to maintain said frame in a state of oscillation, an ejector and means for actuating it, with a target-magazine for supplying targets to said ejector carried by said frame and oscillating therewith.

29. In a target-trap, the combination of an oscillating frame, an ejector and means for actuating it, and means for automatically retracting said ejector after it has been actuated carried by said oscillating frame and oscillating therewith.

30. In a target-trap, the combination of an oscillating frame, an ejector and means for actuating it, a driven part and means for automatically throwing said ejector into driving connection with the driven part to retract it after it has been actuated to eject the target, all carried by said oscillating frame, a driving-shaft, and driving connections between said driving-shaft and oscillating frame and driven part respectively.

31. In a target-trap, the combination of a driving-shaft, a fly-wheel thereon, an oscillating frame, driving connections between said oscillating frame and the shaft, and an ejector and means for actuating it carried by said oscillating frame.

32. In a target-trap, the combination of an

ejecting-arm and means for actuating it, of a driven part, a driving-shaft, a fly-wheel thereon, driving connections between said driving-shaft and driven part, and means for automatically throwing the ejecting-arm into connection with the driven part to retract it after it has been actuated to eject the target.

33. In a target-trap, the combination of an ejector, means for retracting said ejector after it has been actuated to eject the target, a driving-shaft, power-transmitting connections between said driving-shaft and the means for retracting the ejector, and a fly-wheel carried by said shaft.

34. In a target-trap, the combination of an ejector and means for actuating it, a driving-shaft, a driven part operated thereby, a clutch controlled by the ejector and adapted to be applied to said driven part after the ejector has been actuated to eject the target, and a fly-wheel carried by the driving-shaft.

35. The combination with ejector-operating devices of a target-trap, of a driving-shaft having a maintained rotation for operating said devices, and a fly-wheel carried by said shaft.

36. In a target-trap, the combination of a swinging arm, a pivoted target-carrier carried thereby, means for actuating said arm to throw the target from the carrier thereof, means for automatically retracting said swinging arm after it has been actuated, a magazine for supplying targets to said carrier, and an oscillating frame carrying said magazine and swinging arm.

37. In a target-trap, the combination with ejector-operating devices, of a driving-shaft, a fly-wheel carried by said shaft, and means for temporarily throwing said ejector-operating devices into driving connection with said shaft.

In testimony of which invention I hereunto set my hand.

ARTHUR M. JENKINS.

Witnesses:
GEO. W. ROGERS,
S. B. GRIFFITT.

Correction in Letters Patent No. 624,044.

It is hereby certified that the residence of the patentee in Letters Patent No. 624,044, granted May 2, 1899, upon the application of Arthur M. Jenkins, for an improvement in "Target Traps," was erroneously written and printed "Morristown, Pennsylvania," that said residence should have been written and printed *Norristown, Pennsylvania;* and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 9th day of May, A. D., 1899.

[SEAL.]

WEBSTER DAVIS,
Assistant Secretary of the Interior.

Countersigned:

C. H. DUELL,
Commissioner of Patents.