

No. 687,856.

E. D. SCHMITT.
TARGET TRAP.

Patented Dec. 3, 1901.

(No Model.)

(Application filed Jan. 18, 1901.)

2 Sheets—Sheet 1.

Fig. 1.

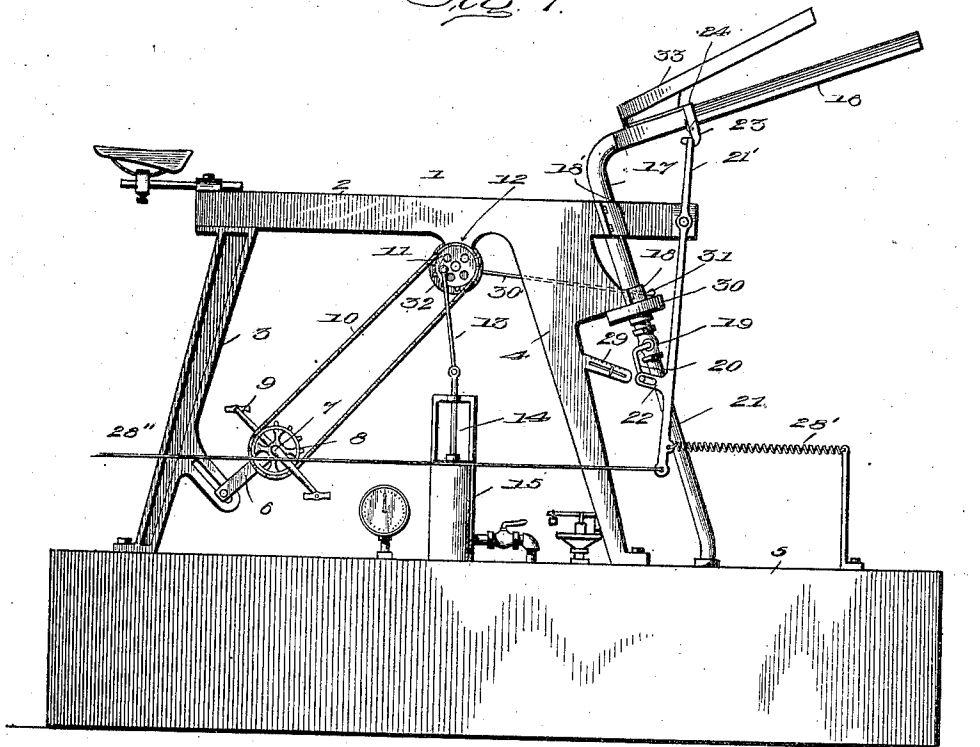


Fig. 2.

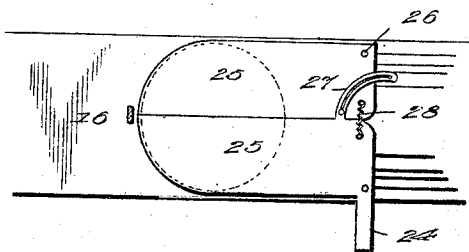
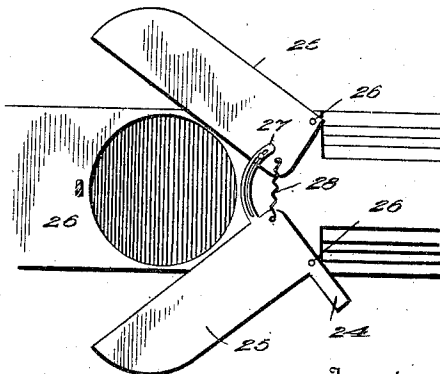


Fig. 3.



Inventor

Edward D. Schmitt,

By *Joseph W. Johnson*,
Attorney

Witnesses

John E. Buckle

No. 687,856.

Patented Dec. 3, 1901.

E. D. SCHMITT.

TARGET TRAP.

(Application filed Jan. 18, 1901.)

(No Model.)

2 Sheets—Sheet 2.

Fig. 4.

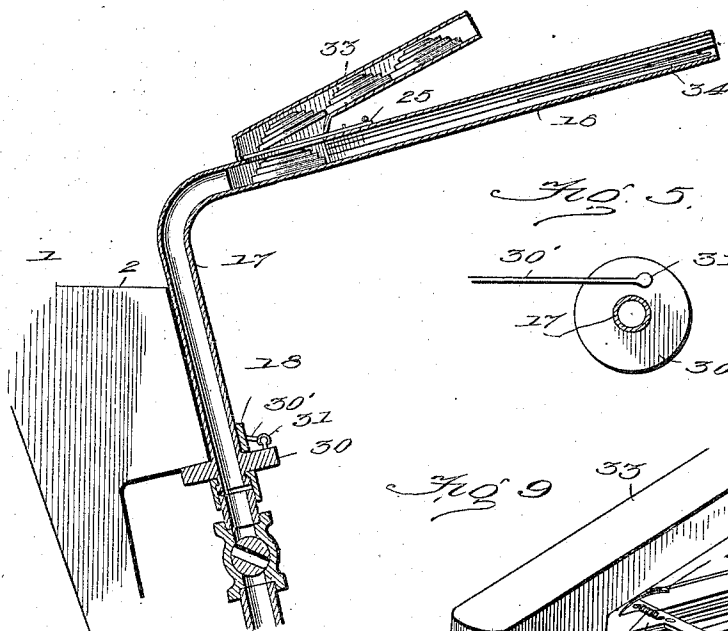


Fig. 5.

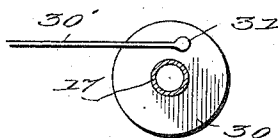


Fig. 9.

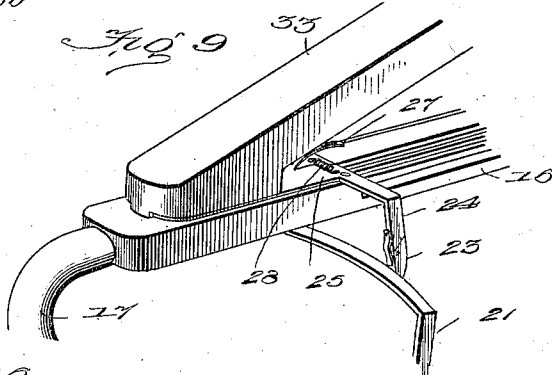


Fig. 6.

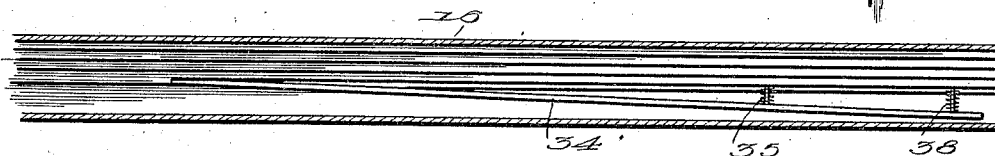


Fig. 7.

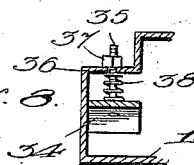
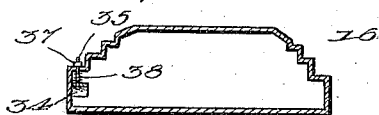


Fig. 8.

Witnesses

John E. Burch

Inventor

Edward D. Schmitt

By *W. J. Schmitt*

Attorney

UNITED STATES PATENT OFFICE.

EDWARD D. SCHMITT, OF BALTIMORE, MARYLAND, ASSIGNOR TO HALLACK
A. PENROSE, OF BALTIMORE, MARYLAND.

TARGET-TRAP.

SPECIFICATION forming part of Letters Patent No. 687,856, dated December 3, 1901.

Application filed January 18, 1901. Serial No. 43,772. (No model.)

To all whom it may concern:

Be it known that I, EDWARD D. SCHMITT, a citizen of the United States, residing at Baltimore city, State of Maryland, have invented certain new and useful Improvements in Target-Traps; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in target-traps intended for ejecting clay disks or other artificial "birds" for the purpose of target practice.

The object of the invention is to provide a trap from which the target will be ejected by air instead of the usual centrifugal motion. It consists in providing a suitable ejector into which the birds or targets are fed from a suitable magazine and to which air under pressure is admitted at proper intervals to eject the target. In the course of the following description other objects and advantages of the invention will appear, and the points of novelty set forth in the claims.

Referring to the drawings, Figure 1 is a side elevation of the trap complete; Fig. 2, a detail plan view of the rear part of the ejector, showing the shutters on which the targets rest preparatory to falling into place in the ejector closed. Fig. 3 is a similar view with the shutters open. Fig. 4 is an enlarged detail vertical sectional view of the ejector-magazine air connections and frame. Fig. 5 is a plan view of a portion of the means for oscillating the ejector. Fig. 6 is an enlarged detail sectional view of the ejector, showing the means for giving the target a rotatory motion in flight for the purpose of preventing it from "wabbling;" and Fig. 7, a cross-section of the ejector, more clearly showing this feature. Fig. 8 is a detail more clearly showing the device for causing friction on the target. Fig. 9 is a perspective of the rear portion of the magazine, ejector, and connections.

In carrying out my invention I provide a suitable frame 1, composed in the main of the top piece 2 and legs 3 and 4, which are se-

cured at their lower ends to a receiver 5, the purpose of which will presently become apparent.

Mounted in an arm 6 is a shaft 7, upon which is mounted a sprocket-wheel 8, driven by cranks 9. This sprocket-wheel by means of a chain 10 is in gear with a similar wheel 11, rigidly mounted in suitable bearings in a downwardly-projecting arm 12 of the frame, which latter sprocket is connected by a pitman-rod 13 to the piston-rod 14, forming a part of the pump 15, which may be of any modern or approved construction adapted to pump air into the receiver during the operation of the machine.

Numeral 16 designates the ejector proper, which when adapted to eject clay birds or disks of the usual design is preferably made of metal stamped to conform to the contour of the target in cross-section and is connected by means of a hollow shaft 17, which has its upper end opening into the air-chamber of the ejector and its lower end in communication with the receiver 5 by means of a flexible or other joint that will permit the ejector to be oscillated. This shaft is mounted in suitable bearings 18 and 18' made in the frame.

The numeral 19 designates a valve to which is secured an arm 20, extending downwardly and has connection with an operating-lever 21, through the medium of a short slotted arm 22, into which the lower end of said arm 20 extends. The operating-lever is pivoted on a forward part of the frame and has an arm extending upwardly and then laterally in position to engage a pivoted lug 23, pivotally secured to a short vertical arm 24, formed integral with one of the shutters 25, which are pivoted, as indicated at 26, in proximity with the edge of the ejector. These shutters open laterally and in opposite directions, and their lateral movement is limited by a slotted link 27, and said shutters are normally held closed by spiral spring 28, properly secured to the shutters near their rear edges.

The numeral 28' indicates a spiral spring, so arranged as to keep the lever 21 in a position to normally close the valve 19, and the rearward movement of said lever in the operation of the trap is limited by a graduated stop 29, secured in proper position on the frame.

The numeral 28" designates an operating-cord attached to lower end of the lever and extending back to any convenient point from which the operator can advantageously operate the trap.

5 The numeral 30 designates a disk which is rigidly secured to the shaft 17 and adapted to oscillate the same through the medium of a connecting-rod 30', which has its forward
10 end connected to said disk by a knuckle-joint 31, and its rear end is connected with the wheel 32, mounted upon the shaft with wheel 11. The rod 30' is so connected to the wheel 32 and the disk 30 that when the said wheel
15 32 is rotated it will cause the disk to make a partial revolution or, in other words, oscillate the same and cause the shaft 17 and ejector carried thereby to play in a predetermined arc, so that the usual uncertainty as to what
20 point the target will be ejected will be caused, and thus more effectually test marksmanship.

The numeral 33 indicates a magazine which is rigidly attached to the ejector on its upper side and in position to deliver by gravity the
25 targets into their proper position upon the shutters. It is highly important that a target of the "clay-pigeon" variety should be given a rotatory motion in flight for the obvious purpose of insuring the gradual rise of
30 the target and preventing it from wobbling, and I bring about this result by providing an elongated strip 34, which extends from about midway of the length of the ejector to its end and at one side thereof, which is adapted
35 to bear upon the lowest shoulder of the target with a gradually-increasing spring-pressure from the time it engages said strip until it leaves the muzzle of the ejector, and this spring-pressure may be varied by means
40 of short bolts 35, rigidly secured to the strip and passing through perforations 36 in the lower shoulder of the ejector and provided with taps 37, so that the vertical movement of the strip can be regulated. Interposed between
45 the under side of said shoulder and the strip and surrounding the bolts are weak springs 38, which can obviously be tensioned by the taps being loosened or tightened, as the exigency of the case may require.

50 Having thus described the mechanism of my trap, I will now proceed to describe its operation. In operation an attendant takes his place upon the seat provided upon the frame in a position to attend to the proper
55 filling of the magazine with targets and the delivery of said targets to the ejector, and by means of the sprocket-and-chain connections the pitman is operated to compress air in the receiver and keep the same up to a proper predetermined pressure, which will be indicated by the usual gage. (Shown, but not lettered.) Assuming the magazine to be filled with targets, the lower one of which resting upon the
60 shutters, which are normally closed, the operating-cord 28" is pulled, causing the short arm 21' of the operating-lever 21 to be rocked forward

ward and past the pivotal lug 23, which will obviously cause the shutters, through the medium of the arm 24 and link 27, to open and permit a target to drop from the magazine into
70 proper position in the ejector, which shutters will immediately close under the influence of spring 28. By this time the long arm of the operating-lever will have moved in a rearward direction sufficiently to open the valve
75 through the medium of the arm 20 and permit a sufficient quantity of air under pressure to be admitted to the ejector behind the target to be ejected. This valve is so constructed that desired pressure from the receiver, ranging,
80 of course, from the minimum to the maximum capacity of the receiver, may be admitted to the ejector, and this is predetermined by the graduated stop 29, which limits the backward movement of the lever and determines to
85 what extent the valve will be opened when the operating-cord is pulled. It will be noted that as the arcs in which the shutters and the link 27 move are different the said link will operate against a short pin on the opposite
90 shutter and cause both shutters to open simultaneously in opposite directions. During the rotation of the wheel 32 a reciprocating motion will be given the connecting-rod 30, thus oscillating or swinging the ejector in a pre-
95 determined arc, and it is obvious that as the ejector-shutters are likely to be operated at any point in said arc I provide the horizontal slightly-curved end of the operating-lever, which horizontal arm is of such length as to
100 be always in a position to operate the shutters in its forward movement, but will pass idly by the pivoted lug 23 on its return under the influence of the spring 28 when the operating-cord is released.

I do not desire to be understood as limiting myself to the exact details of construction shown and described, as obvious mechanical equivalents may be employed which will bring about the same results in about substantially
110 the same manner, nor do I limit myself to any particular form of ejector—that is to say, to the one shown, which is adapted for ejecting the usual clay bird—for other forms of targets may advantageously be ejected.

115 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 suitable air-supply normally under pressure,
120 with a pneumatic ejector and suitable connections between the air-supply and ejector, whereby air is admitted to the ejector behind the target, as set forth.

2. In a target-trap, the combination with
125 an air-supply of a pneumatic ejector and suitable connections between said supply and ejector whereby a predetermined amount of air is admitted to the ejector, shutters mounted upon said ejector and adapted to be opened
130 to permit a target to fall into position in the ejector, and means for opening said shutters

to deliver said target to the ejector and close the same after it has been delivered, substantially as set forth.

3. In a target-trap, the combination with the air-supply and ejector, and suitable connections between the same, of an operating-lever pivoted to a suitable frame, shutters upon the ejector adapted to be opened by said lever, and a valve located in said connection between the receiver and ejector, and adapted to be operated by said lever, when said lever is operated, means for restoring the shutters and lever to normal position, substantially as set forth.

4. In the described target-trap, the combination with a pneumatic ejector having shutters pivoted thereon, of a magazine located in proximity to said shutters and adapted to deliver targets upon the shutters, substantially as described.

5. In a target-trap, the combination of a suitable receiver with an oscillatory pneumatic ejector, means for controlling the air between the receiver and ejector, and means for oscillating the ejector, substantially as set forth.

6. In a target-trap, the combination with a suitable frame of an oscillatory pneumatic ejector, a hollow shaft connecting said receiver and ejector, a bell-crank lever rigidly secured to said shaft, a rod connected to said lever and means to give said rod reciprocating movement whereby the ejector is oscillated, substantially as described.

7. In a target-trap, the combination with an air-receiver, an oscillatory pneumatic ejector, of a shaft connecting the receiver and ejector and carrying a bell-crank lever, of a crank suitably mounted upon a suitable frame and having a driving-wheel on the shaft thereof, means for rotating said driving-wheel and a connection between the driving-wheel crank and the crank on the ejector-shaft, whereby the ejector is oscillated when the driving-wheel is driven.

8. In a target-trap, the combination with a receiver and pneumatic ejector and means for controlling the supply of air from said receiver to the ejector, of a suitable pump connected with the receiver and a driving-wheel

suitably mounted upon the frame, connections between the piston of said pump and the driving-wheel whereby air is compressed in the receiver, when the driving-wheel is driven, substantially as set forth.

9. In the described target-trap, the combination of an air-receiver and oscillatory pneumatic ejector and connections, of a driving-wheel suitably mounted in the frame, connections between said driving-wheel and ejector-shaft, connections between said driving-wheel and the pump whereby air is compressed in the receiver and the ejector oscillated when the driving-wheel is driven.

10. In a target-trap, the combination with an automatically-oscillating ejector, of a suitable air-supply normally under pressure, means for controlling the air from the said supply to the ejector, and means carried by the ejector for producing friction upon a particular part of the target as it leaves the ejector, substantially as described.

11. In a target-trap, the combination of an oscillatory pneumatic ejector, of an elongated spring-actuated strip carried therein and on one side thereof, and adapted to bear upon a particular part of the target, whereby the same is given a rotatory motion in flight.

12. In a target-trap, the combination with a pneumatic oscillatory ejector of an elongated strip carried thereby and at one side thereof, short bolts supporting said strip and extending through the ejector and having regulating-screws thereon, springs interposed between the strip and the shoulder of the ejector, as and for the purpose set forth.

13. In a target-trap for throwing disk targets, the combination with a pneumatic oscillatory ejector shaped in cross-section to substantially conform to the shape of the disk, of means carried by said ejector for producing friction upon a particular part of the target as it leaves said ejector, as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD D. SCHMITT.

Witnesses:

CAMPBELL CARRINGTON,
HALLACK A. PENROSE.