

G. L. CARTER.
TARGET TRAP.

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1,066,379.

3 SHEETS-SHEET 1.

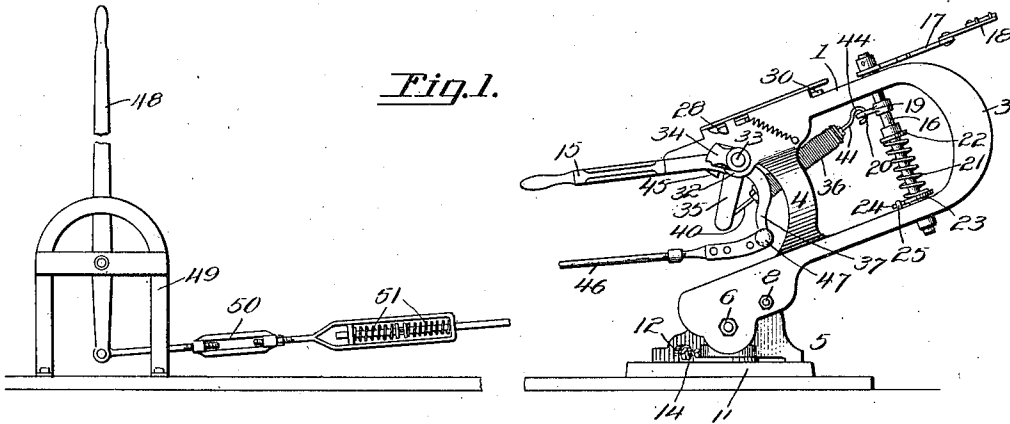


Fig. 5.

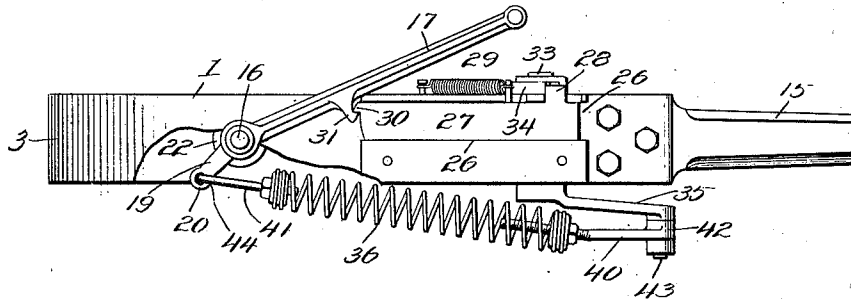
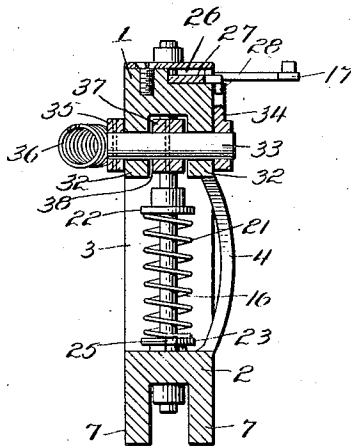


Fig. 6.



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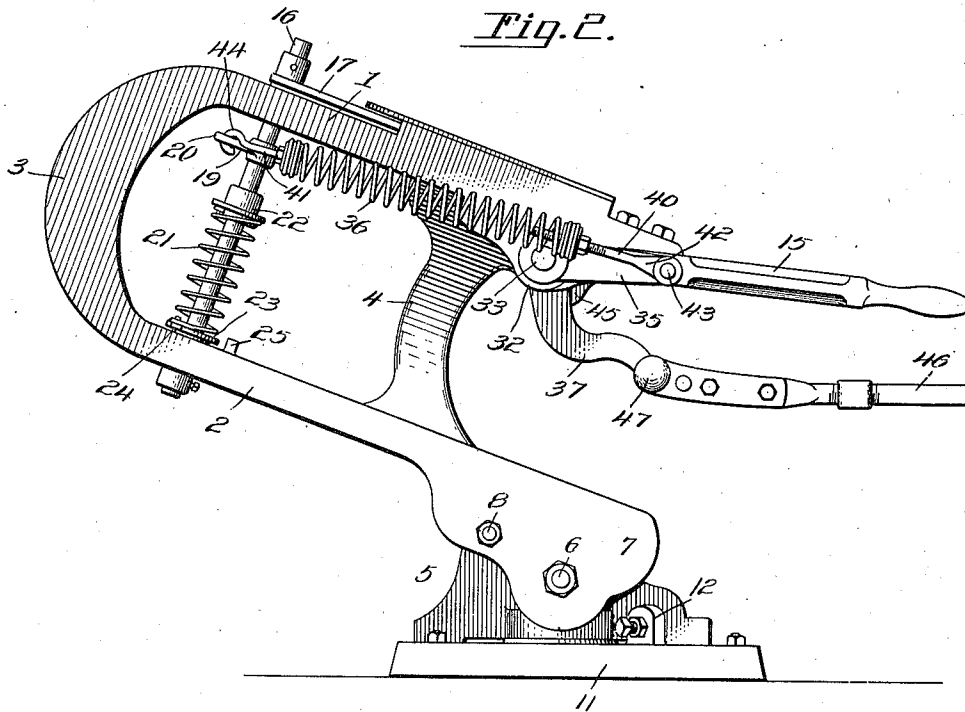
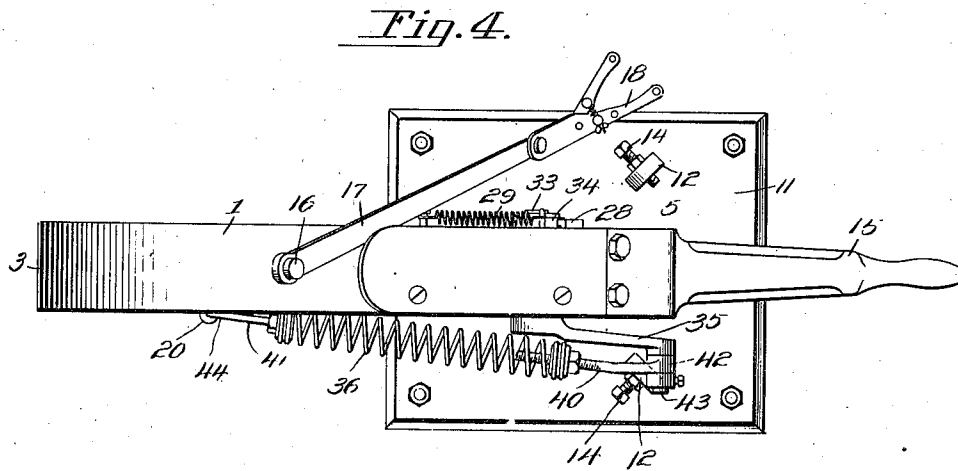
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3 SHEETS—SHEET 2.



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3 SHEETS-SHEET 3.

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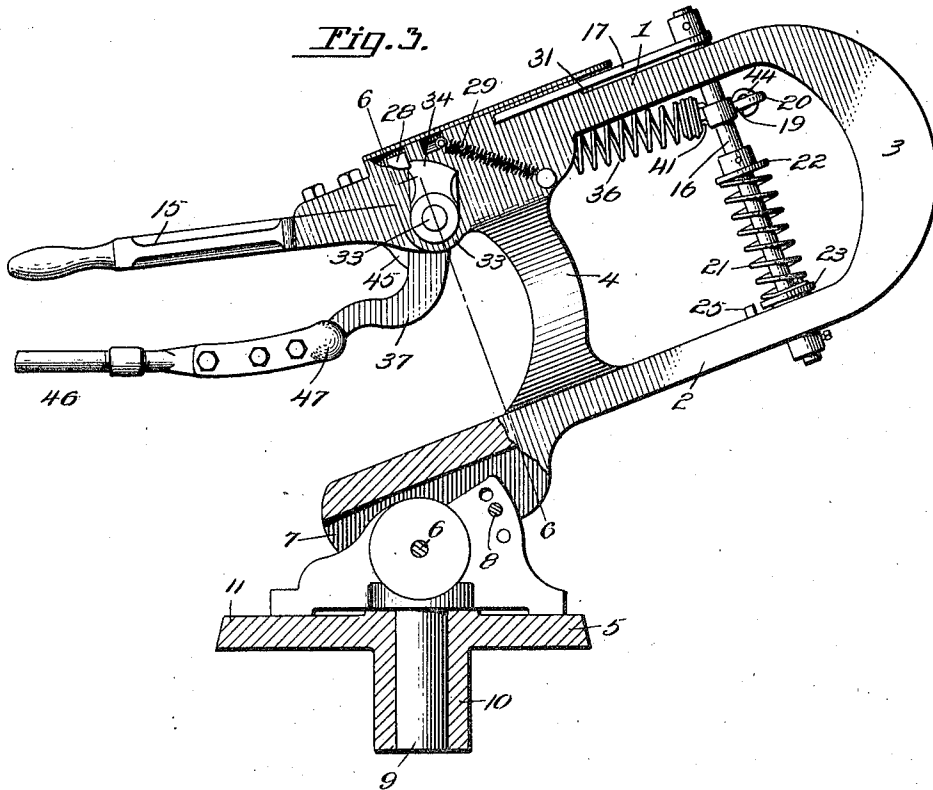
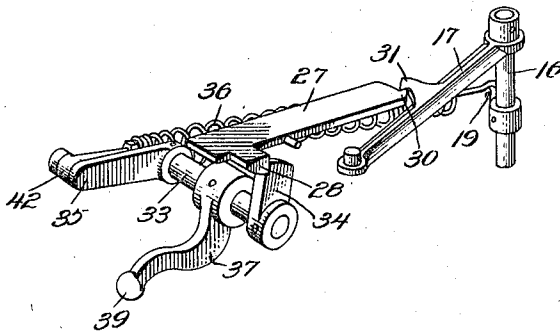


Fig. 7.



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UNITED STATES PATENT OFFICE.

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TARGET-TRAP.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, GEORGE L. CARTER, a citizen of the United States, residing at Collegeview, in the county of Lancaster and State of Nebraska, have invented new and useful Improvements in Target-Traps, of which the following is a specification.

This invention relates to traps for throwing spherical targets, usually known as clay pigeons, and it has particular reference to that class of traps which are provided with a pivoted throw arm moving about a tilted or inclined axis.

One object of the invention is to produce a trap that may be sprung and reset by a single movement in one direction of a push rod, the return movement of said rod being utilized for the purpose of placing the throwing spring under tension.

A further object of the invention is to produce a trap that may be sprung by a very limited movement of a push rod constituting an operating rod, the remainder of the movement in one direction of said rod being utilized to reset the trap.

A still further object of the invention is to produce a trap the operating mechanism of which includes a rock shaft, the oscillatory movement of which in one direction suffices to release the latch whereby the trap is sprung and also to return or restore the throw arm to its set or latched position, the return movement of the rock shaft being utilized for tensioning the throwing spring, thereby producing a construction which is at once simple and effective.

A further object of the invention is to produce in connection with the shaft or pivot member carrying the throw arm a buffer spring which is normally inert but which, under the impact of the throw arm, becomes tensioned, its force being expended to assist in restoring the throw arm to its set position.

With these and other ends in view which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts which will be hereinafter fully described and particularly pointed out in the claims.

In the accompanying drawings has been illustrated a simple and preferred form of the invention, it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited,

but that changes, alterations and modifications within the scope of the claims may be resorted to when desired.

In the drawings,—Figure 1 is a side elevation of the trap and the means whereby it is operated, the trap being shown tripped or sprung. Fig. 2 is an enlarged side view, showing the trap set. Fig. 3 is a side elevation of the opposite side to that shown in Fig. 2, and showing the base of the trap in section. Fig. 4 is a top plan view showing the trap set. Fig. 5 is a detail top plan view, the top plate having been removed. Fig. 6 is a sectional detail view taken on the line 6—6 in Fig. 3. Fig. 7 is a perspective detail view of the trigger and latch mechanism and related parts.

Corresponding parts in the several figures are denoted by like characters of reference.

The frame of the improved trap consists of a substantially U-shaped casting having top and bottom limbs 1 and 2 and a bridge piece 3 which constitutes what will be regarded as the front end of the frame. The frame may be reinforced by a cross piece 4 or in any suitable and convenient manner. A base 5 is provided with which the frame is connected by an approximately horizontal pivot member 6 extending through a lug 7 that extends downwardly from the rear end of the bottom limb 2, thus permitting the frame to rock in an approximately vertical plane. A set screw 8 is provided whereby the frame may be secured in adjusted position. The base 5 includes a downwardly extending pivot member 9 operating in a socket 10 having a flange 11 provided with upstanding lugs 12 having set screws 14, whereby the oscillatory movement of the base in an approximately horizontal plane may be limited and regulated. The top limb 1 of the frame is provided with a handle bar 15 extending rearwardly therefrom and whereby the frame may be adjusted and manipulated. It will be understood that in the operation of the trap the frame is usually maintained in a tilted position, substantially as shown in the drawings, and that the degree of tilt or inclination may be varied by rocking the frame about the axis of the pivot 6. The angle of the frame, longitudinally, may also be easily and quickly changed by rocking about the axis of the base pivot 9.

Supported for rotation in the top and bottom limbs of the frame and at right

angles to said limbs is a shaft 16 from which the throw arm 17 extends radially, said arm having fixed connection with said shaft, and said arm being positioned adjacent to the upper face of the top limb 1. The throw arm is provided with the usual target holder 18 which, however, is no part of the present invention. The shaft 16 is provided below and adjacent to the top arm 1 of the frame with a radially extending fixed arm 19 having a terminal eye 20. The shaft 16 is surrounded by a coiled spring 21 which will be hereinafter designated as the buffer spring. The upper end of said spring is made fast to a collar 22 that is fixed on the shaft 16 by means of a set screw or in any convenient manner. The lower end of the buffer spring is fixedly connected with a collar 23 that is loose on the shaft 16, said collar being provided with an outwardly extending lug 24 in the path of which a stud 25, projecting upwardly from the bottom limb 2 of the frame, is located.

The top limb 1 of the frame is provided in its upper face and adjacent to its rear end with a longitudinal groove 26 wherein is seated a slide constituting a latch 27, said slide being provided near its rear end with a trip lug 28 overhanging the frame at one side thereof. The latch 27, which is normally forced in a forward direction by the action of a suitably arranged spring 29, is provided at its front end with a catch 30 adapted to engage a trip hook 31 that is formed or secured upon the throw arm 17, the latter being thereby retained in "set" position, ready for throwing.

The top limb 1 of the frame is provided adjacent to its rear end with a lug or enlargement 32 affording a bearing for a rock shaft 33. Said rock shaft carries at one end a cam 34 which constitutes the trigger of the device and in the path of which the trip lug 28 of the latch 27 is disposed. The rock shaft 33 carries at its opposite end a crank arm 35 which is connected with the arm 19 of the shaft 16 by the throwing spring 36. The rock shaft is provided intermediate its ends with an arm 37 which may extend through a slot 38 in the bearing lug 32 and which constitutes the push arm whereby the trap is operated; said arm being provided with a spherical head or ball 39 for the attachment of the push rod, as will be presently described. The throwing spring 36 is a stout coiled spring, the same being provided at the ends thereof with attaching members 40 and 41, the former of which is shown as being provided with an eye 42 pivotally engaging a wrist pin 43 on the crank arm 35; the member 41 is shown as being provided with a hook 44 engaging the eye 20 of the arm 19 extending from the shaft 16, thereby establishing connection between the latter and the crank arm 35.

For the purpose of limiting the movement in a rearward direction of the push arm 37, and the corresponding oscillatory movement of the rock shaft 33, a lug or stop member 45, located in the path of the arm 37, is provided.

For the purpose of operating the improved trap a push rod 46 is provided, said push rod being provided at one end with a socket 47 engaging the ball 39 of the push arm 37. The other end of the push rod is suitably connected with a hand lever 48 mounted on a lever stand 49. The push rod 46 embodies in the construction thereof a turn buckle 50 for adjusting and regulating the length thereof, and a spring 51, yieldable in two directions, and whereby the push rod acquires a degree of longitudinal resiliency, whereby the operation is facilitated and shock is avoided.

The parts of the machine are so constructed and assembled that when the throw arm is latched, that is to say, when the trip hook 31 of the throw arm is in engagement with the catch 30 of the latch 27, the arm 19 will extend laterally from the frame, movement thereof in a rearward direction being prevented by the latching of the throw arm. Assuming the throw arm to be latched and the throwing spring to be contracted, said throwing spring may now be placed under tension by moving the push rod 46 in a rearward direction, thereby oscillating the rock shaft 33 and tensioning the throwing spring 36 by means of the crank arm 35. The lug or stop member 45 is so positioned as to arrest the movement of the arm 37 in the path of which it is located as soon as the wrist pin 43 of the arm 35 passes a dead center, thereby retaining the throwing spring under tension. The trap is now set, and is ready to be sprung after a target has been placed on the holder. Previous to springing the trap the angle of the frame may also be changed by manipulating the handle bar 15. To spring the trap, the push bar or rod 46 is actuated to move the arm 37 in a forward direction, thereby oscillating the rock shaft 33. The cam 34 which constitutes a trigger acting upon the trip lug 28 of the latch 27 retracts the latter against the tension of the spring 29 until the catch 30 becomes disengaged from the trip hook 31, thus releasing the throw arm 17 when the force of the throwing spring 36 will immediately be expended in rocking the shaft 16 about its axis, causing the throwing arm to traverse an arc of considerable extent and to discharge the target. The rotation of the shaft 16 is partaken of by the spring 21 which is connected with said shaft by means of the fixed collar 22, until the lug 24 of the loose collar at the lower end of the buffer spring is engaged and arrested by the stud 25. The impact of the throw arm is

thus taken up by the buffer spring which is torsioned by the continued movement of the throw arm under the impulse of the throwing spring. The force of the latter, however, is quickly expended, and the throw arm is immediately started on its return movement by the force of the buffer spring. It will be understood that these several operations are performed almost instantaneously during the first part of the movement in a forward direction of the push rod 46. By the continued movement of said push rod in a forward direction the rock shaft 33 is further oscillated, and the throwing spring, which is now in a contracted state, is utilized as a link between the crank arm 35 of the rock shaft 33 and the arm 19 of the shaft 16 to partially rotate the latter until the throw arm 17 is again latched, the latching being performed by beveled edge portions of the catch 30 and the trip hook 31 contacting and pushing the latch 27 forwardly against the tension of the spring 29 until connection between the catch and the trip hook is established, when the latch will be restored by the spring 29 to its initial position. When this has been accomplished the movement of the push rod 46 in a forward direction will have been completed, and it is now started on its return movement for the purpose of placing the throwing spring 36 under tension. When the arm 37 contacts with the stop member 45, the wrist pin 43 will have passed a dead center, and the throwing spring will thus be secured under tension, and the trap is ready for a repetition of the operation. The return movement of the cam or trigger 34 causes it to engage the beveled edge of the trip lug 28, thereby displacing the rear end of the latch 27 upwardly against the tension of the spring 29 until the cam assumes its initial position in advance of the trip lug.

Having thus described the invention, what is claimed as new, is:—

1. In a target trap, a throw device, a throw spring for actuating the same, a latch mechanism for holding the throw device set for action, and means operating successively to trip the latch mechanism to release the latch and then to transmit motion through the throw spring to reset the throw device for action.

2. In a target trap, a throw device, a throw spring for actuating the same, a latch mechanism for holding the throw device set for action, and means having a primary motion in one direction for tripping the latch mechanism to release the latch and a secondary motion in the same direction for transmitting motion through the throw spring to reset the throw device for action.

3. In a target trap, a throw device, a throw spring for actuating the same, a latch mechanism for holding the throw device set

for action, and means having a primary motion in one direction for tripping the latch mechanism to release the latch and a secondary motion in the same direction for transmitting motion through the throw spring to reset the throw device for action, said tripping and resetting means being movable in a reverse or opposite direction to place the throw spring under tension.

4. In a target trap, a throw device including a shaft supported for rotation and an arm carried by said shaft, a spring for actuating the throw device, a latch mechanism for holding the throw device set for action, means operating successively to trip the latch mechanism to release the latch and then to transmit motion through the throw spring to reset the throw device for action, a buffer spring coiled about the throw shaft and fixedly connected therewith at one end, and stop means lying in the path of the opposite end of the buffer spring.

5. In a target trap, a shaft having a throw arm, a throwing spring for actuating said shaft, latch means for securing the throw arm in set position, and means for tensioning the throwing spring after the latching of the throw arm, said means including a rock shaft, arms extending therefrom, one of said arms having a wrist pin connected with the spring, and stop means located in the path of the other arm to arrest movement of the rock shaft when the wrist pin passes a dead center, thus securing the spring under tension.

6. In a target trap, a throw arm supported for swinging movement, latch means for said arm, a throwing spring for actuating the arm, a rock shaft having a cam engaging the latch means to release the throw arm when the rock shaft is oscillated in one direction, and an arm extending from the rock shaft and connected with the throwing spring to place the latter under tension on the return movement of the rock shaft.

7. In a target trap, a throw arm supported for swinging movement, a shaft carrying said arm, said shaft having a radially extending arm, a rock shaft having a crank provided with a wrist, a throwing spring connecting the wrist with the radial arm of the throw shaft, means for oscillating the rock shaft to place the throwing spring under tension, means for arresting the movement of the rock shaft to secure the spring under tension, latch means engaging the throw arm, means associated with the rock shaft for tripping the latch means to release the throw arm, a normally inert buffer spring coiled about the throw shaft, and means for tensioning the buffer spring under the impact of the throw arm when the trap is sprung to start the throw arm on its return movement.

8. In a target trap, the combination with a

throw arm and a shaft carrying the same, of a throwing spring actuating said shaft, a buffer spring coiled upon the shaft, means for connecting one end of the buffer spring with the shaft, a collar loosely mounted on the shaft and connected fixedly with the other end of the buffer spring, said collar having a projecting lug, and a stop member located in the path of the lug to engage the latter and to momentarily place the buffer spring under tension when the throw shaft is actuated by the throwing spring.

9. In a target trap, a throw shaft, a throw arm carried thereby and having a trip hook, a slidable spring actuated latch having a catch disposed in the path of the trip hook to engage the latter, said latch being provided with a beveled lug, an arm extending from the throw shaft, a rock shaft support-

ed for oscillation and having a crank arm, a throwing spring connecting the crank arm with the arm extending from the throw shaft, a cam connected with the rock shaft and adapted to engage the beveled lug of the latch slide to actuate the latter against the tension of its spring when the cam moves in one direction, a push arm extending from the rock shaft, a stop member located in the path of the push arm, and means connected with the push arm for actuating the rock shaft.

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

GEORGE L. CARTER.

Witnesses:

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