





# UNITED STATES PATENT OFFICE.

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## TARGET-TRAP.

SPECIFICATION forming part of Letters Patent No. 696,763, dated April 1, 1902.

Application filed January 16, 1901. Serial No. 43,488. (No model.)

*To all whom it may concern:*

Be it known that I, LOUIE A. SHERMAN, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented a new and useful Target-Trap, of which the following is a specification.

This invention relates to target-traps.

The object of the invention is to provide means for efficiently tripping the carrier-arm of target-traps.

The invention consists, substantially, in the construction, combination, location, and arrangement of parts, all as will be more fully hereinafter set forth, as shown in the accompanying drawings, and finally pointed out in the appended claims.

Referring to the accompanying drawings, and to the various views and reference-signs appearing thereon, Figure 1 is a view in side elevation of a construction of target-trap, showing the application thereto of the carrier-arm trip and releasing device embodying the principles of my invention. Fig. 2 is a transverse section through the trip device, the parts occupying their relative arrangement when the carrier-arm is in retracted position ready to throw the target. Fig. 3 is a similar view showing the relative arrangement of parts at the moment the trip is released. Fig. 4 is a detached detail view in perspective, parts broken out, showing a form of trip mechanism embodying the principles of my invention. Fig. 5 is a detached detail view showing the arrangement of stop or catch on the carrier-arm. Fig. 6 is a broken view, on a smaller scale, in side elevation, showing a modified form of trip. Fig. 7 is a broken detail view showing another modified construction.

The same part is designated by the same reference-sign wherever it occurs throughout the several views.

In the usual construction of target-traps the target is carried in and released by a carrier mounted on a carrier-arm, the latter being pivotally mounted to swing. A spring or other suitable tension is imposed upon the carrier-arm and operates to hold said arm in normal or projected position, and the arm is moved into position preparatory to being released to project a target against the action

of such spring or tension device. In this preparatory or initial position the arm is held against the tension by means of a latch, which latch is released at the desired moment to permit the tension or spring to rock or swing the arm, thereby projecting the target. It is important and desirable in devices of this class to provide means whereby the carrier-arm is efficiently held or locked in its initial position preparatory to projecting the target and in such manner that it may be easily and readily released or tripped. The present invention relates to features for securing these results, and it includes a stop mounted upon or carried by the arm and adapted to be engaged by a trip-latch when the carrier-arm is moved into its initial position, and by the proper manipulation of such trip-latch the carrier-arm is released. By providing a hinged or pivotally-mounted stop upon the carrier-arm said arm may be moved readily into position for the stop to occupy engaging relation with respect to the latch. (See Figs. 1 to 6, inclusive.) The same result may be secured by providing a rigid stop on the carrier-arm and arranging the latch to move or yield, as shown in Fig. 7.

Another feature of my invention is to provide an electrical trip mechanism whereby the carrier-arm may be tripped or released with the least difficulty and from any desired point, and this feature of my invention includes a construction wherein the tension imposed upon the carrier-arm when in its retracted or initial position also aids in the release of the trip.

These features of my invention are readily adapted and applicable to target-traps of many specifically different constructions and arrangements, and therefore while I have shown and will now describe a simple and convenient construction and arrangement of trap I desire it to be understood that my invention is not to be limited or restricted in the application thereof to the particular construction of trap herein illustrated and described.

Referring to the drawings, reference-sign A designates a base-plate, upon which is mounted a frame or casting B. Upon the frame or casting B is pivotally mounted in the usual manner, as at C, the carrier-arm D, and upon



the outer or free end of this arm is mounted the target-carrier E. To the inner end of the arm D is connected one end of a spring or other suitable tension device F, the other end of said spring or tension device being adjustably connected, as at G, to a convenient part of the frame or casting B.

The parts so far described may be of the usual or any convenient, suitable, or well-known construction and arrangement.

In the operation of a target-trap of the construction above described the target is placed in the carrier E, and the arm D is rocked or swung about its pivot and against the tension of the spring F into initial position preparatory to projecting the target. In traps of the usual and ordinary construction the carrier-arm D is held in this retracted or initial position by means of a latch arranged to engage the arm or a lug formed thereon, the carrier-arm being released from such engagement at the proper moment to project the target. I have found, however, that the engagement of the carrier-arm or a lug formed thereon with the ordinary form of latch imposes a too-great tension upon the latch, for it will be readily seen and understood that the tension of the spring F is thus imposed upon the latch, thereby making the same work hard and requiring a considerable jerk to release the latch or to detach the carrier-arm. I have also found in practice that it is objectionable for the arm or for a lug formed thereon to constitute the engagement with the latch, for the reason that such construction and arrangement necessitates the use of considerable force and power to cause the arm or the lug thereon to be moved back over the latch into engaging relation. In order to overcome these objections and to provide a construction wherein the carrier-arm may be quickly and easily moved into engaging relation with respect to the latch, I mount a sleeve or other convenient bracket H upon the arm D, and I hinge or pivot upon said bracket or casting a stop J, having a curved or beveled rear surface (indicated at K) and also, if desired, having a shoulder L, arranged to engage the arm D to form a limit for said stop. The front or engaging surface of the stop is preferably planed off, as clearly indicated at M. By this construction it will be seen that when the arm D is moved into the initial or preparatory position above referred to the stop J, being pivoted, will readily and easily ride over the surface of the latch into engaging relation with respect thereto, the rear or curved surface K of the stop facilitating the ready and easy passage of the stop over the latch, and by reason of the planed front surface M of the latch an efficient engagement or bearing of the stop against the latch is secured, the shoulder L on the stop forming an efficient bearing to prevent the swinging of the stop into disengaging relation with respect to the latch.

It is obvious that a stop such as above de-

scribed may be employed with many specifically different constructions of latch. For instance, in Fig. 6 I have shown a latch comprising a lever N, pivotally mounted intermediate its ends upon the frame or casting B. A spring O serves to rock or swing said latch-lever in a direction to raise or project the free end of said latch-lever above the surface of the frame or casting B and into position to engage or to be engaged by the stop J when the carrier-arm is moved into initial or retracted position. To the free end of the latch-lever N is connected a cord P or other suitable operating means, by which the latch-lever may be retracted or withdrawn from engaging relation with respect to the stop on the carrier-arm. Thus when the carrier-arm is in initial or preparatory position, with the stop J thereon engaging the free end of the latch-lever N, by suitably manipulating the connection P the trip is released and the carrier-arm is swung under the influence of the spring F, and the target is projected.

While the trip mechanism above described is effective and included within the scope of my invention, it is evident that a stop device such as above described is equally well adapted for use in connection with other forms of trips, and in Figs. 1, 2, 3, and 4 I have shown a construction of electrical trip which for many reasons I prefer to employ. In this construction I employ one or more electromagnets Q, the coils of which are adapted to be energized from any suitable or convenient source of electrical energy—as, for instance, through the leading wires *a b* from a battery. R is a pivotally-mounted armature, which when the electromagnets are energized is adapted to be attracted thereby and hence drawn toward the electromagnet. If desired, a spring S may operate to normally swing or rock the armature R away from the electromagnets. A' is a rocking frame pivotally mounted at one end and carrying at its other end an engaging device—such, for instance, as a roller B', suitably journaled in said frame. A spring C' serves to normally but yieldingly maintain the frame A' in elevated position, as shown in Fig. 2. This frame is provided with lugs or projections D', (see Fig. 4,) arranged when said frame is in its normal or elevated position to be received in notches or seats E', formed in levers F', pivotally mounted. The free ends of said levers F' are arranged to be engaged by or to be disengaged from the front edge of the pivoted armature R. Thus, as shown in Fig. 2, the levers F' are arranged in advance of and in position to be engaged by the armature R when the latter is in its normal position—that is, when no current is traversing the coils of the electromagnets Q. When, however, the electromagnets are energized, thereby attracting the armature R, said armature is drawn down, thus releasing the ends of the levers F', as clearly shown in Figs. 3 and 4. This



mechanism may be carried in a suitable casing G', which is adapted to be bolted in convenient position upon the frame or casting B.

While I have described a preferred form of my invention, I desire it to be understood that my invention is not limited to the exact details of construction above described. For instance, the advantage of an easy engagement of the stop on the carrier-arm with the latch may be secured by providing the carrier-arm D with a rigid stop J', and the co-operating engaging part, as the roller B<sup>2</sup>, may be yieldingly mounted, as by arranging the gudgeons of said roller to ride in elongated slots P<sup>2</sup> in the arms or frame A<sup>2</sup>, (see Fig. 7,) the said roller being spring-supported, as at R<sup>2</sup>. The arms or frame A<sup>2</sup> of this construction correspond in arrangement with the arms A' of the construction illustrated in the other views of the drawings. By this construction it will be readily seen that when the arm D is swung or rocked back into initial or preparatory position the stop J' will ride over the roller B<sup>2</sup> and depress the latter against the spring-support R<sup>2</sup>, the yielding of the roller permitting the stop to easily ride over said roller. When the stop has passed beyond the engaging part B<sup>2</sup>, the spring R<sup>2</sup> will return the same into engaging relation until the entire frame A<sup>2</sup> is tripped or depressed in the manner above described.

The operation of the construction above described will be readily understood and is as follows: When it is desired to set the carrier-arm, the parts of the trip being in their normal position, as shown in Figs. 1 and 2, the carrier-arm is rocked or swung about its pivot into retracted position, the pivoted stop J readily and easily riding over the co-operating engaging part B' of the trip mechanism until the stop engages behind said engaging part B', as shown in Fig. 2. When in this engaging position and relation, the tension of the spring F, which constantly tends to project or swing the carrier-arm back into its normal position, exerts its force upon the engaging projection B' through stop J, thereby constantly tending to depress the pivoted frame A' in a direction to carry the engaging part B' thereof out of engaging relation with respect to said stop. The frame A', however, is held and locked against depression by means of the pivoted armature R. Now by energizing the electromagnets the armature R is attracted into the position shown in Fig. 3, and hence in a position to free the arms F' to permit the lugs D' to be forced out of the sockets or recesses E', thereby permitting the frame A' to be depressed and the stop J to ride over the engaging part B' of the trip mechanism, and hence releasing the carrier-arm, and the tension of the spring F aids and assists the detachment of the trip device when the armature R is attracted, and as the tension of said spring F is exerted, not upon the armature, but upon the frame A', it requires comparatively small power to be developed

in the electromagnets, and hence small battery-current.

It will be readily observed that by employing an electrical trip mechanism the battery and contact-making device may be located at any suitable or convenient point with reference to the trap or the sportsman, and when the circuit of the magnets is completed an instantaneous release of the carrier-arm is effected without jar or jerk incident to the release of the latch in target-traps of the ordinary and usual construction.

By employing a roller B' for the engaging part of the trip mechanism I materially reduce friction and aid in securing an exceedingly smooth and easy operation of the device.

Many variations and changes in the details of construction and arrangement would readily occur to persons skilled in the art and still fall within the spirit and scope of my invention. I do not desire, therefore, to be limited or restricted to the exact details of construction and arrangement shown and described; but,

Having now set forth the object and nature of my invention and various constructions and arrangements embodying the principles thereof, what I claim as new and useful and of my own invention, and desire to secure by Letters Patent, is—

1. In a target-trap, a frame, a carrier-arm pivotally mounted intermediate its ends upon said frame, a spring connected at one end to said frame and at the other to one end of said arm, a carrier mounted on the other end of said arm, in combination with a stop pivotally mounted upon said arm and provided with a curved or beveled rear surface and an engaging front surface, said stop provided with a shoulder on the rear surface thereof arranged to engage said arm to limit the rocking movement of said stop in one direction, and a movable latch carried by said frame with which said stop co-operates when said arm is rocked against the action of said spring into retracted position preparatory to projecting a target to lock said arm in such position, and means for withdrawing said latch from engaging relation with said stop to release said arm, as and for the purpose set forth.

2. In a target-trap, a carrier-arm pivotally mounted intermediate the ends thereof, a carrier connected to one end of said arm, a spring connected to the other end of said arm for actuating the same, and a stop carried by said arm, in combination with an electromagnet, a pivoted armature therefor, a movable frame arranged to be engaged and disengaged by said armature, and an abutment carried by said frame with which said stop co-operates, as and for the purpose set forth.

3. In a target-trap, a carrier-arm pivotally mounted intermediate the ends thereof, a carrier connected to one end of said arm, a spring connected to the other end of said



arm for operating the same, and a stop carried by said arm, in combination with an electromagnet, a movable armature therefor, a pivoted frame arranged to be engaged and  
5 disengaged by said armature, an abutment carried by said frame and arranged to be engaged by said stop, as and for the purpose set forth.

4. In a target-trap, a carrier-arm, means  
10 for actuating the same, and a stop pivotally mounted on said arm, in combination with a roller with which said stop coöperates to lock said arm in retracted position, an electromagnet, and a movable armature therefor,  
15 said armature operating to detachably maintain said roller in engaging relation with respect to said stop, as and for the purpose set forth.

5. In a target-trap, a carrier-arm pivotally

mounted intermediate the ends thereof, a  
20 carrier connected to one end of said arm, a spring connected to the other end of said arm for actuating the same, and a stop carried thereby, in combination with a yielding  
25 frame having an engaging part with which said stop coöperates, pivotally-mounted levers arranged to engage said frame, an electromagnet, a movable armature therefor, said  
30 armature arranged to engage and release said levers, as and for the purpose set forth.

In witness whereof I have hereunto set my hand, this 19th day of November, 1900, in the presence of the subscribing witnesses.

LOUIE A. SHERMAN.

Witnesses:

GEO. H. DAVIS,  
M. L. DICKEY.