(No Model.)

G. A. MUELLER.

TARGET TRAP.

No. 328,051. Patented Oct. 13, 1885.

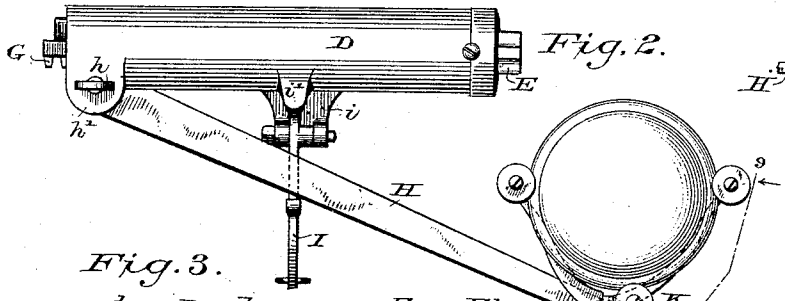


Fig. 2.

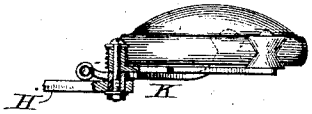


Fig. 9.

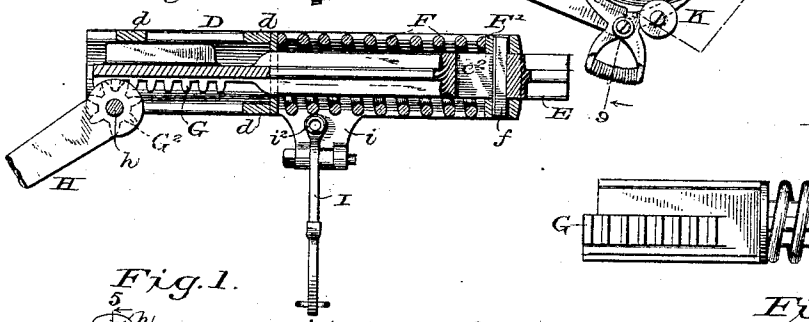


Fig. 3.

Fig. 7.

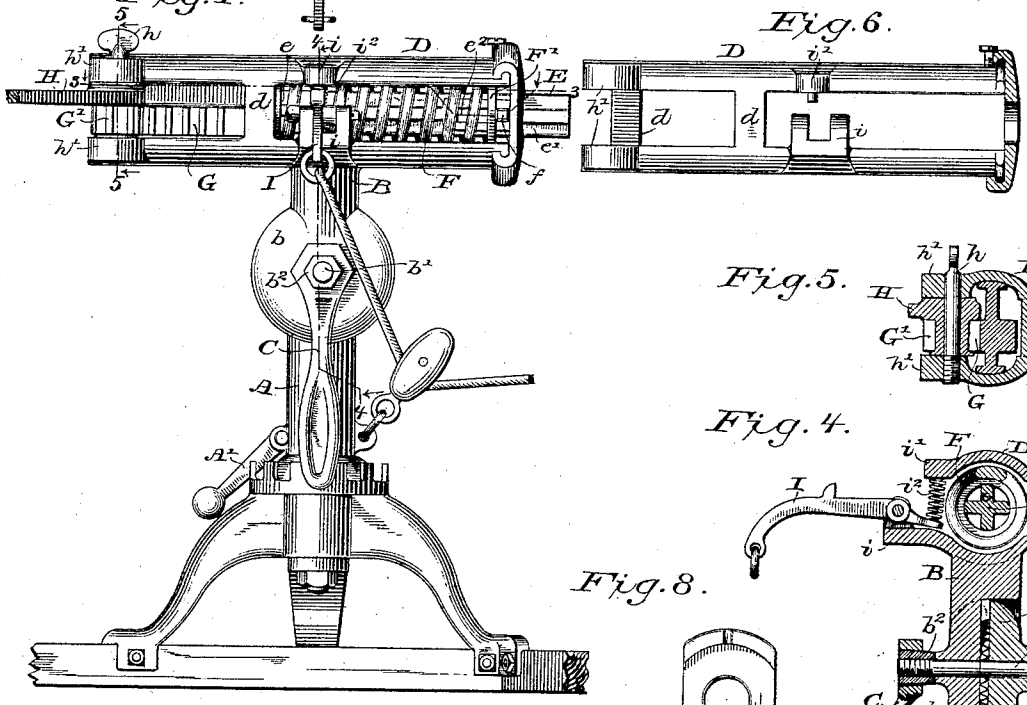


Fig. 1.

Fig. 6.

Fig. 5.

Fig. 4.

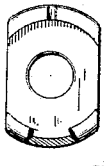


Fig. 8.

WITNESSES

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UNITED STATES PATENT OFFICE.

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TARGET-TRAP.

SPECIFICATION forming part of Letters Patent No. 328,051, dated October 13, 1885.

Application filed April 9, 1885. Serial No. 161,641. (No model.)

To all whom it may concern:

Be it known that I, GEORGE A. MUELLER, a citizen of the United States of America, residing at Anderson's Ferry, county of Hamilton, State of Ohio, have invented certain new and useful Improvements in Target-Traps, of which the following is a specification.

In the target-traps heretofore manufactured by the Ligowsky Clay Pigeon Company, of the city of Cincinnati, in this county, the throwing-arm has been impelled by a spring coiled about its pivot, as shown in the patent granted to George Ligowsky on the 10th day of January, 1882, No. 252,230, and lately a reversely-coiled spring has been added to take up the shock or impulse and obviate a harmful jar to said arm. This type has been, so far as I am aware, universally adopted, and in all target-traps now on the market or in use the throwing-arm is impelled by a spring coiled about its pivot, and either needs a positive stop at the end of its throwing movement, or comes against a reversely-coiled buffing-spring, which gradually checks it.

The object of my invention is partly to improve the mechanism for operating the throwing-arm, whereby its speed may be increased or decreased irrespective of the stress of the spring, and partly to make a single spring serve both as throwing-spring and buffing-spring, thereby taking the place of the strong coiled throwing-spring and the weak reversely-coiled buffing-spring heretofore used, and it will be understood from the ensuing description, in which I have represented it so constructed as to be applied and operated in connection with a trap, the base or support of which is framed in accordance with the patent of George Ligowsky, already referred to.

In the drawings, Figure 1 is a side elevation of a target-trap embodying my invention; Fig. 2, a top plan view of the upper part of said trap; Fig. 3, a horizontal section through the head or stock, including part of the throwing-arm; Fig. 4, a vertical transverse section through said head and the jointed standard; Fig. 5, a like section through the head and pivot of the throwing-arm; Fig. 6, an enlarged detail of the head, with operating mechanism removed; Fig. 7, a like detail of the operating mechanism contained within the head; Fig. 8, a like detail of the removable cap at the end of the head, which confines the operating mechanism therein; and Fig. 9, a side elevation in detail of a form of holder employed with a target held therein.

A is a pivoted block or standard section, which may be journaled in the tripod or base common in the Ligowsky trap, and shown in the aforesaid patent, and has a disk-piece, *a*, to which the next section may be clamped, and a pawl, A′, to take in the serrations formed on said tripod or base to determine the radial and angular adjustment of the throwing-arm. This, it will be understood, may be substituted by any other means for radial and angular adjustment—such as a cup to hold a ball, or a ball to be inclosed by a cup—and the description, as hereinafter indicated, is intended to be of a general nature to disclose the best means now known to me for mounting that portion of the trap which embodies my improvement.

To the standard-section A is fitted a second short section or standard, B, having a corresponding disk, *b*, the faces of the two disks being advisably serrated, so that they may be clamped together in any given adjustment. Transversely through the two disks is passed a bolt, *b′*, having at its end a nut, b^2, either resting directly upon the exterior face of one of the disks or separated therefrom by any number of interposed washers, so that by turning up the nut the disks may be clamped together and held firmly, to determine the angular adjustment relatively to the horizon. The nut may be made with perpendicular lateral faces; but in order that a wrench may be permanently held thereby it is best to make it slightly flaring outwardly, so that a wrench, C, having correspondingly inwardly-flaring faces may be confined thereby, but permitted to hang loosely whenever pushed to its inward extreme, or thereabout, and not engaged with the nut.

The standard-section A is either cast with or firmly bolted to (as shown in the present instance) a cylindriform head or stock, D. For lightness, and, if desired, for the purpose of introducing other parts, as presently described, this head is open on both sides, but may be entirely closed at the rear end, the top

and the bottom being connected at the other end by braces *d*. Should the parts not be introduced through the lateral openings, however, they may be and preferably are inserted through the end of the stock, which is provided with a removable cap, D′, for that purpose, said cap being either screwed on or more readily applied by providing it with incurved rim-segments *d*′, which are inserted through the open ends of the lateral slots in the stock, and then turned to embrace a bead on the solid portions, a set-screw, d^2, finally securing the parts together. Into this head is fitted along its length a longitudinal plunger, E, which may be entirely cylindrical, but to avoid friction is ribbed, as at *e* and *e*′, said ribs bearing upon the internal surfaces of the stock. A coiled spring, E′, encircles this plunger inside of and in the rear portion or chamber of the head, and is suitably seated to impel it in the forward movement and to check it in the reverse movement imparted to it. The simplest means now known to me for this purpose is to slot the rear portion of the plunger, as at e^2, inside of the head, and to apply thereto a collar, F, having a cincture, *f*, extending through the slot and diametrically of the collar, so that whenever it comes against either end of the slot the plunger may be stopped. At the other end of the chamber or box in said head, inclosing the spring, is another collar, F′, mounted loosely on the plunger, but of such diameter that whenever the plunger is forced backward shoulders upon the plunger beyond said collar may come in contact with and move the washer, thus compressing the spring against the opposite collar and checking the throwing sweep.

Beyond the aforesaid chamber or box is a second chamber, in which the plunger plays, and in this chamber the plunger has on one side a rack, G, which engages with a pinion, G′, on the pivotal end of the throwing-arm H, which end is pivoted by the pin *h* between ears *h*′, offset from the head. Another offset, *i*, affords bearings for the pivot of a trip-latch, I, which holds said throwing-arm back against the stress of the throwing-spring, and an overhung offset or shoulder, *i*′, embraces between it and the heel of the trip-latch a coiled spring, i^2, which presses said latch into engagement.

These details of course may be varied within the range of a skilled mechanic—as, for instance, by the substitution of a link or pitman for the rack and pinion.

It is evident from the description thus far given that whenever the throwing-arm is forced back into engagement with the trip-latch the pinion on its pivotal end, engaging with the rack on the plunger, will force said plunger along the stock in opposition to the stress of the throwing-spring, and the washer at the rear end of said throwing-spring will, as soon as its cincture reaches the end of the slot in the plunger, begin to compress the spring and continue to compress it until the trip-latch and throwing-arm are engaged.

Now, when the trip-latch is disengaged, which is or may be done by the usual means, the throwing-arm will be impelled by the spring, rack, and pinion to give a rapid sweeping movement, and its momentum in said movement will carry it beyond the point at which the spring has expended its full strength. The shoulders on the plunger will then come in contact with the washer at the forward end of the spring, and the throwing-arm, continuing its movement through the momentum gained, will force the plunger back against the spring, which will now serve as a buffer until said momentum is exhausted.

A swinging or hinged holder, K, may be applied to the outer end of the throwing-arm, which holder will be swung back to the rear of the arm before the throwing sweep, but at the end of said sweep, or when the arm is checked by the buffing action of the spring, will sweep forward with a sort of wrist movement to deliver the pigeon. This holder may be perfectly understood by reference to the drawings, where it is fully exhibited, and as it is in general features already upon the market and well known in connection with the old form of trap, more extended description is unnecessary, especially as certain specific improvements relating to the peculiar structure of the clamping-jaws have been reserved by me as the subject-matter of another application.

I claim—

1. The combination, substantially as hereinbefore set forth, of a plunger, a head in which it is supported, a spring coiled about said plunger within the head and arranged in such manner as to serve both as a projecting and buffing spring, a throwing-arm pivoted in said head and connected with the plunger so as to be swung on its pivot by the motion of the latter, and a trip-latch, by which said throwing arm may be held when in its retracted position, and whereby it may be released to be impelled by the force of the spring.

2. The combination, substantially as hereinbefore set forth, in a target-trap, of a plunger, a head in which it is supported, a spring coiled about said plunger within the head and arranged in such manner as to serve both as a projecting and buffing spring, a throwing-arm pivoted in said head and having gear-teeth concentric with its pivot to engage with teeth on the plunger, and a trip-latch, by which said throwing-arm may be held when in its retracted position, and whereby it may be released to be impelled by the force of the spring.

3. The combination, substantially as hereinbefore set forth, in a target-trap, of the rack-plunger, the coiled spring encircling it, the head in which said plunger is supported, the throwing-arm, and its pinion engaging with the rack on the plunger, and the trip-latch pivoted in lugs offset from the head.

4. The combination, substantially as hereinbefore set forth, in a target-trap, of the rack-plunger, the coiled spring encircling it at one

end, the washers mounted loosely on said plunger, and the stops or shoulders whereby said washers are alternately engaged, the throwing-arm, and its pinion engaging with the rack on the plunger, the supporting-head, and the trip-latch.

5. The combination, substantially as hereinbefore set forth, in a target-trap, of the rack-plunger, the washers loosely encircling it, the coiled spring extending between said washers, the shoulders on the plunger engaging with one of the washers, the slot through the plunger, and the cross-bar from the other washer passing therethrough, the throwing-arm having a pinion encircling its pivot and engaging with the rack on the plunger, and the trip-latch.

6. The combination, substantially as hereinbefore set forth, of the rack-plunger, the coiled spring encircling it, the pivoted throwing-arm having a pinion about its pivot engaging with the rack on said plunger, the holder hinged to the outer end of said throwing-arm, the trip-latch, and the head supporting said parts.

7. The combination, substantially as hereinbefore set forth, of the rack-plunger, the coiled spring encircling it, the pivoted throwing-arm having a pinion about its pivot engaging with the rack on said plunger, the stock in which said parts are seated, and the removable cap on the end of the stock, whereby said parts may be inserted.

8. The combination, substantially as hereinbefore set forth, of the rack-plunger, the coiled spring encircling it, the pivoted throwing-arm having a pinion about its pivot engaging with the rack on said plunger, and the laterally-slotted stock in which said parts are mounted.

9. The combination, substantially as hereinbefore set forth, of the pivoted throwing-arm, the plunger, the coiled spring encircling the plunger, the slotted head or stock supporting said arm and inclosing the spring and plunger, the beads upon the end of the stock, the cap having incurved rim-segments to embrace said beads, and the set-screw.

GEORGE A. MUELLER.

Witnesses:
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