

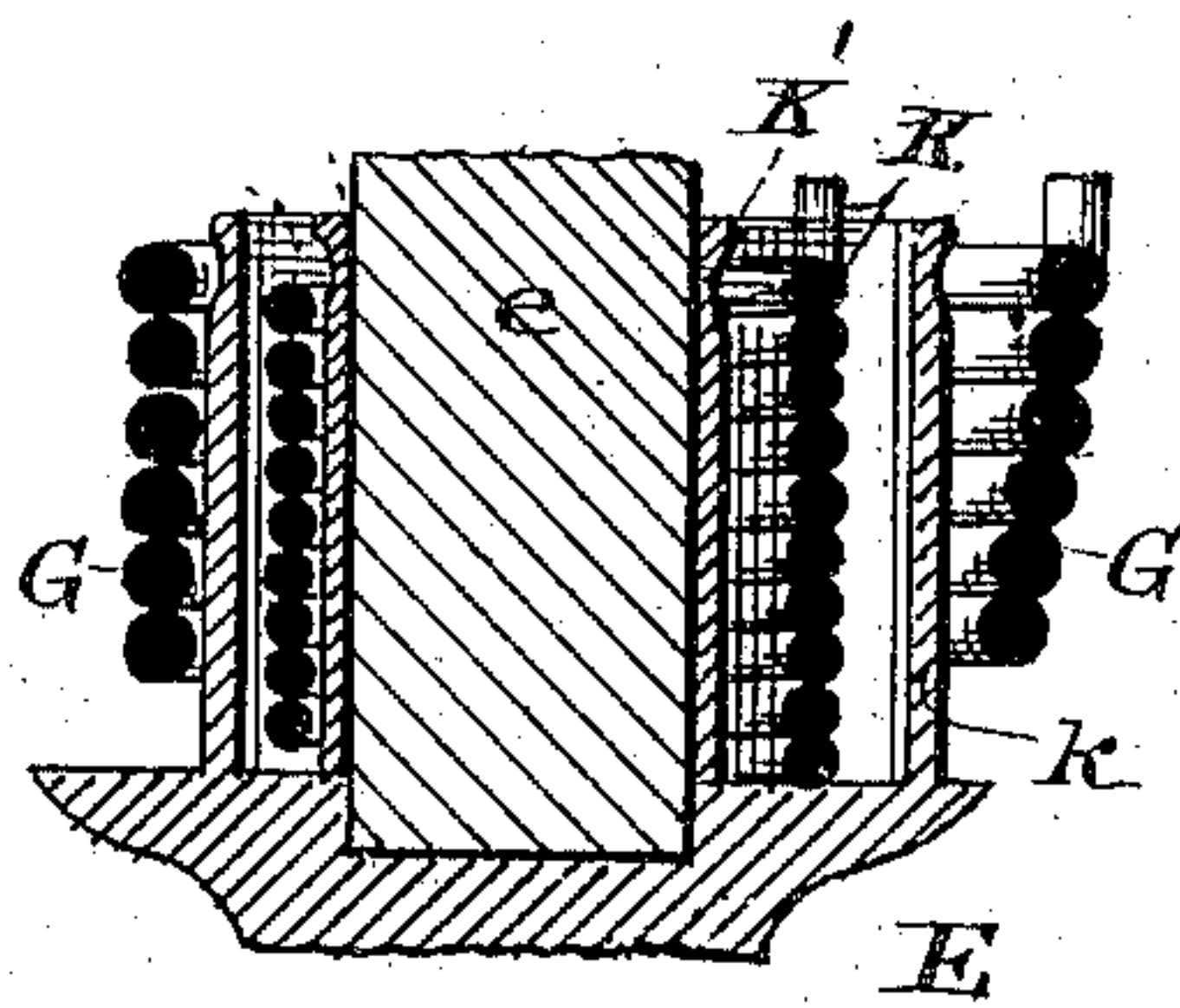
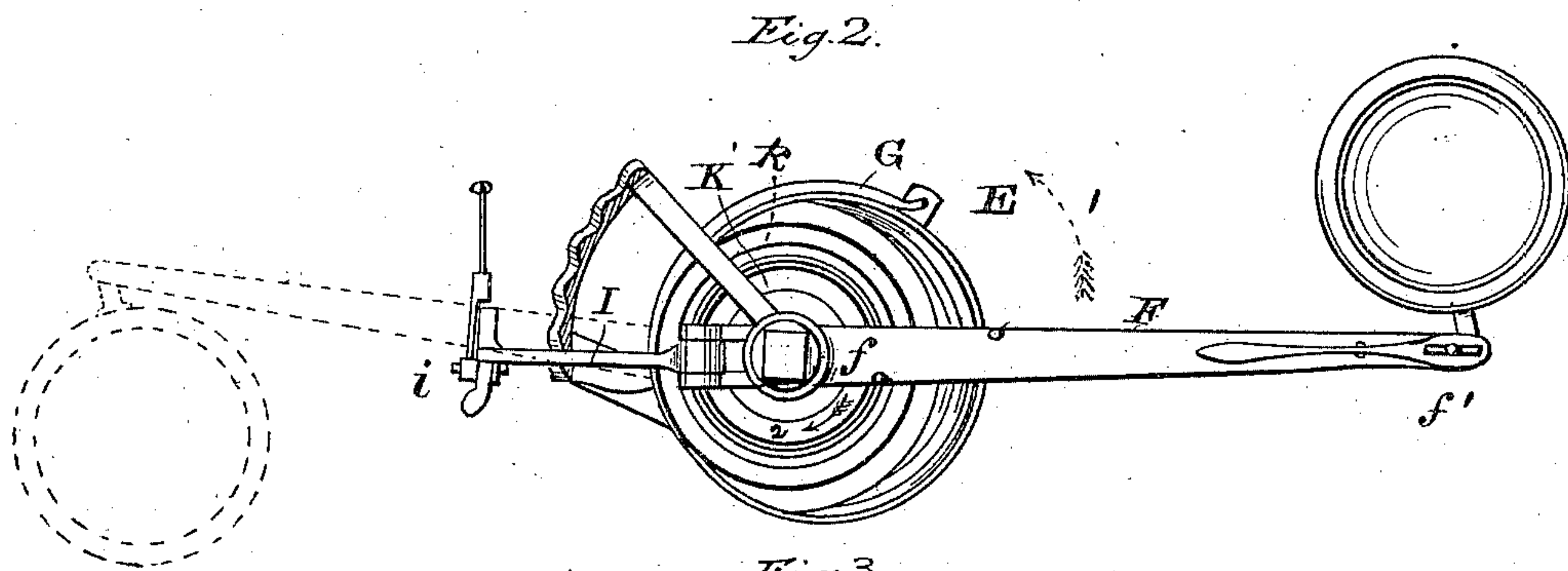
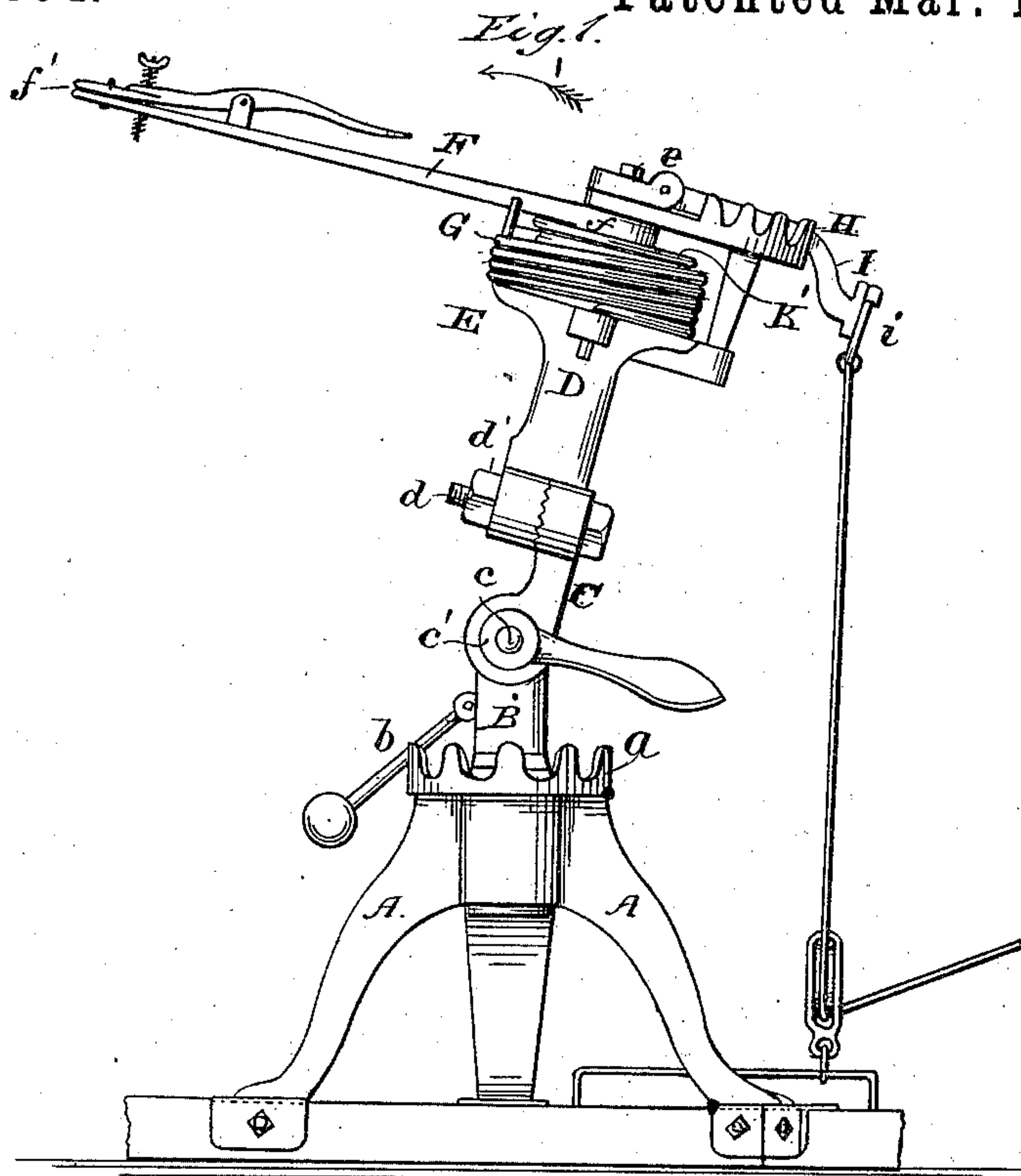
(No Model.)

J. E. BLOOM.

BALL TRAP.

No. 313,804.

Patented Mar. 10, 1885.



WITNESSES

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JACOB E. BLOOM, OF CINCINNATI, OHIO, ASSIGNOR TO THE LIGOWSKY
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BALL-TRAP.

SPECIFICATION forming part of Letters Patent No. 313,804, dated March 10, 1885.

Application filed March 22, 1882. Renewed August 6, 1883. (No model.) Patented in England December 7, 1881, No. 5,346.

To all whom it may concern:

Be it known that I, JACOB E. BLOOM, of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Target-Traps, of which the following is a specification.

My invention relates to that species of traps used for throwing glass balls, clay pigeons, and other like inanimate targets; and it consists, primarily, in combining with the coiled spring which actuates the lever that throws the target a second spring, set reversely, to intercept, accompany, and take up the recoil of said lever.

It further consists in various features and details of construction, such as hereinafter described and claimed, whereby this combination is achieved in the manner which I at present deem preferable.

In the drawings, Figure 1 is a side elevation of a trap embodying my improvements. Fig. 2 is a plan view of the head of the trap, showing the two springs, lever, catch, and certain accessories; and Fig. 3 is a section of the head, exposing the exterior or throwing spring and interior or recoil spring.

A represents a tripod-support for the operative parts of the trap, and *a* a rack formed in an annular flange surmounting the tripod.

B is a short standard-section turning in a socket or bearing formed in the head of the tripod on a common center with the rack, and *b* a loaded pawl or detent hinged to the section so as to be dropped into any one of the interdental spaces of the rack, and thereby hold said section and the mechanism it carries in any desired radial adjustment. At the top of this short section is a serrated or notched knuckle engaging with a similar knuckle on the lower end of a second standard-section, C, and through these knuckles passes a pivot-bolt, *c*, receiving on its screw-threaded end a thumb or lever nut, *c'*, whereby the two sections can be clamped in different angular adjustments upon their connecting-pivot. A third and final standard-section, D, is secured to the top of the second or intermediate one by similar knuckles, pivot-bolt *d*, and clamping-nut *d'*, arranged, however, at substantially right angles to the former, so that by means of the

two joints and the radial movement the head E of the standard, forming the top of the last section, shall have capacity of universal adjustment, as if mounted upon an adjustable ball-joint the mechanical equivalent of the foregoing, to enable targets to be thrown at any inclination and in any direction without disturbing the tripod, which will usually be spiked to the ground.

The foregoing parts are briefly mentioned for the purpose of illustrating my invention and as a preferred means for its embodiment, but are not indispensable to it.

Aside from the improvements about to be described, they and certain other parts hereinafter adverted to, and also introduced by way of illustration and preference, do not differ, essentially, from corresponding parts shown in Letters Patent No. 252,230, granted to George Ligowsky on the 10th day of January, 1882, where their construction and mode of operation will be found more fully pointed out.

Centrally from the standard-head E rises a spindle, *e*, which receives and serves as a bearing for the hub *f* of the target-lever F or throwing-arm. This lever has at its lower end a clamp, *f'*, or other device for temporarily holding the target to be thrown, and is impelled in the throwing movement by an independent strong coiled spring, G, confined at one end in a socket in the standard-head, and at the other seated against said lever, such construction insuring a regular and invariable sweep of the lever around a fixed pivot instead of the comparatively uncertain sweep of the corresponding arm in the patent just referred to, which was simply a tangential prolongation of the upper end of the spring. As in said patent, the length of the throw is regulated by a segment-rack, H, and swiveled tension-arm I, carrying at its outer end the trip-latch *i*, whereby the lever is held against the stress of the actuating-spring preparatory to its effective movement, although it is obvious that a straight rack or a long trip-latch having several notches for the engagement of the lever will accomplish this object nearly or equally as well, or that some other expedient can be adopted to vary the tension of the spring and increase or decrease its throwing power.

If the actuating-spring alone is used, the lever is brought up with a sudden and violent stop at the end of its sweep, often jerking off the tongue and shattering the pigeon, and snapshots are made at the flying fragments, to the annoyance of the marksman. To overcome this defect, I apply a second and weaker spring, K, wound reversely to the first, to receive the impact of the lever. This second or recoil spring, for greater compactness, strength, and security, is placed within and concentric with the actuating or throwing spring, as below described; but such arrangement is for the stated economical purposes only, and does not affect in any vital manner the mechanical functions of said spring, which require solely that it shall be reverse to the other in its action, and sufficiently weaker so as to yield with the impact of the radially-sweeping lever, and finally check it and return it to its position of rest.

In the just-mentioned preferred construction a collar, k, is formed upon the standard-head, encircling the hub of the throwing-lever at sufficient distance to afford a considerable annular pocket. The collar rises somewhat beyond the coils of the actuating spring, to which its outer wall forms a support or core, and is advisably flanged slightly at top, to guard the upper coil from springing over when wound up. The annular pocket receives the recoil or check spring, which, like the actuating-spring, is confined at one end to the standard-head, and at the other presses against the lever-arm, but in this instance reversely to the foregoing, so as to take up its thrust. A thimble, K', of hard wood or soft metal, is interposed between the lever-hub and the coils of the inner spring, to prevent undue friction and wear, and this thimble, like the collar which separates the two springs and shields one from interference with the other, is flanged, or has a circumferential groove at top or near to the lever-arm, to prevent escape of the upper coil of the adjacent spring when it is wound up. Either or both springs may, if desired, be made adjustable.

The action is briefly as follows: The throwing lever, being in the position indicated by dotted lines in Fig. 2—that is, set for action—is released by depressing the trip-latch or trigger in the usual manner, and is at once impelled by its powerful actuating-spring in the proper direction for the delivery of the pigeon. At a suitable point in this radial throwing movement, and at its maximum speed, it meets the projecting upper end of the recoil spring, and is sufficiently checked to cause the pigeon to become disengaged and take its tangential departure in flight. This check, however, is so tempered by the yielding or winding of the spring before the lever that, although the pigeon is certainly disengaged, there is no danger of breakage either to itself or to the lever, and the latter is gradually brought to a full stop and gently returned to its position of rest, instead of

bringing up abruptly and flying back with a violent recoil of its actuating-spring.

I claim as my invention—

1. The combination, in a target-trap, of a standard head or support, a throwing arm or lever pivoted thereto, a coiled spring arranged to actuate said arm in its throwing movement, and an oppositely-coiled spring arranged to meet and gradually check the lever when it is at about its throwing-point.

2. The combination, with the pivoted throwing-lever in a target-trap, of two concentric springs wound in opposite directions, and arranged one to actuate the lever in its throwing movement and the other to receive its impact when it is at or near the discharging-point and gradually check it.

3. The combination, with the pivoted throwing-lever in a target-trap, of two concentric springs wound in opposite directions, and acting in the manner set forth, and a shield or partition which separates the coils of one spring from contact with the coils of the other.

4. The combination, in a target-trap, of a head or support adjustable as set forth, a throwing-lever pivoted to such head and carrying at its outer end a holder for the target, an independent coiled spring seated at one end against the head and at the other bearing against the lever, to actuate it, and a trip-latch to which the lever may be connected at varying distances from its position of rest to give greater or less tension to the actuating-spring.

5. The combination, in a target-trap, of a standard head or support, a lever pivoted thereto, a collar rising from the head and enclosing an annular pocket around the lever-pivot, an actuating-spring wound about the exterior of the collar and urging the lever in its throwing movement, and a recoil or check spring seated in the annular pocket and receiving the impact of the lever at about the moment it is to discharge the target.

6. The combination, substantially as described, with the pivoted throwing-lever and with the check-spring coiled around its pivot, of the thimble placed within the coils of said spring, and flanged or grooved circumferentially next to the lever-arm to confine the adjacent coil of the spring when it is wound.

7. The combination, substantially as described, with the pivoted throwing-lever and with the coiled actuating-spring by which it is given its sweep, of the support or core around which said spring is coiled, flanged circumferentially at its upper edge to confine the adjacent coil of the spring when the lever is set.

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

JACOB E. BLOOM.

Witnesses:

C. M. LOTZE,

E. M. GORRISON.