

(No Model.)

F. C. DAMM.
BALL TRAP WITH FLEXIBLE THROWING ARM.

No. 453,857.

Patented June 9, 1891.

Fig 1.

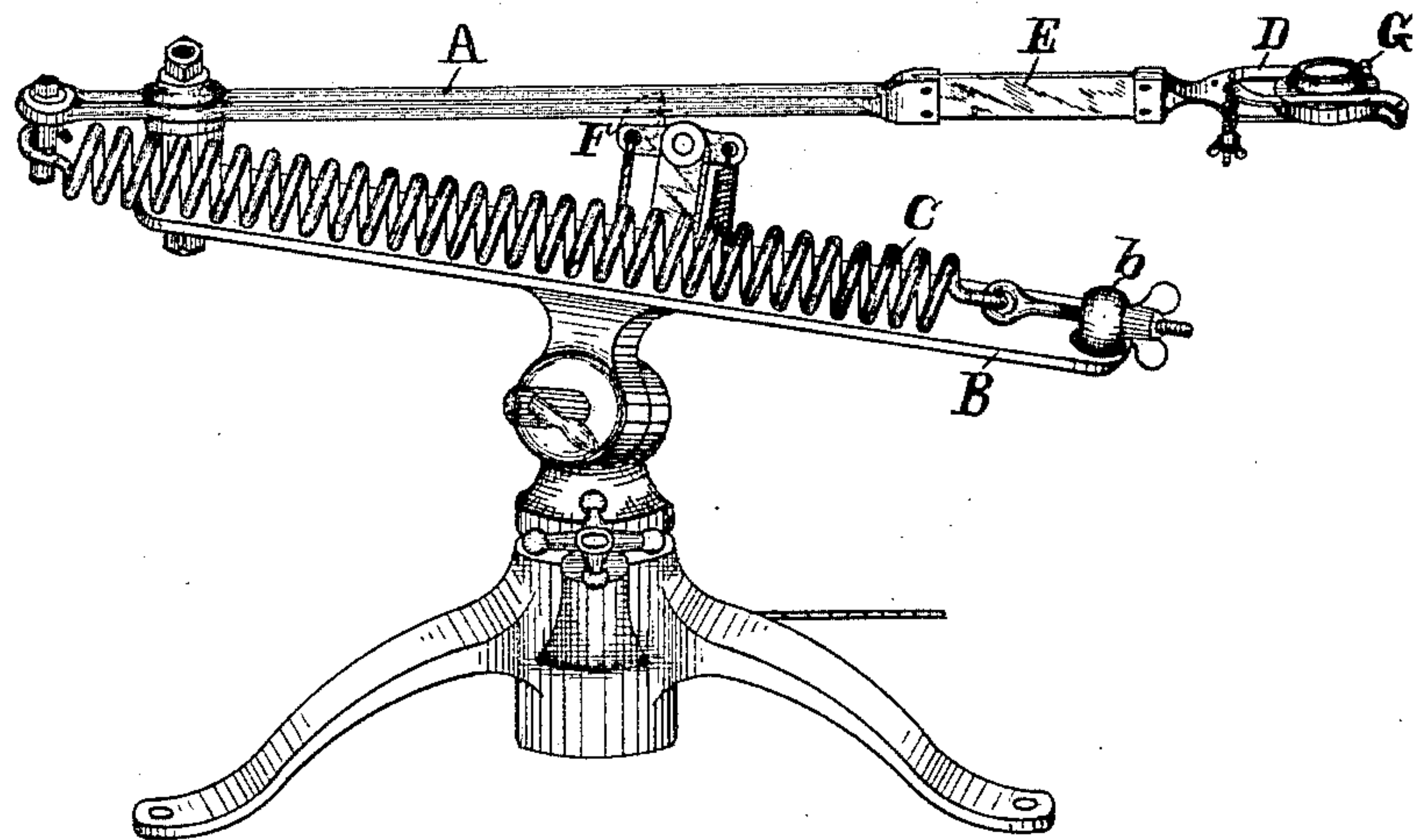
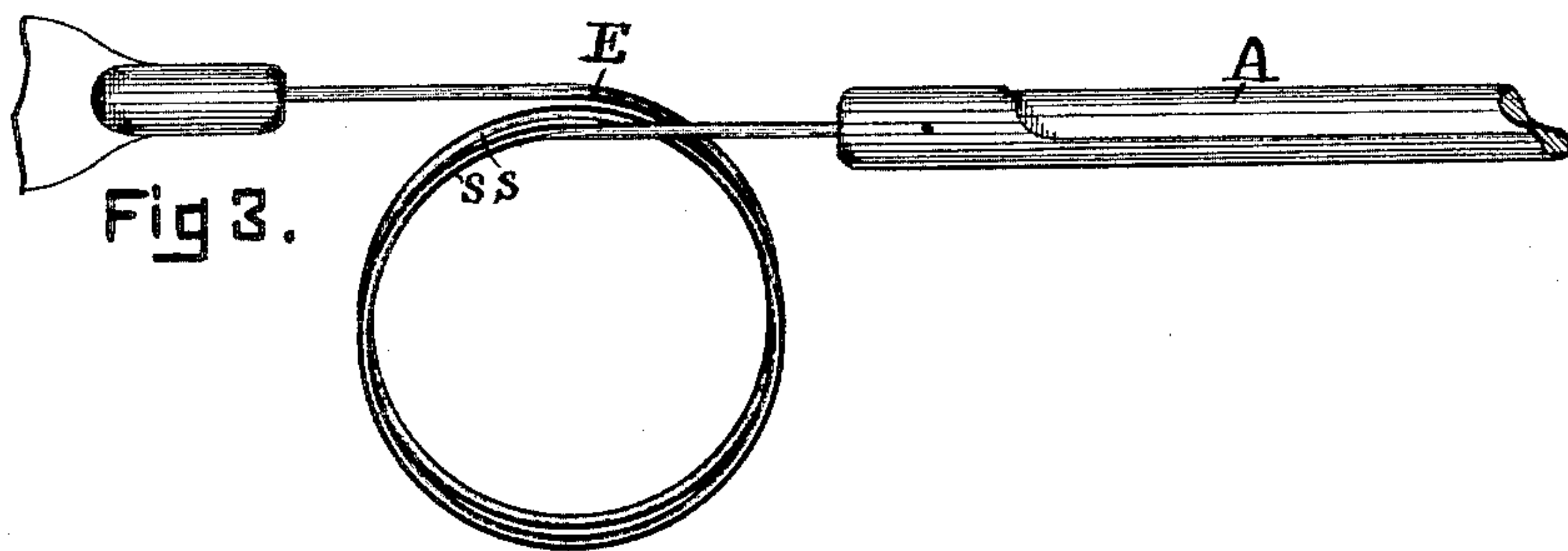
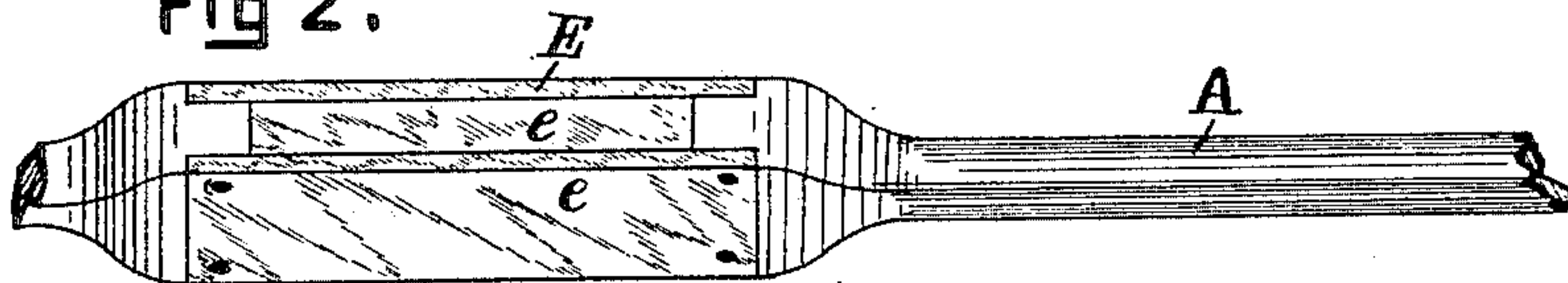


Fig 2.



WITNESSES.

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BALL-TRAP WITH FLEXIBLE THROWING-ARM.

SPECIFICATION forming part of Letters Patent No. 453,857, dated June 9, 1891.

Application filed July 24, 1890. Serial No. 359,718. (No model.)

To all whom it may concern:

Be it known that I, FREDRICK C. DAMM, a citizen of the United States, residing at Findlay, in the county of Hancock and State of Ohio, have invented certain new and useful Improvements in Target-Traps, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of my improved target-trap, and Figs. 2 and 3 are detached views showing modified forms of the mechanism connecting the throwing-arm and target-carrier.

My invention relates to that class of target-traps which are designed to throw the dish-shaped flying targets.

The object of my invention is to provide a novel target-throwing device whereby the target may be given the necessary forward propulsion and an independent axial rotation.

To this end the invention consists of a pivoted throwing-arm and a spring or springs arranged to cause said throwing-arm to revolve upon its pivot and to suddenly arrest said revolution, combined with a target-carrier and an elastic connection between said target-carrier and the outer end of the throwing-arm.

It also consists in the combination and details of construction herein shown and described, which are pointed out definitely in the claims.

In the drawings, Figure 1 is a perspective view of a target-trap containing my invention. Fig. 2 is a perspective view of a part of the throwing-arm and the elastic connection between it and the target-carrier. Fig. 3 is a similar view showing modified form of the elastic connection.

Referring to the parts by letter, A represents a throwing-arm, which is pivoted to a suitable support B. The construction and arrangement of this support are not any part of the invention which this patent is designed to secure, and it may therefore be of any suitable form and arranged in any suitable manner.

C represents a coiled spring secured at one end to the rear and shorter end of the throwing-arm, while the other end of said spring is secured to some stationary part of the device, as the pin *b*.

D represents a target-carrier of any suitable construction, which is adapted to hold the target in the usual position during the revolution of the throwing-arm and until the releasing-point is reached.

E represents a flexible device, which is rigidly connected at one end to the target-carrier and at the other end to the throwing-arm. This flexible connecting device is of such a character that it sustains the carrier at all times in the plane of the throwing-arm, and except under the conditions hereinafter mentioned, in a position extending said throwing-arm. This flexible connection must also be adapted to bend in the plane of said throwing-arm, whereby when the motion of said arm is arrested the carrier shall be withdrawn from the target, as hereinafter pointed out. This flexible connecting device may be in the form of a flat well-tempered steel spring, as shown in Fig. 1, or it may consist of thick sole-leather, of which there may be one or two pieces *e e*, two being preferred, as shown in Fig. 2; or this flexible connecting device may consist of a spring-coil, as shown in Fig. 3, the ends of which are rigidly connected, respectively, with the end of the throwing-arm and with the target-carrier.

The mode of operation of this device is as follows: When the trap is set ready for throwing the target, the arm is in substantially the position shown in Fig. 1, where it is held by the latch F, and the carrier is held by the flexible connection in substantially the position shown, extending the throwing-arm. When the latch is withdrawn, the spring C causes the throwing-arm to revolve rapidly upon its pivot until the two points of connection of the spring and the pivot of the throwing-arm are in line, at which point centrifugal force generated by the revolution of the throwing-arm and tending to throw the target outward is greatest. When the throwing arm in its revolution passes the position above referred to, it begins to expand the coiled spring C, and the resistance of this spring to such expansion causes the revolution of the throwing-arm to be suddenly checked and finally stopped. When the motion of the throwing-arm is checked, it does not immediately check the motion of the target-carrier, because there is no rigid connection.

tion between said arm and carrier. This carrier for an instant continues to move at substantially its former velocity, which causes the flexible connecting device E to bend, 5 thereby suddenly withdrawing the target-carrier from the circular path in which it and the target have been traveling. The suddenness with which said target-carrier changes its direction of travel causes it to withdraw 10 itself from the target, whereupon the target being thus released is thrown or projected outward by the centrifugal force developed by the revolution of the throwing-arm. While the throwing-arm is revolving it is obvious 15 that the outer edge of the target is moving faster than the inner edge thereof, and this fact, when the target is suddenly released, as above described, results in an axial rotation of said target. The movement of the target-carrier independent of the throwing-arm, 20 which is possible by reason of its flexible connection therewith, has nothing to do with imparting to the target this axial rotation, which rotation is due principally, as above described, to the difference in the rate of motion of the inner and outer edges thereof and to the sudden withdrawal of the carrier from the target in such manner that the tendency of the target to rotate axially, because of this 25 difference in rate of motion of its different parts, is not weakened or affected by such withdrawal. 30

With a target-carrier constructed substantially as shown, where the target in being released revolves slightly upon a rubber pin G, 35 there results an increased tendency in the

target to axial rotation; but that construction of target-carrier is old, and the axial rotation produced in this manner is only supplementary to the axial rotation due, as above described, to the difference in the rate of travel 40 of the outer and inner edge of the target.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is— 45

1. The combination of a pivoted throwing-arm and mechanism for rotating said throwing-arm and suddenly arresting its movement, with a target-carrier, and a flexible device connecting said throwing-arm and target-carrier and adapted to sustain said carrier in the plane of said throwing-arm, substantially as 50 and for the purpose specified.

2. The combination of a pivoted throwing-arm and a spring adapted to rotate said arm 55 and to suddenly arrest its rotary motion, with a target-carrier, and a spring connecting said carrier with the arm and supporting said carrier in the plane of the arm, substantially as and for the purpose specified. 60

3. The combination of a pivoted throwing-arm and a spring adapted to rotate said arm and to suddenly arrest its rotary motion, with a target-carrier, and a flat steel spring secured at its ends to the target-carrier and 65 arm, respectively, substantially as and for the purpose specified.

FREDRICK C. DAMM.

Witnesses:

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FRANKLIN FRANKS.