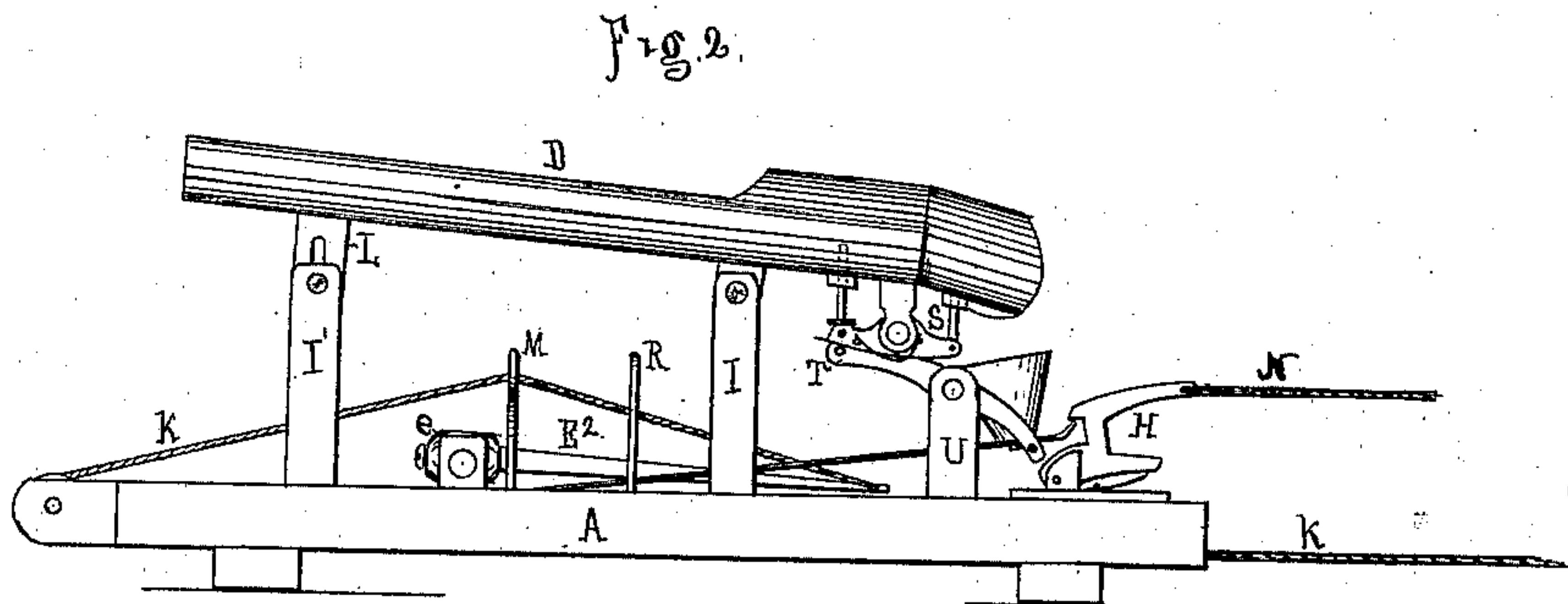
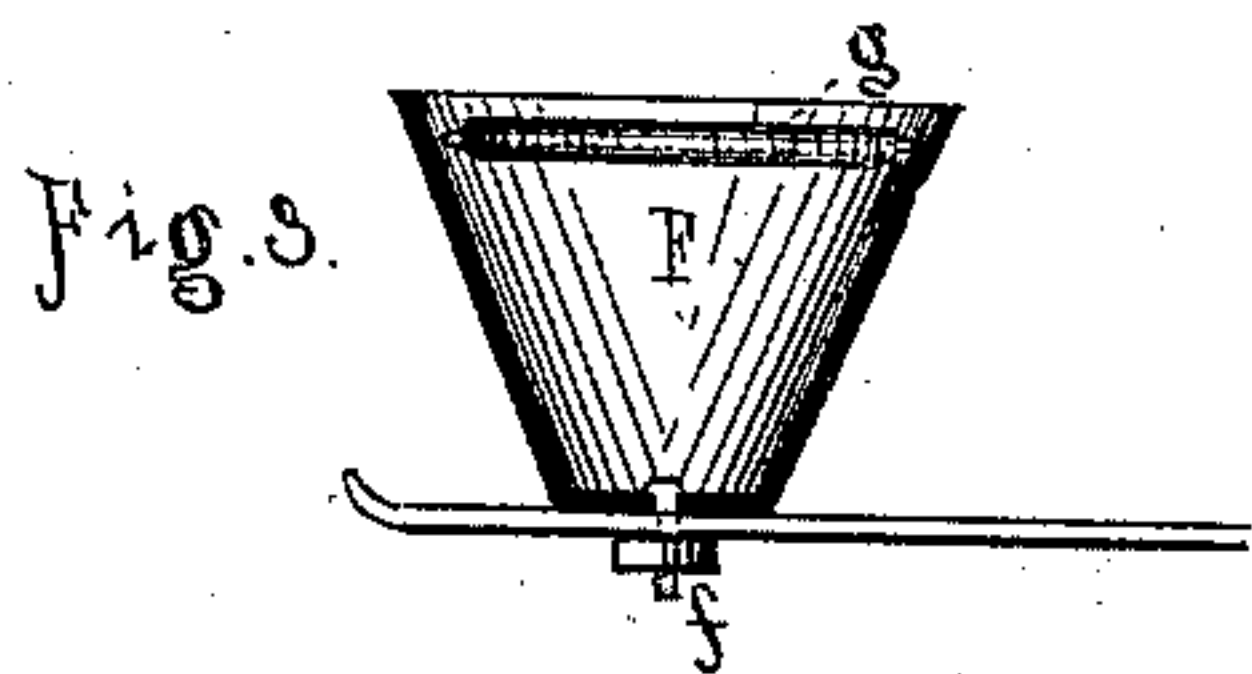
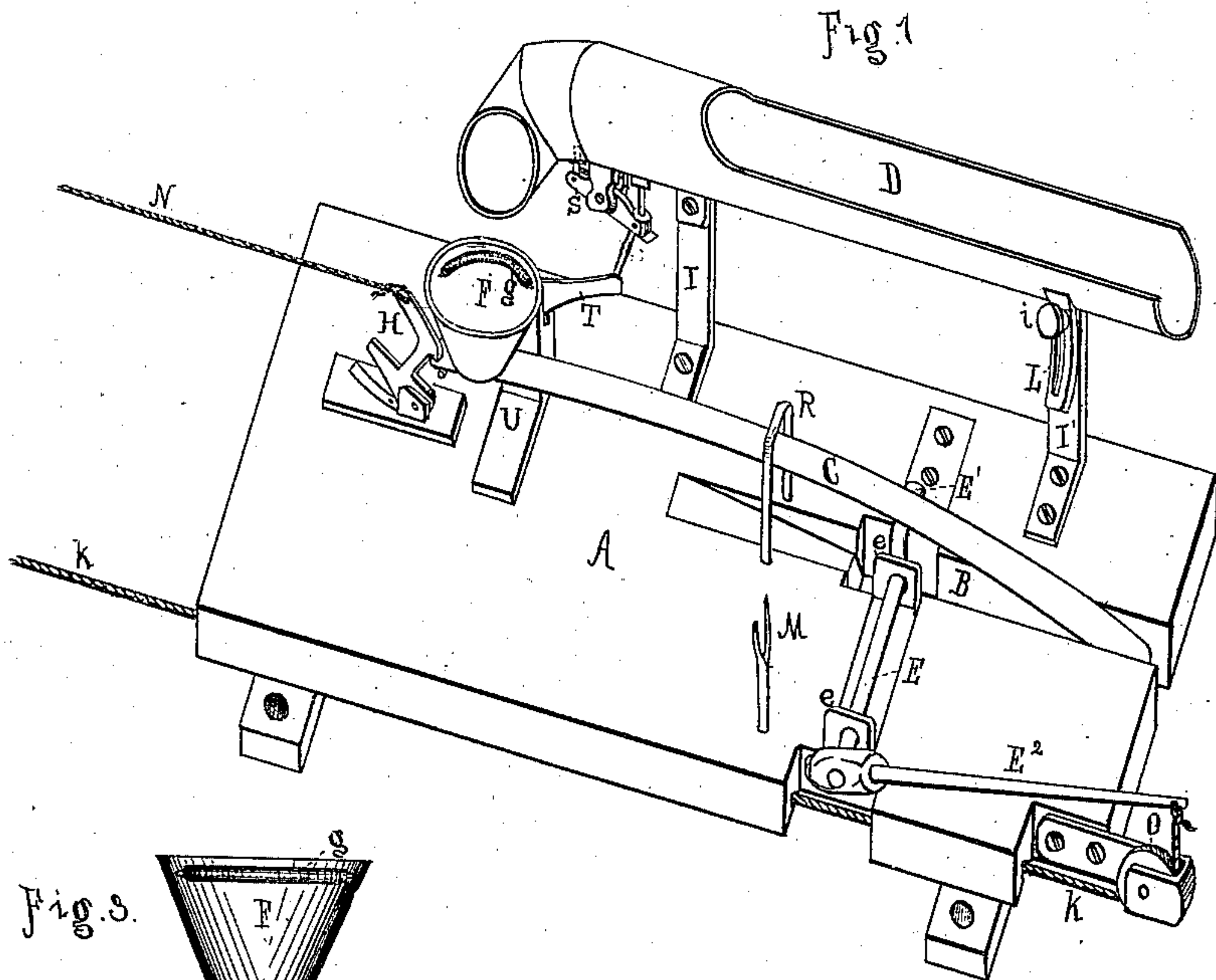


C. M. ADAMS.
Ball-Trap.

No. 214,801.

Patented April 29, 1879.



Witnesses.
Samuel Tasey
Albert Tasker

Inventor.
Charles M. Adams.
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Attys.

UNITED STATES PATENT OFFICE.

CHARLES M. ADAMS, OF BRIDGEPORT, CONNECTICUT.

IMPROVEMENT IN BALL-TRAPS.

Specification forming part of Letters Patent No. **214,801**, dated April 29, 1879; application filed February 12, 1879.

To all whom it may concern:

Be it known that I, CHARLES M. ADAMS, of Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Ball-Target Throwers for Shooting-Practice; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My invention relates to certain new and useful improvements in a device for throwing into the air balls composed of glass or other suitable substance, when used as targets for shooting-practice.

The principal object of my invention is to provide a ball-thrower that can be entirely operated from a distance, by automatically supplying the balls at the proper time to the cup from whence they are discharged; for automatically imparting, when required, the proper tension to the spring-lever, by which the balls are ejected after the said spring-lever has become automatically engaged with a suitable catch or trigger, and for automatically changing the direction given to the balls discharged.

My invention consists of a base or platform provided with a groove or slot of suitable width, depth, and length, within which rests a spring-lever when in its normal position, the said spring-lever being pivoted to the base or platform in a suitable position, in combination with a cup that is loosely attached to the free end of the spring-lever, and has within it a deflector.

It further consists of a mechanical device composed of a rocking crank-shaft and a lever-arm, whereby a proper tension is given to the spring-lever for the purpose required, and which also enables the said spring-lever to recover its normal position quickly after being released from a spring catch or trigger, for the purpose more fully hereinafter stated.

It further consists of a series of vibrating levers and vertical rods combined to operate as a cut-off, in combination with a spring-lever and a tubular reservoir, adapted to be set at varied angles, having an inclined elbow that serves as a guide for the balls.

The various parts of my invention will be better understood by referring to the drawings.

Figure 1 represents a perspective view of my invention, the parts being in a position they would occupy just previous to discharging a ball into the air. Fig. 2 represents a side elevation of the same, the parts being at rest. Fig. 3 represents a vertical section of the discharging-cup, showing the deflector in position.

Similar letters in all the figures indicate like parts.

A represents a horizontal platform or base, provided with the slot B. To the forward end of the platform A is pivoted the spring-lever C. On the free end of the spring-lever C is loosely attached, by means of the screw-bolt *f*, the cup F. Within the said cup F, near the top, is the deflector *g*, that follows the line of the rim of the cup, and may be of any length or material found best suited for the purpose required.

The cup end of the spring-lever C is slightly curved upward, as shown in Fig. 2, which better enables it to engage with the trigger H, and be held by it, when in the position shown in Fig. 1. Said trigger H is pivoted on the platform A, directly in line with and near the cup end of spring-lever C, and is held in position by a spring.

E is a rock-shaft, having bearings in the standards *e*, or may be otherwise suitably journaled, and is provided with the double-crank arms *E*¹, that work beneath the spring-lever C and within the slot B, performing the function of a cam, for the purpose of imparting to the spring-lever C the desired tension.

The rock-shaft E, with the crank-arms *E*¹, is operated by means of a lever-arm, *E*², which has a cord, K, attached to its free end, that passes forward around the friction-roller O, and back beneath the platform A to any required distance.

The forked standard M, over which the cord K passes, serves to assist in raising the lever-arm *E*² off of the center. A cord, N, is attached to the spring-trigger H, and extends to any required distance to the rear, by means of which the said trigger H may be operated to release the spring-lever C at the proper time.

R represents a guide or loop passing over the spring-lever C, that may be placed at any

suitable point, and serves to arrest the upward movement of the said spring-lever C, for the purpose more fully hereinafter stated.

On one side of the platform A, in line with the spring-lever C, is the tubular reservoir D, that serves as a receptacle for the balls, supported by the standards I and I', which are secured to the platform A. The said reservoir D is pivoted to the standard I in a suitable manner, and connected by the slotted guide L with the standard I', which has a set-screw, *i*, as shown, thus permitting the reservoir to be readily adjusted to any required angle, for the purpose of allowing the balls to feed freely to the cup F, and also to overcome the varied inclinations of the ground on which the ball-thrower may be placed.

One end of the reservoir D is provided with an elbow, sloped slightly toward the base A, and so located with respect to the cup F that when a ball is released from the said reservoir it will fall into the said cup when in the position shown in Fig. 2. From the under side of the reservoir D, near its elbow end, depends a bracket, which supports the cut-off S, that is composed of a vibrating lever, having its fulcrum within the said bracket, and pivoted to its opposite ends are upright rods, which pass through guides into the said reservoir D a suitable distance, and have a reciprocating motion.

The upright rods of the cut-off S can be any required distance apart, as may be found best suited to the purpose of alternately allowing the balls to pass from the reservoir into the cup.

The cut-off is held in its normal position, as shown in Fig. 1, by a spring. The cut-off S is operated by the spring-lever C in returning to its normal position, after having discharged a ball, through the medium of the vibrating lever T, having projecting arms, and being supported by the upright U, attached to the platform A. As the cup F is loosely attached to the spring-lever C, it will therefore be allowed to change its position at any point within a circle, and it is obvious that the direction of the balls discharged will be varied at each successive change through the medium of the deflector *f*, which, from its position in the cup F, gives to the ball in its ascent a lateral tendency.

The cup F can, if desired, be rigidly fixed on the spring-lever C, and the same direction always be given to the balls; or it may be varied at will.

The operation of my invention, briefly stated, is as follows: A ball being in the cup, and the reservoir supplied with the desired number, while the parts are as shown in Fig. 2, elevate to nearly a vertical position the crank-arms E¹

on rock-shaft E, Fig. 1, by pulling on the cord K of lever E²; then release the spring-lever C from the trigger H by a short, quick pull on cord N, when the ball will be thrown into the air.

As soon as the upward course of the spring-lever C is checked by loop R the ball is discharged. By the reaction of spring-lever C it forces the crank-arms E¹ back to their normal position, and from their peculiar shape the spring-lever C is allowed to descend quickly, striking with considerable force on the projecting arm of the vibrating lever T, thus forcing the upright rods of the cut-off S into the position shown in Fig. 2, which allows the ball held in check to pass over the lowered one into the cup F, when tension may be again given to the spring-lever C, as before, and the operation of discharging the ball repeated.

As soon as the cut-off is relieved of the weight of the spring-lever C, it recovers its normal position, and permits another ball to take the place of the one just deposited in the cup.

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

1. In a device for throwing balls into the air, the combination of a platform having a slot or groove, a spring-lever pivoted to the said platform, a rocking crank-shaft and lever-arm, whereby a tension is given to the said spring-lever, a spring-trigger, and a loop that serves to check the upward course of the spring-lever, arranged and operated substantially as described.

2. The reservoir D, having the alternately-operating cut-off S and the slotted guide, for the purpose stated, in combination with the spring-lever C, an intermediate operating-lever, and the other essential elements of a ball-target thrower, arranged and operated substantially as shown and described.

3. In combination with the essential elements of ball-target throwers, a cup having within it a deflecting device, and susceptible of changing its position within a circle automatically upon the mainspring of said ball-thrower, to which it is loosely attached, whereby a varied direction is imparted to the ball when discharged from the said cup, substantially as shown and described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

CHARLES M. ADAMS.

Witnesses:

D. H. TERRY,
EUGENE MOREHOUSE.