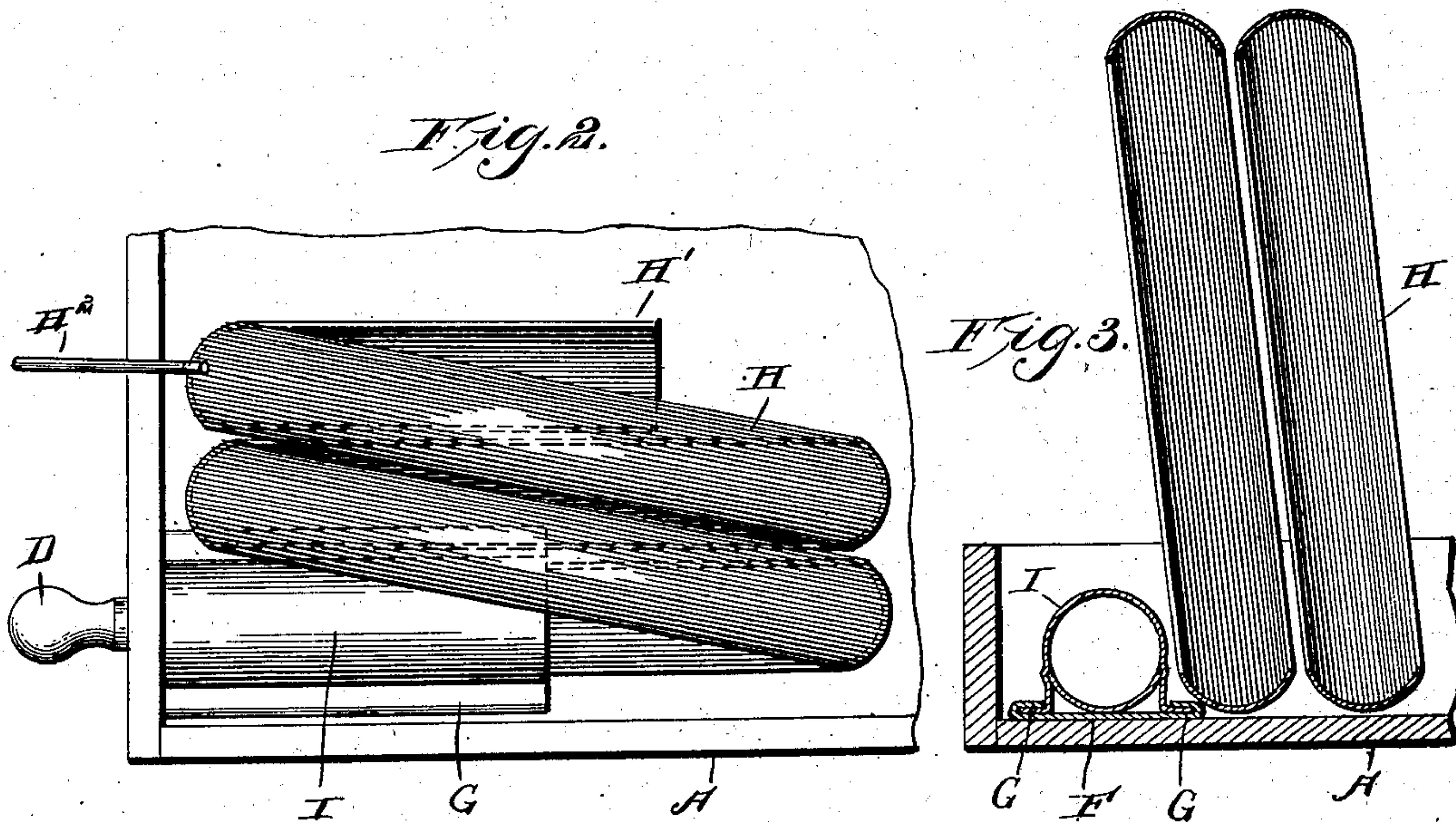
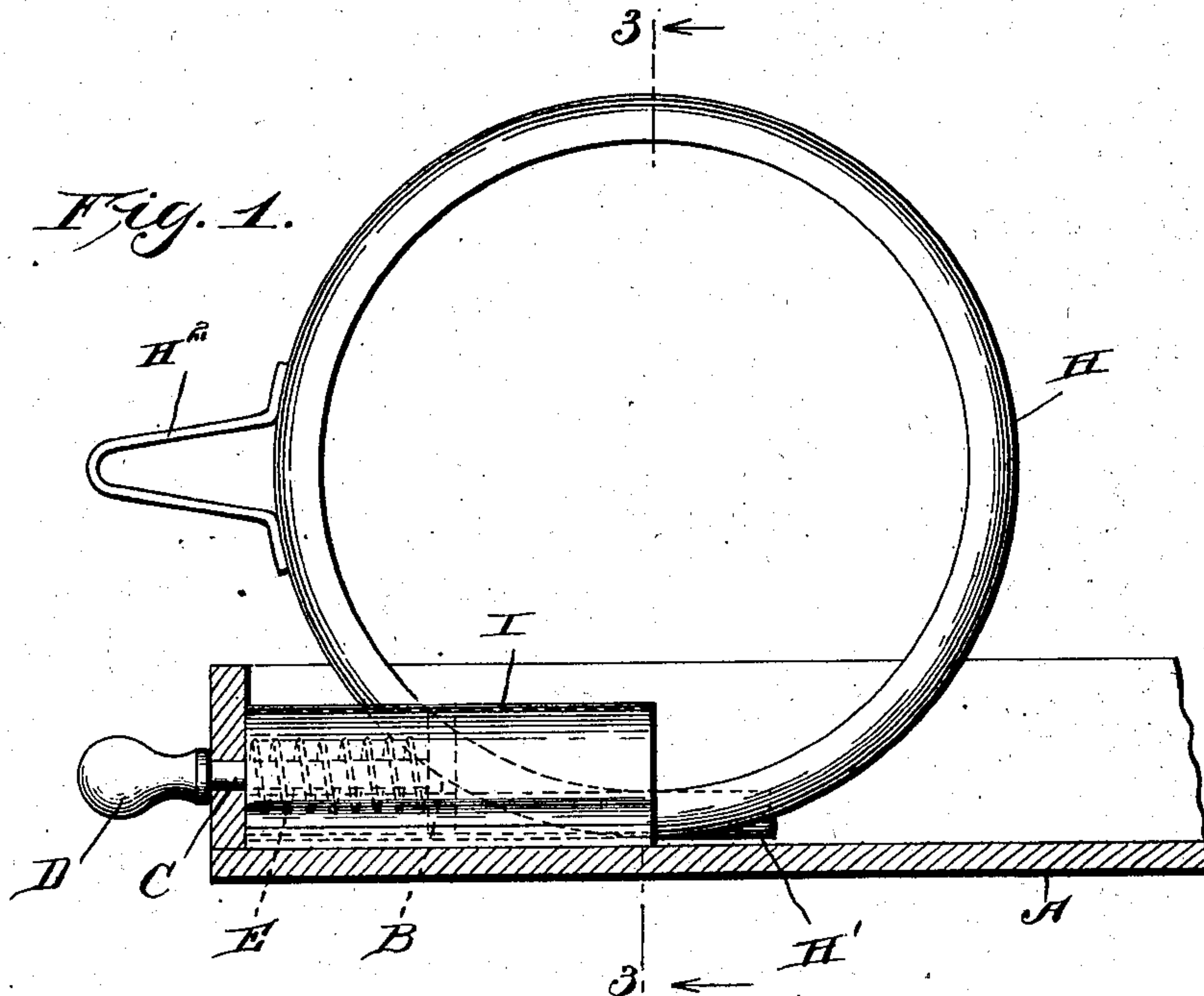


No. 730,258.

PATENTED JUNE 9, 1903.

G. H. HAGAN.
MARBLE OR BALL PROJECTOR.
APPLICATION FILED JULY 18, 1902.

NO MODEL.



Witnesses
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UNITED STATES PATENT OFFICE.

GEORGE H. HAGAN, OF PHILADELPHIA, PENNSYLVANIA.

MARBLE OR BALL PROJECTOR.

SPECIFICATION forming part of Letters Patent No. 730,258, dated June 9, 1903.

Application filed July 18, 1902. Serial No. 116,067. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. HAGAN, a citizen of the United States, residing at Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented a certain Improvement in Marble or Ball Projectors for Games, of which the following is a specification.

My invention relates to an improvement in marble-projectors for games, and has for its object to provide a device of this description by which a marble may be projected from the projector at any angle desired by the operator and with any degree of force.

With these ends in view this invention consists in the details of construction and combination of elements hereinafter set forth and then specifically designated by the claims.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same, the construction and operation will now be described in detail, referring to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a side elevation of my device, showing the same applied to a game-board; Fig. 2, a plan view of the same; Fig. 3, a vertical section on the line 3 3 of Fig. 1.

In games—such as miniature bowling-alleys, bagatelle, and the like—wherein it is desirable to project marbles at certain objects or cause them to enter pockets a spring-plunger is generally used to actuate and project the marble; but by the use of this stationary spring-plunger the marble can be only projected in one direction, and the purpose of my device is to enable the operator to project the marble in any desired direction while the spring-plunger remains stationary.

In the drawings, A represents a game-board, and B is the plunger, which is secured at the end of the rod C, which rod passes through the end of the game-board and has secured on its outer end a knob or handle D for pulling the plunger backward.

E is a spring interposed between the plunger and the inside face of the end of the game-board, so that when the plunger is pulled backward and released the spring will project the marble forward.

F is a plate secured to the bottom of the

game-board underneath the plunger, and the edges of this plate are turned over, so as to form the guideways G.

H is a spiral runway, which consists of semicircular sheet metal bent in the form of a spiral. One end of this runway H is secured rigidly in a housing I, which housing slides within the guideway formed by the overturned edges G of the plate F. The semicircular runway H, together with the housing I, forms a circular guideway for the plunger B. The other end of the runway H terminates on a level with the bottom of the game-board, so that if a marble is placed within the housing I and the plunger E drawn backward said marble will be projected forward and entering the runway will by centrifugal force revolve around the spiral and be projected from the end H' of the runway onto the board. On account of this runway H being made of thin sheet metal the different turns of the same may be separated one from the other laterally, and to the last turn, or near the end H', is secured a handle H², by which the runway is manipulated. Thus it will be seen that by grasping the handle H² the spiral may be extended so as to project the ball to any desired point on the board or in any other desired direction.

While I have shown the spiral only composed of two turns, it is obvious that the same could be composed of any number of turns, so as to give the spiral greater extension, if desired, and while I have shown the spiral secured to the board by the means illustrated in the drawings it is obvious that the same could be secured in any desirable way without departing from the spirit of the invention.

The advantage of my invention is that I am enabled by my improved projector to convert games which are not purely chance games into games of skill. In fact, my invention is applicable to any game in which marbles are projected, and particularly miniature bowling-alleys, in which it is desirable to be able to aim the ball at a particular pin.

While I have shown the end H' of the spiral terminating so as to shoot the ball or marble along the surface of the board, it is obvious that the end H' may be upturned to a more or less degree, so as to project the mar-

ble upward, and it could then be used for striking objects above the surface of the board.

Of course I do not wish to be limited to the exact construction hereshown, as slight modifications could be made without departing from the spirit of my invention.

Having thus fully described my invention, what I claim as new and useful is—

10 1. In a marble or ball projector for games, a spiral chute consisting of one or more turns, said spiral chute being coiled vertically, a spring-plunger for projecting the marble or ball into the chute, said spiral chute adapted
15 to be extended laterally for the purpose of projecting the marble at any desired angle or direction, as set forth.

2. In a device of the character described, a spiral chute consisting of one or more complete turns, a base, a housing secured to the
20 base, one end of the chute secured in the housing, a spring-plunger guided within the housing, a knob upon the outside of the board for withdrawing the spring-plunger, and a
25 handle secured upon the spiral chute for extending the same laterally, as and for the purpose specified.

3. In a device of the character described, a base, a spiral chute or runway composed of

semicircular thin sheet metal, a plate secured 30 to the base, a housing removably secured to the plate, one end of the spiral chute or runway secured in the housing, the spiral chute or runway forming a true circle, a spring-plunger located within the housing, a knob 35 upon the outside of the base for withdrawing the plunger, and a handle for extending the spiral chute or runway laterally, as and for the purpose specified.

4. In combination with a base, a spiral chute 40 or runway, means for projecting a ball or marble into the spiral chute, a handle for extending the spiral chute laterally, as and for the purpose specified.

5. In combination with a base, a spiral chute 45 or runway, one end of which is removably secured to the base, means for projecting a ball or marble into the spiral chute or runway, and a handle secured to the last turn of the spiral chute or runway for extending the 50 same laterally, as set forth.

In testimony whereof I have hereunto affixed my signature in the presence of two subscribing witnesses.

GEORGE H. HAGAN.

Witnesses:

H. B. HALLOCK,
L. W. MORRISON.