

(No Model.)

H. MISHLER.

MACHINE FOR MAKING PLAYING MARBLES.

No. 471,243.

Patented Mar. 22, 1892.

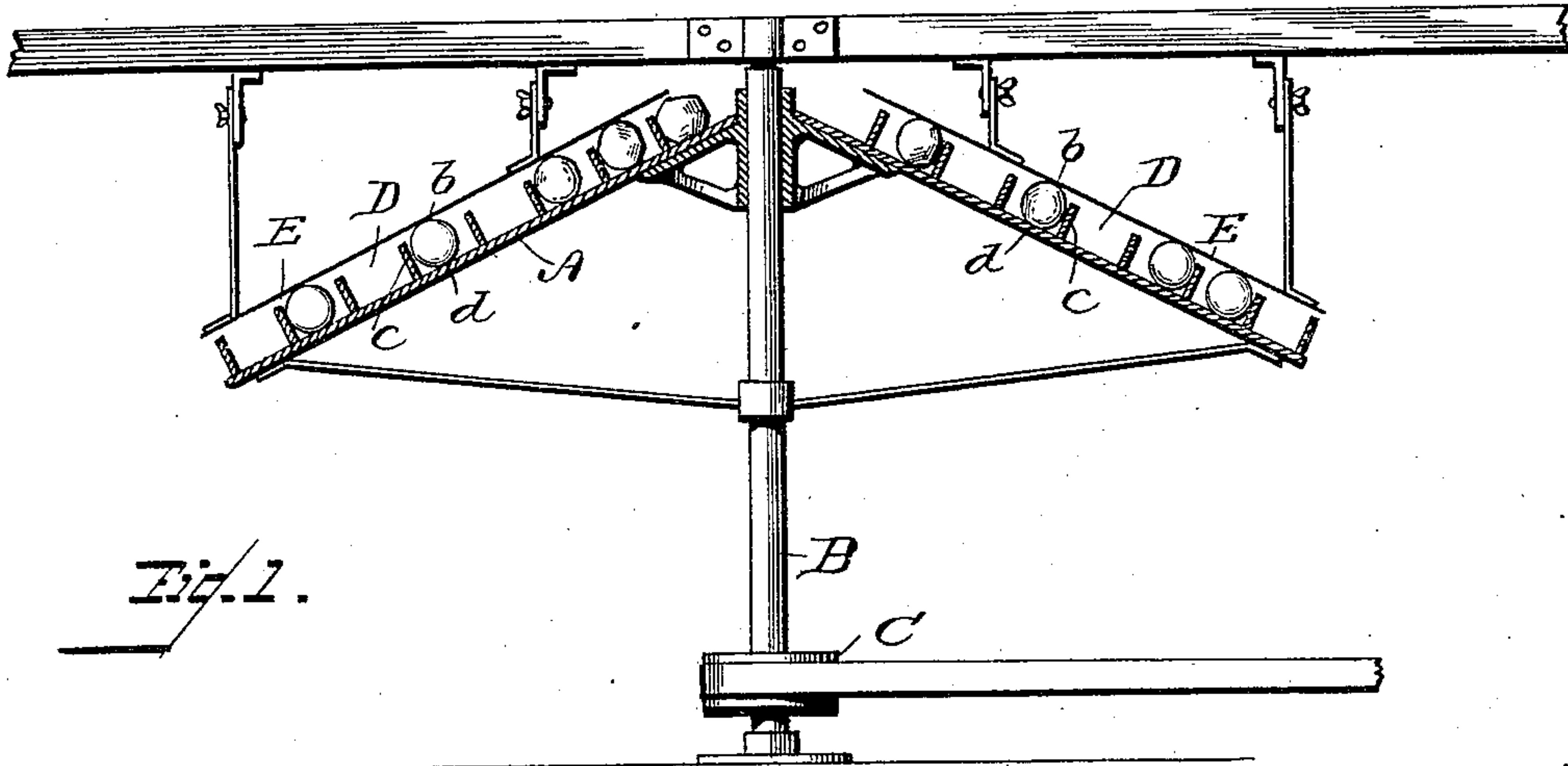


Fig. 1.

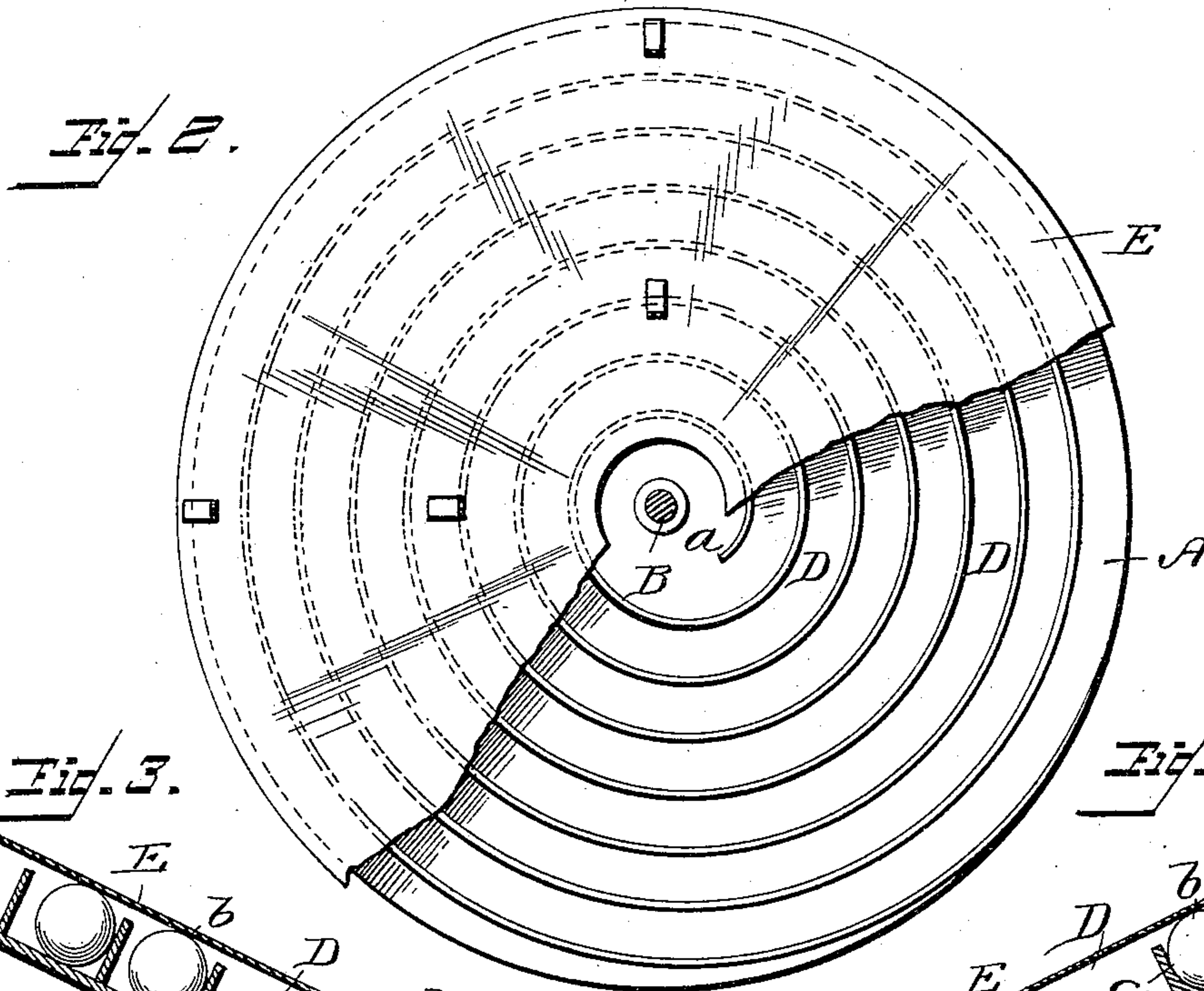


Fig. 2.

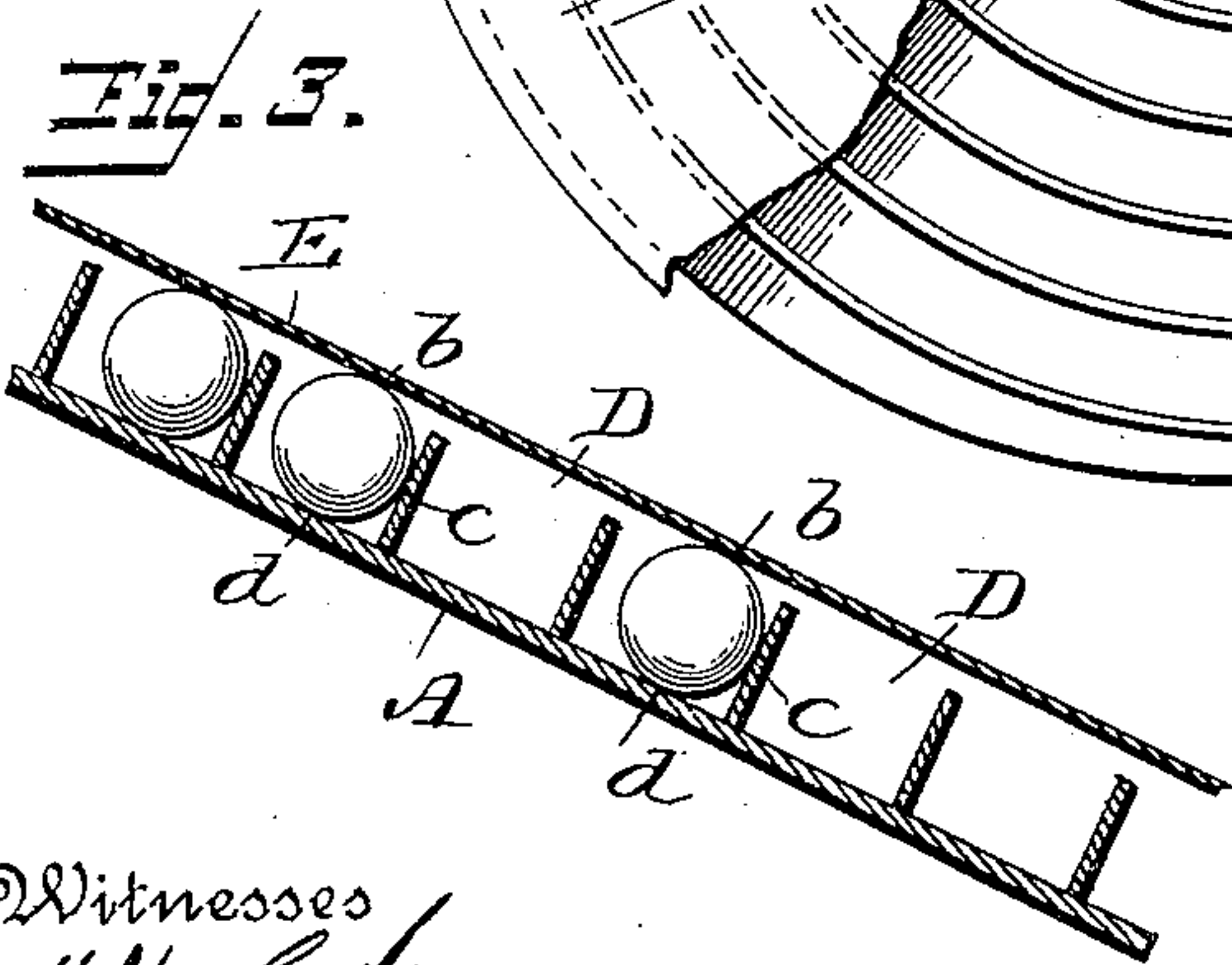


Fig. 3.

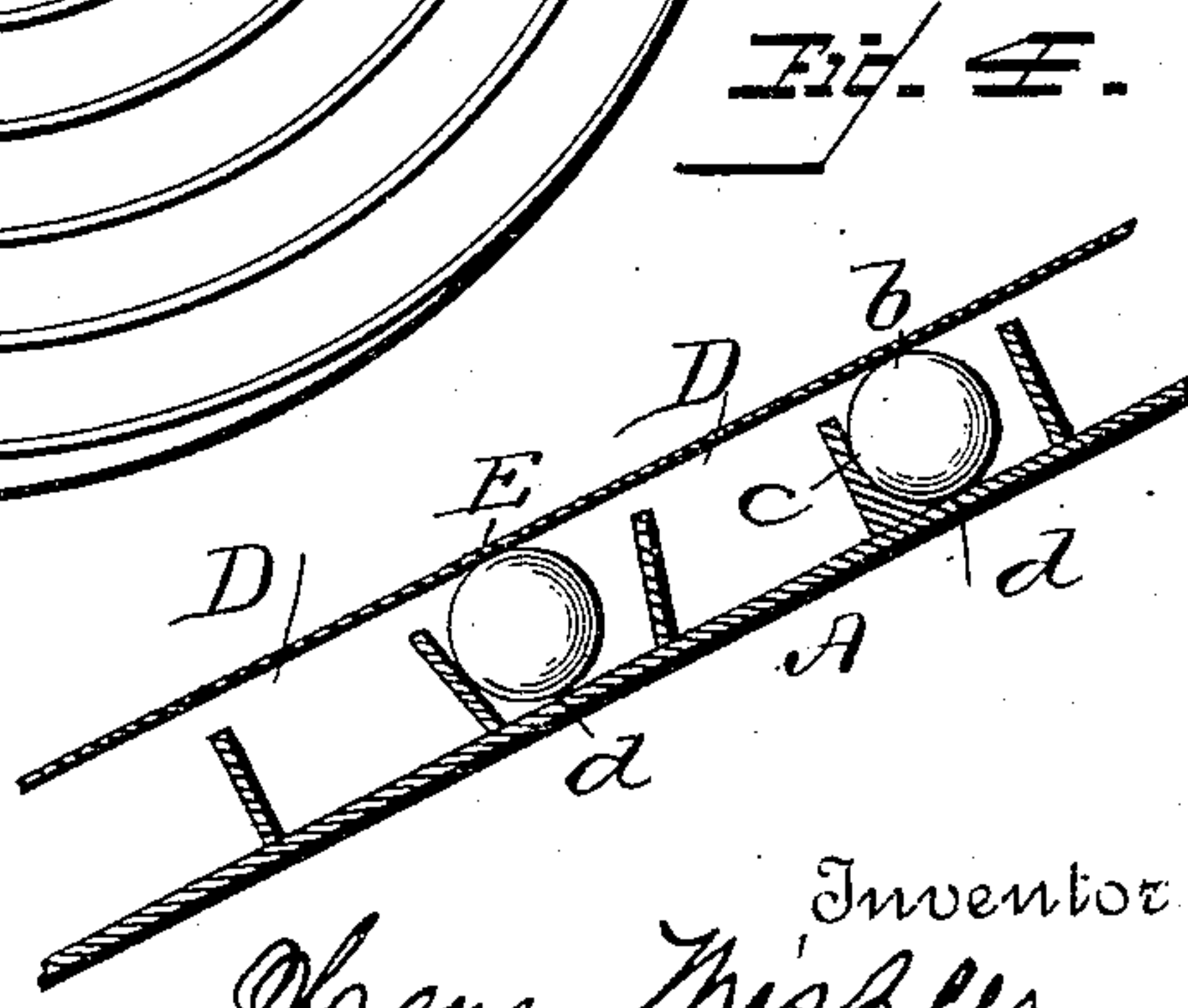


Fig. 4.

Witnesses
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By *his* Attorney
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UNITED STATES PATENT OFFICE.

HENRY MISHLER, OF MOGADORE, OHIO, ASSIGNOR OF ONE-HALF TO MILTON B. MISHLER AND FRANK J. MISHLER, OF SAME PLACE.

MACHINE FOR MAKING PLAYING-MARBLES.

SPECIFICATION forming part of Letters Patent No. 471,243, dated March 22, 1892.

Application filed February 2, 1892. Serial No. 420,051. (No model.)

To all whom it may concern:

Be it known that I, HENRY MISHLER, a citizen of the United States, residing at Mogadore, in the county of Summit and State of Ohio, have invented certain new and useful Improvements in Machines for Making Playing-Marbles; and I do declare the following to be a full, clear, and exact description of the invention, such as 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 the letters of reference marked thereon, which form a part of this specification.

This invention relates to certain new and useful improvements in machines for making playing-marbles; and it has for its object to improve upon the construction and render more efficient in operation that class of marble-making machines in which billets or slugs of plastic clay or other like material are mechanically rolled or formed into perfect marbles or spheres.

To this end and to such others as the invention may pertain the same consists in the peculiar construction and the novel arrangement and adaptation of parts of the machine, all as more fully hereinafter described, shown in the accompanying drawings, and then specifically defined in the appended claims.

The invention is fully illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification, like letters of reference indicating the same parts throughout the several views, and in which drawings—

Figure 1 is a sectional view of a marble-making machine embodying my improvements. Fig. 2 is a plan view, partly broken away. Figs. 3 and 4 are sectional details upon an enlarged scale, which will be more fully hereinafter referred to.

In marble-making machines as heretofore constructed it has been proposed to roll the billet of clay along a grooved surface, the motion which is imparted to the billet being such as to cause it to roll continuously from end to end of the groove or slot. The motion which is thus imparted causes the billet to roll continuously around the same axis, and the result, in case the size of the billet is not

sufficient to entirely fill the slot or groove, is that the billet is elongated and does not assume the form of a perfect sphere. If, upon the other hand, the billet is larger than can be accommodated within the groove or slot, a portion of the surplus material will pass over the edge of the slot and will form a rough point or extension, which will render the marble imperfect.

In my machine, which I will presently proceed to describe in detail, I provide a continuous groove which is square or rectangular in cross-section. The groove is continued spirally around the outer face of a cone, and the billet of clay which is placed within the groove is caused either by the centrifugal force which is imparted by the rapid rotation of the cone or by the rotation of a canvas covering placed directly above the face of the cone to roll from the upper end to the lower end of the groove. As will hereinafter appear, two motions are imparted to the marble, the effect of which will be to cause the same to assume the form of a perfect sphere.

Reference now being had to the details of the invention by letter, A designates a conical surface, which is secured to the vertical shaft B, which passes through an opening at the apex of the cone. This shaft is provided with a suitable band-pulley C, to which motion may be imparted from any suitable source of supply. The upper face of this cone is provided with one or more grooves D, which are square or rectangular in cross-section, as shown, and which wind spirally around the cone from its upper to its lower edge. The size of the groove should be sufficient to admit a billet of clay of a size sufficient to form a marble of the largest size. Directly above the upper face of the cone is arranged a fixed canvas surface E, the under face of which is at all points equally distant from the upper face of the cone. If preferred, the cone may be stationary and the canvas surface may be constructed to rotate above the cone, as the same effect will be thus produced; but in practice I prefer to have the canvas stationary and the cone rotatable, as shown.

It will be observed upon reference to Fig. 3 of the drawings that the groove D, though considerably wider than an ordinary marble,

is shallow, so that a marble of the smaller size which is placed within the groove will extend above the upper edges of the slot and will contact with the lower face of the canvas surface E.

In operation the billets of clay are placed within the open upper end of the groove at *a*, and as the cone rotates the billet will roll from the upper to the lower end of the slot. The centrifugal force imparted by the rotation of the cone will cause the billet to be thrown against the outer side wall of the slot, and the billet will thus have three bearing-points, viz: against the lower face of the canvas surface at *b*, the outer wall of the slot at *c*, and the bottom of the slot at *d*. The contact of the fixed canvas surface will tend to impart to the marble a rotatory motion in the direction of the length of the slot, while the centrifugal force imparted by the rotation of the cone will tend to cause the same to rotate upon an axis having a different plane. The canvas covering or surface should be made adjustable in any convenient manner, so that its distance from the cone can be regulated at will.

I have found that marbles formed in the manner herein described will be in all cases perfect spheres and that marbles of various sizes may be formed with equal facility by the use of the same machine. I do not wish to confine myself to the use of a rectangular slot such as I have described, though I prefer the use of such a slot. In Fig. 4 of the draw-

ings I have shown in cross-section a series of forms of slot such as are adapted for use in connection with the machine.

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

1. In a machine for forming billets of plastic material into spherical form, a conical bed provided with a spiral groove extending around the outer face of the cone from its upper to its lower edge, and means for imparting a rotatory motion to the cone, substantially as and for the purpose described.

2. In a marble-making machine, a cone having a groove rectangular in cross-section extending spirally around the outer face of the cone from its upper to its lower edge, and means, substantially as described, for imparting a rotatory motion to the cone, substantially as and for the purpose described.

3. In a marble-making machine, a rotary cone provided upon its outer face with a groove extending spirally around the same from its upper to its lower edge, and an adjustable canvas surface suspended above the face of the cone, substantially as and for the purpose described.

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

HENRY MISHLER.

Witnesses:

JACOB MISHLER,

FRANK J. MISHLER.