H. J. HELLERT, F. M. MÜLLER & C. A. MEYER.

Bowling-Alley.

No. 204,972. Patented June 18, 1878.

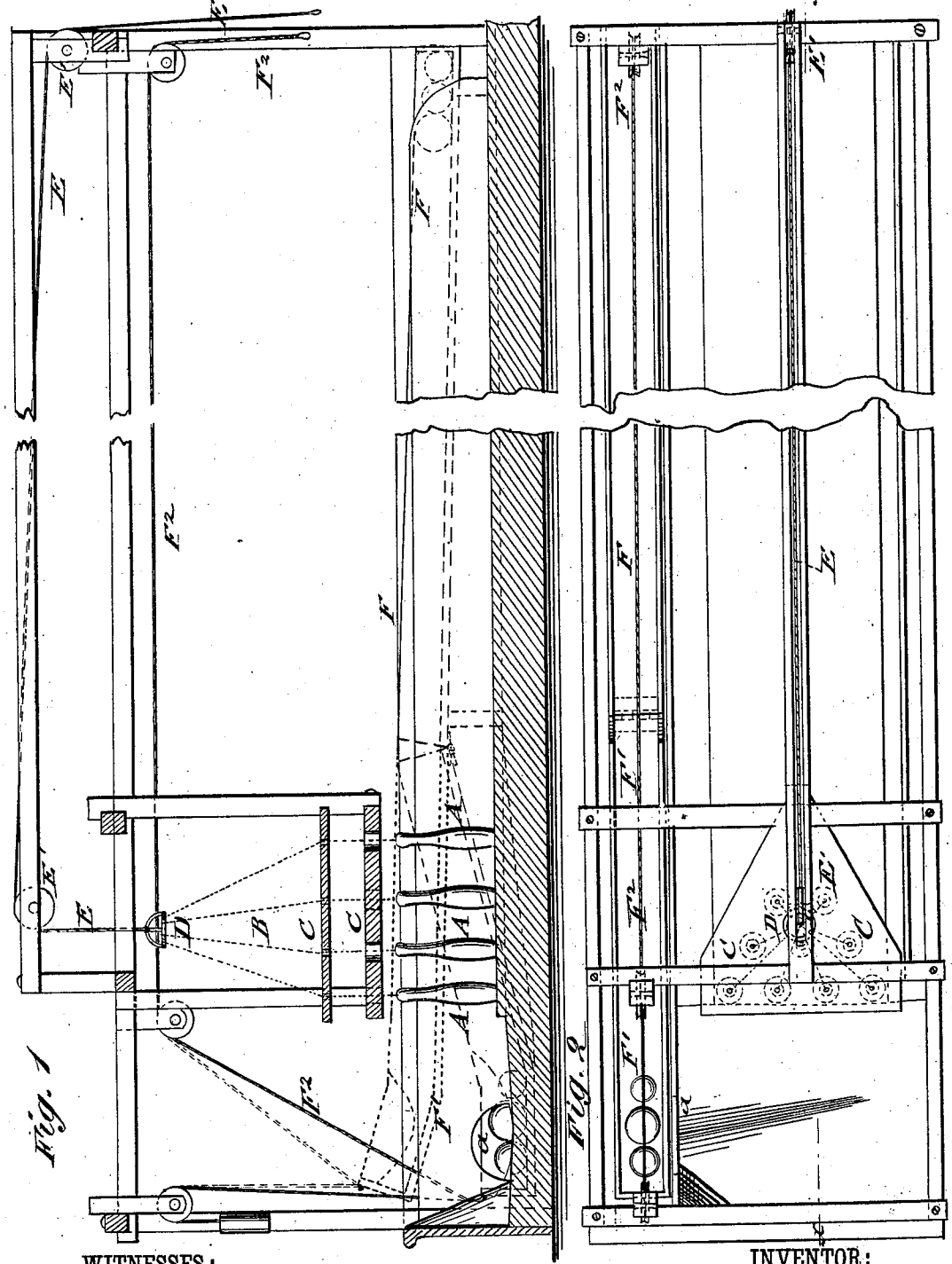

Fig. 1

Fig. 2

WITNESSES:

C. Neveux

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UNITED STATES PATENT OFFICE.

HENRY J. HELLERT, FRANCK M. MÜLLER, AND CHARLES A. MEYER, OF VINCENNES, INDIANA.

IMPROVEMENT IN BOWLING-ALLEYS.

Specification forming part of Letters Patent No. **204,972**, dated June 18, 1878; application filed April 26, 1878.

To all whom it may concern:

Be it known that we, HENRY J. HELLERT, FRANCK M. MÜLLER, and CHARLES A. MEYER, of Vincennes, in the county of Knox and State of Indiana, have invented a new and Improved Bowling-Alley, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a vertical longitudinal section of our improved bowling-alley on line *x x*, Fig. 2; and Fig. 2, a plan view of the same.

Similar letters of reference indicate corresponding parts.

This invention relates to such improvements in bowling-alleys that the pins may be set up and the balls returned in quick and convenient manner by the players themselves, without requiring any person to attend to the pins and balls.

The pins are set up by our device in a more exact manner than it can be done by hand, and also in less time, so that a greater number of games may be played in a given time.

The invention will first be described in connection with the drawing, and then pointed out in the claim.

Referring to the drawing, A represents the pins of our bowling-alley, which are attached at the top to strings B, of leather or other suitable material, the strings being passed through two horizontal and triangular boards, C, and attached to a ring-frame, D, above the boards. The perforations of the lower board are made large enough to admit the pins to be drawn into the same, while the perforations of the upper board are only large enough to admit the easy passage of the strings.

The boards are arranged at such a distance from each other that when the pins are raised and drawn through the holes of the lower board, they strike against the upper board, and are thereby righted or brought in their proper place, ready to be lowered again. The raising and lowering of the pins is accomplished by a cord, E, that is passed from the suspension-ring D over pulleys E′ to the point where the players throw the balls, so that they can raise the pins and set them up themselves by pulling the rope. By lowering the rope the pins are returned into proper position on the alley in more exact manner than if set up by hand.

The strings are of sufficient length to give free play to the pins, so that they all fall evenly on the alley at the same time. The length of the strings may be adjusted on the ring by suitable buckle attachment.

The balls are returned to the box at the head of the alley along an inclined gutter, F, by means of a swinging gutter-section, F^1, that is hinged to the rear part of gutter F, and made of angular shape, it being raised or lowered by means of a rope, F^2, attached to the rearmost end of the gutter-section F^1. The rope F^2 is passed over guide-pulleys to the place where the players throw the balls, so that they can readily return the balls themselves.

When the hinged gutter-section is lowered its angular portion rests on the floor, and takes up the balls through an opening, *a*, of the partition-wall that separates the gutter from the alley. The portion of the alley back of the pins is slightly lowered below the portion on which the pins stand, and inclined or channeled toward the opening *a*, so that all the balls are automatically conducted to the same. The balls are thereby compelled to drop into the hinged double section, which is then lifted by the connecting-rope. Any number of balls may be brought back at once, and thereby the balls be returned, so as to keep pace with the game, no matter how swiftly it may be played.

By lifting the hinged gutter-section the same is brought up to the same inclination with the gutter F, the balls being started at the same time, so as to be returned in quick and easy manner.

The hinged gutter-section is balanced by a cord, pulley, and weight arrangement, so as to facilitate the lifting of the same for returning the balls.

The setting up of the pins and the returning of the balls forms an amusement and bodily exercise for the players, and not only increases the pleasure of the game, but also expedites the same, so that a greater number of games can be played, accommodating a number of players, and furnishing a corresponding increase of the profits to the proprietor. The

saving resulting from the working of the bowling-alley without a boy or man to set up the pins and return the balls pays readily for the larger outlay of the alley.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

In a bowling-alley, the combination of a hinged angular and balanced gutter-section at the rear of the gutter with an operating-rope attached to the gutter-section, and with an inclined and channeled rear part of the alley, and with a conducting-opening in the partition between alley and gutter, substantially as set forth.

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Witnesses:
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