

(No Model.)

M. VON OEYEN, Sr.  
BOWLING ALLEY.

No. 460,025.

Patented Sept. 22, 1891.

Fig. 1.

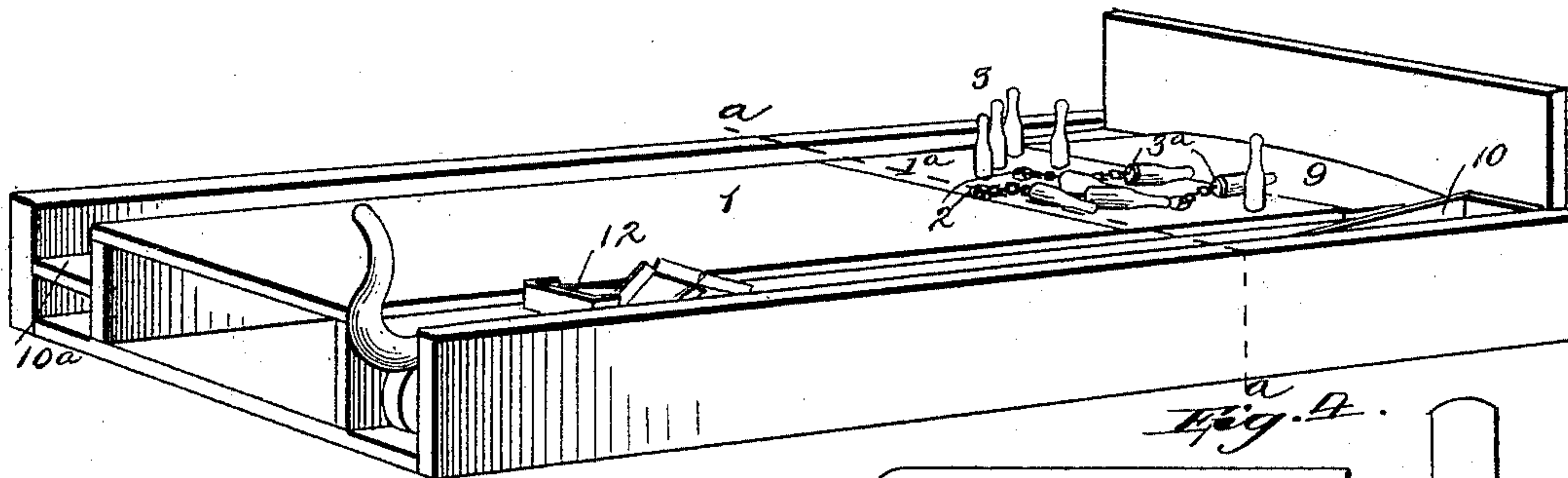


Fig. 2.

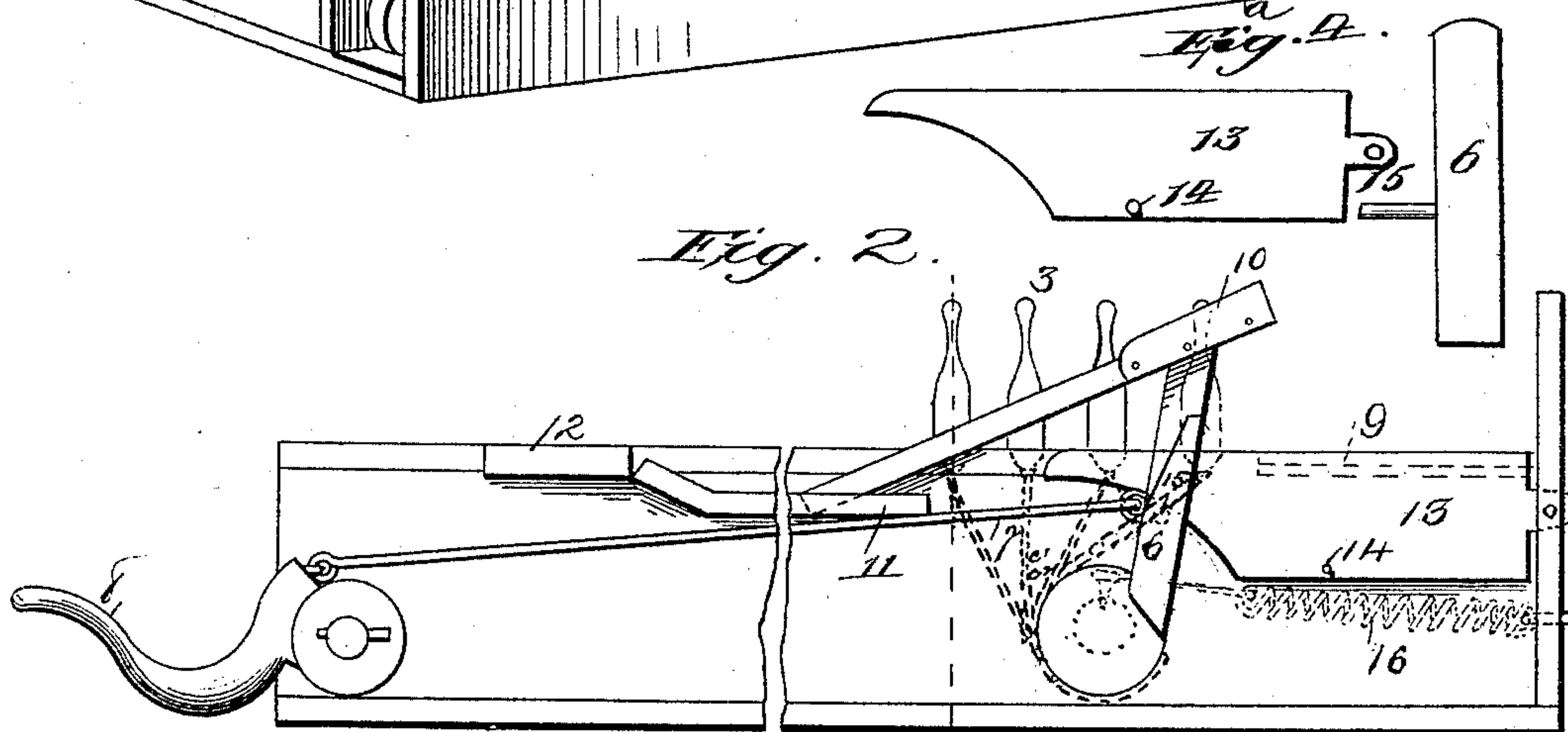
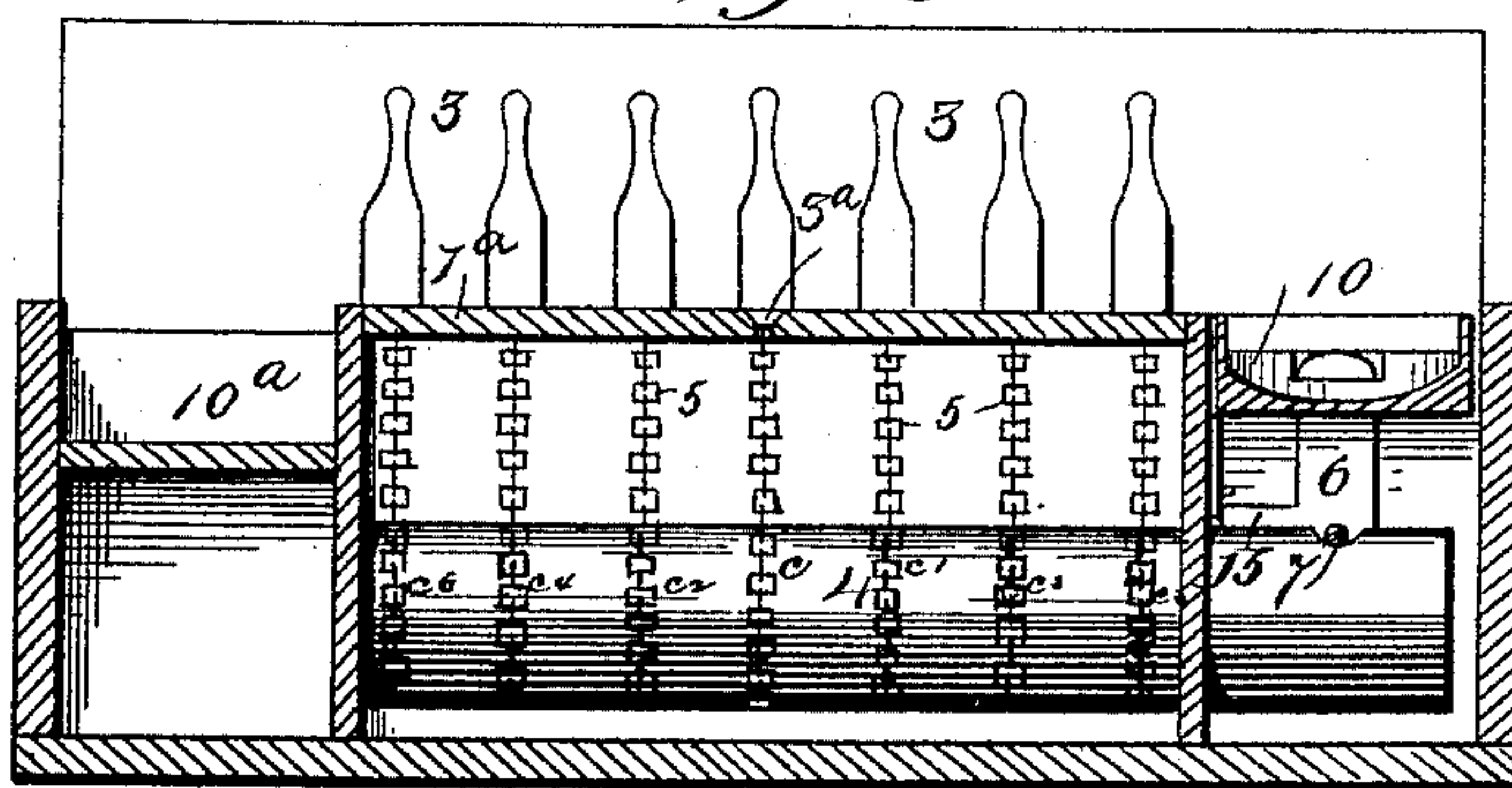


Fig. 3.



WITNESSES

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# UNITED STATES PATENT OFFICE.

MAX VON OEYEN, SR., OF CHICAGO, ILLINOIS.

## BOWLING-ALLEY.

SPECIFICATION forming part of Letters Patent No. 460,025, dated September 22, 1891.

Application filed September 5, 1890. Serial No. 364,051. (No model.)

*To all whom it may concern:*

Be it known that I, MAX VON OEYEN, Sr., a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Bowling-Alleys; and I do hereby 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.

My invention relates to a new and improved bowling-alley which can be constructed in miniature size as a game or toy for use at home in private families, or can be applied to the usual full-sized bowling-alley, and my invention will be hereinafter fully described and claimed.

Referring to the accompanying drawings, Figure 1 is a top perspective view of my new and improved bowling-alley. Fig. 2 is a side view of the same with the outer side piece on that side removed, showing the end lever pressed down and the pivoted movable chute raised. Fig. 3 is a transverse vertical sectional view taken on line *a a* of Fig. 1. Fig. 4 illustrates in detail the guard-plate 13 and the inner side of the arm 6.

The same numerals of reference indicate corresponding parts in all the figures.

Referring to the several parts by their designating-numerals, 1 indicates the floor of the bowling-alley. I have shown in the accompanying drawings and will describe my invention as arranged in miniature for home use; but it is arranged in precisely the same manner for the regular bowling-alleys. The section 1<sup>a</sup> of the floor at the far end of the alley is formed with a series of small openings 2, which are preferably conical in shape. The ten-pins 3 have a conical projection 3<sup>a</sup> formed on their lower end and adapted to fit loosely in the said holes. Beneath the section 1<sup>a</sup> of the floor is mounted transversely in bearings a movable roller 4. To the lower end of each ten-pin is secured the upper end of a short chain 5, and the lower ends of these chains are secured, as shown, to the roller 4. The projecting end of this roller 4 has secured to it a short arm 6, and to this arm is attached one end of a rod or stout wire 7. This rod projects back to the end of the alley and is there pivotally secured to a pivoted hand-lever 8.

The chains 5 are of different lengths, as shown in *c, c', c<sup>2</sup>, c<sup>3</sup>, c<sup>4</sup>, c<sup>5</sup>, and c<sup>6</sup>*, so that when the lever-handle is pulled forward and pressed down the rod 7 turns the drum 4 toward the operator and winds the chain partly around the drum. The chains will then be tightened, so as to draw and hold the lower ends of the ten-pins in position in the series of openings in the board 1<sup>a</sup>. When the hand-lever is raised, the chains are of course slackened. When in that position the ten-pins are struck with the ball rolled from the other end of the alley and they are free to fall, as shown in Fig. 1 of the drawings. The balls are rolled from the outer end of the alley, and after striking the pins roll upon the board 9 at the rear end of the alley. The upper surface of this end board is inclined in the direction clearly shown in Fig. 1 of the drawings, so that the balls rolling upon it will by their own weight run down either into the inclined way 10<sup>a</sup> to the left-hand side, down which they will run until they reach the players at the other end of the alley; or will roll off the end board 9 at the right-hand side thereof and fall into the upper end of the pivoted movable chute 10. This chute 10 is pivoted at its upper end to the free end of the arm 6 of the roller 4. The free end of the chute rests and slides in the fixed end of the spring-chute 11. This spring-chute 11 is formed, preferably, of spring metal, and its rear free end is curved upward and formed with a pocket 12. When the ten-pin ball rolls off the right-hand side of the end board 9 into the chute 10, the operator presses down the handle of the lever 8. This one movement will at the same time reset the ten-pins which may have been knocked over by turning the roller to which their connecting-chains are attached and will raise the arm 6 and elevate the rear end of the chute 10, while sliding its free end forward along the spring-chute 11. The ball contained in the chute 10 will thus be propelled forward and will run up the incline at the rear end of the chute 11 and fall into the pocket 12 at the free end of the same, from which it can be readily removed by the player.

It will be seen that owing to the spring action of the free upper end of the chute 11, in which the pocket 12 is formed, the said



end will yield or vibrates slightly up and down when the ball runs up the incline and falls into the pocket 12, thus reducing the shock or jar caused by the sudden stoppage of the rolling ball, causing the pocket end of the chute to wear much longer, and effectually preventing the ball from accidentally rolling out of the pocket.

At the right-hand end of the board 9 is pivoted at its outer end a thin metal guard-plate 13. When the arm 6 is lowered in its normal position, it strikes against a projecting pin 14 on that side of the guard-plate, pressing the guard-plate down so that its upper edge is below the level of the upper surface of the incline board 9. When the arm 6 is raised, however, to raise the ten-pins 3 and the chute 10, a pin 15 on the side of the arm slides under the curved free end of the guard-plate, raising the plate above the level of the end of the incline board 9. The object of this construction is that if a ten-pin ball roll down the right-hand end of the board 9 while the chute 10 is raised the guard-plate 13, which is thus automatically raised by the movement of the chute and the arm 6, will prevent the ball from rolling down in the space below the arm 6, where it would be difficult and inconvenient to reach it. At the same time when the arm 6 comes back as the chute is being lowered the arm striking against the pin 14 presses the plate 13 down out of the way, and at the same time the edge of the descending chute strikes against the ball and drives it over and off the other end of the incline board 9 into the left-hand chute 10<sup>a</sup>, down which it will roll by its own weight to the player's position.

A spiral spring 16 is connected to the roller 4 and operates to turn the roller back to its normal position as soon as the hand-lever 8 is released.

From the foregoing description, taken in connection with the accompanying drawings, the construction and operation of my invention will be readily understood. It will be seen that my new and improved bowling-alley is simple, strong, and durable in its construction; that it can be manufactured or applied to old bowling-alleys at a comparatively small cost, and that it is exceedingly convenient and satisfactory in its operation. The move-

ment of the hand-lever 8 both sets up the pins that have been knocked down and restores the ball to its place.

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

1. In a ten-pin alley, the combination, with an incline board 9, arranged at the far end of the alley, of the pivoted arm 6, the chute 10, pivoted at its upper end to the free end of the arm, the spring-chute 11, formed with a cup 12 at its free rear end, the hand-lever 8, and the cord or wire connecting the hand-lever with the arm 6, substantially as set forth.

2. The combination, in a bowling-alley, of the incline board 9, arranged at the far end of the alley, the pivoted spring-actuated arm 6, the chute pivoted at its upper end to the free end of the said arm, the spring-chute 11, having the cup 12 formed at its free rear end, the hand-lever 8, and the cord or wire connecting this lever to the arm 6, substantially as set forth.

3. The combination, in a bowling-alley, of the incline board 9, arranged at the far end thereof, the guard-plate 13, pivoted at its outer end and having the side pin 14 and the curved free end, the spring-actuated arm 6, having the side pin 15, the chute 10, pivoted at its upper end to the free end of the arm 6, the spring-chute 11, having the cup 12 at its free end, and the lever 8, connected to the arm 6, substantially as set forth.

4. The combination of the board formed with a series of openings, the inclined board 9, arranged at the far end of the alley, the spring-actuated roller arranged transversely beneath the apertured board and having at its projecting end the arm 6, provided with a side pin 15, the inclined guardway 10<sup>a</sup>, the pivoted guard-plate 13, having the side pin 14 and the curved free end, the chute 10, pivoted at its upper end to the free end of the arm 6, the spring-chute 11, having the pocket 12 at its free end, and the hand-lever 8, connected to the arm 6, substantially as set forth.

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

MAX VON OEYEN, SR.

Witnesses:

ALFRED KLINKER,  
CHAS. GLÄSNER.