

(No Model.)

C. W. RODMAN.
TENPIN BALL.

No. 520,898.

Patented June 5, 1894.

Fig. 1.

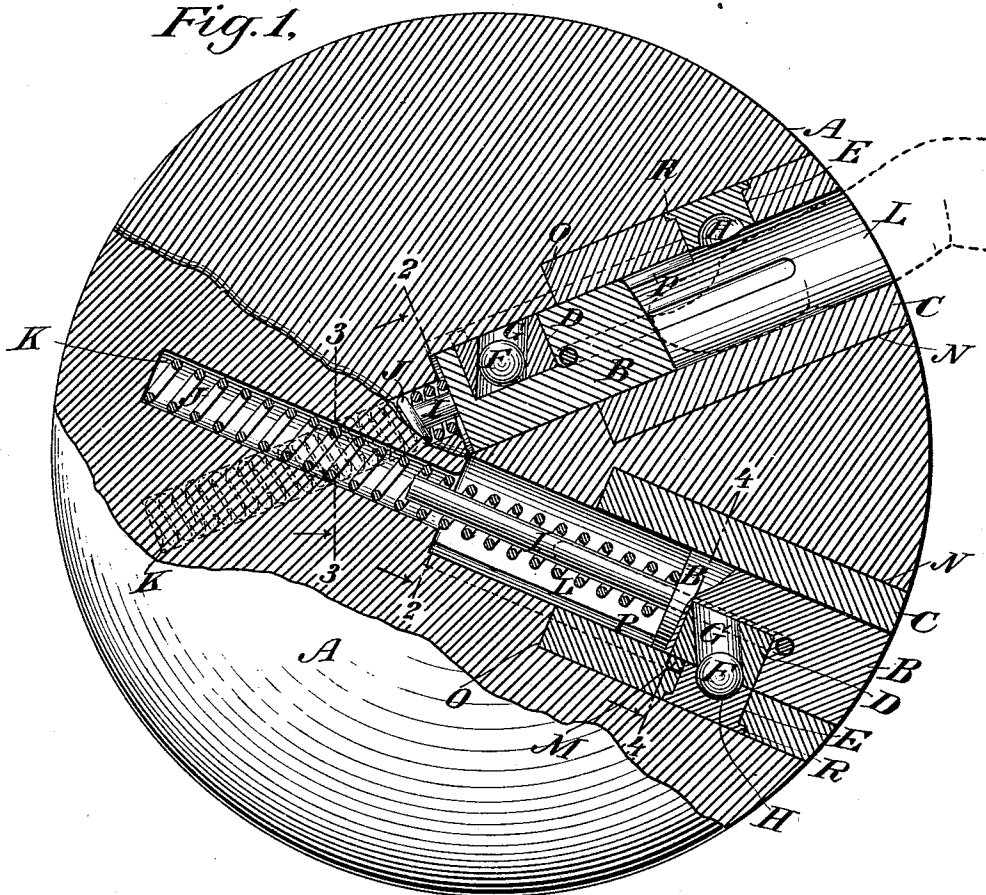


Fig. 2.

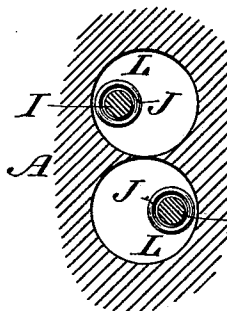


Fig. 3.

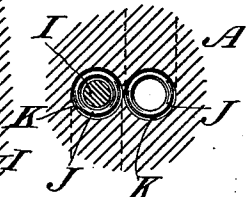


Fig. 4.

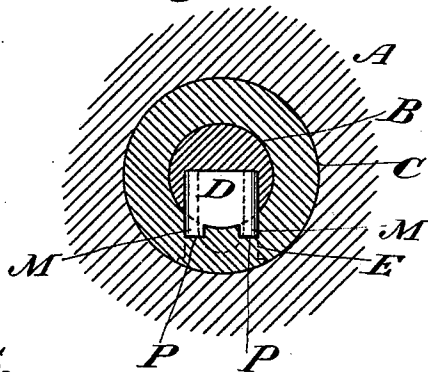


Fig. 5.



Witnesses:-

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UNITED STATES PATENT OFFICE.

CHARLES W. RODMAN, OF QUEENS, NEW YORK.

TENPIN-BALL.

SPECIFICATION forming part of Letters Patent No. 520,898, dated June 5, 1894.

Application filed March 17, 1894. Serial No. 503,975. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. RODMAN, a citizen of the United States, residing at the town of Queens, county of Queens, State of New York, have invented and made new and useful Improvements in Tenpin-Balls; and I do hereby declare that the following is a full, clear, and exact description and specification of the invention, reference being had to the accompanying drawings, forming part of the same.

It has been the custom heretofore to construct ten pin balls, with holes to place the fingers in, in order to secure a firm hold of the ball. These holes throw the ball out of balance so that they roll irregularly and as the balls are made of lignum vitæ, (a wood without any regular grain) the edges of the holes become broken and ragged by use and they then tear the fingers of the bowlers.

My present invention removes all these imperfections, and it consists in certain devices fully described and claimed in this specification.

In order that those skilled in the art may understand, construct and use my invention I will proceed to describe it, referring to the drawings, in which—

Figure 1 is a view of a ten pin ball partially in section, showing my invention. Fig. 2 is a section of a portion of the ball on angular line 2. 2. of Fig. 1. Fig. 3 is a section of a portion of the same on line 3. 3. of Fig. 1. Fig. 4 is a section of a portion of the ball on line 4. 4. of Fig. 1. Fig. 5 is a view of a bushing D. with its lugs M. M.

A. represents a ten pin ball.

L. represents the usual finger holes drilled into the body of the ball angularly toward each other, from the circumference inward. N. represents an enlargement of these holes inward to points or shoulders O, and are provided with bushings C, as shown. The finger holes extend through the bushings C, beyond the shoulders O., to the section lines 2. 2., or until the circumferences of the holes practically meet each other. Beyond the lines 2. 2. holes K. extend to points near the opposite sides of the ball, but eccentric to the center lines of finger holes L., and they cross each other at about lines 3. 3., of Fig. 1., so that springs and pins (to be hereinafter described)

may pass each other without interference. These extension holes K. and their position at the points or lines 2. 2., and 3. 3., are shown particularly in Figs. 2 and 3.

B. are plugs, which fit the finger holes L.; they are provided at their inner ends with pins or tubes I., of proper length, to guide and direct the operation of spiral springs J., which springs take onto and surround the pins I and bear against the inner ends of plugs B., and also against the bottoms of holes K. These pins I., are also affixed to the plugs B., eccentrically to their center lines, to agree with the eccentric holes K.; thus the pins and springs, pass each other without interference, so that the bowler can compress the springs by inserting his fingers and can push the plugs B. inward; the springs react and force the plugs to their extreme outward position when the fingers are removed, as in bowling the ball on the alley.

Fig. 1 shows the upper finger hole with the finger inserted and the plug B in its extreme inward position, on its bottom shoulder and with the spring J., compressed. The lower finger hole is shown with the plug B. in its extreme outward position, with the outer surface of the plug B even with the surface of the ball.

I will now describe the locking mechanism which is arranged to secure the plugs B. in their extreme outward positions and to release them at proper times so that the bowler can push them inward to grasp the ball and roll it on the alley. Through bushings C, from the outer circumference to the inner, metal cups E., are inserted, having stops or shoulders R., to secure them in fixed position with their inner faces, in line with the surfaces of finger holes L.; the inner faces of these cups E. are cupped out, to fit, and allow in each, one half of a metal ball F. to rest, when the ball is in proper position for it to roll into it. In plug B., are inserted cups D, provided with holes G., bored angularly inward from their outer surfaces to their inward or rear positions, and of such diameter that metal balls one in each, may and will roll back and forth, when the ball is in proper position for them to do so, by gravity. These holes G. are more than deep enough each to receive the whole of its own metal ball F., so that

when the finger holes and their appliances are turned upward these metal balls F., will run into and be held by the holes G. entirely out of the way of the cups E. so that the plugs B. may be pushed inward, and when the said finger holes are turned downward these metal balls F., roll downward and into the cups in E., one half of the ball F., only entering said cups, the other half being still in the hole G. and fitting it, operatively. The plugs B. are locked against any outside thrust or blow, and the ten pin balls may be rolled on the alleys smoothly without injuring the edges of the finger holes, and without shock by the striking of the edges of the finger holes on the alley.

The parts contained in the finger holes, by my invention, are constructed and arranged to insure a perfect balance of the ten pin balls. It will be readily understood that this may easily be done, and that it is an important feature. Provision is made to prevent the plugs B. from turning in their respective finger holes by a cross pin running in grooves in the said holes.

The lugs M. M. shown particularly in Figs. 4 and 5 and in Fig. 1., as to the lower finger

hole apparatus, run in grooves P. which extend from lines 2. 2., to the outer surfaces of the cup bushing E., which forms a stop and a limiting device for the outward movement of the plugs B.

The operation of my invention will be quite apparent to those skilled in the art without further explanation.

Having now fully described my invention and the manner in which I have embodied it, what I claim as new, and as my invention, is—

1. In a ten pin ball, provided with finger holes, the plugs B, arranged to slide in said holes, and means, whereby said plugs are automatically locked and unlocked to and from the ball, by change of position, all constructed and arranged to operate as and for the purposes specified.

2. The combination with a ten pin ball, of finger holes, automatic closing plugs, closing springs; and means for locking and unlocking said plugs in their holes, all combined to operate substantially as specified.

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Witnesses:

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