

(No Model.)

W. KRUMBECK.
TENPIN.

No. 514,323.

Patented Feb. 6, 1894.

Fig. 1

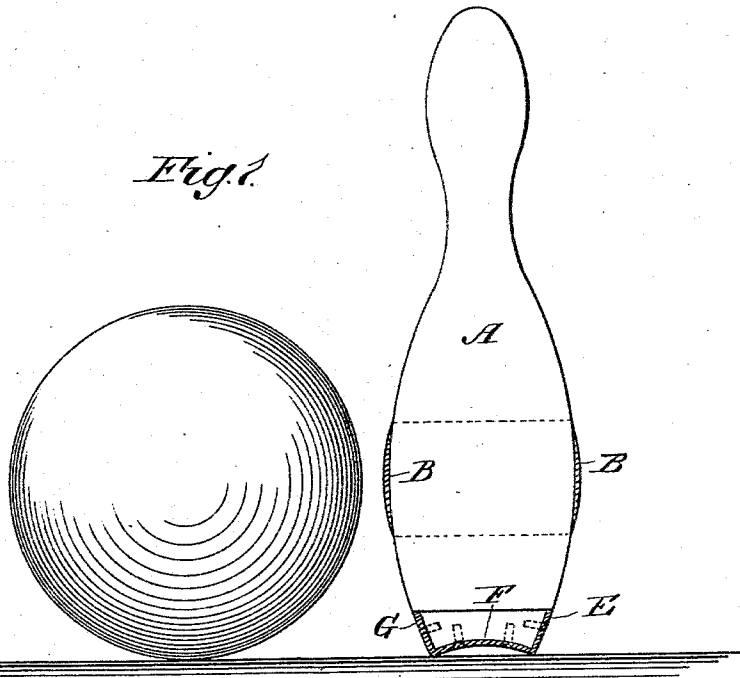


Fig. 2

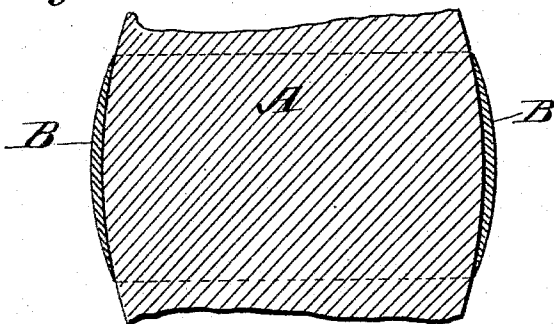
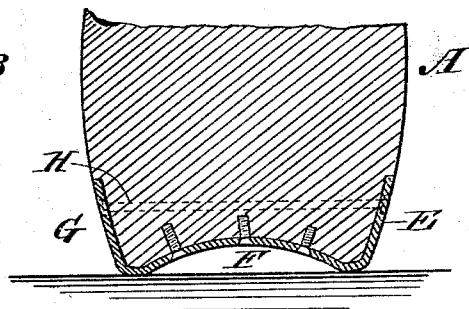


Fig. 3



WITNESSES:

Hermann Kitter
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UNITED STATES PATENT OFFICE.

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TENPIN.

SPECIFICATION forming part of Letters Patent No. 514,323, dated February 6, 1894.

Application filed March 8, 1893. Serial No. 465,070. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM KRUMBECK, a citizen of the United States, and a resident of the city of Brooklyn, county of Kings, and State of New York, have invented a new and useful Improvement in Tenpins, of which the following is a specification.

My invention relates to an improvement in the tenpins now used in the game designated as "bowling."

The object of my improvement is to prevent the battering out of shape, the destruction of the equilibrium and the splintering, of the wooden tenpins now in use, which occur both in the body and base of the said tenpins, caused after a short period of use by the impact of the heavy lignumvitæ balls now used in the game.

My invention consists of a metallic girdle secured to the tenpin in a position to receive the concussion of the player's ball with the tenpin, and also in providing the tenpin with a metallic base for purposes hereinafter described.

Figure 1 represents a side view of my improved tenpin, with my improvements showing in section. Fig. 2 is a vertical section of a part of the body of my improved tenpin, showing one form of applying my improved metallic girdle. Fig. 3 is a vertical section of a portion of the lower portion of a tenpin provided with the metallic base for the tenpin I design to use.

In Fig. 1, A, represents a tenpin, B a girdle of steel, or other metal, forced upon the tenpin, while the said metallic girdle B is hot, of such shape that its inner surface will align with the convex contour of the portion of the tenpin, on which it is placed, and resulting from the natural laws, following the contraction of said metallic girdle when cooled, will tightly bind upon the portion of tenpin designed to be protected from the impact of the player's ball. The outer surface of the girdle B, is also convex, but its curve is struck with a shorter radius than the inner surface as shown in Figs. 1 and 2, to provide an increased thickness of the girdle B on its center line, but to meet the inner curve, at the top and bottom lines of girdle B, forming a thin edge at their junction at the top and bottom of

girdle B. Instead of applying the girdle B in a heated state as described and allowing it to bind upon the tenpin by contraction in cooling, I have also deemed it necessary to mention that this girdle B can be forced to place while cold, the elasticity of the forced on girdle holding it to place, and if desirable screws or through rivets be employed to hold it permanently in position.

By the forcible displacement of the equilibrium of the tenpin, by the impact of the player's ball and sundry other causes the bases of the wooden tenpins also become badly chipped after a short usage, and will not allow the tenpins to stand truly vertical, so that a player cannot tell whether the tenpins are truly spotted or not. To obviate this I have designed a metallic base E made convex on its under portion F to increase the stability of the superincumbent pin, and having an upwardly and outwardly projecting flange G. The lower portion of wooden tenpin is recessed circumferentially, enough, to receive this flange G, so that the outer face of flange G, will be in perfect alignment with the contour of body of tenpin, as best shown in Fig. 3. I fasten this metallic base, to the lower annularly recessed portion of tenpin, by screws passing through the convex portion of base E into the body of tenpin, and by through rivets H, passing through the flanged portion G of base E as shown by dotted lines, in Fig. 3.

The girdle is designed preferably to be made of steel, not more than one-eighth inch thick at its central and thickest portion. The base may be cast of any amalgamation of metals giving toughness and ability to stand hard usage, as brass; cast iron being deemed unsuitable on account of its brittleness.

By the attachment of my invention to old sets of tenpins they can be made as stable and serviceable as when new.

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

1. A metallic girdle B, shrunk on the body of a wooden tenpin, said metallic girdle being thickest at its median portion, and running to a thin edge at its top and bottom lines, in combination with a metallic base E, secured to the lower portion of the said tenpin, having

a convex portion F, integral with an annular flange G, all substantially as shown and described.

2. A metallic girdle B, fastened to the body
5 of a wooden tenpin, its inner surface aligning with the contour of the portion of tenpin on which it is placed, and its outer surface struck with a shorter radius than the inner surface, to provide an increase of the thickness of said
10 metallic girdle on its median line, all, substantially as shown and described.

3. In combination with a wooden tenpin, a metallic base fastened thereto, the said metallic base, being convex on its lower portion,

and provided with an annular flange, that is
15 fitted in a circumferential groove, formed on the lowermost portion of the tenpin, the outer surface of said annular flange aligning with the contour of the lower portion of the body
20 of the tenpin, all as shown and described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 3d day of March, 1893.

WILLIAM KRUMBECK.

Witnesses:

HERMANN HILKER,
RUDOLPH MINOR.