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1,679,072

J. R. CARMICHAEL

BOWLING PIN

Filed Aug. 16, 1927

Fig. 1.

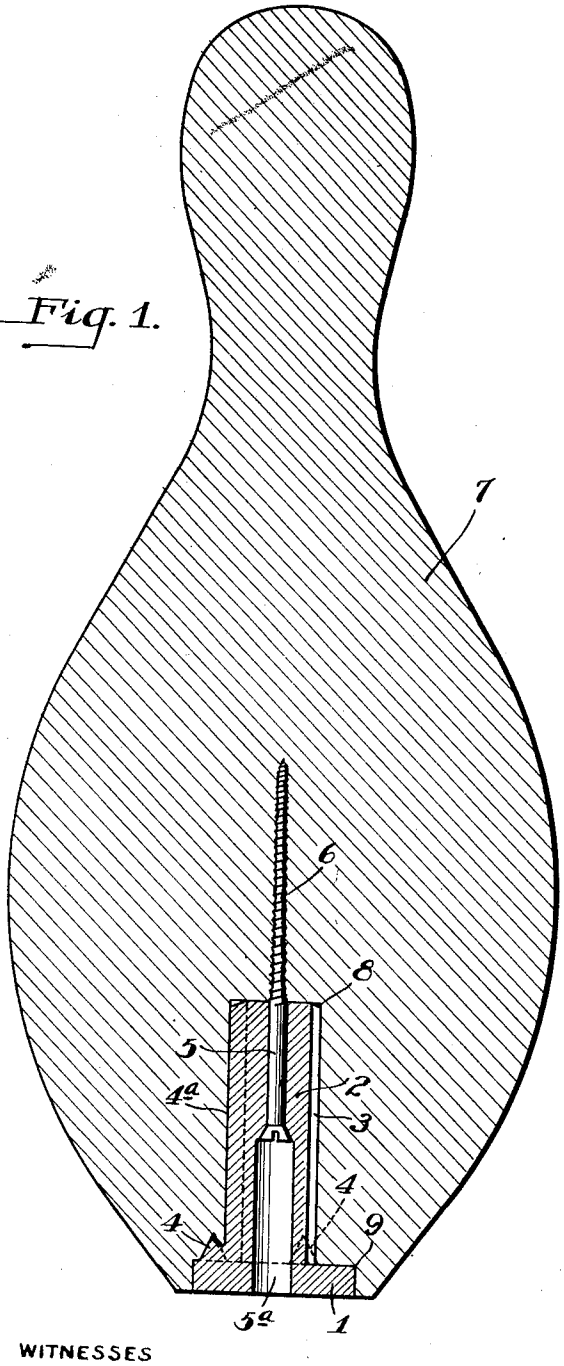


Fig. 3.

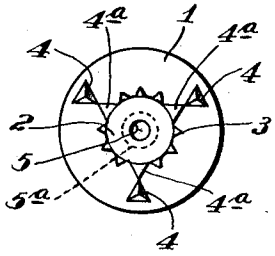
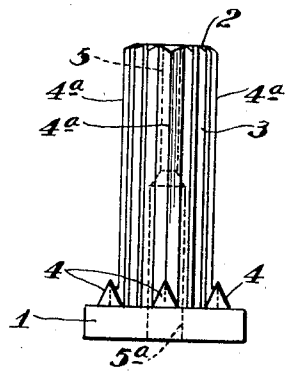


Fig. 2.



WITNESSES

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UNITED STATES PATENT OFFICE.

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BOWLING PIN.

Application filed August 16, 1927. Serial No. 213,251.

This invention relates to bowling pins.

The objects of the invention are to provide means for preventing breakage, and to reduce wear of the base of wooden bowling pins, whereby the life of such pins is greatly increased.

In the various bowling games, such as regulation ten-pins, or that employing the so-called duck pins, it is a prime requisite to have the pins properly centered in their positions and to have them rest on an even base. The former requirement is frequently secured now by the use of pin setting machines, employing mechanically operated pegs which are accurately centered in the proper places, and which when in an operative position engage centrally drilled holes in the bottoms of the pins. After the pins have been thus set up, the pegs are mechanically lowered below the alley level, leaving the pins free.

Ordinary wooden bowling pins are subjected to very sudden and severe shocks, which may do damage to the pins, but even so, their useful life would be relatively long were it not for the wear and chipping away of the base. The damage done to this portion often may prevent accurate positioning; but what is more important, it may cause the pin to be unbalanced, which is highly undesirable, and the pins may in consequence be quite short-lived.

The invention comprises the use of a non-chipping, wear-resisting, shoe adapted to be inserted in the base of a bowling pin or similar article of the usual well known construction. Means are provided for securely retaining this insert in the pin and for preventing any type of relative movement between the two. Furthermore the insert may be adapted to be used with the ordinary mechanical pin setting devices now commonly employed.

In the accompanying drawings, Fig. 1 represents a vertical longitudinal section through an ordinary wooden bowling pin showing the improved shoe device held in place by a screw; Fig. 2 an elevation of the shoe device; and Fig. 3 a plan view of Fig. 2.

According to the invention the insert comprises a circular base or shoe portion 1, and a generally cylindrical shank portion 2, forming an integral structure with the base. The shank is provided exteriorly with a plurality of longitudinal angular flutings 3, and rising from the base and surrounding the shank are a plurality of pointed lugs 4, and from each of these there extends a triangular rib 4^a running the length of the shank and adapted to engage grooves formed at proper places in the bore 8, in the pin. These ribs secure accurate positioning of the lugs 4 in the recesses provided for them. As shown herein the lugs are three in number but any suitable and desired number may be used. The member 2 is provided with a central axial bore 5, adapted to receive the shank of a screw 6. It is also counter-bored from the base end to permit counter-sinking of the head of the screw and to receive the pegs of an ordinary mechanical pin setting device in the larger bore 5^a, when it is desired to set the pins in that manner.

In using this shoe member it is driven into a prepared pin in such manner that the ribs 3 and the lugs 4 engage the pin and so that the exterior face of the shoe is flush with the normal base of the pin. In order to do this, an ordinary wooden bowling pin 7 is provided with a central axial bore 8, rising from the base, the portion adjacent the base being counter-bored to snugly receive the base portion of the shoe member just described. The bore 8 is equal in length to the length of shank 2, and it is made equal in diameter to the diameter across the roots of the ribs 3. When the member has been forced fully into a pin the screw 6 is turned into place. The lugs and ribs or flutings prevent any relative rotary movement between the two parts inasmuch as they interlock with the wood, and the screw acts to retain the member in the pin. If desired the shoe member may be surrounded with glue when it is forced into position in the pin, in order to add to the retaining effect.

The shoe member is preferably made from some material such as fibre, bakelite, or aluminum, which is both light enough to cause no material change in the center of gravity of the pin, and which combines non-chipping, non-splitting, and wear-resisting qualities.

The invention provies a means for substantially increasing the useful life of bowling pins in an inexpensive manner, since the shoe member adequately decreases damage to the most vital portion of the pin, as well as

maintaining the pin-setting opening in good condition.

I claim:

1. The combination with a bowling pin, of a shoe member disposed in the base thereof, comprising a circular shoe portion, a shank integral therewith, and provided with a central longitudinal bore adapted to receive a retaining screw, said member positively resisting relative rotary movement between itself and the pin, and adapted to prevent breakage and reduce wear of the base of said pin.

2. The combination with a bowling pin, of a shoe member disposed in the base thereof, comprising a circular shoe portion, a shank integral therewith, a plurality of longitudinal flutings provided exteriorly on said shank and a plurality of lugs disposed on said shoe surrounding said shank, and provided with a central longitudinal bore adapted to receive a retaining screw, said member positively resisting relative rotary movement between itself and the pin, and adapted to prevent breakage and reduce wear of the base of said pin.

3. The combination with a bowling pin, provided with a central longitudinal bore opening from the base, the portion adjacent the base being counter-bored to form an opening of larger diameter than that of the bore, of a shoe member disposed therein comprising a circular shoe portion snugly fitting the counter-bored opening and flush with the base of the pin, a generally cylindrical shank rising therefrom and adapted to make a driven fit in said central bore, a longitudinal central bore provided in said member and adapted to receive a retaining screw, said member being adapted to prevent breakage and reduce wear of the base of said pin.

4. The combination with a bowling pin provided with a central longitudinal bore opening from the base, the portion adjacent the base being counter-bored to form an opening of larger diameter than that of the bore; of a shoe member disposed therein and comprising a circular shoe portion snugly fitting the counter-bored opening and flush with the base of the pin, a generally cylindrical shank rising integrally therefrom and adapted to be driven into said central bore, a plurality of pin-engaging lugs provided on said shoe surrounding said shank, a plurality of longitudinal ribs provided exteriorly on said shank, said lugs and ribs engaging the pin to prevent rotation of the shoe member when in position, and a longitudinal bore centrally provided in said member and adapted to receive a retaining screw and the pegs of a pin-setting device, said member being adapted to prevent breakage and reduce wear of the base of said pin.

5. A shoe for wooden bowling pins comprising a circular base, a generally cylindrical shank rising therefrom, pin-engaging lugs provided on said base and flutings on said shank to prevent rotation of the member when in position in a pin, and a longitudinal counter-bored opening centrally disposed in the member adapted to receive and retain a pin-engaging screw.

6. A wear-resisting shoe member for wooden bowling pins comprising a circular base having an integral shank rising therefrom, a plurality of pin-engaging lugs rising from said base parallel to said shank, a plurality of longitudinal flutings exteriorly formed on said shank and adapted to engage the pin, said lugs and flutings being adapted to prevent lateral movement of the member when in a pin, and a longitudinal counter-bored screw-retaining opening centrally provided in said member and adapted to receive the keys of a pin-setting machine.

7. A shoe for wooden bowling pins comprising a circular base, a generally cylindrical shank rising therefrom, pin-engaging lugs provided on said base and flutings on said shank to prevent rotation of the member when in position in a pin, and a longitudinal counter-bored opening centrally disposed in the member adapted to receive and retain a pin-engaging screw and to engage the keys or pegs of a pin-setting machine, said member being formed of wear-resisting and non-chipping material and adapted to decrease wear and prevent bottom breakage of a bowling pin.

8. A shoe for wooden bowling pins comprising a circular base, a generally cylindrical shank rising therefrom, pin-engaging lugs provided on said base and flutings on said shank to prevent rotation of the member when in position in a pin, and a longitudinal counter-bored opening centrally disposed in the member adapted to receive and retain a pin-engaging screw and to engage the keys of a pin-setting machine, said member being formed of aluminum and adapted to decrease wear and prevent breakage of a bowling pin.

In testimony whereof, I sign my name.

JOHN R. CARMICHAEL.