M. J. WHELAN.

BOWLING PIN.

APPLICATION FILED JUNE 23, 1913.

**1,088,312.** Patented Feb. 24, 1914.

Fig. 1

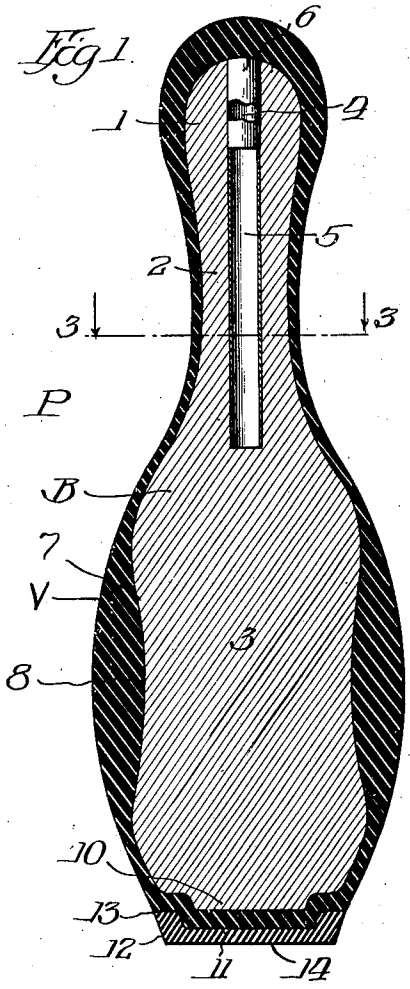



Fig. 2

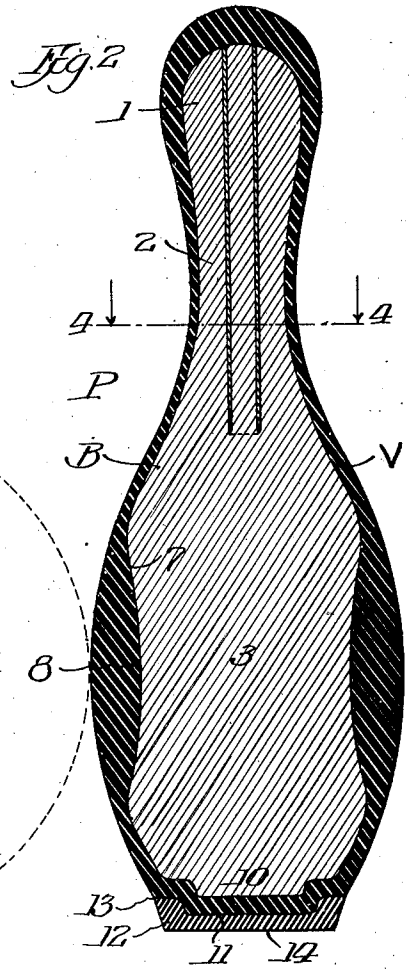



Fig. 3

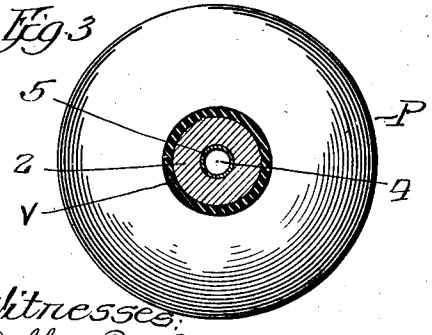
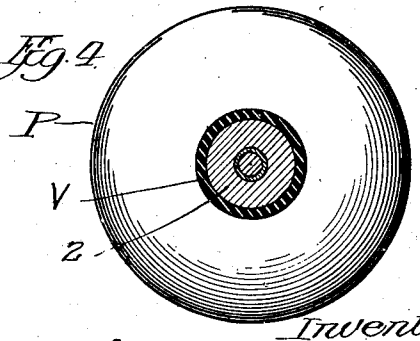



Fig. 4




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# UNITED STATES PATENT OFFICE.

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## BOWLING-PIN.

1,088,312. Specification of Letters Patent. Patented Feb. 24, 1914.

Application filed June 23, 1913. Serial No. 775,240.

*To all whom it may concern:*

Be it known that I, MICHAEL J. WHELAN, a citizen of the United States, and a resident of the city of Muskegon, in the county of Muskegon and State of Michigan, have invented certain new and useful Improvements in Bowling-Pins; and I do hereby declare that the following description of my said invention, taken in connection with the accompanying sheet of drawings, forms a full, clear, and exact specification, which will enable others skilled in the art to which it appertains to make and use the same.

This invention relates generally to improvements in a bowling pin, and it consists, essentially, in the novel and peculiar combination of parts and details of construction, as hereinafter first fully set forth and described and then pointed out in the claims.

In the sheet of drawings already referred to, which serves to illustrate my said invention more fully, Figure 1 is a vertical section of a bowling pin embodying my invention. Fig. 2 is a like section of a pin of a slightly modified type of construction. Fig. 3 is a horizontal section in line 3—3 of Fig. 1, and Fig. 4 is a similar section in line 4—4 of Fig. 2.

Like parts are designated by corresponding characters or symbols of reference in all figures of the drawing.

Since the game of tenpins or bowling, as it is better known, has acquired the tremendous popularity it now enjoys, not only among individuals, but teams, clubs, and leagues as well, improvements in the pins employed has become necessary. The popular pin at present is the kiln dried maple pin, finely polished and accurately finished, which, with its "liveliness," and the pleasant "click" when bowled over is the ideal of the enthusiastic bowler. But these pins are very short lived. Constant impacting with the regulation bowling balls, with each other, and with the alleys, soon causes indentations in the barrel or portion of largest diameter, resulting in a splintering of the surface of the pin at that point; at once reducing the "liveliness" of the pin and a loss of accuracy in the bowling of a really expert bowler. Again, the constant battering received by the pins in a short space of time causes the splintering and breaking away of the corners at the base of the pin with the resultant destruction of accuracy or squareness of said base, which at once renders the pin useless for accurate or club or team bowling. Once again the weakest portion of the regulation pin is at the neck; that portion of smallest diameter between the head or top and barrel or body thereof. Many pins after short use and while yet in otherwise good condition, crack or break at this point and are rendered useless.

It is therefore the intent of this invention to disclose a new and novel pin which possesses all the characteristics of the best kiln dried maple pin and in addition thereto, greater lasting qualities, and, in addition, even after continued use, a finer appearance than the present regulation pin when new.

Briefly I take a blank of soft wood of the cheapest kind, such as bass or whitewood and turn the same to the general shape of a regulation pin, only of smaller dimensions all around. No attempt is made to sandpaper or smooth the periphery of this blank, in fact the marks of the turning tool are purposely left there. Next I drill an axial hole through the hub and neck of the blank and well into the body or barrel thereof. Into this hole I drive a tight fitting metallic tube to the very bottom thereof. This tube is shorter than the depth of the axial hole and the upper end of the latter is therefore plugged up. The purpose of this tube is to reinforce the neck of the pin, rendering the same immune from breakage at this point. I now cover the entire exterior of the blank with a rubber compound in a plastic state, after which I insert the whole mass into a two part vulcanizing mold, the interior of which possesses a cavity the exact replica of a regulation pin. The halves of this mold are then tightly screwed together, creating great pressure upon the interior mass, and the mold subjected to great heat for a sufficient length of time to thoroughly vulcanize the rubber mass to the soft wood blank. After the pin has been removed, it will be found that the vulcanite (as it is now termed) has formed a hard homogenous black coating entirely inclosing the blank, hermetically sealing it, and actually entering the pores of the wood a certain distance,

so that for all practical purposes the whole is now an integral structure.

To better understand details of construction, I now refer to the drawing, in which P is the pin as a whole, B the interior wood blank, and V the vulcanite exterior.

Numeral 1 is the head of the pin which gradually merges into the neck 2, which neck terminates in the barrel 3. Into the head 1, through the same and neck 2, and well into the body 3 there is drilled the axial hole 4, into which it tightly driven a metallic tube 5 to the very bottom thereof. Said tube is shorter than the depth of hole 4, and is therefore plugged at its upper end by a suitable plug 6. The periphery of the barrel 3 is hollowed out or concaved at 7, the deepest point of which is at 8, this being the point at which a bowling ball 9 strikes the pin. The object of this concavity is to afford a greater thickness of vulcanite at the place of severest usage, and this increased body of vulcanite gives forth that peculiar click, when struck by a bowling ball, so desired by the player.

At the base of barrel 3 is produced an axial circular projecting boss 10, which is provided for the reception of a neat fitting depression 11 in a base cap 12. This cap has its exterior a continuation of the general contour of the pin, is produced from hard fiber, and is firmly cemented to the base of the pin and the boss 10. Said cap bears the impact, jars, and blows delivered to the lower edge of the pin as it strikes the alley or other pins when knocked over and preserves from injury the lower edge 13 of the vulcanite sheathing. Boss 10 and depression 11 perform the function of relieving the cement from any lateral strain tending to dislodge the cap 12 from position.

The lower face 14 of cap 12 is truly square with the axis of pin P, so that the same will stand uprightly when spotted on the alley bed. This face and the lower edges of said cap are the portions of the pin which will show the first signs of wear, and as soon as this wear is sufficient to prevent the pin standing upright, the cap may easily be removed and a new one substituted.

In Fig. 2 I show a slight modification in construction, in that I dispense with the drilling of the hole 4 through the neck and head of the pin, and instead, point the lower edge of the tube 5 and force the same under pressure directly into the blank, leaving a central core $4^a$ of said blank within the tube 5. Said tube being forced with the grain of the wood, this operation is easily accomplished and there is no danger of splitting the blank.

I now direct attention to the fact that the vulcanite covering V varies in thickness. For instance, it is thinnest at the neck 2, because the neck proper is rarely impacted. Around the head 1, however, it is much thicker by reason of the fact that every time the pin is toppled over, the head thereof receives a blow upon coming in contact with the alley bed.

While herein I have disclosed the preferred method of carrying my invention into effect, I may make such changes and alterations as would suggest themselves to the skilled mechanic or permitted under the law of mechanical equivalents without departing from the spirit or scope thereof.

Having thus fully described my invention, I claim as new and desire to secure to myself by Letters Patent of the United States:—

1. As a new article of manufacture, a bowling pin comprising a wooden blank having head, neck, and body portions, and a sheathing composed of a rubber composition directly vulcanized to and united with said blank, whereby said blank is hermetically sealed within said sheathing.

2. As a new article of manufacture, a bowling pin comprising a wooden blank having head, neck, and body portions, and a sheathing composed of a rubber composition vulcanized directly to and united with said blank, whereby said blank is hermetically sealed within said sheathing, said sheathing being thicker at the head portion and medially of the body portion, to better resist external impact.

3. As a new article of manufacture, a bowling pin comprising a wooden blank having head, neck, and body portions, there being a reinforcement in said head portion, extending through said neck into said body portion, and a sheathing composed of a rubber composition directly vulcanized to and united with said blank, whereby said blank is hermetically sealed within said sheathing.

4. As a new article of manufacture, a bowling pin comprising a wooden blank having head, neck, and body portions, a metallic tubular reinforcement located in said head and neck and extending into said body, and a sheathing composed of a rubber composition entirely inclosing said blank and directly vulcanized and united thereto.

5. As a new article of manufacture, a bowling pin comprising a wooden blank having head, neck, and body portions, a metallic tubular reinforcement located in said head and neck and extending into said body, and a sheathing composed of a rubber composition entirely inclosing said blank and directly vulcanized and united thereto, said sheathing being thicker around the body portion than around the remaining portions of the blank.

6. As a new article of manufacture, a bowling pin comprising a wooden blank having head, neck, and body portions, said

body portion having a boss projecting from the lower face thereof, a reinforcement in said head extending through said neck, into said body portion, a sheathing composed of a rubber composition vulcanized directly to and united with said blank, whereby said blank is hermetically sealed within said sheathing, and a fibrous disk having a central depression fitting the sheathing surrounding said boss and cemented thereto.

MICHAEL J. WHELAN.

In presence of—
F. J. LOEWE,
J. O. MATTESON.