

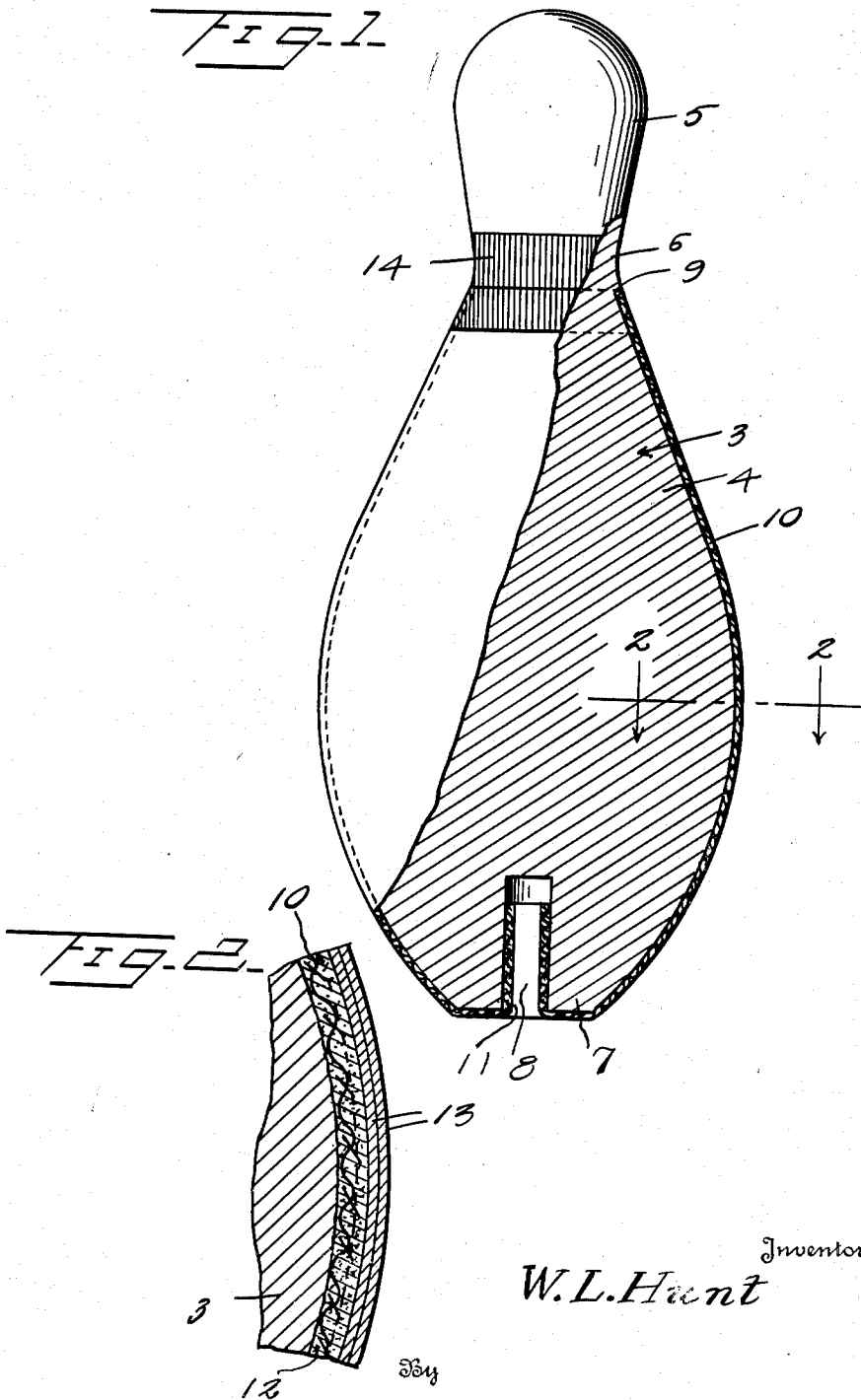
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W. L. HUNT

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FABRIC REINFORCED BOWLING PIN

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Inventor  
W. L. Hunt

By  
Kimmel & Crowell Attys.

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## FABRIC-REINFORCED BOWLING PIN

Warren Lincoln Hunt, Aspers, Pa.

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9 Claims. (Cl. 273-82)

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My invention relates to bowling pins, more especially a pin of novel construction.

It is well known that the ordinary wooden bowling pins, whether made of a single solid piece of wood or whether of wood laminations or sections of wood, have only a limited period of useful life which is figured by the bowling alley proprietor as his basis of cost, on the number of games for which a pin may be satisfactorily used. An object of my invention is to provide a pin which on a cost basis so figured, is cheaper and at the same time is a more satisfactory pin, in that pins according to my invention have a much greater period of useful life.

A further object of my invention is to provide a bowling pin in which the body portion is so constructed as not to splinter and thereby eliminates danger to the pin setters who often otherwise would get splinters into their hands and fingers.

Another object is to provide a bowling pin made either of new material or from ordinary used pins and in which the pin obtains all the desirable characteristics of my invention.

Other objects will become apparent from the appended specifications, drawings and claims, and it will be understood that various modifications may be resorted to, the scope of the invention not being limited except to the extent the claims and the prior art may require.

In the drawings,

Figure 1 is a detail side elevation partly in section of a pin constructed according to an embodiment of this invention, showing the pin prior to the final trimming step.

Figure 2 is a partial sectional view, on line 2-2, of Figure 1.

The bowling pin 3 as seen in Figure 1 of the drawings comprises a body part 4, having a head part 5, and a neck portion 6. The pin 3 may be either solid wood or made up of sections or laminations, this being immaterial in the present invention. The base 7 has the usual socket 8 for use in connection with pin-setting devices of the customary kind generally used in bowling alleys. From a point just below the head 5 and in the neck portion 6, said point indicated as 9, the body part 4 is undercut, turned or trimmed down a fraction of an inch. It will be understood that the pin is of a standard size for whatever regulations may be in force. The trimmed down part of the pin which is the entire surface area, exclusive of the head and part of the neck, is left roughened for a purpose further herein described. Over this trimmed down area there is

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placed a snugly fitting sleeve 10 formed as a hose-like covering, of fabric, knitted, netted or woven and which may be of cotton or other natural or synthetic fibres.

The pin, prepared as foregoing described, that is partly trimmed down from its original size, with the trimmed surface area rough, and the sleeve covering said area, is dipped in a bath or coating solution as will be hereinafter described.

The overhang of the sock or sleeve 10 at the bottom of the pin is tucked into the pinsetter hole 8, as indicated at 11, nearly all the way to the bottom of the hole, thus creating the necessary tension on the sleeve at the bottom of the pin for a smooth snug fit across the bottom of the pin. The tucked in portion of the sleeve also acts as a wick, draining the surplus of the bonding solution from off the bottom surface.

With the sleeve 10 snug about the pin, the pin is ready for the coating operation. The coating steps are made in a room temperature of 68°-72° F., and the humidity of the air should not exceed 50%.

The first dip is made in a bonding solution which will firmly and securely bond the sleeve to the pin. The bonding solution designated 12 comprises a plasticized polyvinyl acetate solution having a trade name "Scriptex" and made by the Scriptex Products, Inc., of Philadelphia, Pennsylvania. The pin is dipped twice into the bonding solution with a period of twenty-four hours between each dipping.

The second bath is the lacquer bath which consists of the following:

- 35 44 lbs. nitrated cotton
- 20 lbs. ethyl acetate
- 10 lbs. toluol or ethyl acetate xylol
- 8 lbs. butyl acetate
- 40 Castor oil—sufficient to plasticize mixture

The pin is dipped twice into the lacquer bath indicated at 13, with a minimum of three hours between dippings. The humidity of the air in the room must be not over 50%.

When the lacquer coating has hardened the pin is painted around the neck as indicated at 14. The pin is then smoothed off at the bottom and the socket 8 is cleaned out.

A pin constructed as hereinbefore described will more readily withstand the terrific impacts to which bowling pins are subjected, and the pin will not splinter under such impacts. The coatings about the pin form a hard shell about the pin, and this shell is reinforced against cracking or chipping by the fibrous sleeve which is em-

bedded in the shell and fused therewith in addition to being bonded to the roughened surface of the pin.

This bowling pin will have the play characteristics of a conventional bowling pin except that this pin will retain its original shape for a longer period of time, the reinforced coating resisting denting under contact from a ball or with another pin. This pin will, therefore, be more satisfactory to the player and also to the proprietor, the player being assured that the condition of the pin will not be a handicap, and the proprietor being assured that the player is satisfied as to the pins and that the pins will outlast conventional uncoated pins.

It will thus be noted from the foregoing description that the method of forming the bowling pin consists in the several distinct steps described, which are briefly stated:

1. Shaping the pin body.
2. Placing the sleeve over the desired part of the pin.
3. Dipping the pin in the bonding solution, twice, with drying between the dips and a period of 24 hours between the two dips.
4. After the bonding solution has set firmly, a period of 14 hours' to 24 hours' rest for such purpose, depending on room temperature and humidity conditions, so that the bond formed between the pin and sleeve and solution will not be disturbed, the entire pin is then dipped in the said lacquer bath, for the two times, as before described.
5. Painting, trimming, etc. then follows, as before described.

My invention also contemplates as a very necessary and important step of the method, that the sleeve shall be thoroughly degreased before using, to remove as completely as possible all the natural oils of the fibres of the material of which the sleeve is made, as otherwise these oils will resist thoroughly effective penetration by the bonding solution and cause the sleeve to break loose when the pin is used and the ball strikes it. Thus, it will be understood that the method described contemplates and includes as one step thereof, the step of thoroughly degreasing the sleeve fibres.

The wood surface of the pin having been left roughened, where turned down to shape, leaves minute fibres projecting all over the said rough surface. It is these that bond with the fibres of the sleeve and in effect make the sleeve an integral part of the pin.

The degreasing mentioned is accomplished by first placing the sleeve on the pin and tightly fitting same on the pin, then dipping in hot water at least 195 degrees Fahrenheit for about ninety seconds, then drying for twenty minutes or until the sleeve has only about 20 percent moisture in it. This assures quick and thorough penetration of the bonding fluid or solution.

Reference herein to degrees "F" means Fahrenheit.

What I claim is:

1. A bowling pin comprised of a solid wooden body of slightly substandard diameter, a snugly fitted hose-like fabric sleeve enclosing said body increasing the diameter thereof to standard size, a coating of plasticized material impregnating said sleeve fused therewith and secured to the outer surface of said body, and forming a secure bond therebetween, and an outer lacquer coating covering said pin, the outer surface of said sleeve

smoothly merging with the outer surface of said neck.

2. A bowling pin having a wood body formed with a flat base and a vertically extended neck portion, the wood of said body being undercut circumferentially and longitudinally to provide an area of reduced cross-section extending from a point adjacent said neck to said base, an integral fabric sleeve disposed in said undercut and bonded to said body with a plastic coating to reestablish the original cross-section of said body, the undercut portion of said body defining an annular shoulder adjacent the bottom of said neck, the upper portion of said sleeve abutting said shoulder.

3. A bowling pin as defined by claim 2 wherein said sleeve is extended under the base to form a wear resistant under-pad.

4. A bowling pin having a wood body formed with a flat base and a vertically extended neck portion, the wood of said body being undercut circumferentially and longitudinally to provide an area of reduced cross-section extending from a point adjacent said neck to said base, a woven fabric sleeve of uniform thickness snugly fitted in said undercut and bonded to said body with a plastic coating fused therewith to reestablish the original cross-section of said body, the undercut portion of said body defining an annular shoulder adjacent the bottom of said neck, the upper portion of said sleeve abutting said shoulder.

5. A bowling pin having a wood body formed with a flat base and a vertically extended neck portion, the wood of said body being undercut circumferentially and longitudinally to provide an area of reduced cross-section extending from a point adjacent said neck to said base, an integral fabric sleeve disposed in said undercut, at least one coating of plasticized polyvinyl acetate impregnating said sleeve and the outer surface of said body, and forming a secure bond therebetween, and an outer lacquer coating covering said body, the undercut portion of said body defining an annular shoulder adjacent the bottom of said neck, the upper portion of said sleeve abutting said shoulder.

6. A bowling pin having a wood body formed with a flat base and a vertically extended neck portion, the wood of said body being undercut circumferentially and longitudinally to provide an area of reduced cross-section extending from a point adjacent said neck to said base, an integral fabric sleeve disposed in said undercut, at least one coating of plasticized polyvinyl acetate fused with said sleeve and the outer surface of said body, and forming a secure bond therebetween, and an outer lacquer coating covering said body, the undercut portion of said body defining an annular shoulder adjacent the bottom of said neck, the upper portion of said sleeve abutting said shoulder.

7. A bowling pin having a wood body formed with a flat base and a vertically extended neck portion, the wood of said body being undercut circumferentially and longitudinally to provide an area of reduced cross-section extending from a point adjacent said neck to said base, an integral fabric sleeve disposed in said undercut, a plurality of bonding coatings of plasticized polyvinyl acetate impregnating said sleeve and the outer surface of said body portion, and forming a secure bond therebetween, and a plurality of outer lacquer coatings covering said body portion and said neck portion, the undercut portion of said body defining an annular shoulder adjacent the bot-

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tom of said neck, the upper portion of said sleeve abutting said shoulder.

8. In a bowling pin, a body part provided with a head, a neck arranged below said head, there being a vertically disposed socket extending upwardly from the bottom of said body part, a portion of the exterior surface of said body being undercut, the undercut portion extending downwardly from said neck to the bottom of the body part, a sleeve fabricated of fabric snugly fitted over the undercut portion of said body part, a bond comprising plasticized polyvinyl acetate for securing said sleeve to said body part, and coatings of lacquer arranged over said sleeve.

9. In a bowling pin, a body part provided with a head, a neck arranged below said head, there being a socket extending upwardly from the bottom of said body part, a portion of the exterior of said body being undercut, the undercut portion extending downwardly from said neck to the bottom of the body part, said undercut portion defining an annular shoulder arranged adjacent the bottom of said neck, a sleeve fabricated of fabric snugly fitted over the undercut portion of said body part, the upper portion of said sleeve abutting said shoulder, a bond comprising plas-

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ticized polyvinyl acetate for securing said sleeve to said body part, and coatings of lacquer over said sleeve.

WARREN LINCOLN HUNT.

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