June 13, 1961 F. C. DETTMAN 2,988,359

BOWLING PIN

Filed Sept. 4, 1958 2 Sheets-Sheet 1

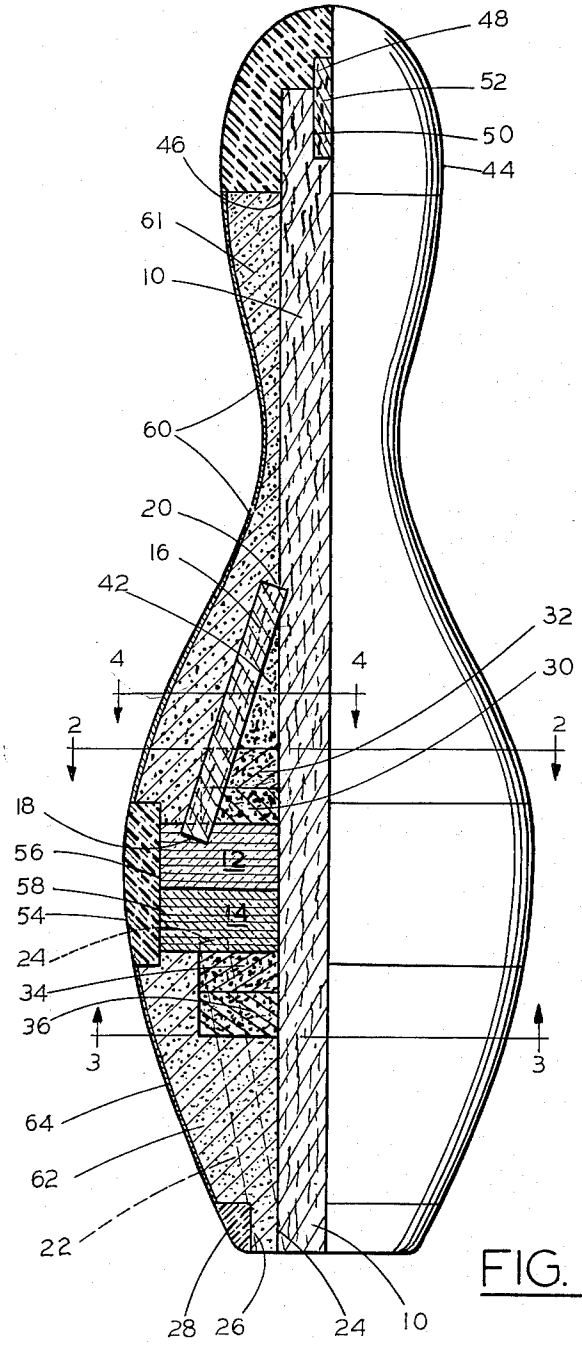


FIG. 1

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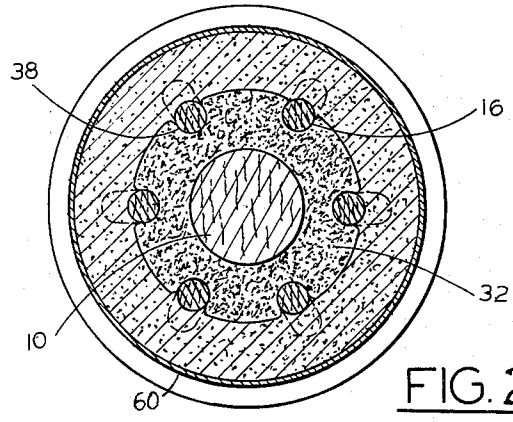


FIG. 2

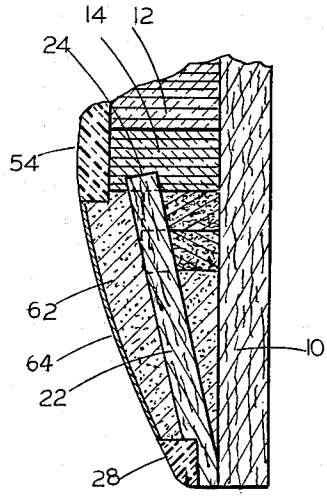


FIG. 5

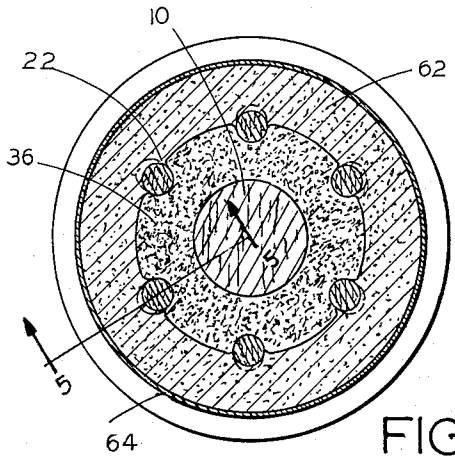


FIG. 3

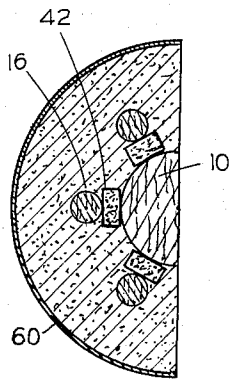


FIG. 4

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BOWLING PIN

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Filed Sept. 4, 1958, Ser. No. 759,031
2 Claims. (Cl. 273—82)

This invention relates to bowling pins, and more particularly to a composite pin and light weight core construction therefor.

Bowling pins in common use are made of maple. Such pins are expensive, exhibit variations in weight and surface resistance, the latter due to the grain of the wood.

The present invention relates to a pin having uniform surface characteristics, and capable of weight control, and manufacture from relatively inexpensive materials. Attempts to duplicate maple pins by the use of plastics has generally resulted in a pin having a weight exceeding that specified by the official regulations. The present invention is directed in part to a core construction which is light, rigid, and inexpensive, and which can be varied to offset the weight of the heavier durable plastic which is employed at principal points of impact.

The above and other novel features of the invention will appear more fully hereinafter from the following detailed description when taken in conjunction with the accompanying drawings. It is expressly understood that the drawings are employed for purposes of illustration only and are not designed as a definition of the limits of the invention, reference being had for this purpose to the appended claims.

In the drawings, wherein like reference characters indicate like parts:

FIGURE 1 is a front view of a pin shown half in front elevation and half in cylindrical section;

FIGURE 2 is a transverse sectional view taken on the line 2—2 of FIGURE 1;

FIGURE 3 is a transverse sectional view taken substantially on line 3—3 of FIGURE 1;

FIGURE 4 is a fragmentary transverse sectional view taken on the line 4—4 of FIGURE 1; and

FIGURE 5 is a fragmentary longitudinal sectional view taken through the lower portion of the pin substantially on the line 5—5 of FIGURE 3.

Referring to the drawings the pin comprises a central core **10** of elongated cylindrical form formed of light wood such as white pine. Disposed on the core **10** at the point of largest diameter of the pin are two circular discs **12** and **14** of ¾" thick plywood. The discs are each provided with an aperture closely fitting the core and the disc are snugly fitted upon the core and correctly located and secured in position by a suitable glue. Extending upwardly from the plywood disc **12** are a plurality of inclined struts **16**, which in the form shown are six in number.

The struts are disposed uniformly around the pin. Each of said struts **16** may be of ⅜" dowelling and is recessed as at **18** in the plywood disc **12** and as at **20** in the side wall of the core or stem **10**. The recesses **18** and **20** closely fit each of the pins or struts **16** and the pins or struts are secured in position by glue. Extending downwardly from the plywood disc **14** are additional angularly disposed struts **22** which are staggered in relation to the struts **16**. The struts **22** are likewise recessed in the plywood disc **14** as indicated at **24** and the lower end of the struts **22** are shaped to lie against the exterior surface of the core **10** so as to be suitably bound in place by a plastic foot ring **28** so shaped as at **24** and **26**, such ring being formed of nylon or other suitable plastic.

Above and below the plywood discs **12** and **14** are disposed cork discs **30** and **32**, and **34** and **36**. Such discs

are formed of light sheet cork material approximately ½" thick of the type commonly used for flooring. Each of the discs is suitably notched to closely fit the struts **16** or the struts **22** as is indicated at **38**, and in assembling the pin it will be appreciated that such cork discs **30** to **36** inclusive are placed in position prior to the assembly of the struts.

Behind each of the struts **16** is disposed a triangular block such as **42** which extends from the upper surface of the cork disc **32** and fills the space immediately behind each respective strut or pin **16**. Such blocks are formed of the same light cork material from which the discs **30** to **36** are formed.

The upper end of the pin is provided with a cap **44** of relatively tough plastic such as Tenite and such cap is recessed as at **46** to receive the upper end of the core **10**, and the core **10** and the cap **44** are provided with aligned axial apertures **48** and **50** in which is positioned a dowel pin **52** to secure the cap to the end of the central core. All of the parts thus described will be secured together by glue or other adhesive providing a strong bond between the parts. In practice, Borden's glue may be found to be effective for this purpose.

Around the girth of the pin and particularly the plywood discs **12** and **14** is positioned an annular ring **54** which may be formed of a tough, durable plastic such as Tenite. Such ring will have an axial length greater than the thickness of the two plywood discs **12** and **14** and will tightly bind upon and extend around the exterior cylindrical surfaces **56** and **58** of the plywood discs **12** and **14** and be adhesively secured and bonded thereto.

It will be seen that the structure thus far described provides a light core **10** and a relatively light-weight central section by reason of the employment of the light core, and sheet cork material of which the discs **30** to **36** inclusive and the triangular blocks **42** are formed. The structure, being light, is adapted to have moulded thereover a mass of heavier material **61** which will provide the approximate shape of the pin shown. Such mass of heavier material may comprise a mixture of heavy wood sawdust and glue, Masonite sawdust and glue or a material formed of a mixture of wood chips and glue. The exterior of the pin as thus formed by the mixture thus described will provide a contour extending from the cap **44** to the band **54** approximating the shape of a standard pin but slightly under-sized to provide for a plastic coating such as **60** which will extend from the tip **44** to the band **54** and provide the exact pin contour desired.

Between the band **54** and the foot ring **28** there will also be moulded about the pin a mass of similar material to that shown at **61** and as indicated at **62** and the exterior shape of such mass of material will be somewhat under-sized so as to permit the application of a layer of plastic material such as **64** to extend from the band **54** to the foot **28**. It will be seen that no triangular wedge blocks such as **42** are provided in the lower part of the pin and the mass of material **62** will thus fill all the voids around the core and the discs and struts. The structure thus provided results in a somewhat increase in the weight or average specific gravity of the pin in the region below the band **54** as compared to the region above the band **54** and the struts **16**.

In practice the number of struts **16**, and **22** may be increased if desired, to as many as 9 or 12 above and 9 or 12 below. Such struts, which may be of maple, brace the plywood discs on the core **10**, and provide a solid rigid core for the surrounding band **54**, and filler material **61** and **62**. Also the number of layers of cork, such as **30—36** may be varied, to vary the thickness and weight, either above or below the central impact area which is

defined by the ring 54. By varying the amount of cork either above or below, in relation to the filler material 61 and 62, a pin of correct balance may be readily provided. Once the desired balance is obtained, the pin may be duplicated in production, and the same weight and balance obtained for all pins, thus providing the uniformity necessary and providing a pin of the standard weight such as 3 pounds or 3 pounds and 2 ounces.

The exterior coating 60 and 64 may be applied and bonded to the filter material by painting, spraying or dipping, and thereafter the pin may be polished or otherwise finished.

Although a single embodiment of the invention has been illustrated and described, it is to be understood that the invention is not limited thereto. As various changes in the construction and arrangement may be made without departing from the spirit of the invention, as will be apparent to those skilled in the art, reference will be had to the appended claims for a definition of the limits of the invention.

What is claimed is:

1. A bowling pin having a central light weight wood core, a plywood disc disposed thereon in the region of greatest diameter and impact, uniformly angularly spaced diagonal brace members extending from said disc from adjacent the periphery thereof to said core both above and below said disc, and light weight filler material disposed in the region defined by said braces, a plastic cap on one end of said core, an annular foot ring on the lower end of said core embracing the ends of the brace members below said disc, additional filler material above and below said disc, said additional filler material, cap and ring having an exterior comforming substantially to the standard shape of a bowling pin.

2. A bowling pin having a central light weight wood core, plywood discs disposed thereon in the region of greatest diameter and impact, uniformly angularly spaced diagonal brace members extending from said discs adjacent the periphery thereof to said core both above and below said discs, and light weight filler material disposed above and below said discs and around said core, and in the region defined by said braces, a plastic cap on one end of said core and an annular plastic foot ring of impact resistant material disposed around said core and the ends of said brace members below said discs, and filler material above and below said discs of a weight heavier than said light weight material, said last named filler material, cap and ring having an exterior conforming substantially to the standard shape of a bowling pin.

References Cited in the file of this patent

UNITED STATES PATENTS

1,053,654	Seidel	Feb. 18, 1913
1,087,927	Deuther	Feb. 24, 1914
1,170,339	Romunder	Feb. 1, 1916
1,205,278	Skalla	Nov. 21, 1916
2,797,923	Dettman	July 2, 1957
2,809,038	Scheidemantal et al.	Oct. 8, 1957