

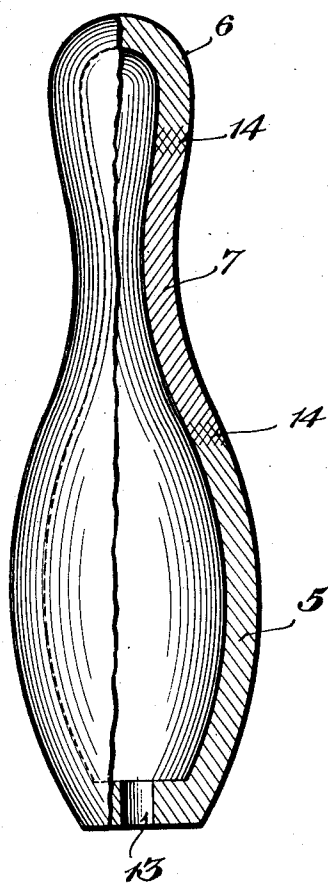
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H. J. BLUHM

BOWLING PIN

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Inventor

Harold J. Bluhm,

364

Wm. O. Bell

Attorney

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UNITED STATES PATENT OFFICE

HAROLD J. BLUHM, OF MUSKEGON HEIGHTS, MICHIGAN, ASSIGNOR TO THE BRUNSWICK-BALKE-COLLENDER COMPANY, OF WILMINGTON, DELAWARE, A CORPORATION OF DELAWARE.

BOWLING PIN.

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To all whom it may concern:

Be it known that I, HAROLD J. BLUHM, a citizen of the United States, residing at Muskegon Heights, in the county of Muskegon and State of Michigan, have invented certain new and useful Improvements in Bowling Pins, of which the following is a specification.

This invention relates to bowling pins of the kind which are made of some plastic composition, such as a hard rubber compound, either in the form of a hollow shell or with an interior core of wood or other suitable material. It has been found possible to make these bowling pins, which I may refer to as composition pins, to distinguish them from the ordinary wood pins, so that they will withstand in a generally satisfactory manner the blows and rough usage to which pins are ordinarily subjected. But these composition pins have been found to break at the neck sooner or later when used regularly in bowling, and investigation has developed that this breaking at the neck is the result of a bending strain to which the neck is subjected under the impact of the ball against the body of the pin. After the pin has been struck by the ball it is generally subjected to more or less rough usage in contact with the ball and the other pins in the alley pit, and bending strains at the neck may result therefrom.

It is the object of this invention to overcome this difficulty, which has been experienced in the past with composition pins and to provide a pin which will not break at the neck under the bending strains to which the pin is subjected in actual use.

With this end in view I make the neck of the pin of a material which will yield sufficiently under the bending strains to which the pin is subjected in use, and this material may be of the same character as the material of which the body of the pin is made, but is relatively softer in the finished pin. I have obtained good results by the use of a hard rubber compound, the neck of which differs only from the body and the head in that the latter will cure or become relatively harder than the neck.

In the accompanying drawing there has been shown an elevation of the pin of the present invention partly in section.

Referring to the drawing, the bowling

pin is made in the form of a hollow shell with a body 5 and a head 6 relatively hard and rigid, and a neck 7 relatively soft and flexible.

This pin is made of a plastic composition and preferably of a hard rubber compound, the stock for the body 5 and the head 6 being of such a character that it will cure or become harder and more rigid than the neck 7 which is made of a stock which when curved will be softer, and to a certain degree flexible, more than the body and head.

In making the pin of the present invention, I first mold two longitudinal and hollow half-sections, and then assemble two such half-sections, with a sand core therebetween, in a mold, which mold is then subjected to pressure and a vulcanizing heat, after which the pin is removed from the mold, the sand core is broken down and removed from the pin through the opening 13 at the bottom thereof, leaving the pin in the form of an empty shell.

In the finished article, it has been found that, due to the pressure and heat treatments, the joints between the flexible soft rubber neck section 7 and the hard rubber body portion 5 and the hard rubber head portion 6 disappear as such and the sections become homogeneously united, as indicated by the hatched lines 14.

My invention provides a bowling pin which will resist the tendency of such pins to break at the neck, and consequently give greater service without material, if any, increase in the cost of manufacture. The tendency of a rigid neck to break under the bending strain produced by a blow on the body or the head of the pin is overcome by the relatively soft and flexible neck of my invention. The head may be made of the same stock as the neck, if desired, but the head is also subjected to severe blows in the pit, and my present belief is that it will be more desirable to make the head of the same or substantially the same stock as the body.

My invention provides a bowling pin which can be economically manufactured and which will have a much greater life than the wood pin and will not chip, splinter and wear like the wood pins do, it will stand up under the rough usage to which bowling pins are subjected and give longer service

than a wood pin and overcome the tendency of composition pins to break at the neck. It presents all the advantages of a composition pin, it does not become worn or dis-
6 figured in use like a wood pin, it gives the desired "ring" and acts in every respect like a wood pin in actual use, but presenting many advantages, particularly as to service over a wood pin.
10 I believe that it will be desirable to make the entire neck of the relatively soft and flexible stock, but it may be found desirable to extend or to reduce the area of the stock and also to vary the construction of the pin
15 from the simple form shown. For example, the shell may be provided with a core, or with reinforcements, and other changes may be made without departing from my invention, within the scope of the following
20 claims.

I claim:

1. A bowling pin having a neck relatively softer than the body of the pin.
2. A bowling pin shell made of plastic
25 composition and having a neck relatively softer than the body of the pin.

3. A bowling pin shell made of plastic composition and having a neck relatively softer than the body and the head of the pin.

4. A bowling pin shell having its neck and body made of different degrees of softness to provide a neck relatively softer than the body and homogeneously connected to the body.

5. A bowling pin shell made of plastic composition with a neck relatively softer than the body and the head and homogeneously connected to the body and the head.

6. A bowling pin having a body and a neck, the material of the neck being more flexible than that of the body.

7. A bowling pin having a body, a head, and a neck connecting the body and the head, the material of the neck being more flexible than that of the body and the head.

8. A bowling pin having a hard rubber body, a hard rubber head, and a flexible soft rubber neck connecting the body and the head.

HAROLD J. BLUHM.