March 17, 1959 E. J. LIPPERT 2,878,021

BOWLING PIN

Filed Aug. 12, 1955

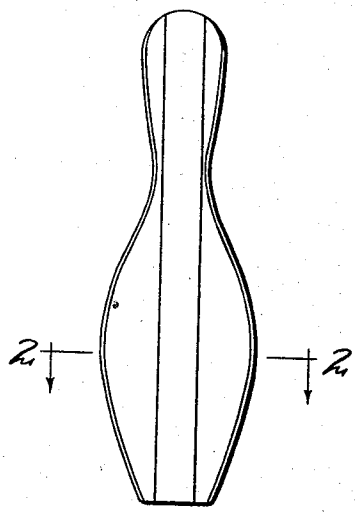


Fig. 1

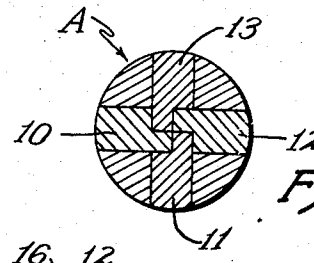


Fig. 2

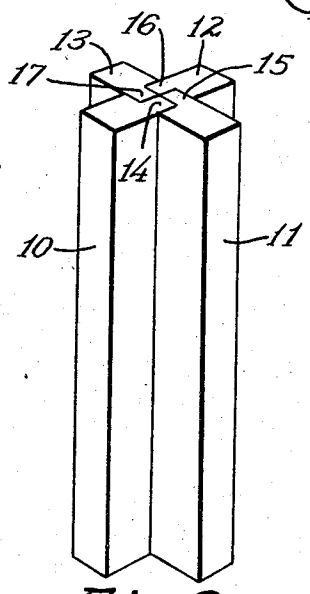


Fig. 3

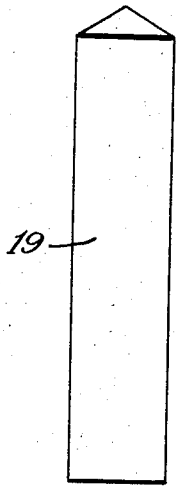


Fig. 4

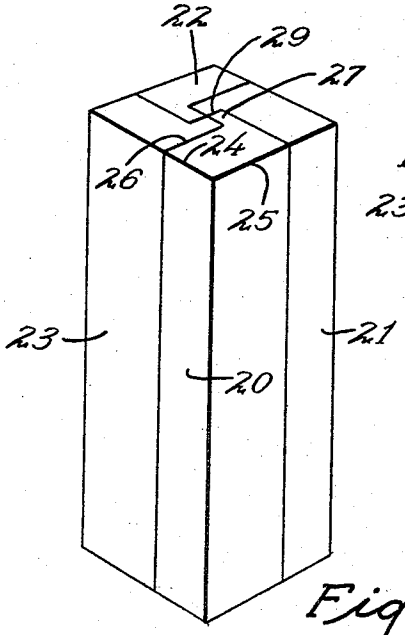


Fig. 6

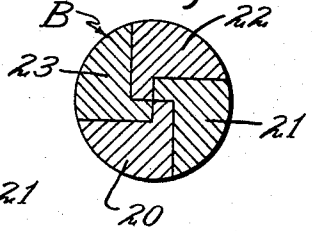


Fig. 5

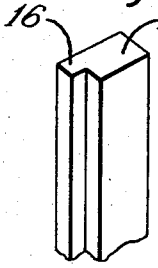


Fig. 7

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BOWLING PIN

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This invention relates to an improvement in bowling pins wherein it is desired to provide a bowling pin of several parts connected together with interlocking joints. In the formation of bowling pins it has become commonplace to secure together several laminations of maple, to adhere these laminations securely together, and to turn the bowling pin to its proper form in a lathe of suitable type. Such an arrangement is entirely practical but, normally, the grain of the wood is so arranged that the pin does not have its full strength. Furthermore, in order to form the pin, it is necessary to use laminations which are the full width of the widest part of the pin so that, when turned to its proper shape, the body will be full and complete. It is an object of the present invention to avoid these previous difficulties and to provide a pin which is not only stronger and more effective from a standpoint of resiliency, but also which may be less costly than previous constructions.

A feature of the present invention lies in the provision of a bowling pin having pieces which extend from the periphery of the pin to the center thereof and which are connected along joints which are connected along a center line. By constructing the pin in this manner, the pieces which form the pin may be cut to resist shock in one direction and the assembly of the various pieces is capable of resisting shock from any direction. As a result, the neck of the pin is much stronger and, yet, much more resilient than is possible with pins of usual construction.

A feature of the present invention lies in the provision of a bowling pin formed of pieces which interlock together to resist motion in any direction. Each of the pieces forming the core of the pin is provided with a tongue having a corner thereof on the center line of the pin. With this arrangement, the various tongues of the various members forming the core interlock together so as to provide a stronger construction than would otherwise be produced.

A feature of the preferred form of construction of pin lies in the formation of a pin core employing strips of wood which are of a width equal to, or slightly greater than, one-half the diameter of the pin at its largest diameter. By this arrangement the material forming the pin may be relatively narrow which greatly reduces the cost of construction due to the fact that narrow strips of wood may be employed rather than more expensive wider strips.

A further feature of the present invention lies in the fact that when the core of the pin is formed in the shape of a cross, with the intersecting portions of the cross interlocked securely together, the grain of the wood may be so arranged as to resist shock from four directions rather than two.

A further feature of the present invention lies in the fact that the preferred form of pin includes four interlocking strips arranged in the form of a cross and having triangular strips between adjoining arms of the cross to complete the pin body. This arrangement is of advantage, as pins of usual type are formed of rectangular bodies of wood and the present structure employing triangular pieces at the corners of the pin eliminates the requirement of the rectangular block.

An added feature of the present invention lies in the fact that the pin may, if desired, be formed of four blocks of wood which are joined in such a manner as to form a rectangular block from which the pin may be turned.

These and other objects and novel features of my invention will be more clearly and fully set forth in the following specification and claims.

In the drawings forming a part of the specification:

Figure 1 is a side elevational view of a bowling pin showing the construction thereof;

Figure 2 is a sectional view through the pin, the position of the section being indicated by the line 2—2 of Figure 1;

Figure 3 is a perspective view of a series of strips interlocked together to form a pin core;

Figure 4 is a perspective view of the corner forming elements forming the remainder of the billet from which the pin is turned;

Figure 5 is a cross sectional view of a pin of slightly different form;

Figure 6 is a perspective view of the billet from which the pin of Figure 5 is formed; and

Figure 7 is a perspective view of a portion of one of the interlocking strips shown in Figure 3 of the drawings.

In the preferred form of construction illustrated in Figures 1 to 4 of the drawings, the pin is formed by adhering together in interlocking relation four strips of material such as solid maple in the manner illustrated in Figure 3 of the drawings. Figure 3 illustrates four strips **10, 11, 12** and **13** which are identical in form and which are of a width slightly greater than the radius of the pin at its largest diameter. Each strip includes a projecting tongue which is of a length equal to one-half the width of the strip and all of which are of similar width. The strip **10** is shown as including such a tongue **14** which is of a length equal to one-half the thickness of the strips **11** and **13** and which is of a thickness equal to one-half the thickness of the strip **10**. The strips **11, 12** and **13** are provided with similar tongues **15, 16** and **17**. In every case the tongues are of a length equal to one-half the width of the intersecting strips and of a thickness equal to one-half the thickness of the strip.

The four strips are then assembled as best illustrated in Figure 3 of the drawings with the end of the tongue **14** abutting the inner side of the tongue **15**, with the end of the tongue **15** abutting the inner edge of the tongue **16**, with the end of the tongue **16** abutting the side of the tongue **17**, and the end of the tongue **17** abutting the side of the tongue **14**. The body of the billet is then completed by adhering triangular blocks such as **19** between the arms of the cross-shaped core illustrated in Figure 3. One such block **19** is adhered between each pair of adjoining arms so that the resulting billet is generally octagonal in plane. The billet thus formed is then turned in a suitable lathe to the desired shape to provide the regulation outline required for a bowling pin. The finished pin is shown in side elevation in Figure 1 and indicated at A in Figure 2 of the drawings.

This arrangement has several advantages. The resulting pin produces higher scoring because of greater resilience. In the first place, the individual strips **10** through **13** may be cut so that the grain of the wood is resistant to shock applied radially against the strip. Thus the neck of the pin, which is obviously the weakest point thereof, becomes much stronger and resists pressure from four directions. It will be understood that when the block

is formed of one piece of wood or a billet, the pin will split longitudinally in one direction with comparative ease and will not resist splitting in other directions. The strips are so arranged that they are strong from all directions.

The triangular corner pieces may also be sawed so that the grain will strengthen the pin structure. By cutting the diagonal surface properly so as to place a quarter grain surface on the outside, the strength of the pin may be greatly increased. At the same time it will be noted that the pins are completely formed of pieces of wood which are relatively thin and relatively narrow in width, the widest strip being only about one-half the diameter of the largest portion of the pin or slightly greater to permit the surface to be turned.

In Figures 5 and 6 of the drawings I disclose a modified form of construction which eliminates the triangular corner pieces and their advantages and disadvantages. With the arrangement shown in Figure 5, the pin is usually turned from a billet which is rectangular in cross section so that the pieces forming the pin are somewhat larger than those required with the previously described construction. With the arrangement shown in Figures 5 and 6, the size of the pieces employed must be equal to, or slightly greater than, one-half the largest diameter of the pin in one direction and one-half the diameter of the pin plus the width of the projecting interlocking tongues in the opposite direction.

The pin shown in these figures and indicated by the letter B is formed in four pieces **20**, **21**, **22** and **23**, all of which are of identical form and all of which are generally rectangular, having a projecting tongue on one corner thereof. For example, the member **20** includes two right angular sides **24** and **25**, the side **24** being equal to slightly more than one-half the width of the finished billet and the side **25** being of slightly greater width. The side **26** of the block **20** is equal in width to the side **24** and a projecting tongue **27** is provided projecting normally to the side **26** at one end thereof. A corner **29** of the tongue **27** extends along a center line of the pin or along the pin axis. The four blocks **20** through **23** are made in an identical manner with the tongues arranged in interlocking arrangement as illustrated. Thus each piece is held from movement in any direction other than in outside radial direction by engagement with a portion of one of the other blocks. It is obvious that the rectangular arrangement illustrated in Figure 6 is not as economical as the octagonal structure previously described but has the advantage of being formed of four parts instead of eight.

In accordance with the patent statutes, I have described the principles of construction and operation of my bowling pin, and while I have endeavored to set forth the best embodiment thereof, I desire to have it understood that obvious changes may be made within the scope of the following claims without departing from the spirit of my invention.

I claim:

1. A finished bowling pin having a circular cross section of varying diameter comprising four sections adhered together and joining along a common center line, each section having in cross section, two right angularly arranged sides with a tongue flush with one of said sides and projecting normally to the other of said sides, and a curved outer connecting surface between said right angular sides.

2. A finished bowling pin having a circular cross section of varying diameter comprising four quadrantly spaced segmental sections provided with inner right angled corners with each corner being spaced an equal distance from the longitudinal center line of the bowling pin, and four radially directed strip sections interposed between said segmental sections each provided with a tongue of square cross section extending along one-half of its associated strip section's inner side with adjacent corners of said tongues lying on said center line, the abutting surfaces of said segmental sections and the strip sections (including the surfaces of said tongues) being adhered to each other.

3. A bowling pin including four identical sections each having right angularly arranged sides, and a tongue of rectangular cross section projecting from one of these sides, each tongue having one surface flush with the other of the right angular sides and an opposite parallel surface on a plane through the longitudinal center line of the pin, the end of the tongue being parallel to the side from which the tongue projects and being on a plane through the center line of the pin, the sections being adhered together and having outer surfaces concentric with said center line throughout the length of the pin.

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