

July 28, 1953

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2,646,985

FINGER GRIP INSERT FOR BOWLING BALLS

Filed Sept. 28, 1950

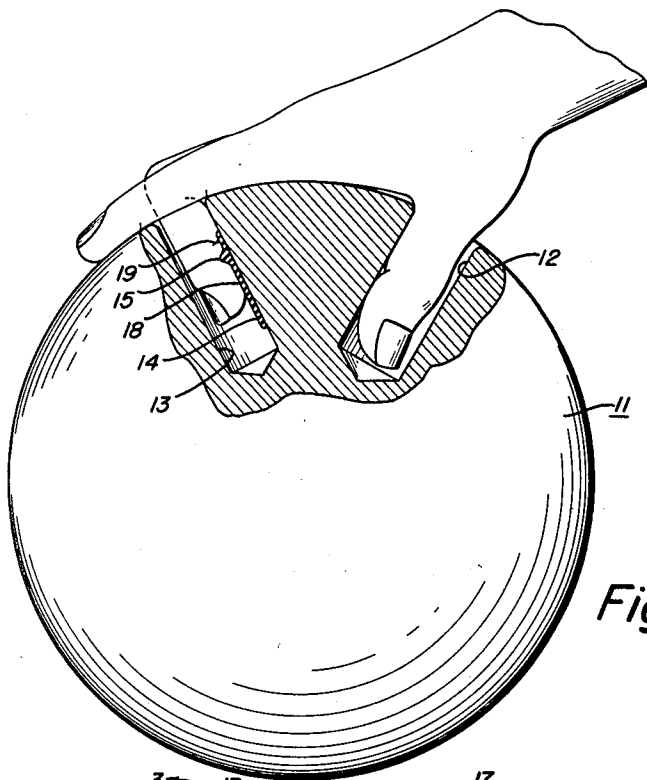


Fig. 1

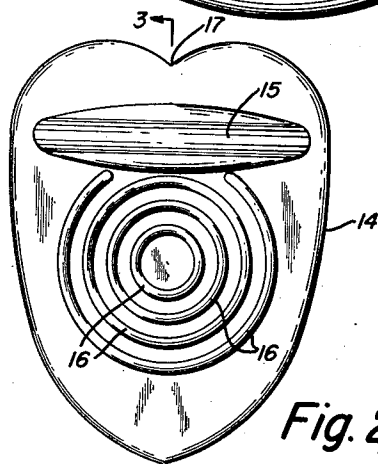


Fig. 2

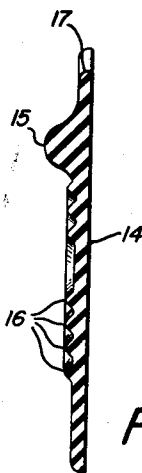


Fig. 3

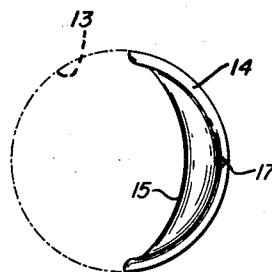


Fig. 4

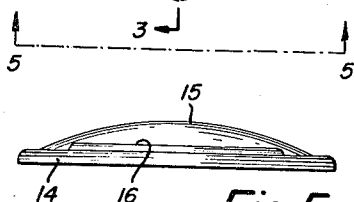


Fig. 5

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UNITED STATES PATENT OFFICE

2,646,985

FINGER GRIP INSERT FOR BOWLING BALLS

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Application September 28, 1950, Serial No. 187,244

1 Claim. (Cl. 273—63)

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Our invention relates to bowling balls and particularly to finger-engaging inserts to be positioned in the finger openings of a bowling ball.

An object of our invention is to provide a conveniently mounted insert which may be placed and secured within a finger opening of a bowling ball.

Another object is the provision of an insert so constructed and arranged as to provide a superior gripping characteristic for the end of a finger inserted in the finger opening of a bowling ball.

Another object is the provision of gripping means for a bowling ball so constructed and arranged as to provide for proper "lift" of the ball in the bowling operation.

Another object is the provision of an insert constructed and arranged to provide a ledge under which the end pad of a finger may hook or engage, facilitating the proper movement of the ball upon release in the bowling operation.

Another object is the provision of a gripping device easily mounted in proper position within a finger opening of a bowling ball and constructed to give superior results and improved form in bowling.

Another object is the provision of a finger gripping insert for a bowling ball having the combination of a rib positioned for proper engagement by the end phalange of a finger and a ridged portion so arranged as to provide centering of the finger and a good gripping engagement of the finger with a ball.

Other objects and a fuller understanding of our invention may be had by referring to the following description and claim, taken in conjunction with the accompanying drawing, in which:

Figure 1 is an elevational view of a bowling ball with a portion cut away to show our insert member positioned in a finger opening of the ball and engaged by a player's hand;

Figure 2 is a plan view on an enlarged scale of our insert member and disposed in the flat prior to insertion in the cylindrical finger opening;

Figure 3 is a longitudinal cross-sectional view of the insert member shown in Figure 2 and is taken along the line 3—3 of Figure 2;

Figure 4 is a plan view looking down upon the insert member after it has been curved in arcuate form and inserted in a finger opening of a bowling ball, Figure 4 being on the same enlarged scale as Figures 2, 3 and 5; and

Figure 5 is an end view of our insert member

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showing the insert member disposed in the flat before insertion in a finger opening, and is a view taken in the direction of arrows 5—5 of Figure 2.

The bowling ball 11 depicted in Figure 1 is of the usual type and has a thumb hole 12 and one or more finger holes 13. Usually it is desired to improve the gripping characteristics in the finger openings and therefore our invention is particularly illustrated and described with reference to its use in one of the finger openings, although it is to be understood that it may also be used in the opening for a thumb, and in that sense the thumb will be considered as one of the fingers. However, because of its usual use for one of the fingers other than the thumb, its utilization for that purpose will be here illustrated as an example of the invention. Although there may be more than one opening 13 in which a finger is inserted in bowling, the ball 11 here illustrated shows only one finger opening 13. The use of the insert member in other finger openings would be the same as that shown in connection with the finger opening 13 of Figure 1.

Positioned within the finger opening 13 and secured by cement or other appropriate adhesive to the cylindrical wall of the opening 13 is our insert member. As is well known, the finger openings are drilled into the ball and have a general cylindrical shape, being circular in cross-section. The insert member is positioned down in the finger opening at a distance from the edge of the opening, such distance being dependent upon the dimensions and characteristics of the hand of the particular player using the ball. When mounted in position, the insert member is arcuate in form as illustrated in Figure 4, but prior to being inserted in the opening, it is flat as illustrated in Figures 2, 3 and 5.

The detail construction of our insert member is best shown in the enlarged views of Figures 2, 3, 4 and 5. Our insert member is preferably molded of one integral of rubber-like material. By "rubber-like" material we mean to include natural rubber, synthetic rubber, and other known materials having the pliability and friction characteristics usually found in a molded article of vulcanized natural rubber and synthetic rubber. The insert member is preferably made partially soft so as not to have a hard, slippery finish but rather by its slight compressibility and surface characteristics to be appropriate for frictional engagement with the finger. It is sufficiently pliable or flexible so as to bend in arcuate form and to conform to the

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cylindrical wall of the finger opening when bent and inserted into the finger opening.

The insert member has a body portion 14 which is in the form of a slab or sheet of relatively thin proportion, such as illustrated in the drawing. Near the upper edge of the body portion 14, there is a rib or raised portion 15 extending transversely of the body portion 14 and rising in a gradual slope from the surface of the body portion 14. The rib or raised portion 15 protrudes from one side of the body portion 14, which is the side radially inward of the finger opening when the insert member is placed in position. The rib or raised portion 15 begins short of the side edges of the body portion 14 and comes up in a gradual slope and curve to its peak, as better illustrated in the end view of Figure 5. Transversely, the rib 15 has a radius so as to have a definite form but without a sharp edge. When the insert member is in the flat or uncurved position, then the rib 15 is in the form shown in Figure 5. However, when the insert member is in arcuate form, conformed to the cylindrical wall of the finger opening 13, then the rib 15 assumes the curved form shown in Figure 4. In the curved form shown in Figure 4, the rib 15, being rather solid and of relatively large mass, tends to be compressed in its center. This compression of the rib 15 upon the curve of the insert member tends to make the insert member "buckle" or extend out at the rear face of the body portion 14 of the insert member. This buckling out or protrusion on the rear face of the body portion 14 causes disuniformity where the insert member engages the smooth cylindrical wall of the finger opening and tends to cause a separation of the insert member from the wall of the opening. This tendency for separation induces the adhesive or cement used to loosen and to cause the insert member to be insecure. To compensate for the compression of the rib member at its central portion where the compression is greatest and to permit some "flow" or displacement of rubber-like material, the body portion 14 is cut away at its upper edge adjacent to the central portion of the rib. This cut away portion 17 is particularly shown in Figure 2. In form, the body portion 14 assumes a somewhat "heart-shape" by reason of the cut away portion 17 provided in the upper edge of the body portion 14 near the center of the rib. It has been found that by this construction, the rib 15 does not tend to buckle the insert member and the rear face of the body portion 14, where it is secured to the wall of the finger opening, is more likely to remain in good firm contact and securement with the ball.

Immediately below the rib 15, a finger engaging portion is provided by the circular ridges 16 concentrically arranged as shown in Figure 2. These ridges 16 as shown are raised. The ridges may also be provided by a cutting away of the body portion to leave the ridges in raised position. By the circular form of the ridges and the general concentric arrangement of them, the pad at the end of the finger tends to centrally locate itself upon the circular ridges. The spiral or circular disposition is such that a finger reaching into the finger opening of the ball may be readily centered in proper position below the rib 15 by the sense of feel. There is a natural tendency for the end portion of the finger, that is, the pad of flesh at the end of the finger, to align itself so that the pad is directly and centrally located upon the center of the ridged portion provided

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by the ridges 16. The dimensions of the rib 15 and ridges 16 are such that the rib 15 rises considerably higher from the body portion 14 than the ridges 16. The relative dimensions are illustrated in Figure 5.

The insert member is curved and placed in position within the finger opening 13, as illustrated in Figure 1. It is located in the opening in accordance with the dimension of the hand of the player or user. After being properly positioned, then glue or other cement or suitable securing means is used to secure the insert member in the desired location. It is preferred that the insert member be moved down into the opening to where the terminal finger pad, denoted by the reference character 18 in Figure 1, is directly over and centrally located upon the ridged portion of the insert member. The rib or raised portion 15 is preferably located by the proper positioning of the insert member so that it is slightly below the crease 19, which is the general indication of the first joint of the finger. Thus the rib 15 is just below the crease 19 and above the crest or thickest part of the fleshy pad 18 on the end phalange of the finger when the finger and ball are in the position of Figure 1. As is seen in the drawing and as readily understandable, the rib 15 forms a ledge or shelf under which the end pad of the finger may hook or engage. The combination of the rib and the friction portion provided by the ridges 16 provides both a good gripping engagement for the finger and a body or handle under which the finger may engage or hook. By the arrangement of the parts of our insert member and by its proper positioning in the opening, the insert provides a means whereby the ball may be given a "lift" when the ball is delivered in the bowling operation. The results obtainable by the use of our insert member have proved surprisingly good to those who have tried it and it has produced results far surpassing their expectations. It is economical to manufacture and easy to mount in position. It adapts itself to use by various persons in that it may be positioned in the ball in accordance with the dimensions and shape of the particular individual's hand. If necessary, the adhesive may be loosened by suitable means and the insert member removed or its position shifted. Other than when purposely loosened, it may be securely adhered to the ball to provide a good grip for the user. The combination of the rib constructed as described and the gripping portion provided by the ridges 16 are such as to allow a "natural grip" and one which is particularly adapted for proper bowling technique. The advantages and features of our insert member will be readily recognized by those acquainted with the techniques problems, and scientific aspects of good bowling.

This disclosure includes the description of structure set forth in the appended claim, as well as the specific construction hereinabove described.

Although this invention has been described in its preferred form with a certain degree of particularity, it is understood that the present disclosure of the preferred form has been made only by way of example and that numerous changes in the details of construction and the combination and arrangement of parts may be resorted to without departing from the spirit and the scope of the invention as hereinafter claimed.

What is claimed is:

A device for providing a finger-engaging sur-

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face in a finger opening of substantially cylindrical form in a bowling ball, said device comprising a relatively thin slab of resiliently compressible material and being flexible to conform to the cylindrical wall on a side of said opening upon being inserted therein, said slab being adapted to extend partially around the circumferential extent of said wall and to be secured to the said wall, lift means under which a terminal finger phalange may engage for providing lift to the ball, said lift means comprising a relatively coarse rib integral with said slab and protruding outwardly from a side thereof and extending transversely of said slab near an end thereof, said rib having an edge extending transversely of said slab in a gradual slope from the side of said slab at the ends of the rib, said rib being also flexible to conform to the said wall, said rib edge being adapted to be disposed inwardly of the cylindrical wall on a side of said opening and across said opening in an arc having a radius greater than the radius of said cylindrical opening to provide an arcuate ledge on a side of said opening under which said terminal finger phalange may engage, friction means for providing frictional engagement for the pad of said terminal finger phalange, and centering means for providing a guide by feel for enabling said finger pad to be positioned at a predetermined location relative to said lift means, said friction and centering means com-

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prising a plurality of relatively fine ridge portions of said resiliently compressible material and integral with said slab and protruding outwardly from said side thereof, said fine ridge portions being arranged substantially concentrically around a center located at a distance from, and substantially equidistant from the ends of, said coarse rib to accommodate a said finger pad below said coarse rib, said coarse rib protruding outwardly from said slab a substantially greater distance than the distance said fine ridge portions protrude outwardly from said slab, said slab having a length substantially less than the depth of said cylindrical opening and adapted upon being inserted in said opening to have its upper edge positioned below the edge of said opening a distance accommodating the inserted finger of the user.

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