April 14, 1964 J. H. BEDNASH 3,129,002

BOWLING BALL HAVING REMOVABLE FINGER GRIP INSERT WITH VENTING AND TOOL-RECEIVING OPENING

Filed Nov. 9, 1961 2 Sheets-Sheet 1

Fig. 1

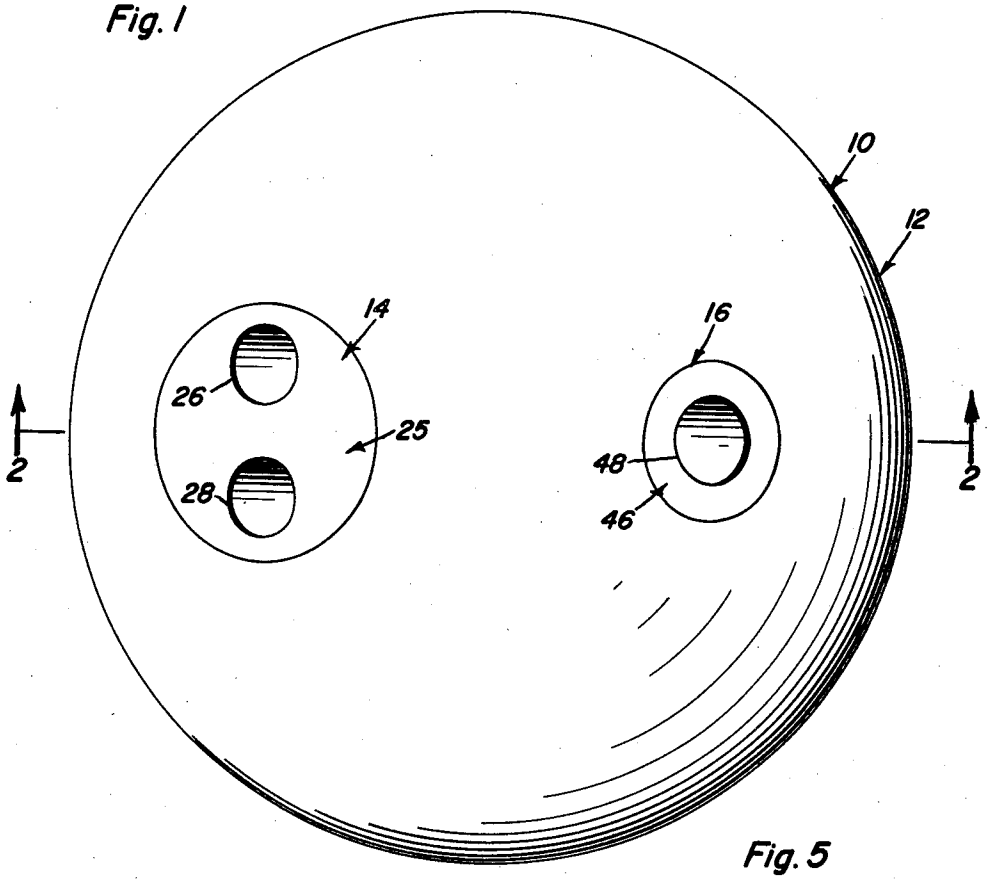


Fig. 4

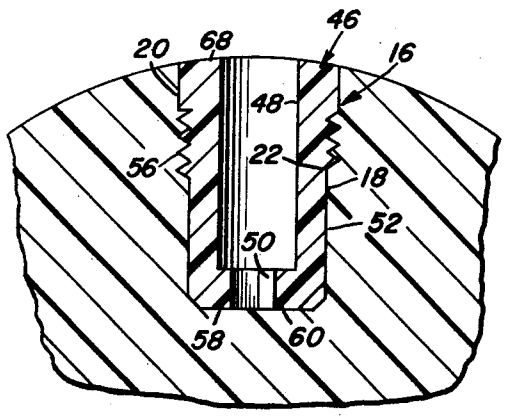
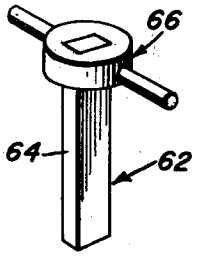


Fig. 5



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Fig. 2

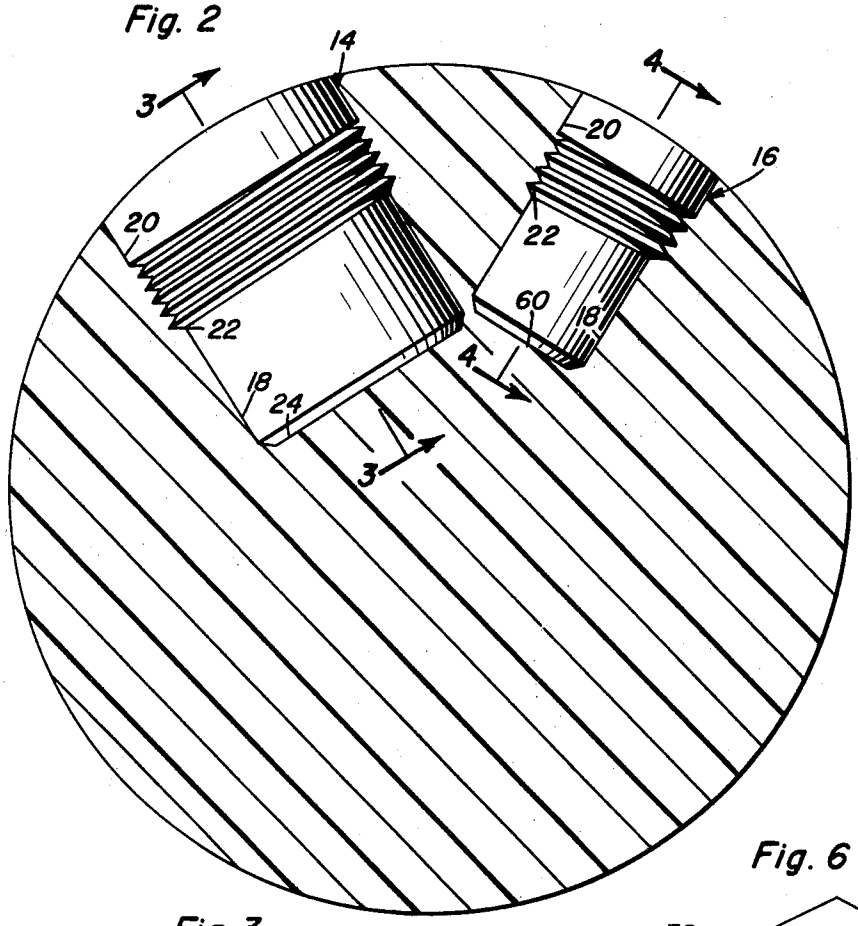


Fig. 6

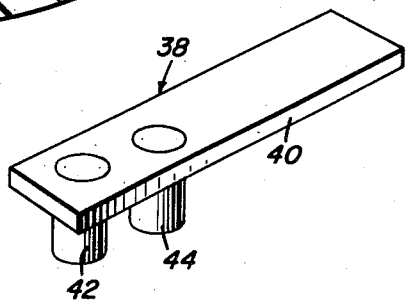
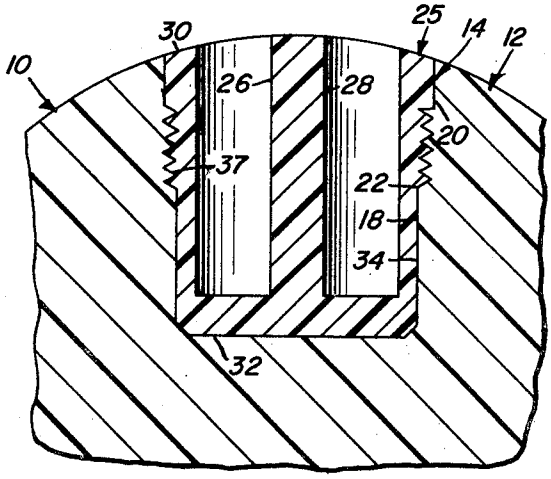


Fig. 3



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BOWLING BALL HAVING REMOVABLE FINGER GRIP INSERT WITH VENTING AND TOOL-RECEIVING OPENING

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4 Claims. (Cl. 273—63)

This invention relates to a novel and useful bowling ball having removable finger grip inserts and more specifically to a bowling ball which is primarily designed as a personal bowling ball for a tenpin bowler.

The bowling ball of the instant invention may be constructed of a predetermined size and of a preferred material having a predetermined specific density and will be spherical in shape. However, rather than being provided with conventional holes or recesses formed in the bowling ball itself for the reception of the fingers of a bowler, the bowling ball of the instant invention is provided with first and second generally radially extending and outwardly opening recesses in which first and second finger and thumb inserts are removably secured. The first and second insertes are provided with finger and thumb receiving cavities which open outwardly and these removable inserts are constructed in a manner whereby the outer ends thereof will conform to the adjacent surfaces of the bowling ball and in a manner whereby they will be fully seated within the recesses formed in the bowling ball when they are properly secured to the bowling ball.

The purpose of the removable thumb and finger inserts is to provide a means whereby the thumb and finger reeiving recesses of a bowling ball may be adjusted in position relative to each other and varied in size as desired by a bowler. In many instances the size and positioning of the finger receiving cavities in a bowling ball are temporarily or permanently "outgrown" by a bowler and if the bowler uses a conventional bowling ball it is necessary that he then purchase a new ball with the correct size and positioning of the finger receiving cavities. An increase of weight of a bowler will sometimes necessitate larger thumb and finger receiving cavities and atmospheric conditions will also cause the hands of a bowler to change in configuration.

Accordingly, it is the main object of this invention to provide a bowling ball with removable finger and thumb grip inserts which may be changed as desired in order that a bowler may purchase a single ball and yet at different intervals change the size and positioning of the thumb and finger receiving cavities formed therein.

A further object of this invention, in accordance with the immediately preceding object, is to provide a bowling ball having removable finger and thumb grip inserts which is constructed in a manner whereby the striking of any portion of the removable grip inserts with a bowling pin will not alter its normal bounce or deflection.

A further object of this invention is to provide a bowling ball in accordance with the preceding objects and including removable finger grip inserts which may be quickly replaced when desired even if it becomes necessary to do so during the course of a game.

A final object to be specifically enumerated herein is to provide a bowling ball in accordance with the preceding objects which will conform to conventional forms of manufacture, be of simple construction and easy to use so as to provide a device that will be economically feasible, long lasting and relatively trouble free in operation.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a top plan view of a bowling ball constructed in acordance with the present invention;

FIGURE 2 is a sectional view of the bowling ball taken substantially upon a plane indicated by the section line 2—2 of FIGURE 1;

FIGURE 3 is an enlarged fragmentary sectional view taken substantially upon a plane indicated by the section line 3—3 of FIGURE 2;

FIGURE 4 is an enlarged fragmentary sectional view taken substantially upon the plane indicated by the section line 4—4 of FIGURE 2;

FIGURE 5 is a perspective view of a tool which may be utilized to remove the thumb grip insert; and

FIGURE 6 is a perspective view of a tool which may be utilized to remove the finger grip insert.

Referring now more specifically to the drawings the numeral 10 generally designates the bowling ball of the instant invention which comprises a spherical member generally referred to by the reference numeral 12 that may be constructed of any preferred material having a predetermined specific density and of any desired size.

With attention now directed to FIGURE 2 of the drawings it will be seen that the bowling ball 12 has first and second generally radially extending and outwardly opening recesses 14 and 16 formed therein. Each of the recesses 14 and 16 includes a diametrically reduced inner end portion 18 and a larger diameter outer end portion 20. The inner end portion of the outermost end portion 20 is internally threaded as at 22 and it will be noted that the major diameter of the threaded portion 22 is substanilly equal to the diameter of the outer end portion 20.

It will also be noted from FIGURE 2 of the drawings that the innermost end of each of the recesses 14 and 16 has a flat bottom wall 24 and 60, respectively.

With attention now invited first to FIGURE 3 of the drawings it will be seen that the first insert 25 has a pair of outwardly opening finger receiving cavities 26 and 28 formed therein. While the cavities 26 and 28 are generally cylindrical and are illustrated in FIGURE 3 as being substantially parallel, it is to be noted tht the cavities 26 and 28 need not be perfectly cylindrical and also that they may be downwardly and inwardly convergent if desired.

It will be noted that the outer end face 30 of the insert 25 through which the cavities 26 and 28 open conforms to the adjacent surfaces of the spherical member 12 and that the innermost end 32 of the insert 25 is substantially flat and abuts against the inner wall 24 of the recess 14.

The insert 25 includes a minor diameter inner end portion 34 which is snugly received in the inner end portion 18 of the recess 14 and includes a major diameter outer end portion 36 which is snugly received in the outer end portion 20 of the recess 14. In addition, the inner end portion of the outer end portion 36 is externally threaded as at 37 and is threadedly engaged with the threads 22.

With attention now directed to FIGURE 6 of the drawings there will be seen a spanner-type wrench generally referred to by the reference numeral 38 which includes an elongated lever member 40 having a pair of spaced lug members 42 and 44 projecting outwardly from the same side of one end of the lever member 40. The lug members 42 and 44 are snugly receivable in the outer ends of the cavities 26 and 28 and may be utilized to rotate the insert 25 about its longitudinal axis for removing and securing the insert 25 in the spherical member 12.

With attention now directed to FIGURE 4 of the drawings it will be seen that the second insert 46 is constructed similarly to the first insert 25 with the exception that it is provided with a single cavity 48 whose inner end termi-

nates in a non-circular socket **50** which opens outwardly of the cavity **48**. The insert **46** includes a flat inner end wall **58** which abuts the flat inner end wall **60** of the recess **16** and the inner end portion **52** of the insert is snugly received in the inner end portion **18** of the recess **16** while the intermediate externally threaded portion **56** thereof is threadedly engaged in the intermediate internally threaded portion **22** of the recess **16**.

With attention now directed to FIGURE 5 of the drawings there will be seen a socket type wrench generally referred to by the reference numeral **62** which includes an elongated shank **64** which is complementary to the socket **50** in cross-sectional size and shape. One end of the shank **64** has a handle assembly **66** mounted thereon whereby the shank portion **64** may be rotated about its longitudinal axis in order to remove and secure the insert **46** in the recess **16**.

Inasmuch as the inner ends of the inserts **25** and **46** abut the inner end walls **24** and **60** of the recesses **14** and **16** respectively, any strike of the contoured outer end surfaces **30** and **68** of the inserts **25** and **46** with a bowling pin will cause only the normal bounce or "action" of the pin.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. A bowling ball comprising a solid, one piece spherical non-metallic body having a cylindrical finger bore extending thereinto from the spherical surface, a cylindrical fingergrip insert removably secured in said bore, cooperating engaging threads disposed solely upon the midportion of the cylindrical walls of the bore and insert, the outer ends of the bore and insert being diametrically enlarged, the inner ends of said bore and insert having flat, smooth bottom surfaces abuttingly engaging over their entire areas, said bore and insert having smooth cylindrical surfaces extending from said threads to their inner extremities and being in continuous engagement over the entire areas of said cylindrical surfaces, non-circular aperture means extending through said insert bottom surface from the interior of said insert for venting the space in said bore between said bottom surfaces and for receiving the complementary shaped extremity of a tool for rotating said insert.

2. A bowling ball of solid, one piece material having a finger bore extending thereinto from the spherical surface of the ball, a cylindrical finger grip insert removably secured in said bore, said insert and said bore having bottom walls with flat, smooth surfaces engaging over their entire areas, fastening means including a rotatable connection between the adjacent cylindrical walls of said insert and bore, said insert bottom wall having a non-circular opening extending entirely therethrough for venting the space in the bore below said insert bottom wall and for the reception of the complementary shaped extremity of a tool whereby rotation may be given to the insert, said insert and bore being in continuous engagement at their flat surfaced bottom walls and the lower portion of their adjacent cylindrical surfaces.

3. The combination of claim 2 wherein said insert and bore have their upper portions of greater diameter than their lower portions.

4. The combination of claim 3 wherein said rotatable connection comprises complementary engaging screw threads on the walls of said insert and bore.

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