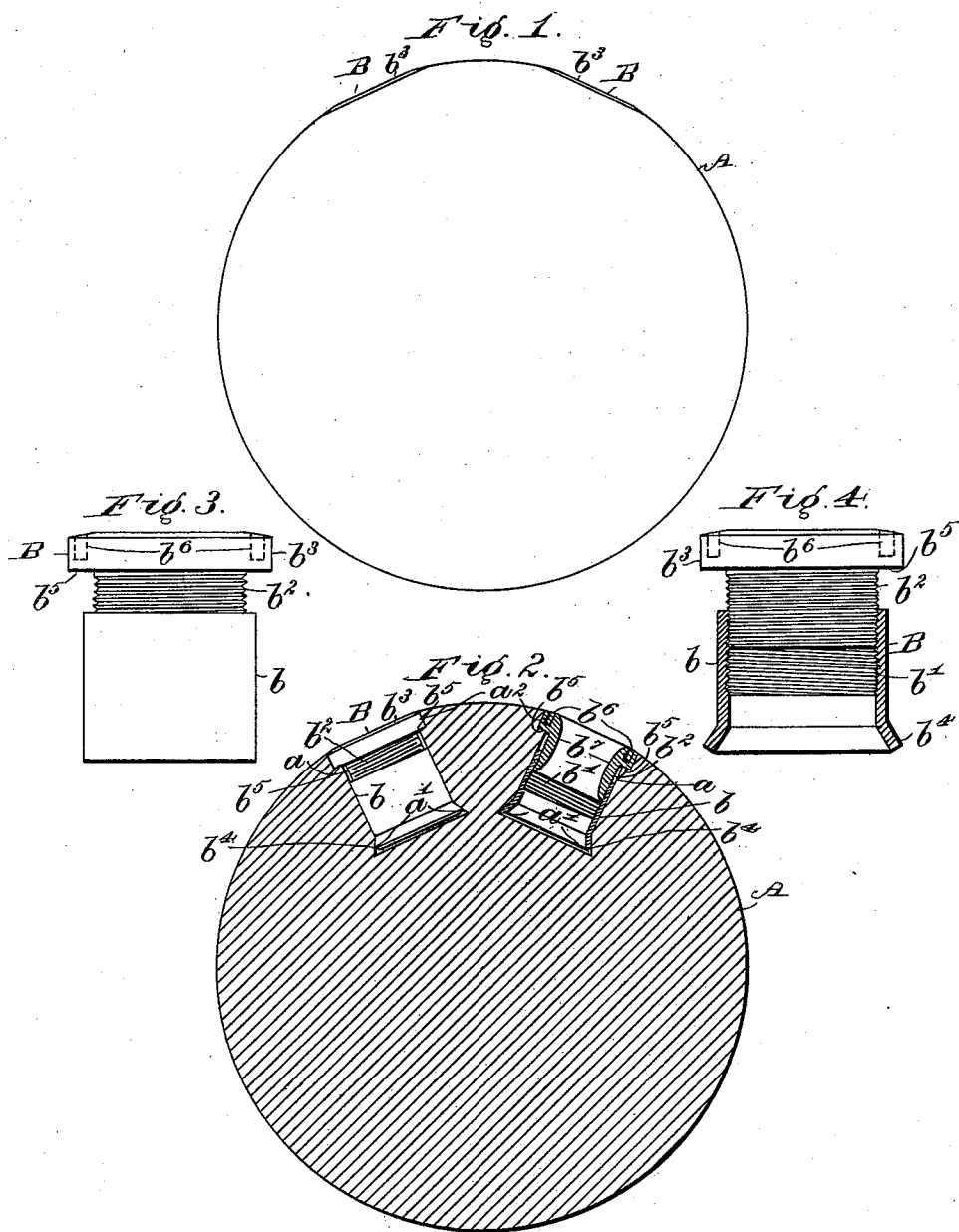


(No Model.)

F. D. HUNTOON.
BALL FOR BOWLING.

No. 533,011.

Patented Jan. 22, 1895.



WITNESSES.

Franklin H. Hodge,
Myrtle L. Hanger,

INVENTOR

Frank D. Huntoon,

By *Albert M. Moore*
His ATTORNEY.

UNITED STATES PATENT OFFICE.

FRANK D. HUNTOON, OF LOWELL, ASSIGNOR OF ONE-HALF TO WILLIAM J. JOHNSON, OF NEWTON, MASSACHUSETTS.

BALL FOR BOWLING.

SPECIFICATION forming part of Letters Patent No. 533,011, dated January 22, 1895.

Application filed January 22, 1894. Serial No. 497,651. (No model.)

To all whom it may concern:

Be it known that I, FRANK D. HUNTOON, a citizen of the United States, residing at Lowell, in the county of Middlesex and Commonwealth of Massachusetts, have invented a certain new and useful Improvement in Balls for Bowling, of which the following is a specification.

My invention relates to balls for bowling, that is, for playing ten pins and similar games.

The regulation ball for playing match games of ten pins is made of lignum vitæ and is about twenty-seven inches in circumference and so heavy that it is commonly provided with holes to receive the thumb and one or more fingers of the player, to enable the ball to be rolled by one hand. It is difficult to make the holes smooth enough to avoid injury to the fingers of the player which are frequently made very sore by the friction of the holes on the fingers as the fingers are withdrawn from the ball. The balls being made of wood are frequently chipped around the outer end of the holes by the balls striking against each other in the run-ways by which the balls are returned to the player and by striking against the pins. Of course, this chipping of the balls makes the action of the holes still more severe on the fingers of the player and interferes with the proper rolling of the ball, so that, the ball must be turned down smaller after which the ball cannot be used for a match game and its commercial value is thereby greatly diminished. An attempt has been made to remedy these evils by securing straight tubular externally-screw-threaded bushings in the holes, but the wood is apt to shrink about the bushings to such an extent as to loosen the bushings sufficiently to allow them to fall out of the holes or to allow them to be drawn out by the friction of the player's fingers as the ball leaves his hand.

The object of this invention is to protect the player's fingers from injury, to prevent the chipping of the ball about the holes, to secure the bushings firmly in the holes, but in such a manner as to allow the bushings to be removed in case it should become necessary, notwithstanding the bushings, to turn down the surface of the ball and to enable the bushing to be replaced after the ball has been re-

duced in size and to allow the bushing to be tightened as the material of the ball shrinks.

In the accompanying drawings, Figure 1 is a side elevation of a ten-pin ball, provided with my improved bushing; Fig. 2, a central section of such a ball, showing two bushings, one in elevation and the other in central section; Fig. 3, a side elevation of both parts of the bushing, as the same appears before being inserted in the ball; Fig. 4, a side elevation of the upper part of the bushing and a central section of the lower part of the bushing with its lower end spread outward to secure it in the ball.

The ball A is of the usual form and material, and is provided with holes *a* to receive the bushings substantially in the usual manner, except that the inner ends of the holes *a* are enlarged or expanded into annular recesses *a'* by any convenient means, as by rotating the ball around the axial line of the hole *a* while a bent or bevel boring tool is held against the side of the hole at the inner end thereof.

The bushing B is formed in two parts, the part *b* being a cylindrical tube, preferably of metal and provided with an internal screw-thread *b'* to engage an external screw-thread *b²* on the other part *b³* of said bushing. The part *b* of the bushing B is placed in the hole *a* and the inner end, at *b⁴*, of said part *b* is "spun" or pressed outward into the recess *a'*, securing said part *b* immovably in the hole *a*. The part *b³* of the bushing B is provided, at its outer end, with a thick annular flange, *b⁵*, adapted to enter and fit an annular enlargement or counterbore *a²* of the hole *a* flush with the curved surface of said ball A. The flange *b⁵* is provided with two holes *b⁶*, at opposite sides of said flange and parallel with the axis of the bushing B, these holes *b⁶* being adapted to receive a spanner by means of which the part *b³* of the bushing B may be screwed into the part *b* of said bushing or removed therefrom.

The bore of the part *b³* of the bushing B is gradually contracted from the ends toward the middle on curved lines, as shown at *b'* in Fig. 2, so that as the tips of the finger and thumb are inserted beyond the middle part of said bore they approach each other and grasp the included portion of the ball with great firm-

ness. The bore of the part b^3 of the bushing is perfectly smooth and said part is of such length that the finger and thumb do not reach beyond the inner end thereof, so that no injury is caused to the thumb and finger by the friction of the bushing thereon. The outer end of the part b of the bushing does not reach to the flange b^5 , so that when the part b^3 of the bushing is removed the ball may be turned down without said part b interfering with the turning tools. The top or outer surface of the flange b^5 is, of course, shaped to correspond to the general curvature of the surface of the ball.

Obviously, the enlargements or flanges b^3 b^4 of the parts or bushings b b^5 , respectively act and react upon the material of the ball between said enlargements or flanges in such a manner as to prevent any movement of said parts or bushings except when said material shrinks, in which case the bushing B may be shortened to take up the shrinkage by turning the part b in the part b^5 .

I claim as my invention—

1. The combination of a ball, having a finger-hole, provided with an enlargement at a distance below the surface of said ball and a bushing arranged in said finger-hole and provided with an enlargement to enter said enlargement of said finger-hole and to prevent the removal of said bushing from said finger-hole, as and for the purpose specified.

2. The combination of a ball, having a finger-hole, provided with two annular enlargements, one of said enlargements being at the surface of said ball and the other at a dis-

tance below said surface, and a bushing formed in two tubular parts, each provided with a screw-thread to engage the screw-thread of the other of said bushing-parts, and each of said bushing-parts being provided with an annular enlargement to enter one of the annular enlargements of said finger-hole, to retain said bushing in said finger-hole and to allow said bushing to be shortened when the material of said ball shrinks, as and for the purpose specified.

3. The combination of a ball, having a finger-hole provided with an enlargement, and a bushing formed in two tubular parts, each provided with screw-threads to engage the screw-threads of the other of said parts, one of said parts fitting said finger-hole and enlargement and being thereby retained in said finger-hole, as and for the purpose specified.

4. The combination of a ball, having a finger-hole provided with an enlargement, and a bushing formed in two parts or tubes, one of said parts fitting said hole and enlargement and having an internal screw-thread and the other of said parts having an external screw-thread to engage said first-named screw-thread and having its bore contracted between the ends thereof on curved lines, as and for the purpose specified.

In witness whereof I have signed this specification, in the presence of two attesting witnesses, this 18th day of January, A. D. 1894.

FRANK D. HUNTOON.

Witnesses:

ALBERT M. MOORE,
IRVING S. PORTER.