July 12, 1949. L. CAMPI 2,475,876

BOWLING GRIP

Filed May 23, 1946

Fig. 1.

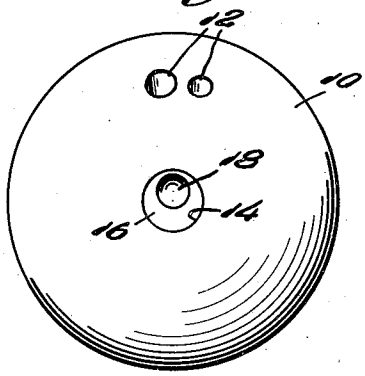



Fig. 2.

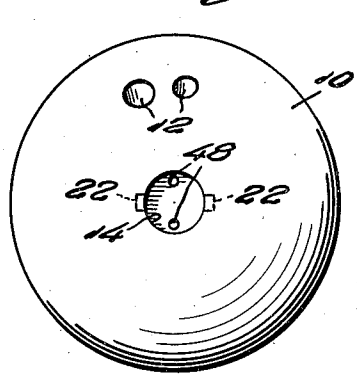



Fig. 3.

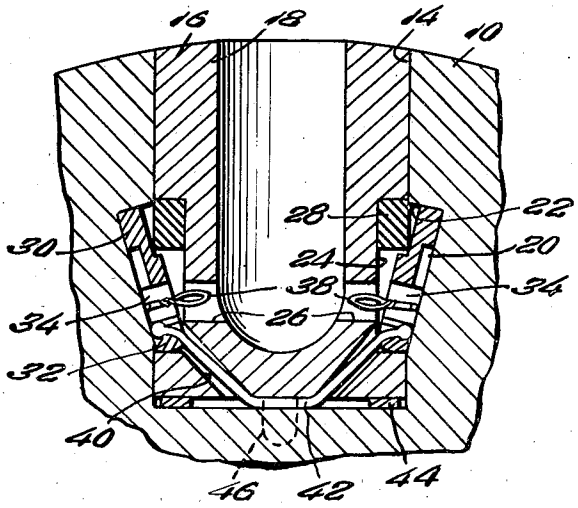



Fig. 4.

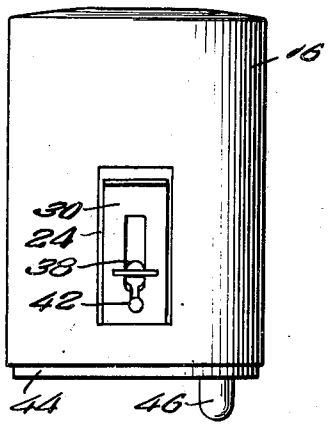



Fig. 5.

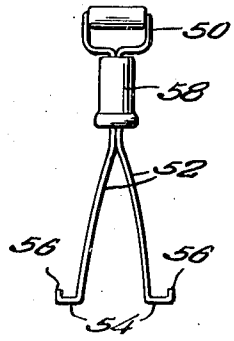



Fig. 6.

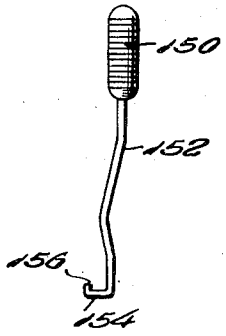
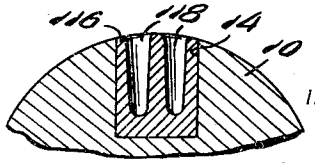



Fig. 7.




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## BOWLING GRIP

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10 Claims. (Cl. 273—63)

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This invention pertains to novel and useful improvements in a bowling grip and more particularly has reference to a removable grip insert adapted for selective positioning in a bowling ball to suit the convenience of the individual user thereof.

The primary object of my invention is to provide a means for adapting a single bowling ball for the most convenient and efficient use by various persons.

An additional object of the invention is to provide a means whereby the finger grip of a bowling ball may be readily varied to a predetermined spacing.

Yet another object of my invention is to form a finger grip insert which may be readily inserted in a variety of positions in a bowling ball, may be securely retained therein when inserted, and may be readily removed when desired.

Other ancillary objects of the invention pertain to the formation of an insert means for bowling balls which is inexpensive, of light weight construction, durable in use, and is extremely efficient for the purpose intended.

These together with numerous other objects of the invention which will later become apparent as the following description proceeds, are attained by my device, various embodiments of which have been illustrated by way of example only in the accompanying drawings, wherein:

Figure 1 is a top plan view of a bowling ball showing an adjustable finger grip positioned therein;

Figure 2 is a top plan view of the ball as shown in Figure 1, but with the insert removed to indicate the construction of the socket;

Figure 3 is a vertical sectional view through a portion of a ball and through an insert secured therein, in accordance with my invention;

Figure 4 is a side elevational view of the insert as shown in Figure 3;

Figures 5 and 6 are elevational views of tools for removing the insert; and,

Figure 7 is a fragmentary vertical sectional view showing a modified form of insert secured in the ball.

Particular reference is now made to the attached drawings, wherein 10 indicates a bowling ball which may be of any desired and conventional construction. Suitably positioned about the surface of the ball 10, are a plurality of customary finger grip sockets 12 which also may be of conventional construction and configuration. At various suitable positions upon the surface of the ball, are provided a plurality of sockets or

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bores 14, one of which has been illustrated in the drawings for the sake of simplicity which bores are adapted to detachably receive insert members 16 constituting finger grip members. As shown more clearly in Figure 3, the insert 16 is provided with a bore 18 which may be axial to the insert, but preferably and usually will be formed eccentric to the axis thereof, as shown more clearly in Figure 1. In accordance with the purposes of this invention, the insert 16 may conveniently be formed of a plastic or flexible and deformable material such as rubber or the like, although it is to be distinctly understood that any other suitable materials may be employed.

As shown best in Figure 3, the socket 14 is counter-bored adjacent its lower portion as at 20 entirely around the inner circumference of the socket to form a downwardly inclined shoulder 22 for a purpose to be later set forth. The insert 16 is provided with a circumferential groove 24 which communicates with the interior of the socket as by diametrical apertures 26. An annular ring 28 of sponge rubber or other flexible and resilient material is seated in the upper portion of the groove 24 while a pair of latch or key members 30 have their lower ends 32 seated upon the lower surface of the annular groove 24 and are provided with apertures 34, the latch means 30 being so proportioned as to snugly fit in the groove 24 and with the apertures 34 in substantial alignment with apertures 26. A handle or loop means 38 is suitably attached to the latch members 30 and extends through the aligned apertures 26 and 34, whereby they may be engaged in a manner to be set forth later from the interior of the bore 18. A plurality of downwardly extending channels 40 communicate with the lower portion of the groove 24 and open below the insert member 16. An elastic or flexible cord 42 extends from below the member 16 and through the conduit 40, and has its extremity secured to the base of the key or latch means 30.

The proportion of the parts as set forth above, is such that when the insert 16 is pushed into the bore 14 the walls of the bore 14 will force the latch means 30 into and flush with the groove 24, whereby the resilient annular member 28 will be sufficiently deformed to accommodate this recession of the latch 30, whereupon the insert 16 is pushed downwardly until the upper end of the latch registers with the lower end or shoulder 22 of the counter bore 20. In this position, the resilience of the member 42 causes the latch members to pivot about their lower extremities

and move radially outward at their upper ends into engagement with the peripheral surface of the inclined counter bore 20 and with the upper ends of the latches underneath the shoulder 22. With the parts disposed in this position, the insert 16 can not be withdrawn from the bore 14. In order to insure that the insert 16 seats securely in the bore 14 a resilient gasket or cushioning means indicated at 44 is positioned in the bottom of the bore 14. Preferably the insert 16 has a plurality of depending extensions 46 upon the lower surface thereof engaging in bores 48, and while only two bores 48 are shown diametrically oppositely disposed it is understood that any number may be provided. These extensions are adapted to engage, reversibly, in bores 48 extending downwardly from the lower surface of bore 14. By this means, when the plug or insert 16 is diametrically reversely positioned in bore 14, with the depending extensions 46 being reversibly received in bores 48, the eccentric axis of the bore 18 may be adjusted towards and from and in many other positions from the other finger grips 12 for varying the distance therebetween, depending on the number of bores 48 used.

As shown in Figure 7, a modified form of insert indicated at 116 is detachably secured in bore 14 of the ball 10. This insert includes a pair of bores 118 whereby either bore may be used in conjunction with the finger grips 12 or whereby the bores 118 may be used together with each other and with the finger grip portion 12. The means for attaching, adjusting and removing the modified insert 116 are similar in construction and operation to the aforementioned embodiment of Figures 1–4.

In order to remove an insert preparatory to readjusting the position of the same, or replacing it with another of a series of inserts of predetermined characteristics, I may employ either of the tools shown in Figures 5 and 6. The implement shown in Figure 5 consists of a handle portion 50 to which is secured a pair of depending arms 52 terminating in laterally disposed extensions 54 having hooked end portions 56. In operation, the arms 52 and hooks 56 are inserted downwardly through the bore 18 and the natural resilience of the arms causes the hooks to engage in the handles or loops 38. A sleeve or collar member 58 embracing the arms 52 may now be thrust downwardly causing the arms to move toward each other and causing the hook 56 to draw the handles 38 and consequently the latches 36 radially inward until the latter are sufficiently seated in the grooves 24 to clear the shoulder 22 and permit the upward withdrawal of the insert 16 by upward pressure exerted upon the handle 50.

In the form of tool shown in Figure 6, a handle 150 is secured to a depending arm portion 152 having a laterally extending member 154 terminating in a hook portion 156. In employing this tool, to effect the removal of the inserts, the hook and arm 152 are lowered into the bore 18 and engage with one of the handles 38. By proper manipulation of the handle 150 and arm 152, the engaged handle 38 effects the withdrawal of the latch 39 from the counter bore 20 whereby that portion of the insert 16 may be lifted sufficiently for the engaged latch 39 to clear the shoulder 22 and start to enter the bore 14. The tool is then applied to the other latch and the foregoing operation repeated. By this procedure, the insert may be readily withdrawn from the bore.



From the foregoing, it is believed that the operation of my device will be readily apparent. It will thus be seen that the objects of the invention are attained and that a simple and dependable means is provided whereby one bowling ball may serve the individual needs of each member of a family by appropriate variation of the spacing between the finger grips, and may even be modified to suit the needs of an individual user under varying conditions of playing. The devices are inexpensive, and a series of inserts having varying characteristics may be kept on hand to supply the various situations which may arise. It is further intended that any or all of the finger grip bores, whether provided in my detachable sockets or formed directly in the bowling ball may be of tapered shape with a larger internal diameter at the surface of the ball than at the bottom of the bores, this proportioning facilitating the insertion and removal of the bowlers' fingers in the bore, relieving the wear upon the fingers and minimizing the chafing and the creation of sores or callouses.

It is to be understood that the accompanying drawings and specification are illustrative in purpose only, and that I do not limit myself to the exact construction shown but may avail myself of any modifications falling within the scope of the appended claims.

I claim as my invention:

1. In a bowling ball having a finger grip socket with a peripheral shoulder therein, a detachable insert for said socket having a longitudinal unobstructed bore forming a finger grip in said bowling ball, said insert having bottom and side walls, a recess in the outer periphery of said side wall and extending only partially therethrough, a latch member seated in said recess and having a portion displaceable therefrom for engagement with said shoulder for locking said insert in said socket, means for retaining said latch member in said recess and means for positively withdrawing said portion of said latch member into said recess and out of engagement with said shoulder.

2. The combination of claim 1 wherein said means for retaining said latch member comprises a resilient element terminally secured to said latch member and fastened to said insert.

3. The combination of claim 1 including a passage in the side wall of said insert communicating with the elongated bore and with the recess, said means for withdrawing said latch comprising a handle on said latch member extending into said passage and actuatable from the longitudinal bore.

4. The combination of claim 1 including a resilient member seated in said recess and yieldingly urging said latch portion into displacement therefrom.

5. The combination of claim 1 including a resiliently deformable member seated in the upper portion of said recess, said latch member being seated in the lower portion of said recess, said resiliently deformable member yieldingly urging the latch portion into displacement from said recess.

6. In a bowling ball having a finger socket with a peripheral shoulder therein, a detachable insert for said socket having a longitudinal, unobstructed bore forming a finger grip in said bowling ball, said insert having bottom and side walls, an annular recess in the outer periphery of said side wall and extending only partially therethrough, a latch member comprising a plu-

rality of key members secured to each other by a flexible element, said key members being seated in said recess and retained therein by said flexible element, said key members having portions displaceable from said recess for locking engagement with said shoulder to prevent withdrawal of said insert from said socket, means for retracting said key members into said recess to permit withdrawal of said insert from said socket.

7. The combination of claim 6 wherein said key members are seated in the lower portion of said recess and are pivotal about their lower portions, for displacing said key member portions from said recess.

8. The combination of claim 6 including openings from said elongated bore into said recess, said last-named means extending into said openings for operation from said bore.

9. The combination of claim 6 wherein said key members are seated in the lower portion of said recess and are pivotal about their lower portions, for displacing said key member portions from said recess, a resilient member seated in the upper portion of said recess and yieldingly uring said key member portions outwardly from said recess.

10. In a bowling ball having a finger socket with a peripheral shoulder therein, a detachable insert for said socket having a longitudinal, unobstructed bore forming a finger grip in said



bowling ball, said insert having bottom and side walls, an annular recess in the outer periphery of said side wall and extending only partially therethrough, a latch member comprising a plurality of key members secured to each other by a flexible element, said key members being seated in said recess and retained therein by said flexible element, said key members having portions displaceable from said recess for locking engagement with said shoulder to prevent withdrawal of said insert from said socket, means for retracting said key members into said recess to permit withdrawal of said insert from said socket, a resilient member seated in the upper portion of said recess and yieldingly urging said key member portions outwardly from said recess.

LOUIS CAMPI.


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