March 23, 1943. J. H. AKIN 2,314,811

BOWLING BALL GRIP

Filed July 12, 1940 2 Sheets-Sheet 1

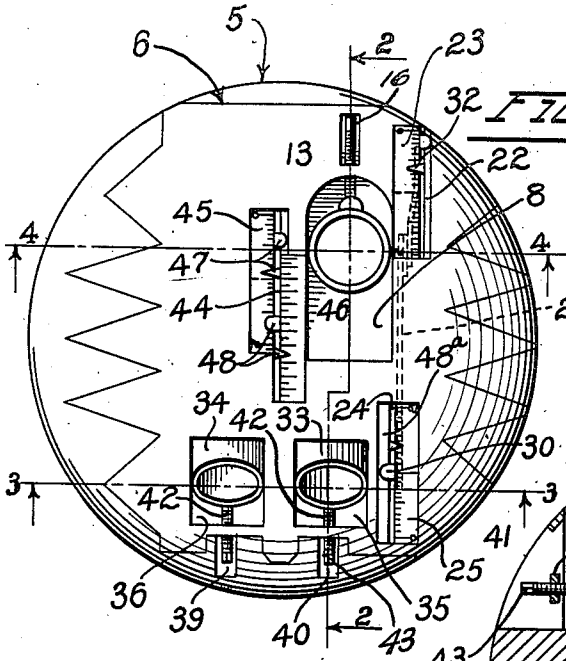


FIG. 1

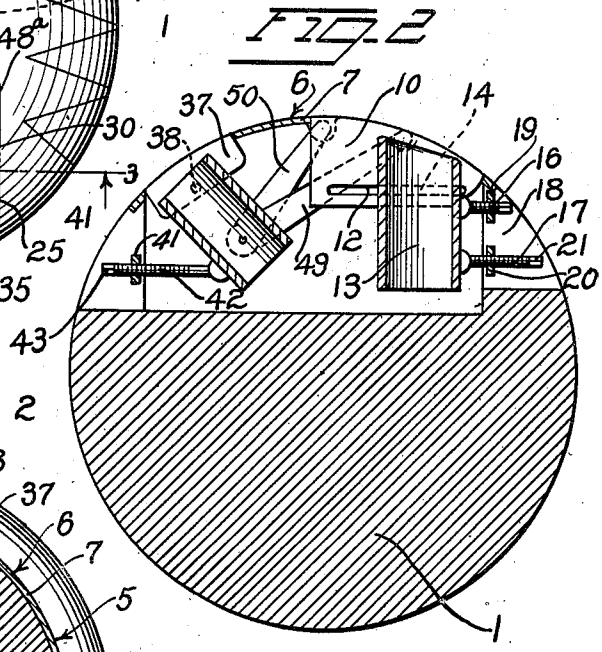


FIG. 2

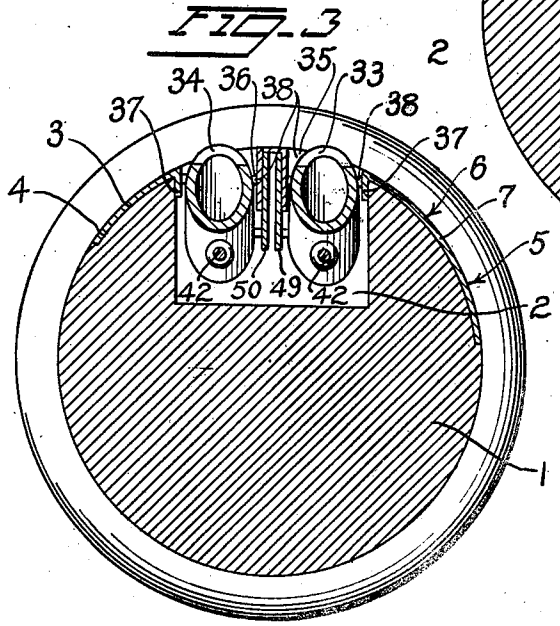


FIG. 3

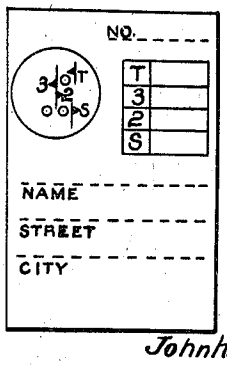


FIG. 6

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FIG. 4

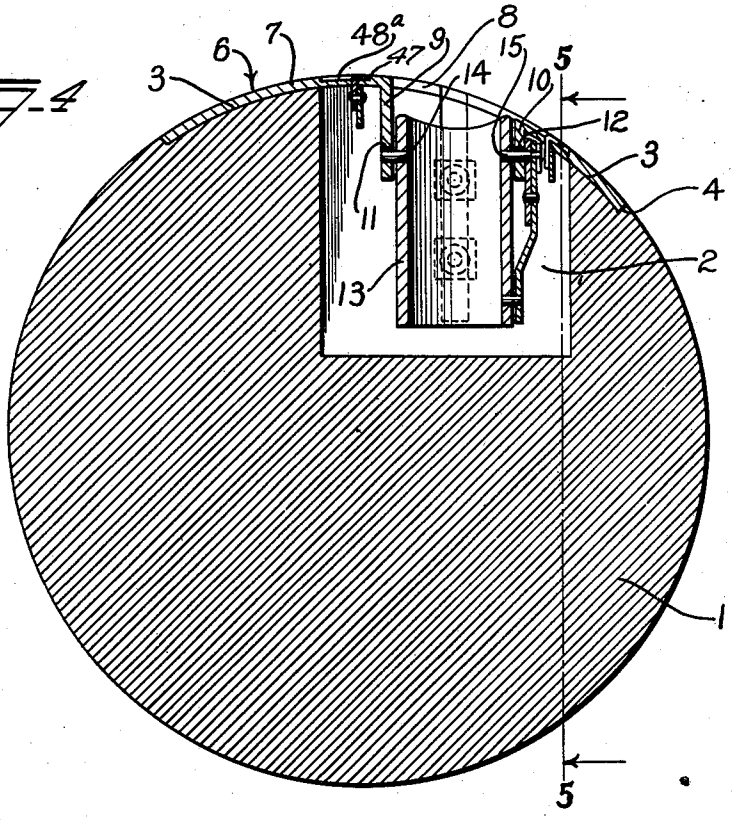
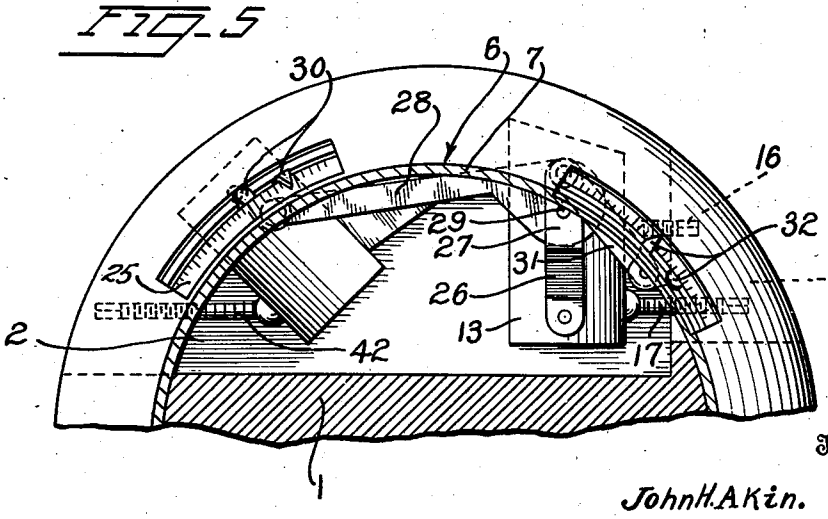


FIG. 5



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BOWLING BALL GRIP

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Application July 12, 1940, Serial No. 345,213

4 Claims. (Cl. 33—174)

This invention relates to bowling balls and more particularly to an improved bowling ball grip.

It is well known that the forming of the grip in a bowling ball has always been more or less guess-work and that bowlers are continually complaining about bowling ball grips not fitting their hands.

One of the principal objects of the invention, therefore, is to provide a bowling ball grip which may be adjusted to fit the individual hand of the bowler, so that measurements of said individual hand may be recorded for subsequent use by a manufacturer to enable the manufacturer to produce a bowling ball having a grip formed according to the measurements.

A further object of the invention is to provide a bowling ball grip which may be quickly adjusted to the bowler's satisfaction.

Another object of the invention is to provide a device of this character employing means for indicating exact hand measurements so that a bowler will be able to adjust the grip preliminary to gripping the ball.

And still another object of the invention is to provide a bowling ball grip wherein the measurements may be taken with the full weight of the ball on the hand.

And a further object of the invention is to provide a bowling ball grip wherein the mechanism employed may be positioned in such a manner as not to interfere with the spherical surface of a bowling ball.

Another object of the invention is to provide a grip of the type mentioned hereinabove wherein both of the finger stalls and the thumb stall are adjustable.

Other objects of the invention, not particularly mentioned hereinbefore, will become apparent during the course of the following description.

In the drawings:

Figure 1 is a top plan view of a bowling ball equipped with my improved grip,

Figure 2 is a vertical sectional view on the line 2—2 of Figure 1 looking in the direction indicated by the arrows,

Figure 3 is a vertical sectional view on the line 3—3 of Figure 1,

Figure 4 is a vertical sectional view on the line 4—4 of Figure 1,

Figure 5 is a vertical sectional view on the line 5—5 of Figure 4, and

Figure 6 is a diagrammatic view showing a card on which grip measurements may be recorded for future use.

Referring now more particularly to the accompanying drawings, wherein like numerals of reference will be seen to designate similar parts throughout the various views, the numeral 1 indicates a bowling ball. The bowling ball 1 is formed with a recess 2 which is substantially rectangular in contour and which communicates with the outer surface of the ball throughout a relatively small area on its circumference. A relatively shallow recess 3 is formed on the surface of the ball and communicates with the recess 2, said recess 3 cooperating with the surface of the ball to define a shoulder 4. As shown in Figure 1, the shoulder is of irregular contour so that the frame, to be described hereinafter, will be effectively anchored against shifting movement.

As is well known, the ordinary bowling ball is provided with a plurality of finger stalls and a thumb stall. These stalls are arranged for receiving the thumb and first and second fingers of the hand of the bowler. These finger stalls would normally be located within the area of the recess 2 but, in the present invention, will be supplanted by mechanism now to be described in more detail. The numeral 5 indicates in general the grip mechanism. The grip mechanism 5 includes a frame 6, said frame having a curved body plate 7 on which are mounted the finger stalls and associated parts to be referred to hereinafter. The body plate 7 is shaped with irregular edges to fit within the relatively shallow recess 3 and has said irregular edges in engagement with the shoulder 4, defined by the junction of the edges of the recess 3 with the surface of the ball 1. It is particularly pointed out that the body plate has its surface of the same curvature as the face of the ball 1 so that there will be absolutely no interference with the rolling of the ball. It is also desired to mention that the grip mechanism is of such weight that it will not upset the balance of the ball 1.

The body plate 7 is formed with a thumb stall opening 8 which is of oblong shape and which extends longitudinally of the frame near one end thereof. Struck down from the thumb stall opening, at the opposite sides thereof, are stall mounting plates 9 and 10 disposed in parallel spaced relation. As seen in Figure 4, the plate 9 is relatively long, whereas the plate 10 is relatively short, this being due to the curvature of the body plate 7. As will be seen, the plates 9

and 10 have their lower ends disposed in the same horizontal plane. Formed in the plates 9 and 10 are oppositely disposed and alined longitudinally slots 11 and 12. Shiftably mounted within the thumb stall opening between the mounting plates 9 and 10 is a thumb stall 13. The thumb stall 13 is movably mounted within the recess by means of pins 14 and 15 which extend from the upper end of said stall, in alined relation, into the slots 11 and 12. It will now be seen that the thumb stall may be shifted within the recess and between the plates 9 and 10 the distance of the slots 11 and 12. In order to anchor the thumb stall 13 in a set adjusted position, I employ adjusting screws 16 and 17 which screws extend into an opening 18 which leads from the outer surface of the ball to the recess 2. The opening 18 is relatively narrow, being but of sufficient width to receive the screws 16 and 17. Nuts 19 and 20 are, as best seen in dotted lines in Figure 4, embedded in the walls defining the opening 18 and are disposed in vertical spaced relation in said opening gear its inner extremity. The nuts rotatably receive the screws 16 and 17, which screws have their outer ends squared, as shown at 21, to receive a turning key and their corresponding inner ends pivotally connected to the stall 13 at vertically spaced points along the length of said stall. It will be seen that, by rotating both of the screws 16 and 17, the stall 13 may be shifted lengthwise of the frame between the plates 9 and 10. Also by rotating one screw or the other, the stall may be tilted from the absolute vertical to a position for comfortably receiving the thumb of a hand.

Formed in the body plate 7 in parallel spaced relation to the thumb stall opening 8 is an indicator slot 22. The slot is located somewhat nearer the end edge of the body plate 7 than is the thumb stall opening. Mounted on the surface of the body plate adjacent the inner edge of the indicator slot 22 is an indicator scale 23, said scale extending throughout the length of said slot and being laid off with suitable graduations. An indicator slot 24 is formed in the body plate 7 near the opposite end thereof and in a plane parallel with the plane of the indicator slot 22. An indicator scale 25 is mounted adjacent the outer edge of the slot 24 and extends throughout its length. Like the scale 23, the indicator scale 25 is laid off with suitable graduations.

Referring particularly to Figure 5 of the drawings, it will be seen that the thumb still 13 is provided with a lever 26 which extends vertically along the length of said stall and has an intermediate offset portion and an upper portion which is parallel to the face of the stall in spaced relation thereto. For the sake of convenience, the upper portion is indicated at 27. A link 28 is connected, by means of a pin 29, to the upper portion 27, said link also being connected with the pin 15. The opposite end of the link 28 is pivotally connected to a pointer 30 which is movably mounted in the indicator slot 24. A link 31 has one end connected to the upper portion 27 and to the pin 15 and its opposite end pivotally connected with a pointer 32 which is mounted for sliding movement within the slot 22. It will now be understood that, when the adjusting screws 16 and 17 are both rotated for shifting the stall 13 within the recess 2, the amount of shifting movement will be indicated on the scales 23 and 25. When one or the other of the screws 16 and 17 are rotated, for tilting the thumb stall from the vertical, such tilting movement will be indicated on the scale 25.

Also mounted within the recess are finger stalls 33 and 34, the finger stall 33 normally receiving the forefinger of the hand and the finger stall 34 normally receiving the next adjacent finger. The finger stalls 33 and 34 are, respectively, mounted in openings 35 and 36 which are formed in the body plate 7, in parallel spaced relation to each other, at the opposite end thereof from the opening 8. Flanges 37 extend downwardly from the openings 35 and 36, and extending through the flanges and into opposite points on the wall of each of the finger stalls are pivot pins 38, said pins mounting the stalls for swinging movement within the openings 35 and 36. As clearly shown in Figures 1 and 2 of the drawings, relatively narrow openings 39 and 40 are formed in the body 1 and lead from the exterior surface of said body to the interior of the recess 2. The openings 39 and 40 are in parallel spaced relation to each other, and like the opening 18, are relatively narrow.

In the walls of each of the openings 39 and 40 is mounted a nut 41. Screwed through each of the nuts 41 is an adjusting screw 42, said adjusting screws being similar to the adjusting screws 16 and 17. The adjusting screws have squared outer ends 43, for receiving a turning key, and corresponding inner ends which are pivotally connected to corresponding points on the walls of the finger stalls 33 and 34, near the lower ends of said walls. It will now be understood that rotation of the adjusting screws 42 will cause the finger stalls to swing about the pins 38, said stalls thus being adjustable for permitting convenient reception of the forefinger and the next adjacent finger.

Formed in the body plate 7 at the opposite side of the thumb stall opening 8 from that having the slots 22 and 24 therein is a double indicator slot 44, said slot extending through the length of the mid-portion of the plate. Mounted adjacent one edge of the slot 44 and extending from one end thereof throughout substantially three-fourths the length of the slot is a scale 45. A scale 46 extends from the opposite end of the slot, adjacent the opposite edge thereof throughout substantially three-fourths the length of said slot. Both of the scales 45 and 46 are, like the scales 23 and 25, laid off with suitable graduations. Slidably mounted in the slot 44 are pointers 47 and 48, the pointer 47 cooperating with the scale 45 and the pointer 48 cooperating with the scale 46, said pointers being independently movable within the slot. Attention is directed to the fact that, as seen in Figure 4, the exposed ends of the pointers 47 and 48 and also the pointers 30 and 32 are located in recesses 48a which are formed in the face of the plate 7. Due to this construction, the pointers will not project past the surface of the plate and said surface will, therefore, be uninterrupted. The pointer 47 is pivotally connected to the finger stall 33 by means of a link 49 while the pointer 48 is pivotally connected with the finger stall 34 by means of a link 50. As seen clearly in Figures 2 and 3 of the drawings, the links 49 and 50 are connected, respectively, to the finger stalls 33 and 34 near their corresponding lower ends. It will now be understood that, when the screws 42 are rotated for shifting the finger stalls, said shifting movement will be indicated on the scales 45 and 46 by the pointers 47 and 48, respectively.

It is believed that the construction and operation of my improved bowling ball grip will be understood from the foregoing. However, a brief further discussion on the subject is not thought to be out of place.

When a bowler desires to have a bowling ball, formed with a grip to suit his individual hand, manufactured, he first inserts his thumb and fingers in their proper stalls beneath the body plate 1 of my device. The bowler then lifts the ball and, assuming that the preliminary grip adjustment does not suit him, rotates the adjusting screws for positioning the finger and thumb stalls to provide the most comfortable grip. As stated hereinbefore, the position of the finger stalls and thumb stall is indicated on the scales so that the bowler may record the positions of the stalls upon a card of the type shown in Figure 6. He can take this card to a manufacturer who will be able to produce a bowling ball having a grip formed according to instructions on the card. It will, of course, be understood that the manufacturer will have one of my devices so that he will be enabled to position the thumb stall and finger stalls in accordance with indications on the card and, with this as a guide, form a bowling ball with the desired grip.

It is a particularly noteworthy feature of this invention that the stalls may be adjusted when the ball is being held in the hand of a bowler. The full weight of the ball will have no effect on the adjustment. Also, the span between the thumb and finger may be adjusted to a very fine degree of accuracy and the adjustment may be made in a very short space of time.

It is believed that further discussion is unnecessary.

Having thus described the invention, what is claimed as new is:

1. In a bowling ball grip, a frame including a body plate having a thumb stall opening, mounting plates depending from the frame adjacent the opening, said mounting plates having slots, a thumb stall mounted in the opening, pins engageable in the slots and connected with the thumb stall and being operable for slidably mounting the thumb stall within the opening, said pins also providing pivotal mounting for the thumb stall within the opening, means for adjusting the thumb stall longitudinally within the opening, and means for adjusting the tilting of the thumb stall within the opening.

2. The combination with a bowling ball having a recess, and a relatively shallow recess communicating with the first-mentioned recess, a bowling ball grip mechanism having a frame including a body plate, said body plate having openings fitting within the second-mentioned recess, a thumb stall slidably mounted in one of said openings, finger stalls pivotally mounted in the other of said openings, said stalls extending into the first-mentioned recess, means operatively connected with the thumb stall for slidably adjusting said thumb stall within its opening, means operatively connected with each finger stall for tilting said finger stalls on their pivotal axes, and means for indicating the adjusted positions of said thumb and finger stalls.

3. In combination with a bowling ball having a recess, a bowling ball grip including a body plate having a thumb stall opening and finger stall openings, mounting plates adjacent the thumb stall opening, a thumb stall mounted between the mounting plates, means mounting the thumb stall for longitudinal and swinging movement between the plates, an opening communicating between the recess and the outer surface of the ball, adjusting screws extending through the opening and having inner end portions connected with the thumb stall, one of said screws being rotatable for changing the position of the stall longitudinally within the recess and the other of said thumb screws being operable for tilting the thumb stall, finger stalls in the finger stall openings, means for mounting said finger stalls for swinging movement in said openings, openings communicating between the recess and the exterior of the ball, adjusting screws extending through said openings and having corresponding inner ends connected with the finger stalls, said last-mentioned screws being rotatable for tilting the finger stalls, and means for indicating the positions of said thumb stall and finger stalls.

4. In a bowling ball grip mechanism, a body plate, a thumb stall slidably mounted on the plate, finger stalls pivotally mounted on the plate, adjusting devices operatively connected with the thumb and finger stalls respectively for adjusting said stalls whereby the stalls will be permitted to assume the position of greatest comfort for the hand of a bowler, indicator slots formed in the body plate, pointers in the slots, scales on the plate to cooperate with the pointers, and a link connecting each of the pointers with one of the stalls, said pointers cooperating with the scales for indicating the positions of the stalls.

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