Aug. 20, 1935. L. G. LATTORE ET AL 2,012,013

HORSESHOE QUOIT

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Fig. 1

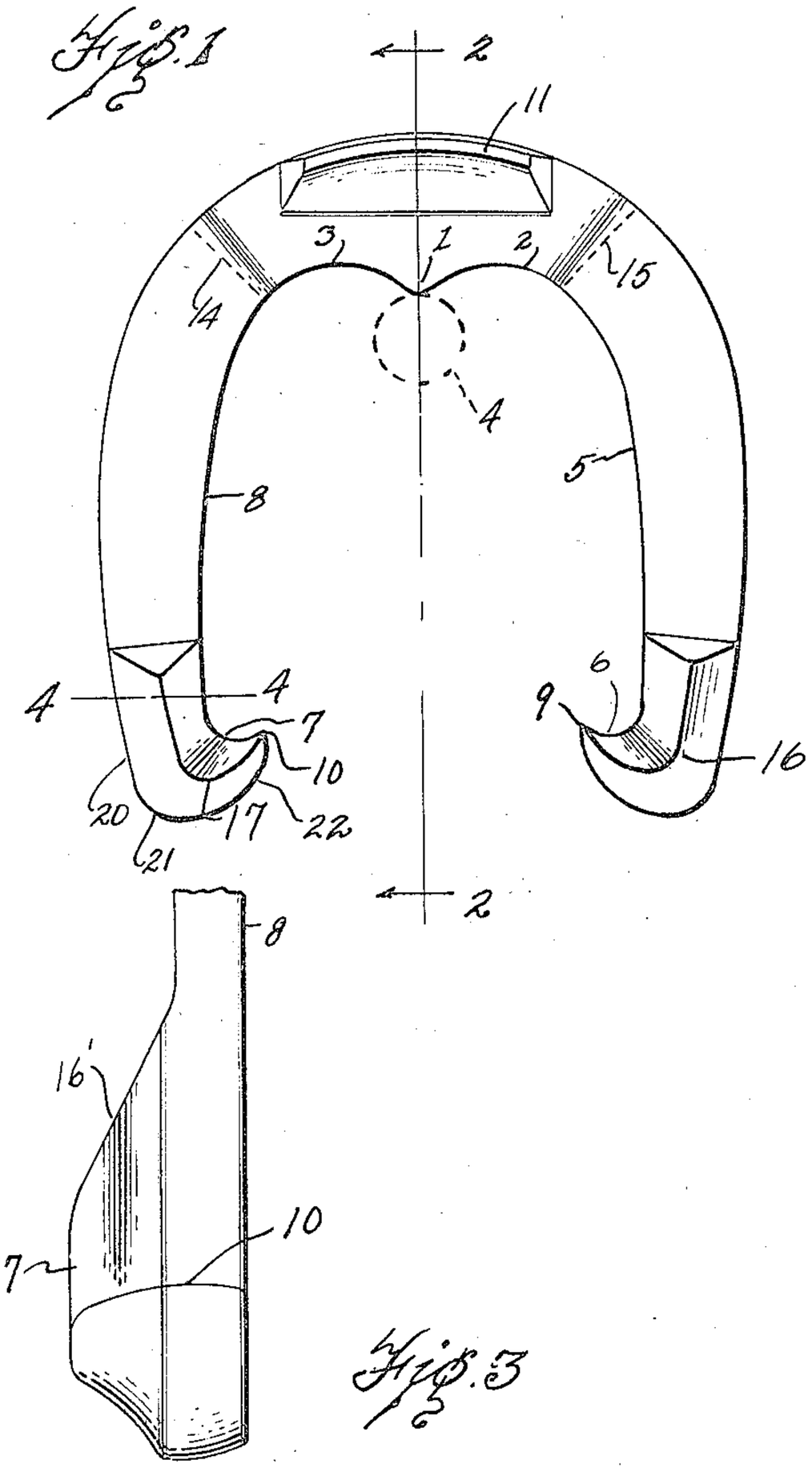

Fig. 3

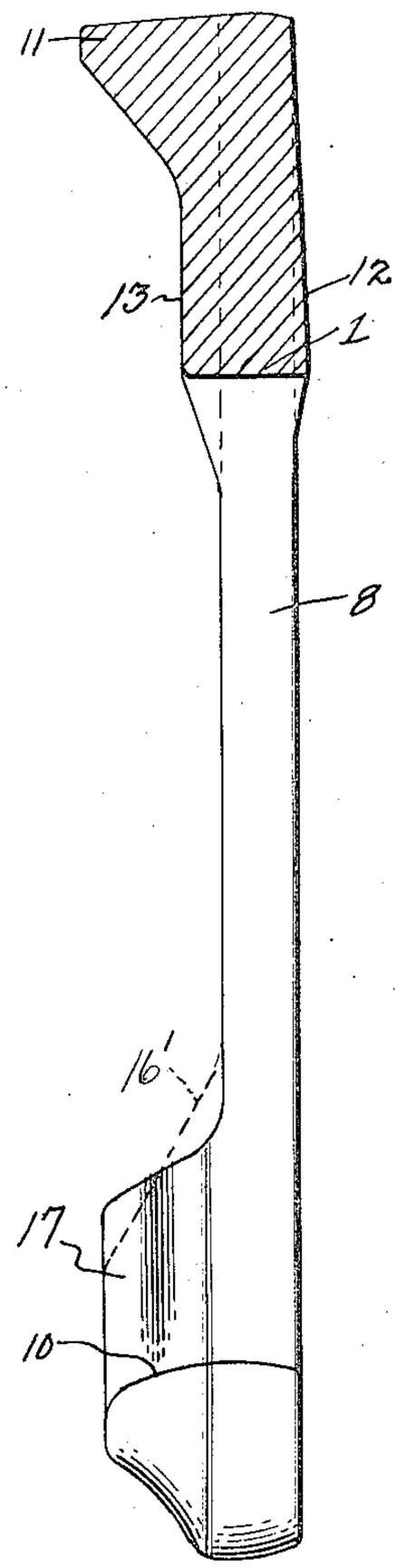

Fig. 2

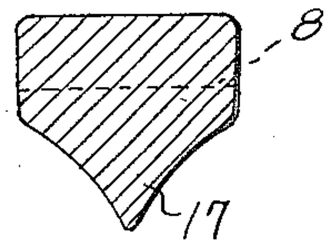

Fig. 4

INVENTORS.
LEO G. LATTORE
EDWARD LEVAGOOD

BY Charles F. Warren

ATTORNEY.

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HORSESHOE QUOIT

Leo G. Lattore and Edward Levagood,
Dearborn, Mich.

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5 Claims. (Cl. 273—106)

This invention relates to quoits of the horseshoe type, hereinafter termed a shoe or horseshoe, and an object of the invention is to provide a new and improved construction and form of a horseshoe particularly adapted to prevent the pitched shoe from leaving the stake. With the form of shoe generally in use, if the bend of the shoe strikes the stake before it reaches the ground, the shoe is apt to back off from the stake and also if the shoe is not exactly centered and strikes the stake at one side of the center of the bend prior to reaching the ground, the shoe tends to whirl on the stake and be thrown off by centrifugal force. In either case while the player has pitched a "ringer" he has lost the count. It is to obviate these and other inefficiencies of the commonly used horseshoe which provides the main object of this invention.

Secondly, an object of the invention is to provide a structure so reinforced as to prevent breakage near the bend and also prevent breakage at the heel portions adjacent the heel caulks.

It is therefore an object of this invention to provide a shoe at the bend having a greater thickness of body at the inner or stake engaging face of the bend and tapering each way from the center and preferably also of less thickness at the toe or outer edge or face of the bend and to provide caulks at the heels of each leg of a construction to provide reinforcement of the said heel portions to beyond the point where breakage often occurs in the shoes heretofore commonly in use.

These and other objects and the several novel features of construction embodying our invention is shown in the accompanying drawing in which—

Fig. 1 is a plan view of the shoe from the caulking side.

Fig. 2 is a section taken on line 2—2 of Fig. 1.

Fig. 3 is an alternative form of the heel.

Fig. 4 is a section taken on line 4—4 of Fig. 1.

The standard or regulation horseshoe is two and one-half pounds in weight and requires a heel opening of three and one-half inches. It is seven inches in width and seven and one-half inches in length from toe to heel. It is also common practice to make the leg portions approximately an inch to an inch and a fraction in width.

To retain these usual standard measurements, the shoe embodying my invention is re-formed in comparison with the commonly used shoe and the metal also so disposed as to give greater strength at the bend and at the heel and further has portions particularly at the bend and at the heel shaped to secure a functional result hereinafter more fully described.

Firstly, it is to be understood that in pitching a shoe the object of the pitcher is to cause a shoe to pass onto the stake heel first and the shoe is usually pitched to turn in the air to present the opening between the heels to the stake to enable it to pass thereonto. If the shoe reaches the ground at about the time it reaches the stake the shoe usually remains in position. Should the commonly used shoe engage the stake before it reaches the ground and is centered so that the center of the inner face of the bend strikes the stake it will usually back off and the pitcher lose the count although having been accurate in placing the shoe on the stake. To obviate this difficulty we have formed the bend on the inner edge with an inwardly projecting rounded point 1 at the center of the bend and extending outwardly from the shoe and providing two equally and reversely curved portions 2 and 3 upon opposite sides of the point gradually merging with the inner face of the respective legs in an unbroken line. Thus if the shoe passes onto the stake and the center of the bend engages the stake, as is indicated by dotted lines 4, the shoe will ride onto the stake causing the stake to ride into the curved portions 2 or 3 tending to cause the shoe to turn and ride down the inner face 5 of one leg for instance and, if the whirling force is sufficient, to eventually ride into the incurved portion 6 of the heel on the same side or should the stake ride into the curved portion 3 of the shoe it would eventually engage the incurved portion 7 of the opposite heel.

It will further be evident that should the shoe not exactly center on the stake, or if the side 5 or 8 of the respective legs engages the stake as it passes thereonto, the shoe will tend to be whirled and will likewise in effect cause the stake to slide down the inner face of the leg first engaged to finally engage in the hook end 6 or 7 as the case may be.

We are aware of the shoes formed with a slight inturned heel portion as shown for instance in the patent to O. P. Mossman et al., No. 1,646,627 but in the Mossman device the inturned end is insufficient to produce the desired result. Our shoe has been formed to provide greater distance between the leg portions adjacent the heel than has heretofore been the practice to enable the portions 6 and 7 to extend inwardly a greater distance and to in fact have an inturned terminal point 9 and 10 of the respective heels at a dis-

tance from the end of the leg and still secure spacing between these points 9 and 10 conforming to the regulation distance of three and one-half inches and to maintain the regulation width of seven inches across the shoe intermediate the toe and heels. It is to be noted that in previous shoes the inner face of the legs is formed on a curve of much shorter radius while in our construction the legs are more nearly parallel, the curved faces 5 and 8 being flattened for a considerable portion of their length from near the heel to the bend and then turning more sharply to the center of the bend providing the sharply and uniformly curved portions 2 and 3. At the heel the inner face of each leg is turned very sharply inwardly and reversely curved as indicated at 6 and 7.

Thus the curved faces 2, 3, 5, and 8 and the curves of the end portions 6 and 7 gradually merge one into the other to form a smooth and unbroken edge or face. Further, due to the major portion of the side faces 5 and 8 of the respective legs being nearly parallel and nearly straight lines, in the event the shoe passes onto the stake and one or the other of the said sides engage the stake, the tendency of the shoe to whirl is reduced in comparison to previous forms of shoes having the corresponding curved inner faces of the legs of materially shorter radius.

There is a considerable tendency for a shoe to break at the bend and this tendency is at opposite ends of the toe caulk 11 or adjacent thereto and also there is a considerable tendency for the inner face of the bend to be battered and become roughened which is undesirable. To obviate this tendency of breakage and to reduce the tendency to "batter" to any material extent, the shoe is formed as shown in section in Fig. 2 of considerably greater thickness at the point 1 and from the point 1 to the outer face of the bend the body of the shoe is tapered as indicated at 12 and 13 in Fig. 2 so that at the toe of the shoe the thickness of the body is uniform with the thickness of the legs between the bend and the heels. This will be readily observed from Fig. 2.

It is likewise to be understood that this thickened portion at the bend, which is of greatest thickness at the point 1, tapers each way from the said central line or point to approximately the dotted lines 14 and 15 adjacent opposite ends of the toe caulk 11. Thus the bend of the shoe where the greatest stress is imposed thereon, namely, at the point 1 and the curved portions 2 and 3 are of greater thickness than the legs each way from an imaginary line extending from the point 1 to the center of the toe and further is of greater thickness at the inner face of the bend than at the outer face. Thus the surface of the bend engaging the stake is less liable to damage by the hammering effect resulting from striking the stake. Furthermore, this section of the bend is tapered in order to reduce the weight of the shoe which is required to be maintained at two and one-half pounds. The toe caulk 11 further provides reinforcement for the outer edge of the bend.

The heel caulks 16 and 17, which are formed integral with the terminal ends of the legs, extend upwardly therefrom to the same height as the toe caulk 11, as will be understood from Fig. 2. The thickness of the heels is greater than the thickness of the respective leg portions between the caulks and the bend as will be understood from the section 4—4 in Fig. 4, and each caulk extends along the body portion for a distance and also extends to the point 9 of the one or 10 of the other heel. This provides a construction in which the heel is materially thickened as is evident in Fig. 2, and thus may withstand considerable hammering in striking the stake.

Also the heel caulk is carried to a distance from the terminal end toward the bend to obviate the tendency of the leg to break off at the heel. The heel caulk may be formed as shown in Figs. 1 and 2 or may be formed as shown in Fig. 3 in which latter case the caulk face is tapered toward the toe and blends into the leg portion. The purpose of this latter form is to avoid an abrupt change in thickness of the shoe at the end of the heel caulk toward the toe. Either of the forms may be used, the essential feature being that the caulk be of such length as to extend a material distance upwardly along the leg from its terminal portion. In the form shown in Fig. 3 the face of the caulk parallel with the face of the leg is less in length than the form shown in Fig. 2 for instance and in Fig. 2 the dotted line 16' indicates the form of the caulk shown in Fig. 3 superimposed upon the form shown in Fig. 2 wherein it will be seen that no greater amount of material is required in the form shown in Fig. 3 than is required in the form shown in Fig. 2.

A further feature of the invention is involved in forming the terminal ends of the legs on a curve merging with the outer edge 20 of each leg providing a comparatively sharp curve at the point 21 and then a curve of increasing radius 22 to the point 9 and 10 of the respective leg ends. As this end portion is somewhat thicker than the body of the legs between the heel caulk and bend it can withstand more "hammering" as previously stated. Also, due to the curved face of the said end, should said end strike the stake along the curve 22 of longer radius the shoe tends to ride onto the stake. With a straight end at an angle to the side faces of the leg as in previous constructions, there is a tendency for the shoe to back away from the stake as said straight end strikes the stake squarely. With a curved face there is much greater tendency for the said leg to move off or slide by the stake and permit the shoe to pass thereonto.

The purpose of the caulks, as is well known, is to provide a means preventing the shoe from whirling when it strikes the ground, it of course being understood that the shoe should be pitched with caulks down and also preferably the edges of the body portion are slightly curved as will be understood from the section Fig. 2.

It will be observed that by our improved construction with the thickened body portions at the toe and at the heel where the greatest strength is required, the leg portions between the said thickened portions may be somewhat less than the usual thickness, these portions being less liable to breakage or deformation through striking a stake. Thus it is possible to increase the length of the heel caulks and also to maintain "balance" of the shoe so that in pitching it may be more easily turned in a plane or what is sometimes termed pitched "flat". An unbalanced shoe tends to wobble in the air and therefore is less liable to pass onto the stake.

From the foregoing description it will be evident that the various objects and features of the invention are attained by the construction described and that the shoe may be made of one piece either by casting or preferably drop forged. Having thus fully described our invention, what

we claim and desire to secure by Letters Patent of the United States is—

1. A quoit of horseshoe form having the body thereof at the bend of greater thickness at the inner edge than the thickness of the leg portions, a toe caulk at the outer edge of the bend and heel caulks at the terminal end of the legs, said heel caulks and ends of the legs being formed in a relatively sharp curve gradually merging into the curve of the outer edge of each leg, the heel caulks projecting inwardly of the inner face of the respective leg toward each other and forming a sharp curve gradually merging in an unbroken line with the inner edge of the leg and terminating at its inner end with the curve forming the outer face of the heel, said heel caulks extending along the respective leg toward the bend for a distance beyond the point where the inner curve of the said heel portion merges with the inner edge of the leg.

2. A quoit of horseshoe form having a thickened body portion at the bend formed at its inner face to provide an inwardly projecting point in the plane of the legs, the opposite side edges of which are formed by a comparatively sharp curve, and the terminal ends of the legs being inwardly and reversely turned to provide curved edges merging with the inner edges of the respective legs in an unbroken line, and heel caulks on said terminal ends extending along the legs to a point beyond the curve joining the terminal ends with the legs.

3. A quoit of horseshoe form having the inner edges of the legs formed on a curve of long radius providing practically parallel leg portions and generally of a greater width apart than the desired width of heel opening, the bend of the horseshoe having a pointed portion the side edges each way from which extend on a curve of comparatively short radius and increasing in radius to merge with the inner edges of the leg in an unbroken line, the heel portions of the said legs being inturned toward each other a distance to provide the required width of opening and the inner or bend side of said projections being formed on a curve of short radius gradually merging with the inner edge of the leg in an unbroken line and the outer end faces of which heel portions being formed on a curve meeting the curve of the inner edge of the terminal portions at a point and extending in an unbroken curved line to merge with the outer edges of the leg portions, a toe caulk at the bend, and heel caulks at the heel, said heel caulks having a shape in plan conforming to the curve of the said heel portions.

4. A quoit of horseshoe form having the legs in practically parallel relation and of practically uniform width from heel to bend, a pointed portion at the center of the inner edge of the bend, the curve of the inner face of the bend merging with the inner edges of the legs in an unbroken line, heel portions having points extending inwardly of the said legs, the inner edges of which from said point are sharply curved to merge with the inner edge of the respective leg and the outer edges of which are generally inclined in such manner that the point of the heel in striking the stake tends to lead the shoe onto the stake, a heel caulk on each of said heel portions extending to the leg to reinforce the leg at the point of connection with the heel point, the base of said heel caulks extending practically to the heel point, and a toe caulk at the outer edge of the bend on the same side of the quoit as the heel caulks.

5. A quoit of horseshoe form, the body of which at the bend is of greatest thickness at the inner edge and decreasing in thickness toward the outer edge, said thickened portion likewise tapering each way from a central point toward the respective leg portions, the leg portions being practically parallel, the inner face of each of which merges with the curve of the bend in a practically unbroken line, a toe caulk at the outer edge of the bend, the leg ends being inturned and of a distance apart less than the distance between the inner edges of the legs, and heel caulks on said inturned leg ends extending along the leg beyond the point of connection of the said ends therewith.

LEO G. LATTORE.
EDWARD LEVAGOOD.