R. W. MAGNA.

BALL MARKER.

APPLICATION FILED FEB. 20, 1915.

1,167,004.

Patented Jan. 4, 1916.

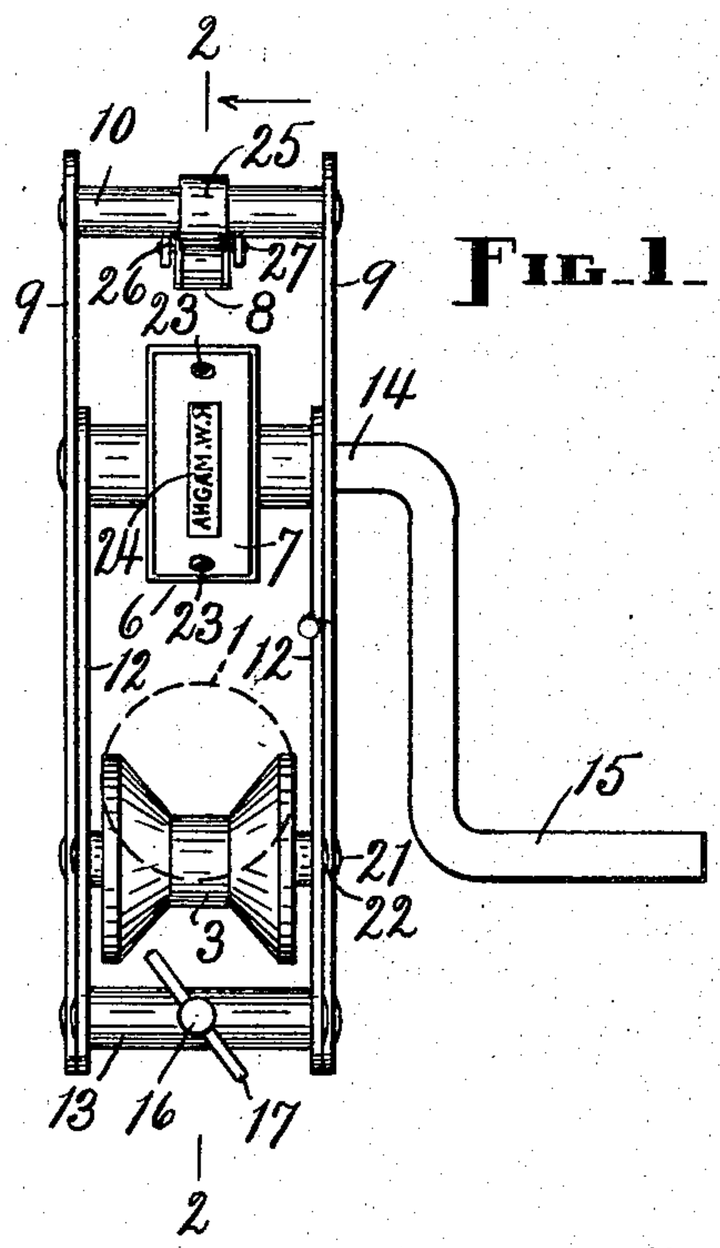

FIG. 1.

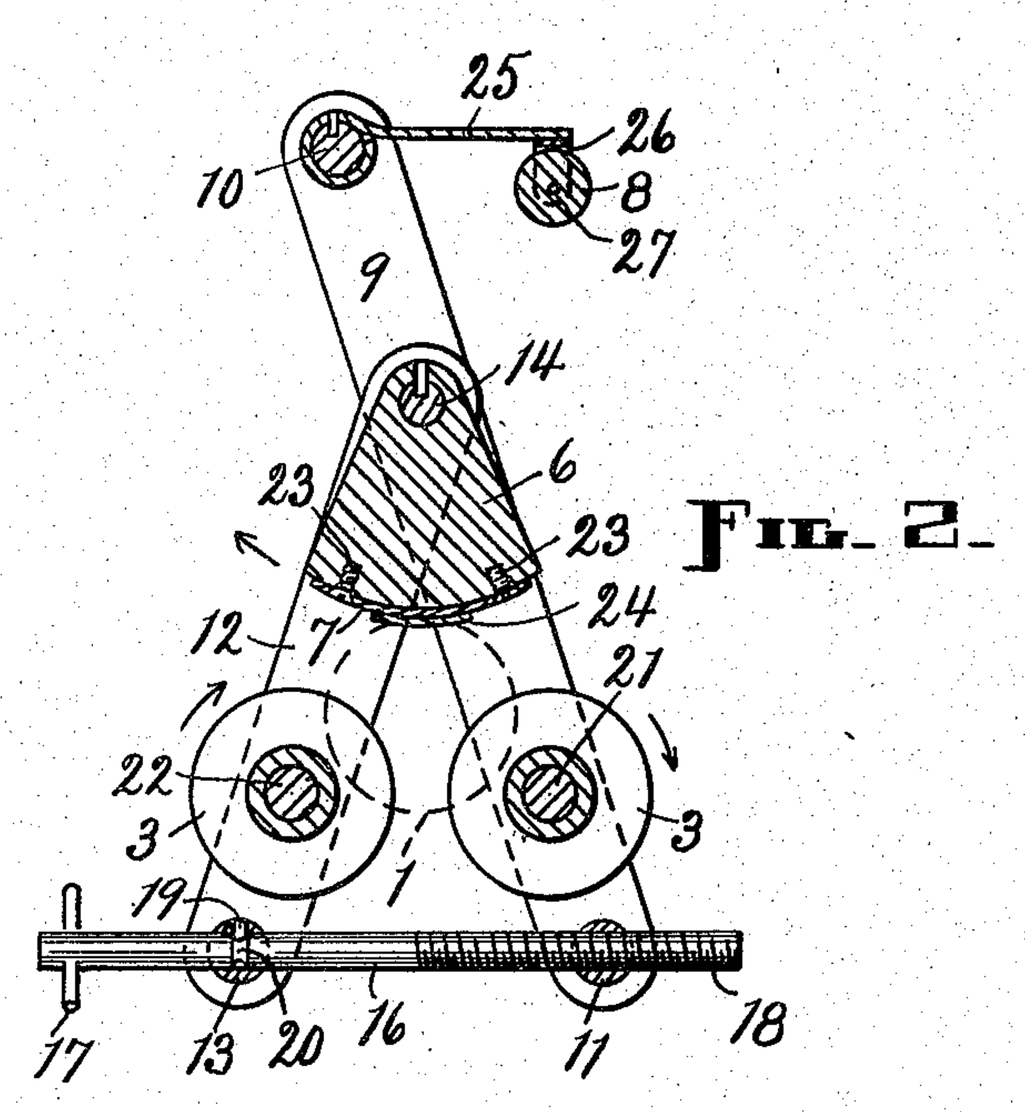

FIG. 2.

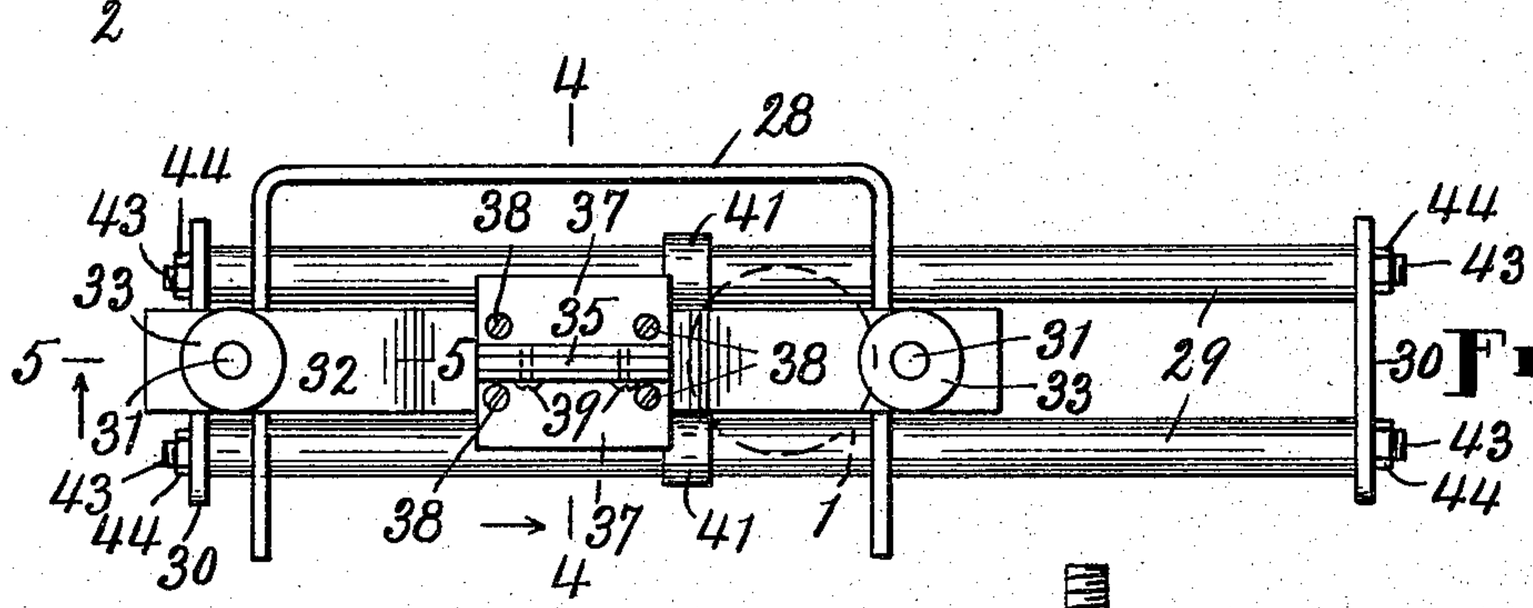

FIG. 3.

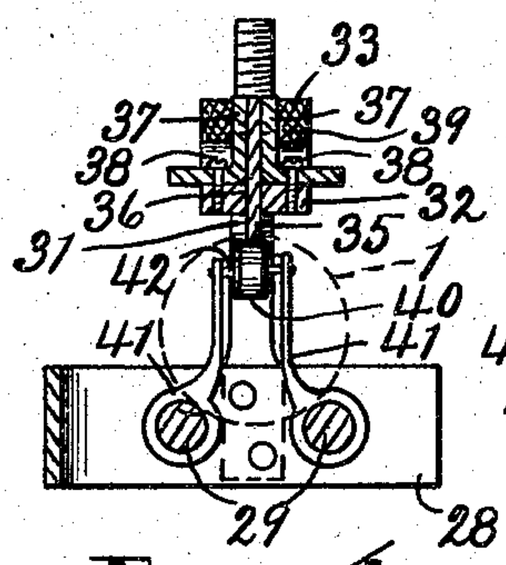

FIG. 4.

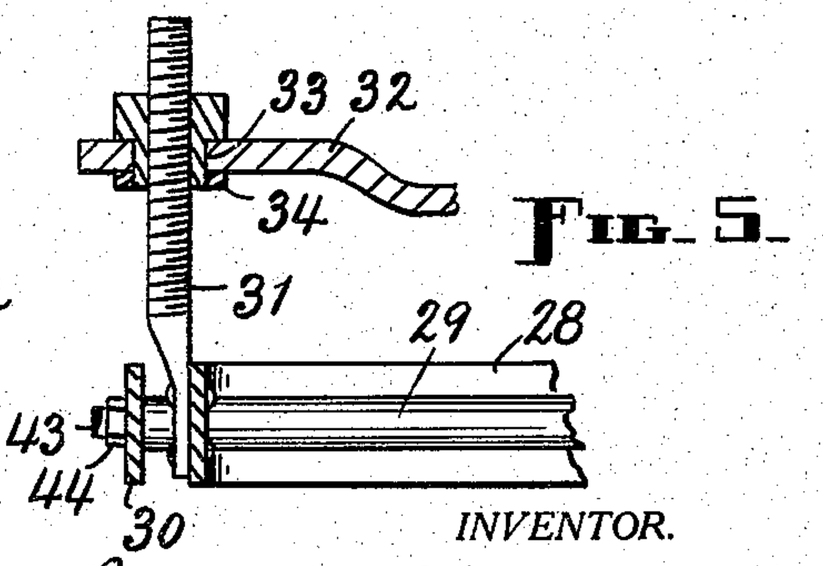

FIG. 5.

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BALL-MARKER.

1,167,004. Specification of Letters Patent. Patented Jan. 4, 1916.

Application filed February 20, 1915. Serial No. 9,629.

To all whom it may concern:

Be it known that I, RUSSELL W. MAGNA, a citizen of the United States, residing at Holyoke, in the county of Hampden and State of Massachusetts, have invented a new and useful Ball-Marker, of which the following is a specification.

My invention relates to improvements in hand machines for imposing or printing designating characters or names on the surfaces of spherical objects and more especially golf or other playing balls, and in its broader aspect resides in means to support such an object or ball and rotate or cause to be rotated or partially rotated such object or ball in contact with an impressing or printing element, agent or medium, but more specifically and in the preferred form may be said to consist of a pair of supporting rolls loosely mounted in an adjustable frame of peculiar construction, and an oscillatory or preferably rotatable impressing or printing medium mounted in said frame in operative relation to a spherical object or ball when in place on and partially between said rolls, together with such auxiliary or subsidiary parts and members as may be required to complete the machine and render the same most highly efficient, all as hereinafter set forth.

The primary object of my invention is to produce a novel, compact, simple, comparatively inexpensive, and practical machine for easily, quickly, and effectively marking balls or other spherical objects without distorting the same by undue pressure, or otherwise injuring them, such machine being adjustable so as to accommodate itself to balls or objects of different sizes.

Other objects will appear in the course of the following description.

I attain the objects and secure the advantages of my invention by the means illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation of a ball marker that embodies a preferred embodiment of my invention; Fig. 2, a central vertical section taken on lines 2—2, looking in the direction of the associated arrow, in Fig. 1; Fig. 3, a top plan of another form of marker; Fig. 4, a transverse vertical section on lines 4—4, looking in the direction of the associated arrow, Fig. 3, and, Fig. 5, a sectional detail taken on lines 5—5, looking in the direction of the associated arrow, Fig. 3.

The position of the printing member in Fig. 2 is relatively different from the position of such member in Fig. 1, such member being disposed in printing position in the second view and out of such position in the first view.

Similar numerals designate similar parts throughout the several views.

The outline in broken lines of a spherical object, such as a golf ball, is represented at 1 in operative position in the machines, in all of the views except the last one.

Taking up first the machine illustrated in Figs. 1 and 2, it will be observed that such machine comprises an adjustable supporting frame, presently to be described in detail, a pair of loosely-mounted ball-receiving rolls 3, and a pivotally-mounted or rotatable impression segment 6 bearing in this case a printing plate 7, together with an inking roll 8 supported in the path of said plate or of the raised characters thereon. The rolls 3 are similar in shape to ordinary spools, and said rolls are adapted to receive between them and support the object to be printed, as the ball 1, and are here so proportioned that such ball bears on the inner slanting faces of the roll flanges, without touching the axial portions or barrels of the rolls.

The above-mentioned frame of the machine consists of a pair of side pieces 9, which are spaced apart and connected at the top by a fixed or non-rotary brace or rod 10 and at the bottom by a loose brace or rod 11, and a pair of shorter side pieces 12, which are also spaced apart and connected at the bottom by a loose brace or rod 13, similar to said rod 11, and with each other at the top and with said first-mentioned side pieces by a shaft 14. The shaft 14 is mounted to rotate in the side pieces 9 and 12, has the segment 6 tightly secured thereto between said side pieces, and is provided at one protruding terminal with a crank handle 15. The distance of the shaft 14 from the bases of the side pieces 9 is the same as the distance of said shaft from the bases of the side pieces

12. An adjusting rod 16, having a handle 17 at its front end and a screw-threaded rear terminal 18, passes through the loose cross rods or braces 13 and 11, said terminal being tapped into said brace 11. The rod 16 is free to turn in the braces 13 and 11, but is held against independent longitudinal movement relative to said brace 13 by means of a pin 19 which is inserted in said brace and enters an annular groove 20 in said rod 16.

The rod 16 retains the braces of the two pairs of side pieces (9 and 12) apart, and so causes said side pieces to assume an angular relationship, the one pair to the other pair, the angles formed by the said two pairs with the vertical axial plane of the shaft 14 being equal, but the acuteness of such angles increasing or decreasing accordingly as said rod be turned in one direction or the other for adjustment purposes. The rear roll 3 has a shaft 21 which is journaled in the side pieces 9, and the forward roll 3 has a shaft 22 which is journaled in the side pieces 12, said shafts being equidistant from the braces 11 and 13, respectively, and relatively on the same horizontal plane at all times.

The rolls 3 are elevated and caused to approach each other, when the rod 16 is turned to draw the braces 11 and 13 and the bases of the two pairs of side pieces toward each other, and said rolls are lowered and caused to recede from each other, when said rod is turned in the opposite direction to force said braces and bases farther apart. In this manner and by this means, and with the aid of the ball, the proper relation of the seat for said ball to the arcuate or orbital path of the segment 6 or its type plate 7 is easily and very quickly determined and such seat adjusted and located. Since the rotation of the rod 16 produces a double or a simultaneously up or down and in or out movement on the part of the rolls, the adjustment of the said roll is effected with great nicety and in most cases with very little movement of said rod. The braces 11 and 13 are not turned during adjustment, since they are held by the rod 16, but the side pieces rock on said braces as the inclines of the former are varied.

The type plate 7 is attached to the arcuate face of the segment 6 by means of screws 23—23. The characters, represented at 24, are in the center of the plate 7, and the parts are so arranged that the arcuate path above the rolls 3, through which said characters pass when the segment 6 is rotated, is directly over the transverse centers of said rolls, consequently each of said characters is impressed at the top of the vertical diameter of a ball supported by said rolls, said ball being rolled, by reason of the contact of said characters successively therewith, in and on said rolls, and so presenting to each succeeding character a new point to receive the same at the top of said diameter. The parts are also so arranged that the vertical diameter of the ball on the rolls, if extended upwardly, passes through any character 24 which is in contact with said ball, and through the axis of the shaft 14. It is now plainly to be seen that the impressions from the characters 24 on the ball surface must be sharp and clear, and that the printing is accomplished without soiling such surface around said impressions, provided the rolls 3 be adjusted so as to present the ball in proper position to the characters. To this end the rolls 3 should be adjusted to locate the ball high enough for the characters 24 to contact therewith, and yet not so high that said characters will cut into said ball.

The inking roll 8 is supported in the path of the characters 24 by means of an arm 25 attached to the rod or brace 10. The front end of the arm 25 is securely fastened to the brace 10, and said arm is provided at the rear end with a hanger 26 in which the roll 8 is mounted, such roll having a spindle 27 that is journaled in the depending sides of said hanger. The segment 6, when rotated, carries the plate 7 and its characters 24 under and the latter in contact with the roll 8 and thus causes said characters to receive ink from said roll.

Although the desired result might be obtained by swinging the segment 6 back and forth through an arc only large enough to take in the roll 8 and the ball 1 on the rolls 3, it is more convenient to cause said segment to describe the full circle, and on this account the machine now under consideration is constructed to that end.

The arm 25 is preferably made of yielding material in order that the roll 8 may be set well down into the path of the characters, since this insures adequate inking of said characters, and at the same time affords sufficient flexibility to avoid overinking.

In practice, the machine is first adjusted, through the medium of the rod 16, to accommodate any given ball 1, then, while the segment 6 is located at some point remote from the immediate vicinity of the rolls 3, or in any event at some point where said segment will not interfere with the placing of said ball in position, the ball is introduced or inserted on and between said rolls, and finally the shaft 14 is rotated or partially rotated, by means of the handle 15. If, at the time the ball 1 be placed in position, the segment 6 be located in a forward position, as represented in Fig. 1, the shaft 14 is given a complete revolution, with the result that said segment, traveling with said shaft, carries the plate 7 up, over and under the roll 8, thus causing the characters 24 to be inked, and continuing carries said plate down and forward over said ball, at which time the inked characters leave their impressions

on said ball—see Fig. 2. During the contact of the moving characters 24 with the ball 1 the latter rolls freely on and in its rolling support or the rolls 3, being actuated by reason of such contact. After passing the ball 1 the segment 6 is carried upwardly and forwardly and left in the position from which it started, and the ball, now clearly marked, is taken from the machine. The arrows associated with the segment 6 and the rolls 3, in Fig. 2, indicate the directions of these revoluble members during the operation just described. The machine is now ready for the next ball, unless readjustment should be necessary.

That the operation, so far as the manipulation of the segment 6 is concerned, may be varied more or less is obvious, some reference to such variation having previously been made, whereof it is not deemed necessary to enter into a more extended explanation along this line, especially in view of the fact that it is quite immaterial from what particular point the segment is started or at what particular point it is stopped, or whether it be caused to describe a full or only part of a revolution, or be oscillated instead of rotated.

Various changes in the shape, size, construction, and arrangement of some or all of the parts of this machine may be made without departing from the nature of my invention.

Passing now to the construction illustrated in the last three views, there will be found a marker designed to do the same work as that described above, but one which is not so serviceable or practical in many respects, or so highly efficient, as the first. The second machine comprises a horizontal U-shaped frame 28, twin rods 29 arranged side by side to reciprocate in the forwardly-projecting arms of said frame, such rods being spaced from each other and having their ends connected by braces 30—30, posts 31—31 rising from said frame arms, a type bar 32 carried by said posts over the space between said rods, and means to adjust said bar vertically to increase or decrease the distance between it and said rods to accommodate balls of different sizes, and characters or type with means to secure the same to or in place in said bar. The connected rods 29 constitute a carriage for the balls to be marked.

The upper terminals of the posts 31 are screw-threaded, and the aforesaid adjusting means consists of a thumb-nut 33 in threaded engagement with each of said posts, and a nut 34 screwed onto the shank of said thumb-nut. The shank of each thumb-nut 33 passes down through an opening in either end of the bar 32, and the nut 34 is attached to said shank under said bar, so that the latter is embraced between the head of said thumb-nut and said nut 34. In this connection attention is called to Fig. 5. The bar 32 is raised or lowered by simply screwing the thumb-nuts 33 up or down when the nuts 34 are loosened.

The type or characters, as herein illustrated in connection with the machine now being described, are in the form of a line of type 35, and there is a central longitudinal slot 36 in the bar 32 (Fig. 4) in which said type line is inserted and below which the type faces or characters are located. Thus the type line 35 is directly over the longitudinal center of the space between the rods 29, and, of course, midway between the posts 31. As a means to secure the type line 35 in place in the bar slot 36, to which reference has been hereinbefore made, I employ a pair of angle-irons 37. The angle-irons 37 are mounted on the bar 32, on each side of that portion of the type line 35 that projects above the slot 36, and secured by screws 38 to said bar, and additional screws 39 are employed to secure said type line to said angle-irons.

An inking roll 40 is mounted between two arms 41 on a spindle 42, which latter is journaled in said arms, as shown in Fig. 4. The arms 41 rise from the rods 29 to support the roll 40 in operative relation to the type-line characters, and carry said roll under and in contact with said characters, as said rods are reciprocated. The type-line 35, when placed in position, is adjusted with due regard to the roll 40. The arms 41 are oppositely disposed and so situated that, when the rods 29 are at or near the end of their right-hand stroke, as in Fig. 3, the roll 40 is in position at the right of the type-line 35 to commence, directly said rods are actuated to the left, to ink the type characters, and there is room between said arms and the right-hand post 31 for the insertion of a ball on said rods.

When the bar 32 is adjusted, by means of the thumb-nuts 33, to locate the bottom of the type line 35 in proper relation to a given ball 1 on the rods 29, the machine is ready for operation. The ball 1 is placed in position in the manner already explained, and then the rods 29 are moved to the left, thus carrying the roll 40 under and in contact with the type line 35 to ink the characters thereon, and carrying said ball under and in contact with said characters, which latter are printed on said ball as it passes beneath them. The ball is partially rotated, as it is carried past the type line, owing to the frictional engagement of said line therewith, rolling on the rods 29 and along under said line, consequently a good impression results from the operation, as one character after another is imposed on the successive high points of the ball presented in this manner. Each nut 34 not only supports

one end of the bar 32, but also serves as a check for the thumb-nut 33, because, when said nut 34 is tightened, the head of said thumb-nut is drawn forcibly into contact with the top of said bar, and the thumb-nut is thereby prevented from being turned on its post 31 until said nut 34 is loosened. The rods 29 have reduced end pieces 43 upon which the braces 30 are received. The end pieces 43 are threaded, and nuts 44 are screwed on to such members outside of said braces to secure the latter in place.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a ball marker, impression means, and cupped means to support a ball, with its center fixed in space, in operative position relative to said impression means, said supporting means having axes apart from the ball center, and permitting said ball to roll freely therein, when subjected to the action of said impression means.

2. A ball marker comprising an impression member mounted to describe an arcuate path, and a cupped rolling support adapted to receive a ball loosely and permit the same to roll therein, such support being adjacent to said path and adapted to retain a ball in operative position relative to said impression means, with the center of said ball fixed in space and apart from the axes of said support.

3. A ball marker comprising an impression member mounted to describe an arcuate path, cupped means to support a ball with its center fixed in space, and means so to adjust said supporting means that a ball thereon shall be presented with the part of its surface that is most remote from said supporting means in the aforesaid path, such adjusting means consisting in part of a screw.

4. The combination, in a ball marker, with a frame, of a pair of flanged rolls forming a cupped support for a ball, and loosely mounted in said frame, a shaft journaled in said frame, and an impression segment secured to said shaft and adapted to traverse a path above said rolls.

5. The combination, in a ball marker, with a frame comprising pivotally-connected adjustable sections, and means to adjust such sections, of a pair of flanged rolls forming a cupped support for a ball, each of such rolls being loosely mounted in one of said sections, a shaft journaled in said frame, and an impression segment secured to said shaft and adapted to traverse a path above said rolls.

6. The combination, in a ball marker, with a frame, of a pair of flanged rolls forming a cupped support for a ball, and loosely mounted in said frame, a shaft journaled in said frame, an impression segment secured to said shaft and adapted to traverse a path above said rolls, and an inking member supported from said frame in the path traversed by said segment.

7. The combination, in a ball marker, of two pairs of angularly-arranged side pieces and a connecting shaft, an impression segment secured on said shaft, means to separate the bases of said side pieces, and a ball-supporting roll loosely mounted between the side pieces in each pair, below the path described by said segment.

8. The combination, in a ball marker, of two pairs of angularly-arranged side pieces and a connecting shaft, an impression segment secured on said shaft, means to separate the bases of said side pieces, a ball-supporting roll loosely mounted between the side pieces in each pair, below the path described by said segment, a brace between the upper ends of the side pieces in one of said pairs, an arm supported by said brace, and an inking member carried and located by said arm in said path.

9. The combination, in a ball marker, of two pairs of angularly-arranged side pieces and a connecting shaft, an impression segment secured on said shaft, loose braces connecting said shaft pieces in each pair, at the bottom, an adjusting rod passing through said braces, said rod being tapped into one of said braces, means to prevent said rod from moving lengthwise in the other of said braces, and a ball-supporting roll loosely mounted between the side pieces in each pair, below the path described by said segment.

10. The combination, in a ball marker, of two pairs of angularly-arranged side pieces and a connecting shaft, said side pieces in one pair being longer than those in the other pair, an impression segment secured to said shaft, a top brace connecting the upper ends of the two longer side pieces, loose braces connecting said side pieces in each pair, at the bottom, an adjusting rod passing through said loose braces, said rod being tapped into one of said loose braces, means to prevent said rod from moving lengthwise in the other brace, a ball-supporting roll mounted loosely between said side pieces in each pair, below the path of said segment, an arm extending from said top brace, and an inking member carried and located by said arm in said path.

11. The combination, in a ball marker, with two pairs of angularly-arranged side pieces and a connecting shaft, an impression segment secured to said shaft, means to retain said side pieces in spaced relationship, and a ball-supporting roll loosely mounted between the side pieces in each pair, below the path of said segment, of means to vary the angle between said two pairs of side pieces.

12. A ball marker comprising an impression member mounted to describe an arcuate path, spaced members forming a cupped support for a ball, with its center fixed in space, in operative position relative to said impression member, and means to increase or decrease the space between said supporting members, to seat the ball accordingly lower or higher.

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Witnesses:
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