

W. A. BARNES & R. W. JAMIESON.

BALL CASTER.

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1,016,813.

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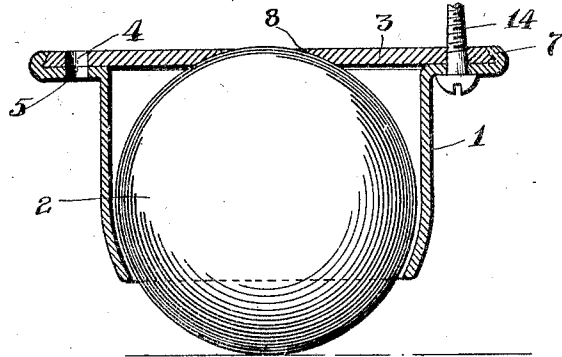


FIG. 1.

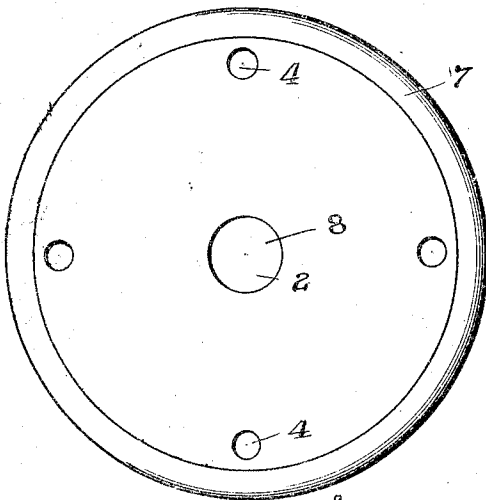


FIG. 2.

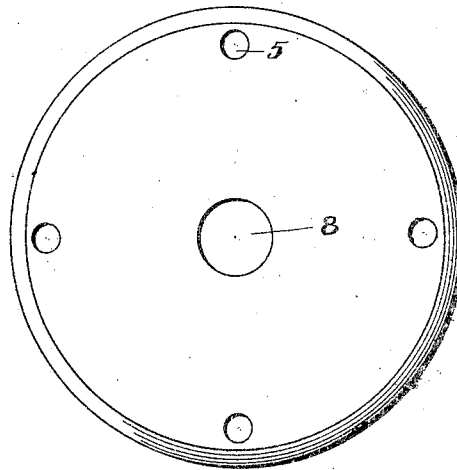


FIG. 3.

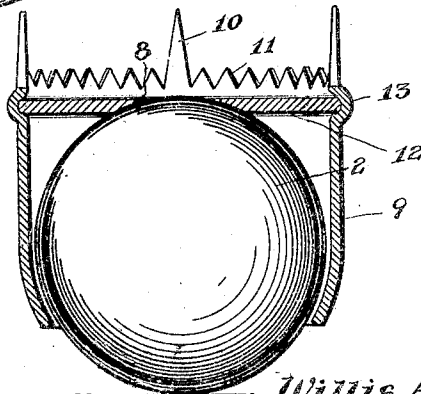


FIG. 4.

Witnesses

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BALL-CASTER.

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To all whom it may concern:

Be it known that we, WILLIS A. BARNES and ROBERT W. JAMIESON, citizens of the United States of America, residing at New York, in the county of New York and State of New York, have invented new and useful Improvements in Ball-Casters, of which the following is a specification.

This invention relates to improvements in ball-casters.

The object of the invention is to provide a caster of the above described character wherein a single ball is arranged and supported within a housing or retainer, the latter being provided with a bearing element which is apertured centrally and through which aperture a portion of the ball extends, the walls of the aperture being concaved so as to conform to the outline of the ball and to contact only with the pressure side of the ball when weight is applied to the caster and to so construct the housing or bearing whereby it merely operates to hold the ball in proper position with respect to the said bearing element.

In the drawing, forming a portion of this specification and in which like numerals of reference indicate similar parts in the several views:—Figure 1 is a vertical section through our improved ball-caster, the ball being shown in elevation. Fig. 2 is a plan view thereof. Fig. 3 is a plan view of the disk. Fig. 4 is a section similar to Fig. 1 showing a slightly modified form of our invention.

In the preferred embodiment of our invention illustrated particularly in Figs. 1 to 3 inclusive of the drawing, the ball-caster embodies a retainer and housing 1 which is preferably of cylindrical construction and vertically disposed, being of a transverse diameter slightly exceeding the diameter of the ball 2, and as shown, the lower wall of the said combined retainer and housing is stamped to follow the outline of the ball, being curved downwardly and inwardly below the horizontal axis of the ball so as to prevent displacement of the ball when the caster is lifted. The construction herein contemplated aims to provide means whereby the ball 2 will be free for movement in the said retainer and housing and held against having its movement retarded through its contact with anti-friction spherical bodies employed heretofore as a bearing for the ball, and as shown, we

substitute for such common bearing a relatively flat disk 3. The disk is preferably constructed of steel. It is disposed horizontally with respect to the retainer and housing 1 and as illustrated, it is formed near its edge with a series of openings 4 which are arranged in coincidence with similar openings 5 in the horizontal flange 6 at the upper end of the retainer and housing. The edge of the disk is flared downwardly and outwardly and the edge of the flange 6 is crimped or struck up to overlap the said flared edge of the disk, as shown at 7. This construction has been found most efficient not only from a point of cheapness but from a point of durability and simplicity. The openings 4 and 5 are adapted to receive such fastening devices as the screws shown at 14; the said screws being designed to be driven into the article to which the caster is applied. At the center, the bearing disk 3 is formed with an opening 8 into which a portion of the ball 2 protrudes. The walls of the opening are curved and are parallel to the walls of the ball, being adapted to contact therewith on the pressure side of the ball when weight is applied to the caster.

In the modified form of our invention shown in Fig. 4 of the drawing, the combined housing and retainer 9 is very similar to the form of housing and retainer described in Fig. 1, the difference being in providing the upper edge of the walls of the retainer or the upper edge of the disk 3 or the housing or any other part of the upper part of the caster with a plurality of suitably spaced anchoring spurs 10 and the provision of similar but smaller spurs 11. The spurs 11 are disposed between the spurs 10 and operate therewith to form a driving caster and to hold the same very firmly when operatively applied to the article on which the caster is to be used. The bearing disk 12 is substantially identical with the disk 3, and as shown, its edge portion is mounted in the bead 13 of the housing and retainer.

As hereinbefore stated, the combined retainer and housing is of a transverse diameter slightly in excess of that of the ball. This is extremely desirable in view of the fact that best results have been obtained wherein the ball will have a minimum amount of play. The construction is such that the ball is almost wholly out of contact

with the walls of the retainer and housing under applied load or weight to the caster, it being understood that the ball will be positioned centrally with respect to the housing, incident to its contact with the walls of the opening 8. By providing the opening 8 with a wall of concaved form it will be seen that the surface of the wall is presented to contact with the ball and it will guard against the ball being cut by the said wall of the opening.

In our invention of a single ball caster we have eliminated the use of small balls as a backing or base for a larger ball to roll on. In practice, these small balls impinging upon a solid surface through the pressure of a larger ball do not move with ease and therefore retard rather than aid the movement of the larger ball. Then again, the small balls require a raised space above the larger ball which makes the depth of the caster much greater than our improvement and further, the small balls behind a large one are likely to become clogged with dirt and thus have their movement and that of the larger ball very greatly retarded.

The one decided advantage of our invention and method of construction lies in the fact of its simplicity and economy of manufacture.

We claim:—

1. A ball caster comprising a cylindrical

housing, a ball for the housing, the lower portion of said housing being shaped to conform to the contour of said ball, the upper portion of said housing being provided with a groove, and a bearing disk resiliently retained within said groove and centrally provided with an opening, said opening having its walls shaped to conform to the contour of said ball whereby said ball is maintained in spaced relation with respect to said housing.

2. A ball caster comprising a cylindrical housing, a ball within the housing, said housing being bent at its lower end to conform to the contour of the adjacent surface of the ball, said housing being formed at its upper end to provide a plurality of spurs, said housing being further provided with a groove at a point adjacent said spurs, and a bearing disk resiliently retained within said groove and provided with a central opening, the walls of said opening being concaved to conform to the contour of the adjacent surface of the ball.

In testimony whereof we affix our signatures in presence of two witnesses.

WILLIS A. BARNES.
ROBERT W. JAMIESON.

Witnesses:

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BEL B. JAMIESON.