No. 839,885. PATENTED JAN. 1, 1907.

T. S. PATTERSON.

THRUST BEARING.

APPLICATION FILED MAY 4, 1905.

FIG. 1.

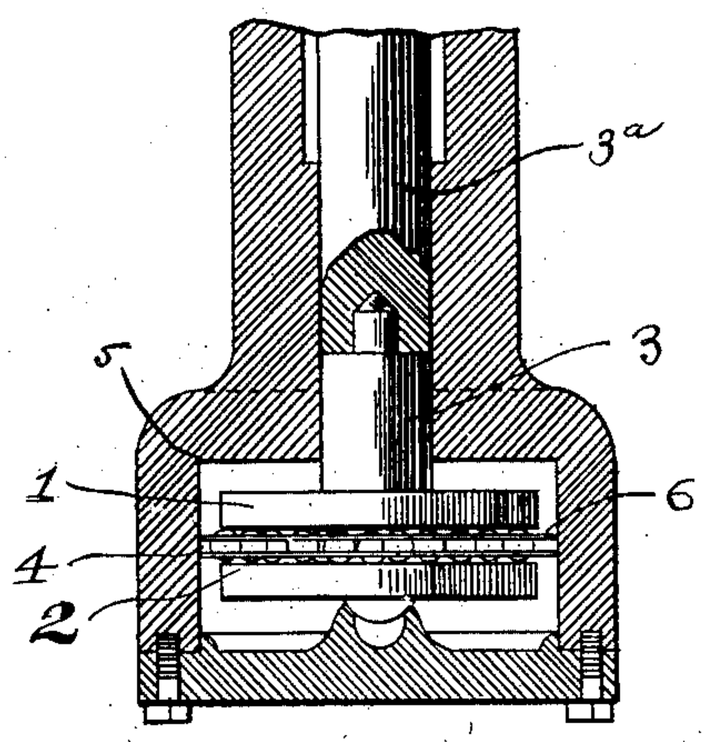
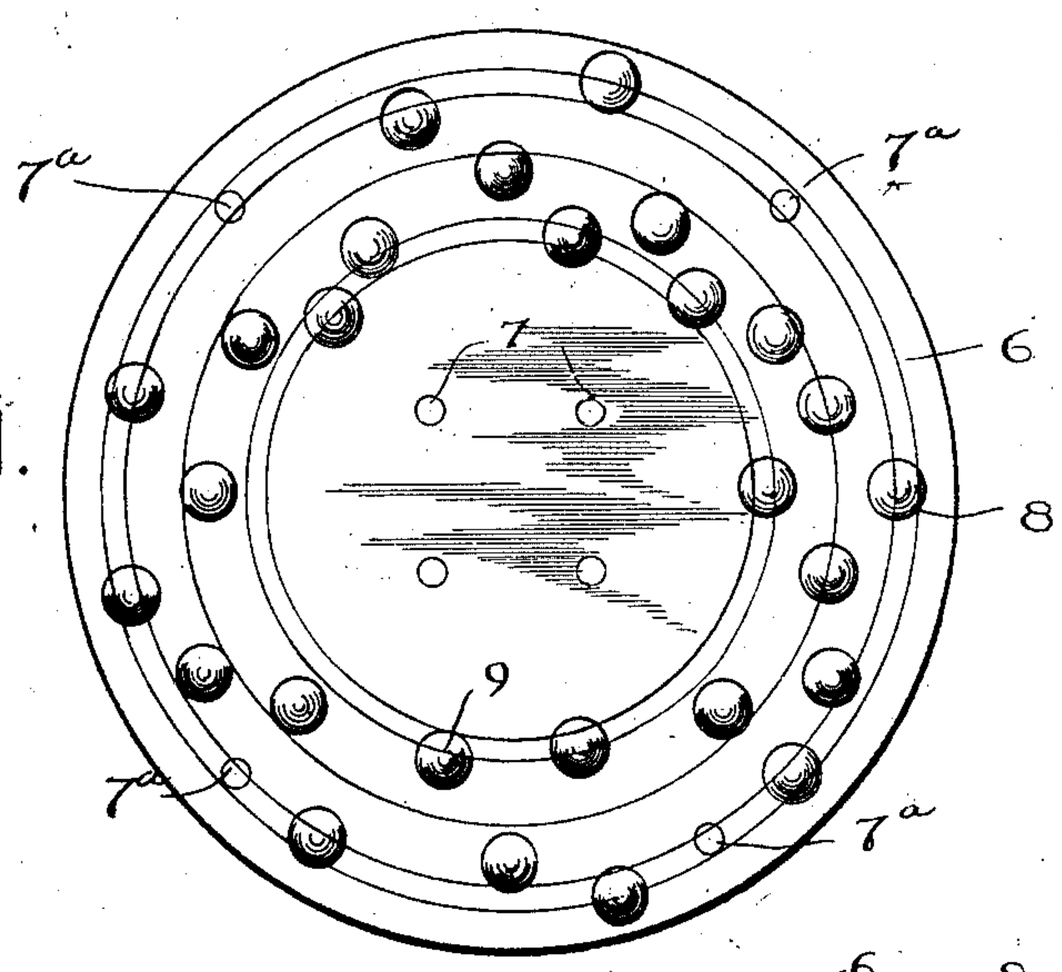


FIG. 3.



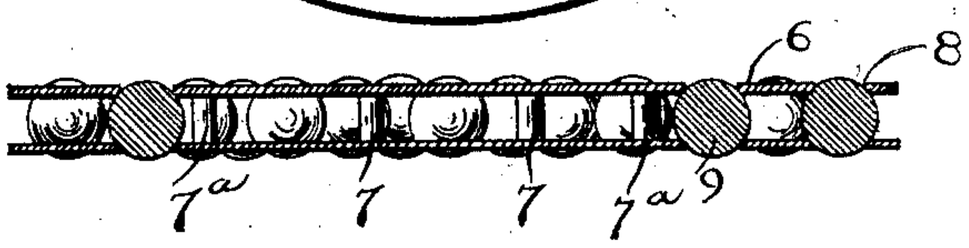


FIG. 2.

Witnesses
Philip A. H. Tuell.
Mary E. Moore.

Inventor
Thomas S. Patterson,
by David S. Moore.
Atty.

UNITED STATES PATENT OFFICE.

THOMAS S. PATTERSON, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE OIL AND WASTE SAVING MACHINE COMPANY, A CORPORATION OF PENNSYLVANIA.

THRUST-BEARING.

No. 839,885. Specification of Letters Patent. Patented Jan. 1, 1907.

Application filed May 4, 1905. Serial No. 258,851.

To all whom it may concern:

Be it known that I, THOMAS S. PATTERSON, a citizen of the Dominion of Canada, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Thrust-Bearings, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in thrust-bearings; and the main object of my invention is the provision of a novel construction of thrust-bearing in which the rolling contacts are so mounted or retained between two plates that their points of contact—that is, of each rolling contact with the bearing-plates above and below—are a different distance from the center of the shaft or of the retaining-plates, and the plates are of such size as to be guided by the walls of the casing. By ihis means it will be seen that no ridges or grooves will be formed by the contact of the rolling contacts upon the bearing-plates, as each separate ball or rolling contact has its own raceway in which to run.

To attain these objects, the invention consists of a new and novel construction of ball-retainer, as will be hereinafter set forth.

In the accompanying drawings, Figure 1 is a vertical central sectional view of the bearing-plates with my invention in use in connection therewith. Fig. 2 is an enlarged detail sectional view through the ball-retainer. Fig. 3 is a top plan view of the ball-retainer.

Referring to the drawings, the numeral 1 designates the upper bearing-plate, 2 the lower bearing-plate, and 3 a spindle which is carried by the upper bearing-plate to support the main spindle 3^a. Mounted in the space between the plates and adapted to have their peripheral edges slightly in contact with the walls 4 of the casing 5 are the retaining-plates 6. The peripheral edges of the plate 6 are adapted to be slightly in contact with the walls, for the reason that the walls will properly guide the plate within the same so that it does not wabble or slide from side to side as the bearings are in use. I have found in practice that the friction is so slight between the edges of the plate and the walls as not to impair the usefulness of the bearing. These retainer-plates 6 are secured together by means of the rivets or posts 7 and 7^a, the posts 7 being nearest the center of each of said plates. These plates are provided with series of openings 8 at different distances from the center, so that when the balls or rolling contacts 9 are held in place between the plates their contacting surfaces will project through said openings, and thus contact the bearing-plates 1 and 2, the respective contact-point of each ball or rolling contact being at a different radius from the center of the bearing-plates, so that each ball has its independent raceway between said plates 1 and 2.

From the foregoing description it is evident that I have invented a thrust-bearing in which the rolling contacts are so distributed between a retainer as to be at all times held in such a position as to have an independent raceway for each rolling contact, and thus avoid the great danger as is generally occasioned by all of the rolling contacts or balls running in the same line between the bearing-plates, the contacting of the peripheral edges of the plates 6 with the walls of the casing, as above set forth, greatly assisting in keeping each ball or rolling contact in its respective raceway.

By placing the rolling contacts properly between the plates the weight upon the spindle 3 is evenly distributed, so that as it revolves the retaining-plates will also revolve, and thus by means of the rolling contacts or balls the end thrust of said spindle is reduced to a minimum, while the bearing-surfaces are increased.

From the foregoing description, taken in connection with the drawings, it is evident that I provide a new and novel form of thrust-bearing which is simple and durable in construction and which is thoroughly efficient and practical in use.

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

1. In a thrust-bearing, the combination with two bearing-plates, spaced apart, of two retaining-plates disposed between the bearing-plates, securing devices connecting the retaining-plates and maintaining them spaced apart, said retaining-plates having alined openings, and balls located between

the retaining-plates, said balls projecting slightly through the openings in the retaining-plates and engaging the bearing-plates.

2. In a thrust-bearing, the combination with two bearing-plates spaced apart, of two retaining-plates located between the bearing-plates, said retaining-plates spaced apart, fastening devices passing from one retaining-plate to the other and holding them fixed relatively to each other, each of said retaining-plates having a number of irregularly-arranged openings and the openings of one retaining-plate disposed in line with the openings of the other retaining-plate, and balls located between the retaining-plates, said balls projecting slightly through the openings of the retaining-plates and engaging the bearing-plates, each ball having a circular path against the bearing-plates out of line with and independent of the circular paths of the other balls.

3. In a thrust-bearing, the combination with a casing and bearing-plates therein, of retaining-plates disposed between the bearing-plates, said retaining-plates being greater in diameter than the bearing-plates and having slight contact at their peripheral edges with the annular wall of the casing, and rolling bodies carried by said retaining-plates and engaging the bearing-plates.

In testimony whereof I affix my signature in presence of two witnesses.

THOMAS S. PATTERSON.

Witnesses:

ETHEL GUIST,

MARY B. MARR.