J. L. STRAUB.

BALL RETAINER.

APPLICATION FILED OCT. 7, 1910.

1,010,974. Patented Dec. 5, 1911.

Fig. 1.

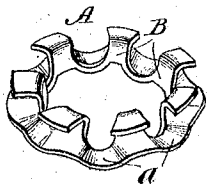


Fig. 2.

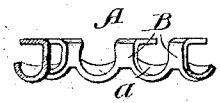


Fig. 3.

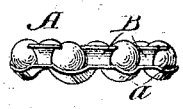


Fig. 4.

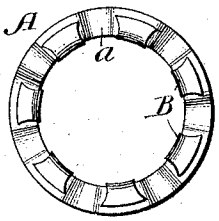
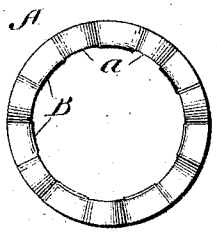


Fig. 5.



Witnesses
Donald H. Stewart.
E. V. Webster

Inventor
Jackson L. Straub
By Donald H. Dowell
his Attorneys

UNITED STATES PATENT OFFICE

JACKSON L. STRAUB, OF LANCASTER, PENNSYLVANIA, ASSIGNOR TO THE STAR BALL RETAINER COMPANY, OF LANCASTER, PENNSYLVANIA, A CORPORATION OF NEW JERSEY.

BALL-RETAINER.

1,010,974. Specification of Letters Patent. Patented Dec. 5, 1911.

Application filed October 7, 1910. Serial No. 585,889.

To all whom it may concern:

Be it known that I, JACKSON L. STRAUB, a citizen of the United States, residing at Lancaster, in the county of Lancaster and State of Pennsylvania, have invented certain new and useful Improvements in Ball-Retainers, of which the following is a specification.

This invention relates to ball retainer for ball bearings of the character shown in United States patent to Henry B. Keiper No. 686,617, granted November 12, 1901, and has for its object the production of a simple, efficient and inexpensive ball retaining and separating device of the character referred to, which shall possess all of the advantages of the Keiper retainer, while easier and less expensive to make, being distinguished therefrom by the peculiar construction of the base-ring having ball-seating furrows therein which extend transversely of the axis of the ring and widen toward one edge, while the free ends of the standards overhang the ridges of the corrugations. The Keiper retainer of the form shown in said Patent No. 686,617 is produced by cutting from sheet-metal a circular disk or plate, then drawing out the central portion of the disk so as to form a substantially hat-shaped body, then cutting out the top of the crown, and then cutting and bending the remaining portion of the blank so as to form a series of standards rising from the inner edge of a circular base, the free ends of the standards overhanging the base and being so formed that suitable spaces are provided for receiving balls which are confined in said spaces without preventing free rotation of the balls. This method of producing the Keiper retainer results from the fact that there is not metal enough in the center of the circular disk or plate from which to form the series of standards of the requisite length and width to perform the desired functions.

My improved ball retainer and separator can be produced from a circular disk or plate of sheet-metal, without drawing out the center of the disk and it has all of the advantages of the Keiper retainer while less expensive and easier to make.

The invention will first be hereinafter more particularly described, with reference to the accompanying drawings, which are to be taken as a part of this specification, and then pointed out in the claims at the end of the description.

Figure 1 of said drawings represents a perspective view of a ball retainer embodying my invention; Fig. 2 is a transverse section of the same; Fig. 3 is an end view thereof; Fig. 4 is a top or plan view of the device when arranged in a horizontal position with the standards uppermost, and Fig. 5 is a similar view showing the opposite side.

Referring to said drawings, in which the same reference letters are used to denote corresponding parts in different views, the letter A denotes a ball retainer for ball bearings having a ring-shaped portion or base which is corrugated or formed with alternating ridges and depressions or furrows, the latter being denoted by the letter *a* and approximately semi-funnel-shaped, so that the surfaces of the furrows extend transversely and obliquely to the axis of the ring from the outer to the inner edge, the inner ends of the furrows being deeper and narrower than the outer ends thereof. Projections or standards B, B alternating with the furrows, rise from the inner edge or margin of the base substantially parallel with the axis of the ring and have their free ends extended outwardly, so as to overlie or overhang said base, and widened or flaring toward their extremities. The free ends of the standards overlie the base-ring directly over the ridges, one at each side of a furrow. The effect of this construction is to increase the length of the standards, or the distance from the tops thereof to their bases, or the bottoms of the depressions or furrows in the corrugated ring, and to bring the standards closer together than they were in the original blank, thereby forming suitable spaces between adjacent standards to receive and confine the balls without preventing free rotation of the balls.

The particular formation of the furrows and the standards hereinbefore set forth permits the balls to be snapped into place between the standards and seat in the furrows where they will be held out of contact and secured against displacement so that the retainer and the balls therein may be inserted in or removed from a bearing without loss of any balls or disturbing their relative arrangement.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A ball-retainer and separator for ball-bearings consisting of a base-ring with spaced standards rising from one of its edges, the free ends of the standards overhanging said base, the latter being corrugated, thereby providing ball-seating depressions between the standards, said depressions extending transversely of the axis of the ring and having the effect of increasing the length of the standards and lessening the distance therebetween.

2. A ball retainer and separator for ball bearings consisting of a base-ring with spaced standards rising from one of its edges, the free ends of the standards overhanging said base-ring, the latter being corrugated, thereby providing ball-seating depressions between the standards, said depressions extending transversely of the axis of the ring and widening toward one edge of the ring and in effect increasing the length of the standards and lessening the distance therebetween.

3. As a new article of manufacture, a ball retainer and separator for ball-bearings consisting of a base-ring with spaced standards rising from its inner edge, the free ends of said standards overhanging said base, the latter being corrugated, thereby providing depressions between the bases of the standards to form alternating ridges and ball-seating furrows which extend transversely of the axis of the ring and lessen the distance between adjacent standards.

4. A ball retainer and separator for ball bearings consisting of a base ring with spaced standards extending from the inner edge thereof parallel with the axis of the same, the free ends of the standards overhanging the ring, said base-ring being corrugated, thereby providing depressions between the standards to form furrows having their inner ends deeper and narrower than their outer ends, whereby spaces are provided to receive and retain the balls.

5. A ball retainer and separator for ball bearings consisting of a base ring with spaced standards extending from one edge thereof, the free ends of the standards overhanging the ring, said base-ring being corrugated, thereby providing depressions between the standards to form furrows having their ends adjacent the standards narrower and deeper than their opposite ends, whereby spaces are provided to receive and retain the balls.

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

JACKSON L. STRAUB.

Witnesses:
A. G. HERTZLER,
W. A. FUELMER.