

(No Model.)

S. H. COWLES.
ANTIFRICTION BEARING.

No. 558,044.

Patented Apr. 14, 1896.

Fig 1.

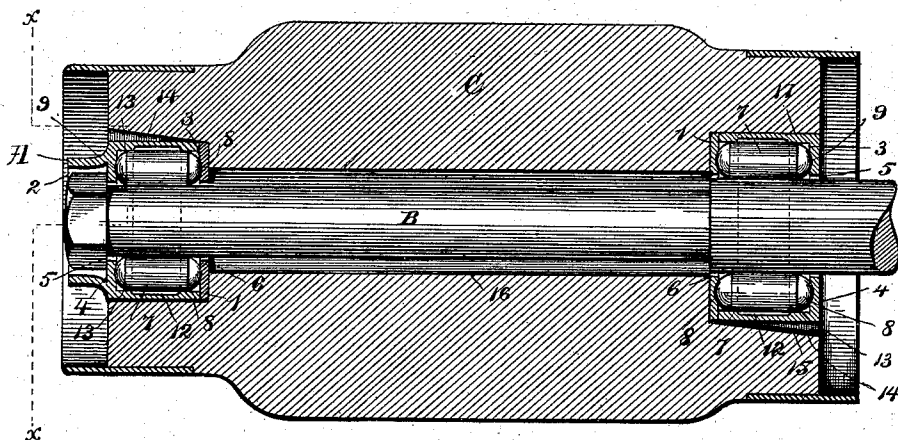


Fig 2.

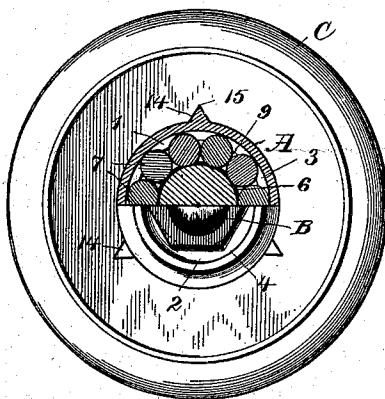


Fig 4.

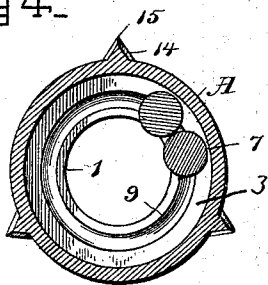
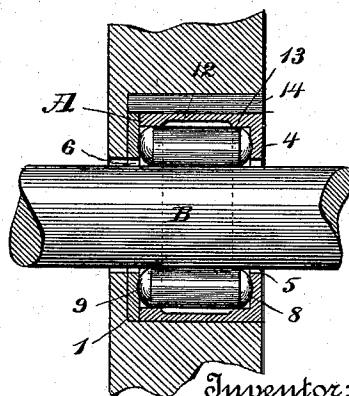
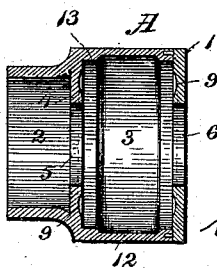


Fig 5.



Witnesses
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UNITED STATES PATENT OFFICE.

SAMUEL H. COWLES, OF OAKVILLE, CONNECTICUT.

ANTIFRICTION-BEARING.

SPECIFICATION forming part of Letters Patent No. 558,044, dated April 14, 1896.

Application filed June 6, 1895. Serial No. 551,883. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL H. COWLES, a citizen of the United States, residing at Oakville, in the county of Litchfield, State of Connecticut, have invented certain new and useful Improvements in Antifriction-Bearings; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to antifriction-bearings. It has more particular relation, however, to that class known as "roller-bearings."

The object of the invention is to provide an efficient and durable antifriction-bearing in a simple and inexpensive manner; and the invention consists in the novel features of construction hereinafter more fully described.

In the accompanying drawings, forming a part of this specification, and in which like letters and numerals of reference indicate corresponding parts, Figure 1 is a longitudinal sectional view illustrating my invention as applied to the hub of a vehicle-wheel. Fig. 2 is an end elevation of the same, the bearing being partly in section to show clearly the arrangement of the antifriction-rollers. Fig. 3 is a sectional view of the casing. Fig. 4 is a detail end elevation of the bearing, the cap-plate being removed, illustrating a modified arrangement of the antifriction-rolls; and Fig. 5 is a longitudinal sectional view illustrating the application of my invention to driving or power shafts.

Referring more particularly to the drawings, A represents the casing, having a removable cap-plate 1 secured thereto in any desirable manner. The casing A in the present instance, though not necessarily, is divided into two compartments 2 3 by a central annular flange 4, the central opening 5 of which aligns with a corresponding opening 6 in the cap-plate 1.

Within the compartment 3 is a series of cylindrical antifriction-rollers 7, provided with semispherical ends 8, which take into annular concave grooves 9, the inner faces of the flange 4, and cap-plate 1. These grooves are arranged intermediate the edges of the openings 5 and 6 of the flange and cap-plate

and the inner face of the casing. They are, however, nearer to the edges of the said openings than to the inner face of the casing, so that when the rollers 7 are inserted in the casing their peripheries will extend beyond the edges of the openings 5 and 6 to make contact with and form bearings for the axle or shaft B, which extends through said openings. When in position, the antifriction-rollers, which are of uniform size and shape, bear at their peripheries upon the inner face of the casing. In order, however, to diminish the friction which would necessarily result from permitting the rollers to bear for their whole length upon the inner face of the casing, an annular groove 12 is formed in said face in such manner as to leave narrow bearings 13 for the ends of the antifriction-rollers. From the above it will appear that the rollers 7 are permitted to bear upon the casing A only at their ends and at the edges of their peripheries.

The casing A may be formed in any desirable manner, as by turning it out of a block of metal. I prefer, however, to cast it and then smoothly finish those portions thereof which serve as bearings.

Arranged at suitable distances around the circumference of the casing A are wedge-shaped lugs 14, tapering from the end of the casing which receives the cap-plate to the opposite end thereof where they merge into the casing. These lugs may be of any desirable shape in cross-section; but I prefer to form them triangular to leave their edges sharpened in order that they may be easily driven into the hub of a wheel.

C is the hub of a vehicle provided with a central opening 16, terminating at opposite ends in recesses 17 for reception of the casing A. The casings are inserted in said recesses by being driven to cause the lugs 14 to enter the hub at points contiguous to the recess 17 and hold the casings against movement in said recesses, or recesses for reception of the lugs may be formed previous to the casing A being fitted.

The axle B extends centrally through openings in the casing A and hub C and bears upon the peripheries of the antifriction-rollers of the casing at opposite ends of the hub.

In the modification illustrated in Fig. 4 of

the drawings the antifriction-rollers are arranged to prevent their peripheries bearing upon the inner face of the casing A by reason of the fact that the compartment 3 is larger
5 and that the rollers take their bearing solely in the annular concave groove in the end of the casing. This is effected by leaving a space between the annular concave groove 9 in the flange 4 and cup-plate 1 and the inner
10 face of the casing A greater in width than half the diameter of the antifriction-rollers 7.

I have described my invention as applied to the hubs of vehicle-wheels. It will be understood, however, that it is commensurate
15 with the scope of the invention as defined herein, and in the claim which follows to use it as a bearing for power and driving shafts in machinery of all kinds.

What I claim is—

20 An antifriction-bearing comprising a casing provided with a compartment, and a central

opening, an annular recess 12 in the inner face of the casing, said recess being shorter than the casing to leave bearing-surface, an
25 annular concave groove in the end of the casing intermediate the edge of the central opening and the inner face thereof, a cap-plate fitted to the casing and provided with a central opening alining with that in the casing
30 and also having an annular concave groove, and cylindrical antifriction-rollers bearing at their circumference upon the inner face of the casing and having spherical ends adapted to take into the grooves in the casing and in the cap-plate, substantially as described. 35

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

SAMUEL H. COWLES.

Witnesses:

VICTORY L. SAWYER,
JOHN H. GUERNSEY.