No. 633,053. Patented Sept. 12, 1899.

P. M. ST. LOUIS.

ROLLER BEARING.

(Application filed June 6, 1899.)

(No Model.)

Fig. 1.

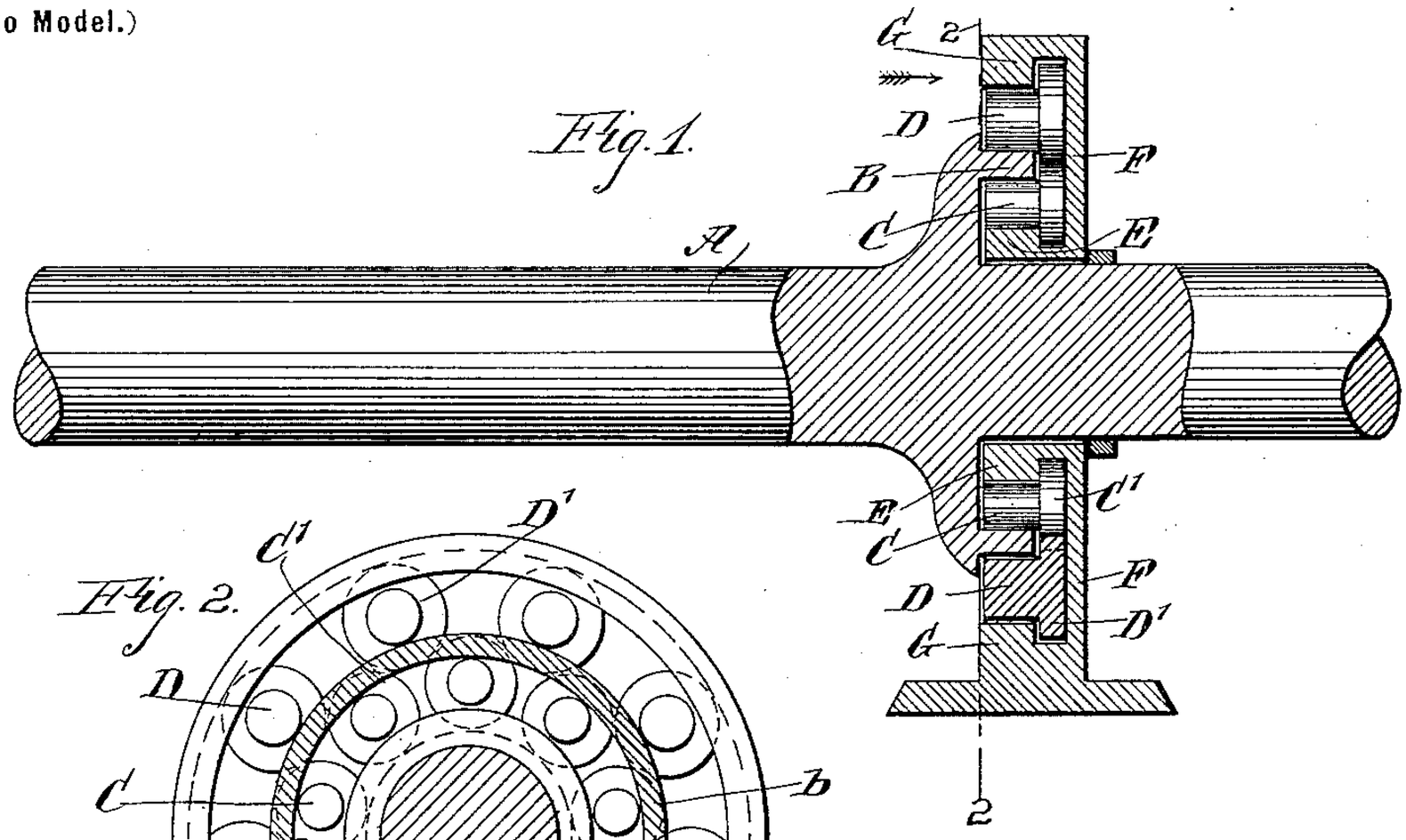


Fig. 2.

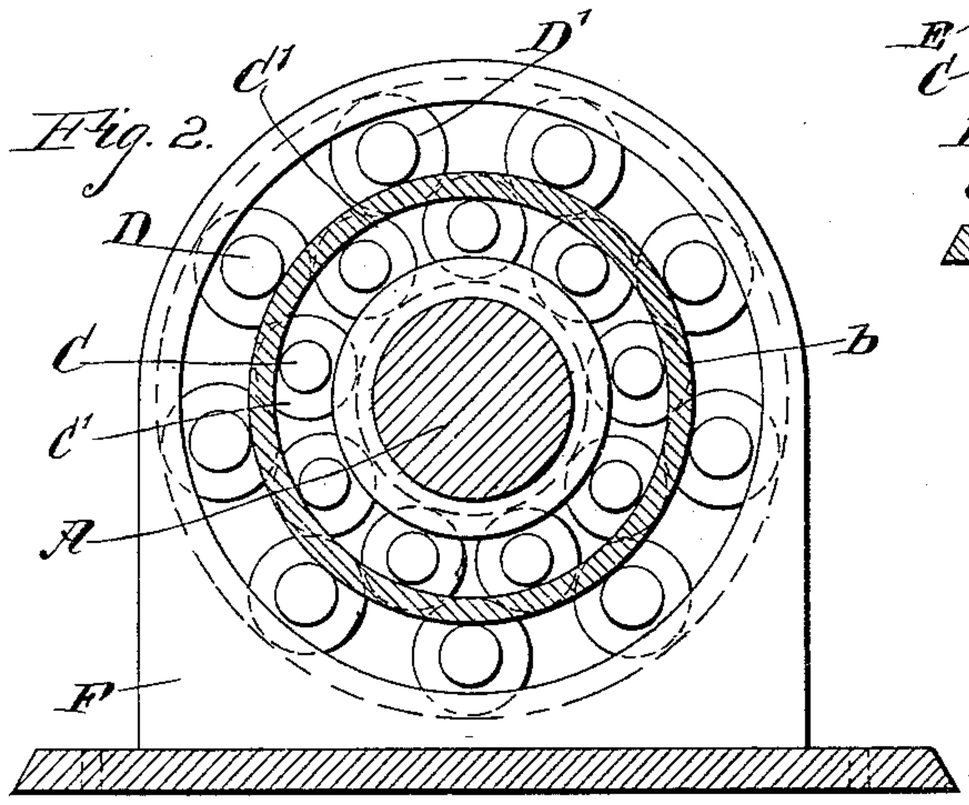
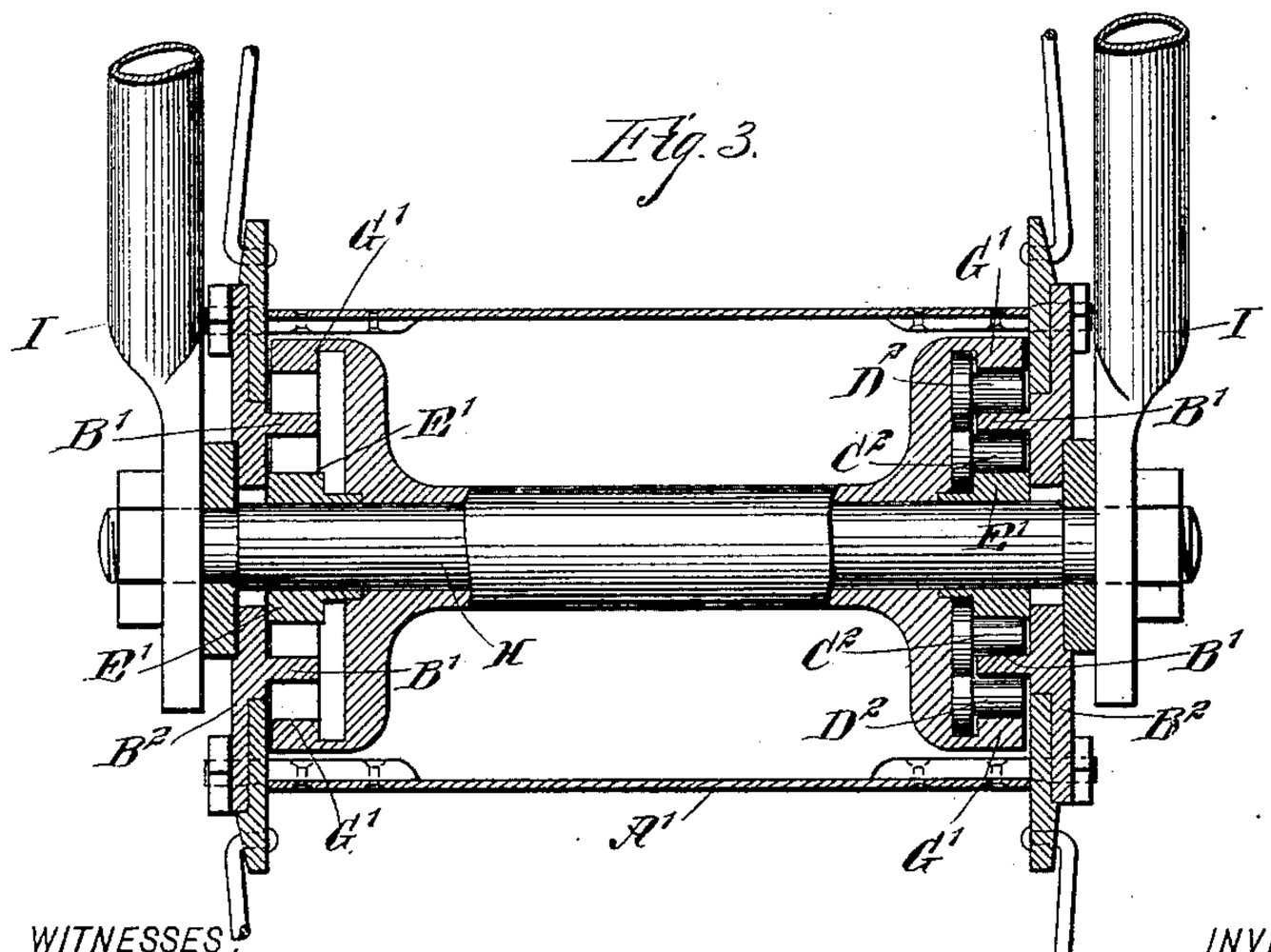


Fig. 3.



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PHILIP M. ST. LOUIS, OF CARMEL, WISCONSIN.

ROLLER-BEARING.

SPECIFICATION forming part of Letters Patent No. 633,053, dated September 12, 1899.

Application filed June 6, 1899. Serial No. 719,572. (No model.)

To all whom it may concern:

Be it known that I, PHILIP M. ST. LOUIS, of Carmel, in the county of Waupaca and State of Wisconsin, have invented a new and Improved Roller-Bearing, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved roller-bearing designed for use on shafts, bicycles, and other machines and devices and which is simple and durable in construction and arranged to reduce the friction to a minimum.

The invention consists of novel features and parts and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

A practical embodiment of my invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a cross-section of the improvement as applied on a shaft. Fig. 2 is a sectional side elevation of the same on the line 2 2 in Fig. 1, and Fig. 3 is a cross-section of the improvement as applied to a bicycle-wheel and with the rollers on one side of the hub removed.

The improved device illustrated in Figs. 1 and 2 is applied on a shaft or spindle A, formed with a bearing-ring B, engaged at its inner surface by a set of rollers C and at its outer peripheral surface by another set of rollers D, said rollers having heads or flanges C′ D′ in contact with each other, as is plainly indicated in Fig. 2, so as to keep the rollers in each set spaced the desired distance apart. The inner set of rollers C also engages a track E, formed or secured on a casing F, and the outer set of rollers D engages a track G, likewise formed or secured on the casing F and concentric with the shaft A, the track E, and the bearing-ring B. Now it will be seen that when the shaft A is rotated the sets of rollers C and D by being in contact with the inner and outer surfaces of the bearing-ring B, which revolves with the shaft, are caused to rotate in opposite directions and roll upon the fixed tracks E and G of the casing F. As the rollers are in contact with each other by their flanges or heads, it is evident that they rotate in unison, and at the same time the rollers in a set are kept apart from one another, thus preventing undue friction and insuring an easy running of the shaft A.

In the arrangement shown in Fig. 3 the sets of rollers C^2 D^2 engage the inner and outer faces, respectively, of a bearing-ring B′, formed or secured on a cap B, attached to the hub A′ of a bicycle-wheel. The inner track E′ is secured to an axle H, carried by the forks I of the bicycle-frame, and on said axle is also secured an outer track G′, as will be readily understood by reference to Fig. 3. The operation of this device is exactly the same as the one above described in reference to Figs. 1 and 2.

As indicated in both Figs. 1 and 3, I prefer to make the innermost track E or E′ somewhat wider than the outermost track G or G′ and the bearing-ring B or B′, so that the heads of the rollers are not liable to come in contact with the outer edge of the bearing-ring B′, thereby preventing undue friction at this point.

From the foregoing it is evident that by having the sets of rollers arranged as described the bearing-ring is between two sets of bearing-rollers, thus forming double bearing-surfaces sustaining the load equally. When in use, the load bears against the outer set of rollers at the bottom while it bears against the inner set at the top, thus rendering the bearing frictionless as far as vertical strain is concerned.

The arrangement described forms a very simple and durable roller-bearing, not liable to get out of order or become disarranged and bind when in use, and for light machinery the rollers can be made hollow to reduce the weight of the bearing to a minimum.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. A roller-bearing, comprising concentric tracks having a common support, an intermediate bearing-ring, and sets of rollers, one set between the inner track and the inner face of the bearing-ring and the other set between the outer track and the outer face of the bearing-ring, and means upon each set of rollers for keeping the rollers of the other set spaced apart or out of contact, substantially as shown and described.

2. A roller-bearing, comprising concentric tracks, an intermediate bearing-ring, and sets of rollers, one set between the inner track and the inner face of the bearing-ring and the other set between the outer track and the outer face of the bearing-ring, each of the rollers being provided with a head or flange, the flanges of the inner and outer sets of the rollers being in rolling contact with each other, to keep the rollers in each set spaced apart, substantially as shown and described.

3. A roller-bearing, comprising fixed concentric tracks, a revoluble bearing-ring in substantially the same planes with and intermediate said tracks, a set of rollers between the inner track and the inner face of said bearing-ring, and a second set of rollers between the outer track and the outer face of said ring, substantially as shown and described.

4. A roller-bearing, comprising fixed concentric tracks, a revoluble bearing-ring in substantially the same planes with and intermediate said tracks, a set of rollers between the inner track and the inner face of said bearing-ring, a second set of rollers between the outer track and the outer face of said ring, and annular flanges on said rollers, the flanges on one set of rollers being in frictional contact with the flanges on the other set of rollers, substantially as shown and described.

5. A roller-bearing, comprising concentric tracks and an intermediate bearing-ring, the tracks and bearing-ring being located one on the stationary member of the bearing and the other upon the rotating member, and two sets of rollers lying between the bearing-ring and the concentric tracks and in contact therewith, substantially as described.

6. A roller-bearing, comprising concentric tracks and an intermediate ring, the tracks and bearing-ring being located one on the stationary member of the bearing and the other upon the rotating member, two sets of rollers lying between the bearing-ring and the concentric tracks and in contact therewith, said rollers having flanges upon one end overlaping the bearing-ring, and the flanges of one set having rolling contact with the flanges of the other set, substantially as described.

7. A roller-bearing, comprising concentric tracks and an intermediate bearing-ring, the tracks and bearing-ring being located one on the stationary member of the bearing and the other upon the rotating member, two sets of rollers lying between the bearing-ring and the concentric tracks and in contact therewith, said rollers having flanges upon one end overlapping the bearing-ring,and the flanges of one set having rolling contact with the flanges of the other set, the concentric tracks having grooves alongside their bearing-surfaces and accommodating the roller-flanges without contacting with the peripheries thereof, substantially as described.

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