(No Model.) 2 Sheets—Sheet 1.

C. E. BARRETT.

JOURNAL BEARING.

No. 310,552. Patented Jan. 13, 1885.

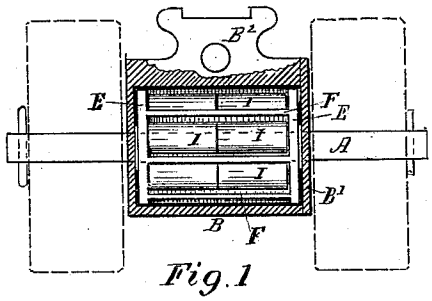

Fig. 1

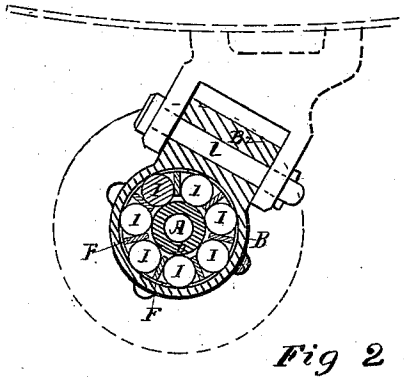

Fig 2

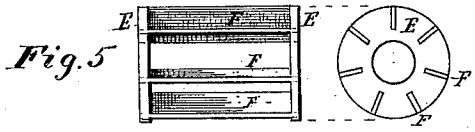

Fig. 5

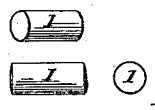

Fig. 6

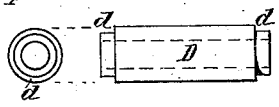

Fig. 7

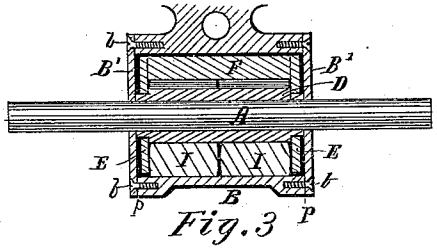

Fig. 3

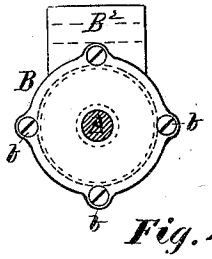

Fig. 4

WITNESSES.

Geo. Ou. Rice 2d

D. R. Barton

INVENTOR

Charles E. Barrett

By Chas. H. Burleigh

Attorney

(No Model.) 2 Sheets—Sheet. 2.

C. E. BARRETT.

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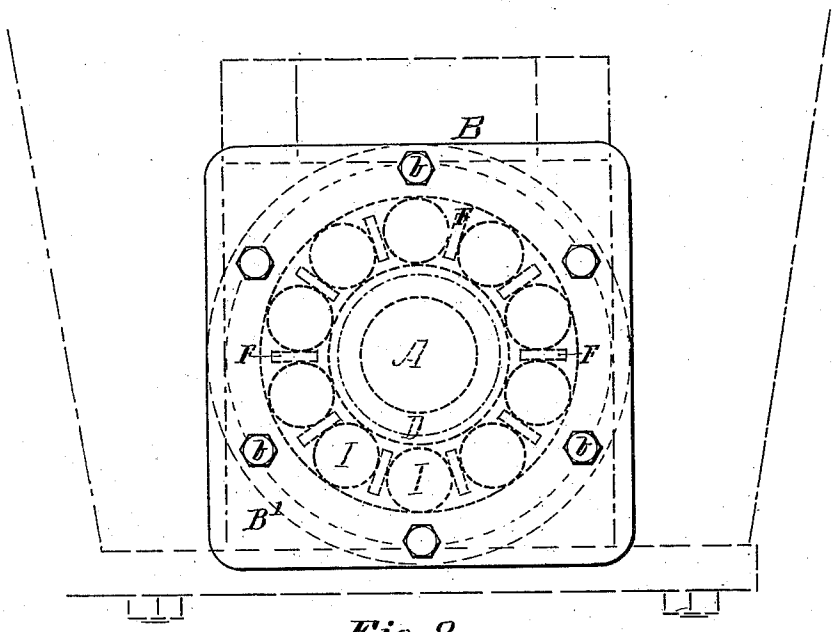

Fig. 8

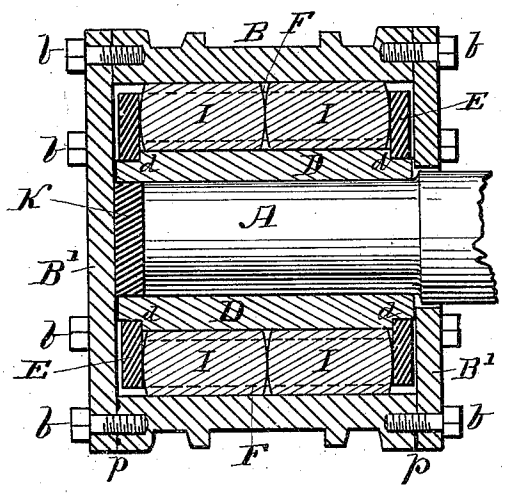

Fig. 9

WITNESSES.

Geo. M. Rice 2d

D. R. Barton

INVENTOR

Charles E. Barrett

By Chas. H. Burleigh

Attorney

UNITED STATES PATENT OFFICE.

CHARLES E. BARRETT, OF BRATTLEBOROUGH, VERMONT.

JOURNAL-BEARING.

SPECIFICATION forming part of Letters Patent No. 310,552, dated January 13, 1885.

Application filed October 27, 1884. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. BARRETT, a citizen of the United States, residing at Brattleborough, in the county of Windham and State of Vermont, have invented certain new and useful Improvements in Journal-Bearings; and I declare the following to be a description of my said invention sufficiently full, clear, and exact to enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My present invention relates to improvements in journal-bearings of that class in which a series of small rollers are arranged about the journal for converting the friction from sliding to rolling condition; and the object of this invention is to provide a practical and more efficient device than those heretofore in use; also, to afford means for continued lubrication of the rolls and journals, and to avoid side motion and wear on the parts. These objects I attain by the mechanism shown in the drawings and herein described, the particular features of invention claimed being hereinafter definitely specified.

Figure 1 is a side view of my improved journal-bearing with the outer casing removed, and showing its devices as adapted for roller-skates. Fig. 2 is a vertical transverse section of the same. Fig. 3 is a longitudinal section. Fig. 4 is an end view of the casing. Fig. 5 shows a side and end of the revoluble roll-separating frame. Fig. 6 shows the form of the rolls. Fig. 7 shows a side and end view of the bearing-sleeve. Fig. 8 is an end view of my journal-bearing as adapted for the axle-journals of railway-cars, with dotted lines showing the internal parts; and Fig. 9 is a longitudinal section of the same.

My improved journal-bearing comprises a tubular quill bushing or sleeve arranged about the shaft or axle-journal, a series of anti-frictional bearing-rollers arranged to support said sleeve within a cylindrical opening in the bearing-case and to roll between the surfaces thereof, and a series of radial bars or partitions supported by disks or heads revolubly mounted at the ends of the sleeve or bearing, and serving for separating and confining the anti-friction rollers to keep them in proper relation with each other while performing their respective actions.

In referring to the drawings, A designates the shaft arbor or axle.

B denotes the casing or supporting-frame, which is provided with a cylindrical internal surface or chamber concentric with the axis of the shaft A, and of a length corresponding to that required for the bearing-journal, or nearly so. The case B is provided with heads or end plates, B′, one or both of which may be made as a separate piece from the body of the case and be attached thereto by screws or bolts *b b*, or in other convenient manner. The joints between the case and heads may be made with a close packing at *p*, so that the chamber will serve as a reservoir for containing oil for immersing the running parts, if desired.

D indicates the bushing, sleeve, or cylindrical quill, arranged over the journal A, and fitted at its ends between the heads B′ in such manner as to prevent its endwise movement, while permitting it to revolve freely with or independent of the journal A. The ends of the sleeve D are shouldered or turned down, as at *d*, to receive the annular disks E E, that support the series of radial partitions, plates, or bars F, that serve for separating and confining the anti-friction rollers I, which latter are of such diameter as to just fill the spaces between the sleeve D, casing B, and the respective plates F, as illustrated. The disks E are made so as to be freely revoluble on the ends of the sleeve D, and the partition-plates F are rigidly fixed to or supported in said disks parallel with the axis of the shaft, (see Fig. 5,) so that the part will revolve about the sleeve in the manner of a fan-wheel. The bars F may be secured to the disks E by inserting their ends into radial slots formed in the disks and soldering them therein; or, if preferred, other means of securing said parts together may be employed, as most convenient and serviceable. The rolls I may be made from rods or round bars of steel cut to the required length, turned or ground to true cylindrical shape and uniform size, and hardened to a degree that will prevent them from wearing to any considerable amount. The ends of said rolls I are made slightly convex, and they are arranged in the respective pockets or

spaces between the radial partitions F, preferably in pairs, or two rolls in each space, as illustrated, the two rolls filling the spaces longitudinally between the disks E, with just sufficient looseness to insure freedom of rotative action without end space. The rolls I take bearing on the exterior of the sleeve D and on the interior of the case B, and travel or roll around upon the surfaces thereof as the axle A revolves. More or less than two rolls might, if desired, be employed in each of the spaces; but I prefer the arrangement shown, since by making the rolls I in short lengths the injurious springing or warping of the rolls when hardening them is avoided.

Any required number of rolls and partition-plates may be employed to fill the circle, according to the requirements of different journal-bearings. In the bearing shown in Fig. 2 there are seven, and in the bearing shown in Fig. 8 there are ten, in each set; but I do not confine my invention to that particular number, as the number will vary according to the proportional diameters of the sleeve and the rolls.

The journal-bearing constructed as herein shown and described operates with but slight friction, and by filling or partially filling the chamber with oil will run for a long time without further lubrication.

For roller-skates the casing B may be provided with an extension, B^2, to receive the hinging-pivot *l*, by which it is attached to the foot of the skate, as indicated in Figs. 1 and 2. If adapted for other purposes, the casing may be fitted with side ears, or with any desired means of support whereby it can be conveniently fixed in position as required for use.

While the shaft or axle journal A may, if desired, be permitted to have more or less longitudinal play within the sleeve, the shoulders *d*, supporting the disks E, and the ends of the sleeve extending through against the heads B′, prevent endwise motion of the disks E, bars F, and rolls I, so that the parts are not subjected to endwise strain and friction by end strain on the shaft or journal, but are free to revolve in their regular order, the end friction being only that due to the end surface of the sleeve D against the head B′.

In the car-axle journal-bearing a cushion or head-piece, K, of vulcanized fiber or other suitable material, may be introduced between the end of the journal and head-plate B, if desired, as illustrated in Fig. 9.

What I claim as of my invention, and desire to secure by Letters Patent, is—

1. In a journal-bearing, the combination of a series of anti-friction rollers and a series of radial partitions arranged intermediate between the respective rolls, parallel to the journal-axis, and supported at either end by disks or heads which are revoluble about the axis of the journal, substantially as and for the purpose set forth.

2. In a journal-bearing, the combination, with the journal A, of the bushing-sleeve D, the disks E, revoluble upon said sleeve, and carrying a series of radial partition-plates, F, the supporting-case B, having a cylindrical internal chamber, and the rims of anti-friction rolls I, disposed in the pockets or spaces between the respective plates, and adapted to roll upon the surfaces of the sleeve and casing, substantially as set forth.

3. The case B, provided with close heads or tight-fitting end plates, B′, forming a cylindrical chamber adapted for containing oil, in combination with the journal A, anti-friction rolls I, partitions F, disks E, and bushing D, substantially as set forth.

4. The bushing-sleeve D, fitted between head-plates B′, and provided with shoulders *d*, the disks E E, carrying the radial partition-plates F, mounted to revolve on said sleeve, and sustained from endwise movement by said shoulders, and the anti-friction rolls I, fitted longitudinally between said disks and laterally between said partition-plates, in combination with the cylindrical supporting-casing B and the journal A, movable within the sleeve, substantially as and for the purposes set forth.

Witness my hand this 28th day of May, A. D. 1884.

CHARLES E. BARRETT.

Witnesses:
L. H. STELLMANN,
GEO. HORTON.