

**No. 628,479.**

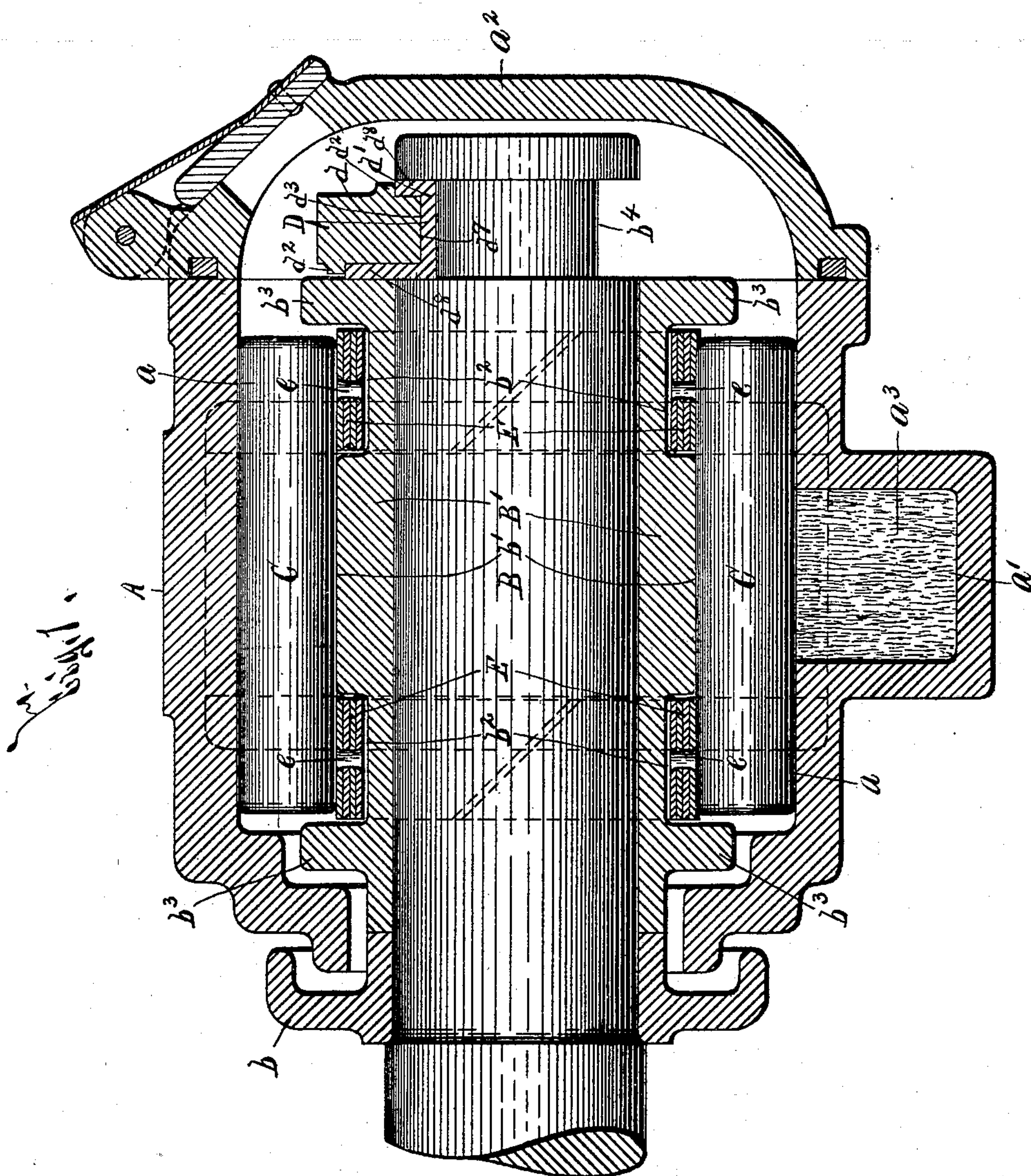
**Patented July 11, 1899.**

**B. S. LAWSON.**  
**BEARING.**

(Application filed Oct. 18, 1898.)

(No Model.)

**2 Sheets—Sheet 1.**



**WITNESSES:**

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2 Sheets—Sheet 2.

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Fig. 2.

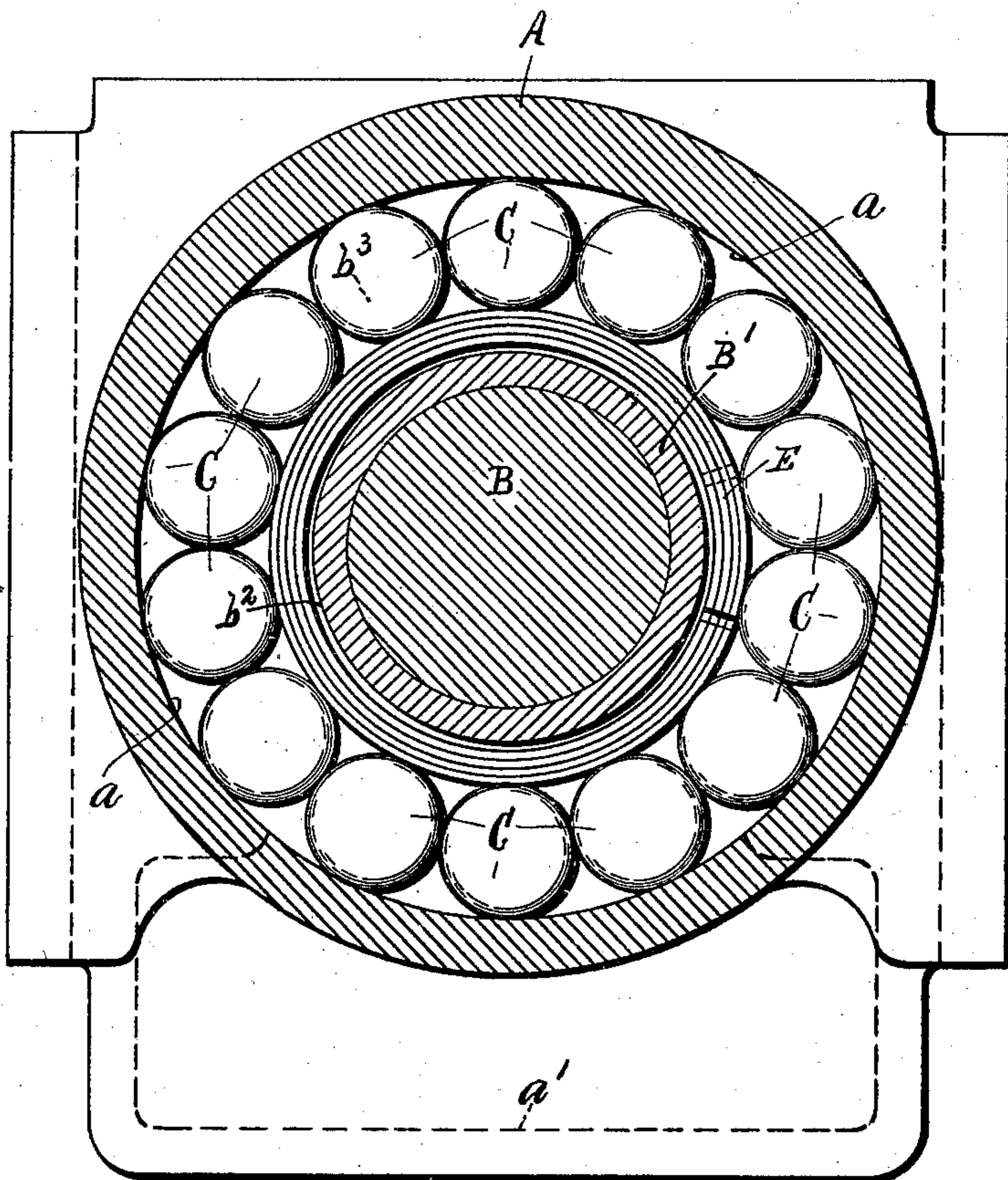
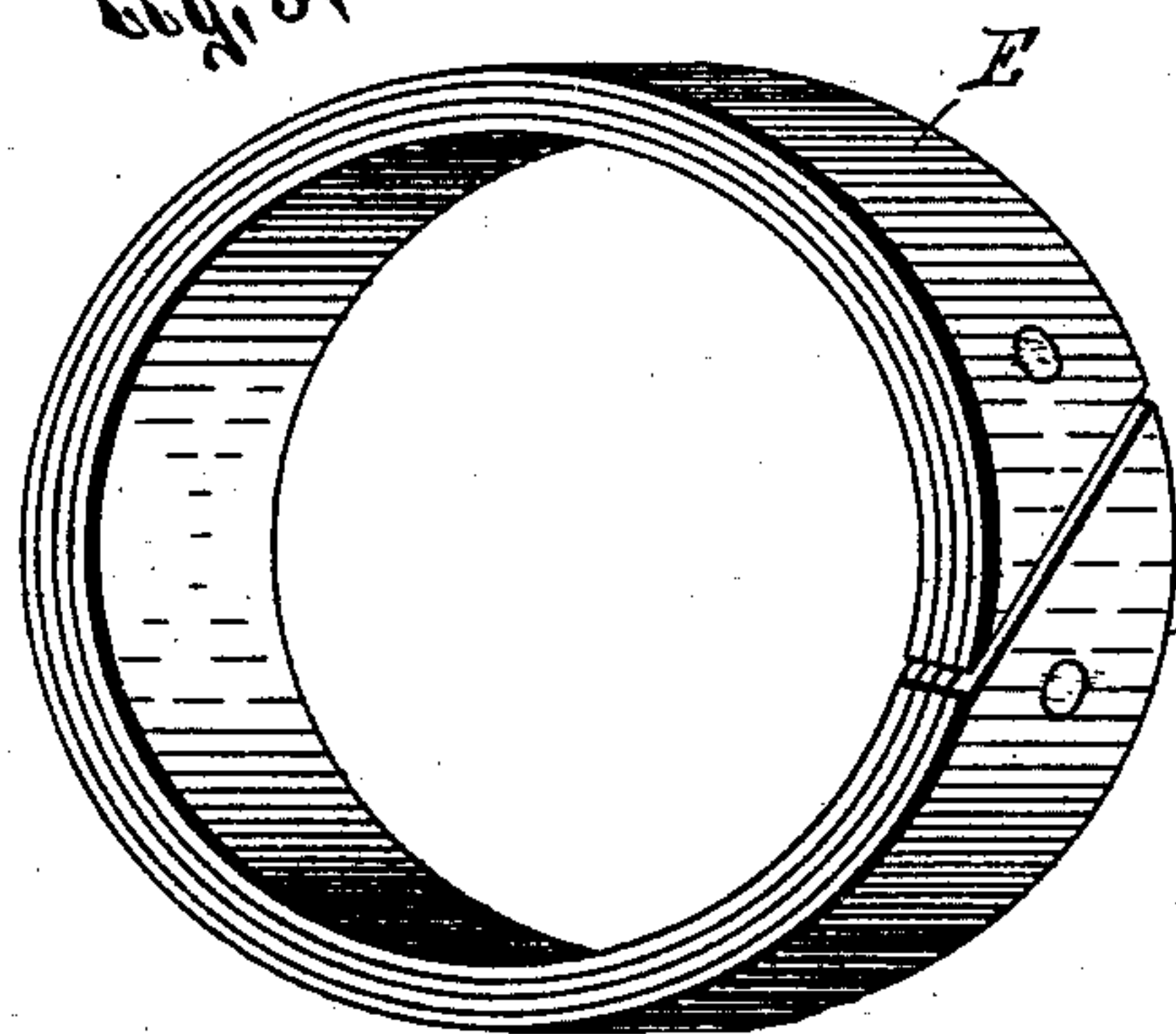


Fig. 3.



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# UNITED STATES PATENT OFFICE.

BENJAMIN S. LAWSON, OF RED BANK, NEW JERSEY, ASSIGNOR OF THREE-FOURTHS TO ASA L. MERRICK, EUGENE M. MERRICK, AND ANDREW J. DE MOTT, OF SYRACUSE, NEW YORK.

## BEARING.

SPECIFICATION forming part of Letters Patent No. 628,479, dated July 11, 1899.

Application filed October 18, 1898. Serial No. 693,875. (No model.)

*To all whom it may concern:*

Be it known that I, BENJAMIN S. LAWSON, a citizen of the United States, and a resident of Red Bank, in the county of Monmouth, in the State of New Jersey, have invented certain new and useful Improvements in Roller-Bearings; and I hereby declare that the following is a full, true, 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, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to improvements in roller-bearings; and the object is to simplify and improve the construction, and thereby increase the efficiency and durability of the device.

To these ends the invention consists in the construction, combination, and arrangement of the several elements of the device, as will be hereinafter more fully described, and particularly pointed out in the claims.

In the accompanying drawings the same reference characters indicate the same parts of the invention.

Figure 1 is a longitudinal section of a roller-bearing embodying my invention. Fig. 2 is a transverse section through one of the retaining-springs. Fig. 3 is a perspective view of one of the spring-rings.

A denotes the casing, provided with the removable bonnet  $a^2$ , which in turn is provided with the usual hinged door to permit access to the casing for inspection or lubricating purposes. The bottom of the casing is formed with a lubricant-chamber  $a'$ , in which a suitable absorbent packing  $a^3$  is placed to retain the lubricant.

B denotes the axle-journal, the outer end of which is formed with an annular groove  $b^4$ , and  $b$  denotes a dust-guard fixed to the inner end of the journal, so as to encompass and close the contiguous open end of the casing and prevent the entrance of foreign matter to the bearing.

B' denotes a bearing-sleeve which encompasses the journal B, and it is formed at each end with a collar  $b^3$ .

F F denote annular grooves formed externally on the sleeve to receive the split spring-rings E E.

C C denote cylindrical rollers arranged parallel with each other and forming a continuous annular series, encompassing the sleeve and spring-rings, the tension of the latter being exerted radially outward to retain the rollers in contact with the concentric bearing-face  $a$ , forming the inner wall of the casing A.

It may here be noted that the roller-bearing face of the sleeve B' is that portion extending between the grooves F F and is the portion with which the inner faces of the rollers C C come in contact, whereas the outer faces of said rollers have a bearing for their entire length on the inner face  $a$  of the box A.

As will be seen, the rollers approximate in length the distance between the collars  $b^3 b^3$ , the inner walls of which prevent any end play of the rollers, and as the smaller bearing area of the sleeve is subordinate to the larger bearing area of the box the latter predominates, and thus controls the movement of the rollers and in connection with the spring-rings insures a parallelism of the rollers when in motion and incidentally reduces to a minimum the noise which occurs when the rollers are loosely mounted between two bearing-surfaces.

D represents a yoke, the horizontal arms of which are arranged to be seated in correspondingly-shaped recesses formed in the inner face of the bonnet, so as to secure the yoke in place when the bonnet is secured on the box and to permit the removal of the yoke when the bonnet is detached. The central portion of the yoke is preferably arch-shaped to receive the yoke-box  $d'$ , which in turn snugly fits the groove  $b^4$  in the outer end of the journal.

The inner parallel walls of the yoke D engage the corresponding parallel outer walls of the box  $d'$  to prevent the latter rotating in the yoke. The upper portion of the box  $d'$  is formed with parallel radial flanges  $d^7$  and  $d^8$ , which snugly encompass the parallel faces of the yoke and likewise snugly fit the parallel



walls of the journal-groove  $b^4$ , the flange  $d^8$  preventing any inward longitudinal or end movement of the journal and the flange  $d^7$  preventing any outward end movement of the same, and this latter flange  $d^7$  of the box 5  $d'$ , in addition to forming an end bearing in one direction for the journal, also extends across the face of the outer end of the sleeve  $B'$ , which, as shown in Fig. 1, is alined with 10 the inner wall of the journal-groove  $b^4$ , thus serving the double purpose of preventing any outward end movement of the sleeve or journal, while any movement of the sleeve on the journal in the opposite direction is prevented 15 by the dust-guard  $b$ .

In the drawings I have shown the split spring-rings  $E$  as being laminated; but any form of spring which will retain the rollers in contact with the annular bearing-face of 20 the casing will answer the same purpose, and various other details of construction which would readily suggest themselves to a skilled mechanic may be employed without departing from the spirit of my invention.

25 In the present application I do not claim the means for preventing the end thrust of the journal, as that forms the subject-matter of a divisional application, Serial No. 697,625, filed November 29, 1898.

30 Having thus fully described my invention, what I claim as new and useful, and desire to secure by Letters Patent of the United States, is—

35 1. In a roller-bearing, a casing formed with an internal annular bearing-face, an annular series of cylindrical rollers, and a concentric

sleeve encompassed by said series of rollers and having a roller-bearing surface of a less length than the roller-bearing face of said casing, substantially as and for the purpose 40 set forth.

2. In a roller-bearing, a casing formed with an internal annular bearing-face, an annular series of cylindrical rollers, a concentric sleeve and spring-rings interposed between 45 said sleeve and rollers, substantially as and for the purpose set forth.

3. In a roller-bearing, a casing formed with an internal annular bearing-face, a concentrically-grooved sleeve, a spring-ring seated 50 in said grooved sleeve, and a series of bearing-rollers interposed between said spring-ring and sleeve and the bearing-face of said casing, substantially as and for the purpose set forth. 55

4. In a roller-bearing, a casing formed with an internal annular bearing-face, a sleeve having an external bearing-face of a less area than the bearing-face of said casing, and 60 formed with annular parallel collars, and a series of bearing-rollers confined between said collars and sleeve, and said casing, substantially as and for the purpose set forth.

In testimony whereof I have hereunto signed my name, in the presence of two attest- 65 ing witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 21st day of September, 1898.

BENJAMIN S. LAWSON.

Witnesses:

E. A. WEISBURG,  
K. H. THEOBALD.