

H. LOUD.

Anti-Frictional Bushing.

No. 224,453.

Patented Feb. 10, 1880.

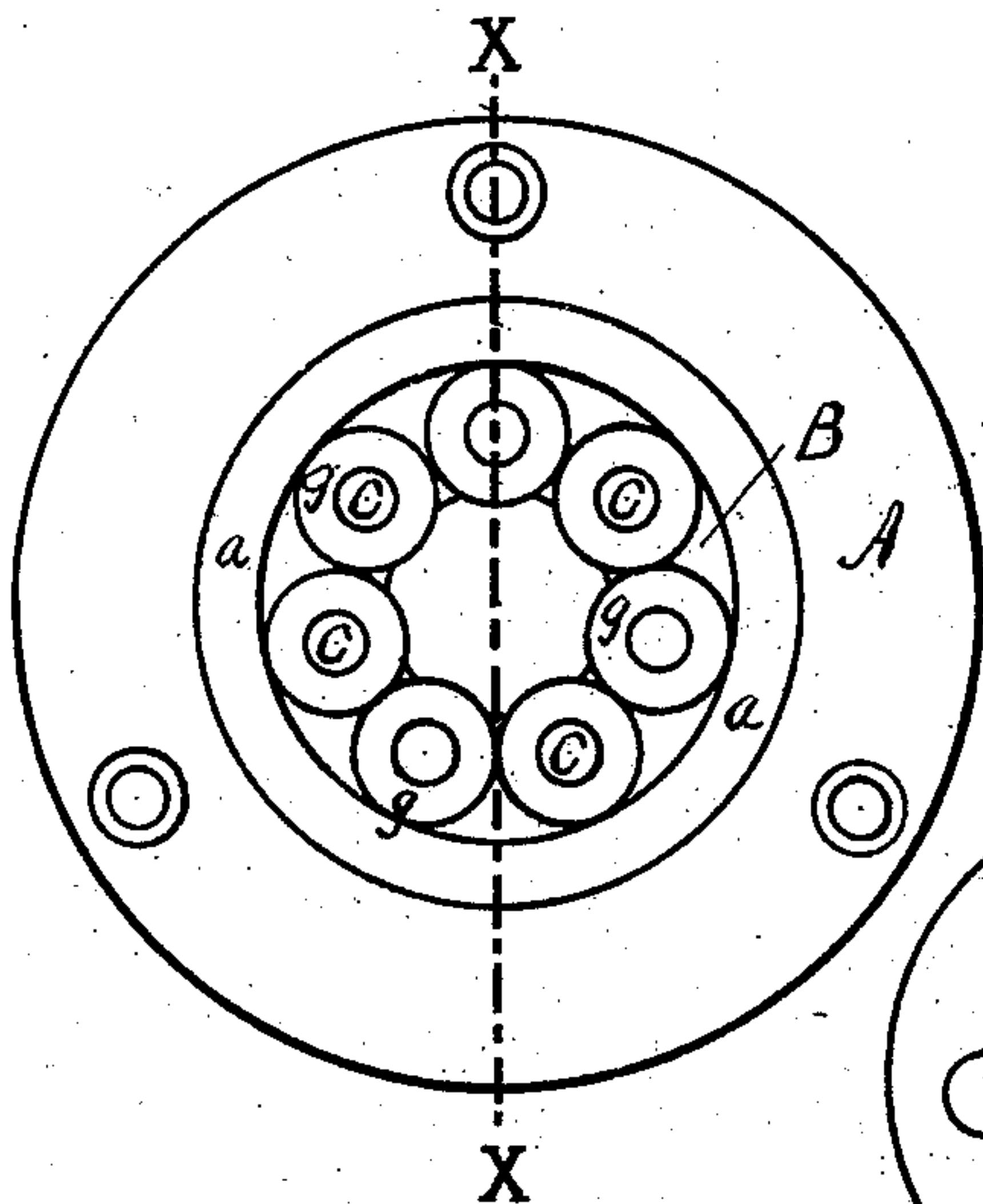


Fig. 1.

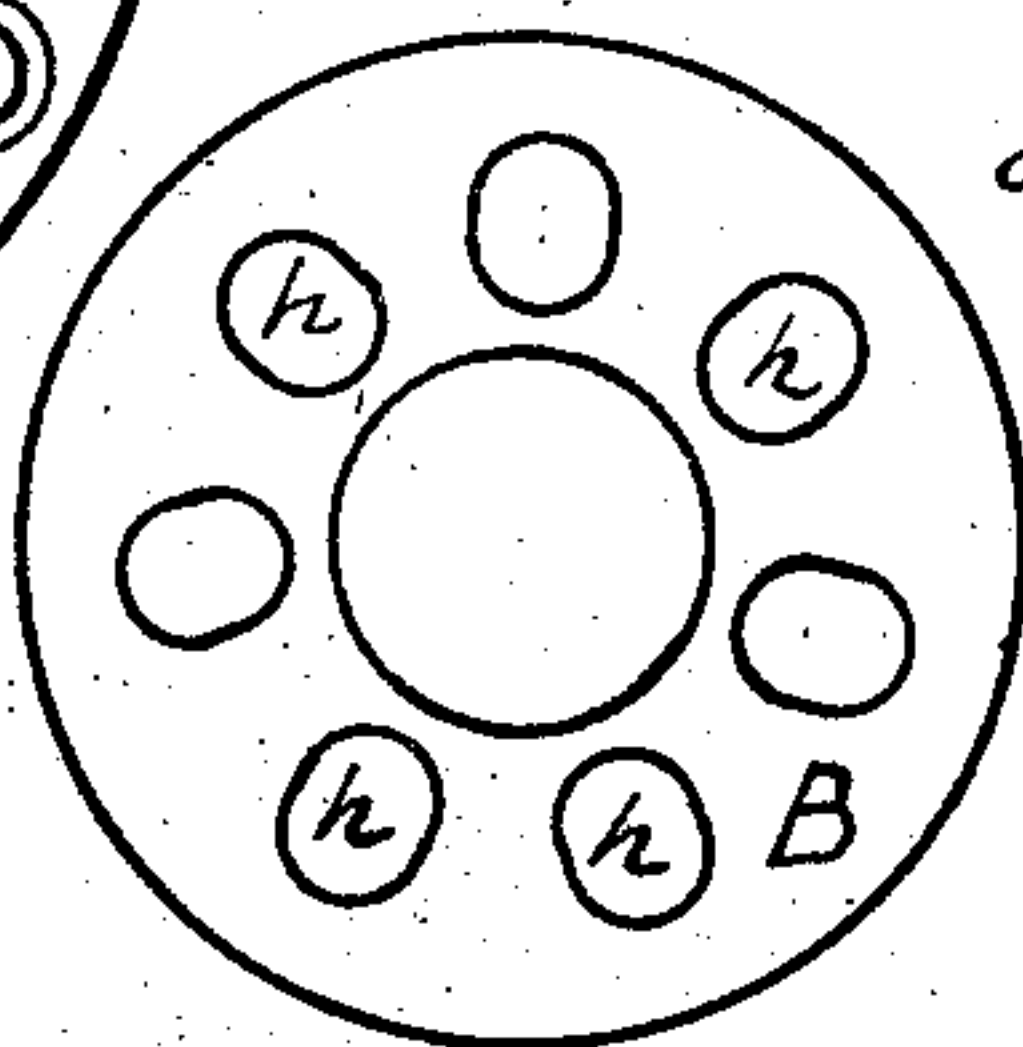


Fig. 4.

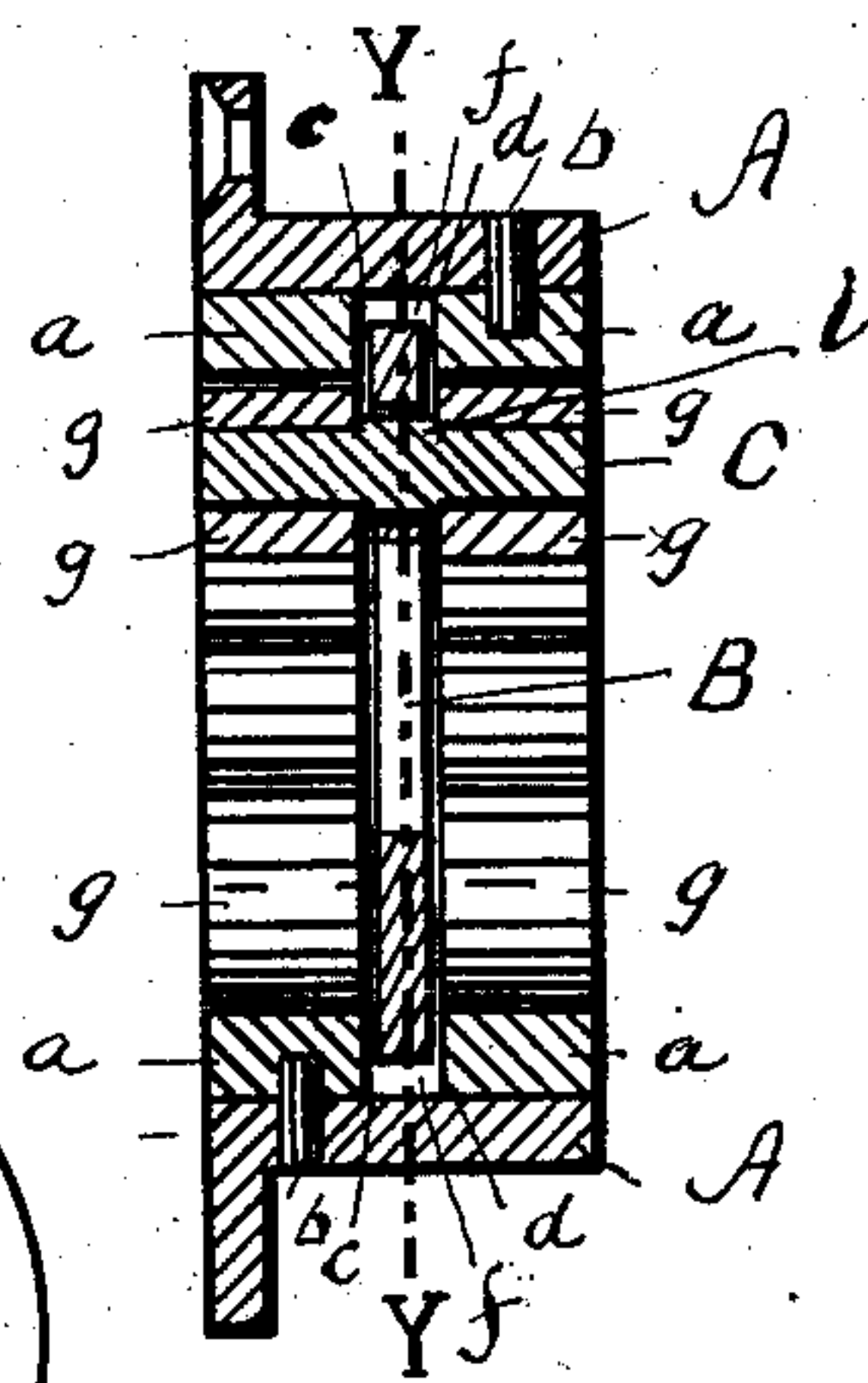


Fig. 2.

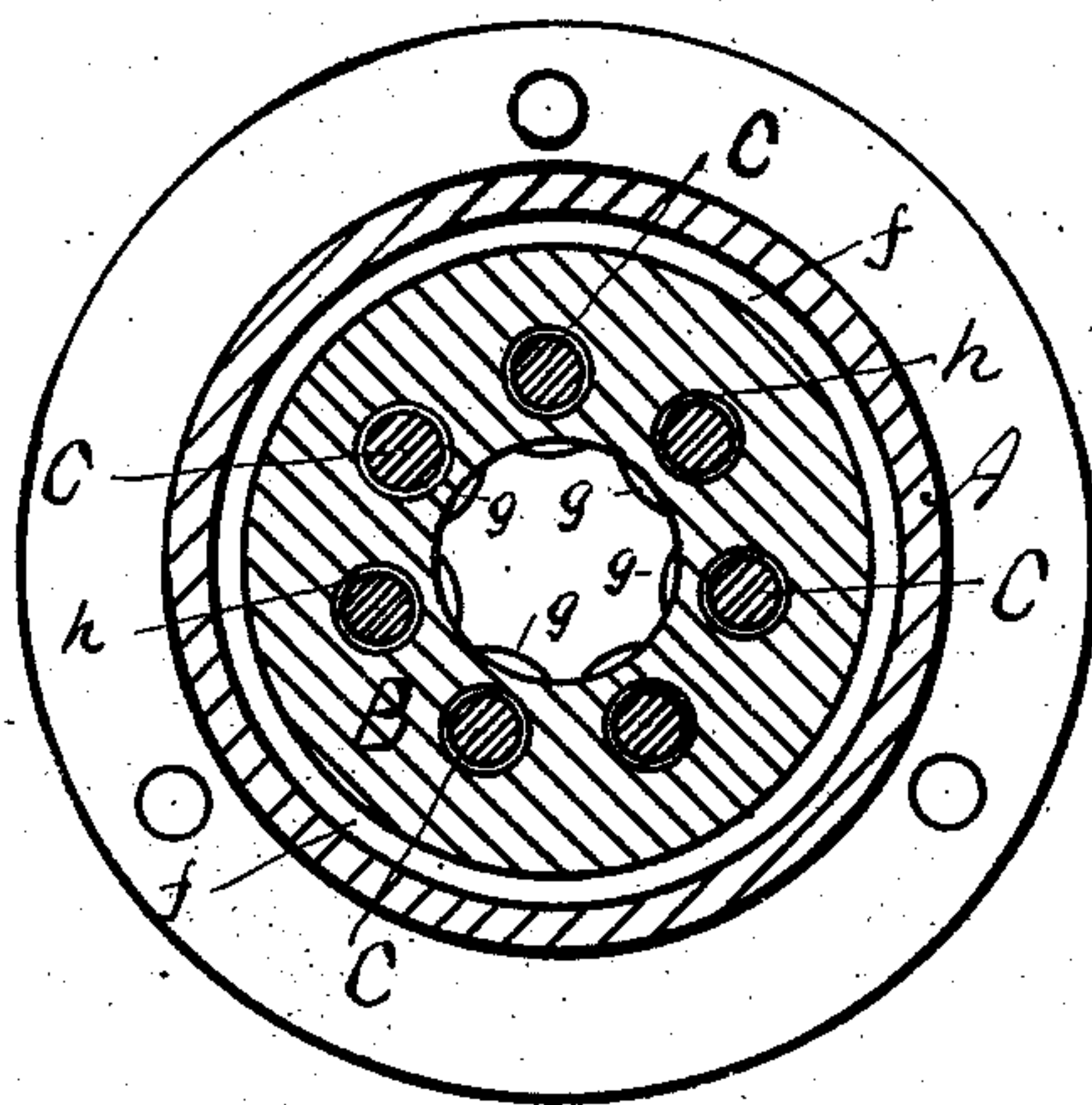


Fig. 3.

Witnesses.

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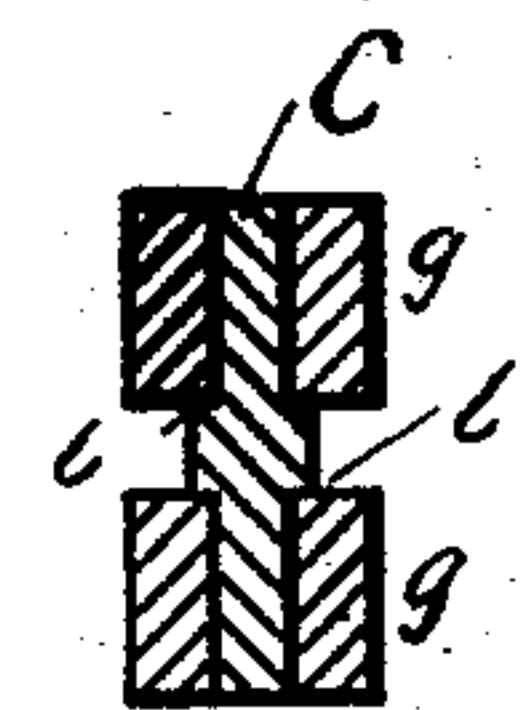


Fig. 5.

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UNITED STATES PATENT OFFICE.

HERBERT LOUD, OF EVERETT, MASSACHUSETTS.

ANTI-FRICTIONAL BUSHING.

SPECIFICATION forming part of Letters Patent No. 224,453, dated February 10, 1880.

Application filed October 20, 1879.

To all whom it may concern:

Be it known that I, HERBERT LOUD, of Everett, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Anti-Frictional Bushings, of which the following is a full, clear, and exact description.

This invention relates to anti-frictional bushings or boxes composed of a series of rollers arranged to turn within a box or casing and to surround an axle or shaft, and to make the bearing thereof; and it particularly consists in a construction of the said box or casing and of the rollers, and in the application of the rollers to a holder or carrying-plate, and in the combination and arrangement of such carrying-plate with the box or casing, all substantially as hereinafter described.

In the accompanying plate of drawings my invention is illustrated.

Figure 1 is an end view; Fig. 2, a central section on line *x x*, Fig. 1, from end to end of the bushing-box; Fig. 3, a central section on line *y y*, Fig. 2, and parallel to the ends of the bushing-box; Figs. 4 and 5, views in detail.

In the drawings, A represents a cylindrical box or casing open at both ends. This box A is made of iron, galvanized or otherwise prepared against corrosion, and exteriorly it is adapted to be properly fitted and fastened to the article which is to be bushed—as, for instance, within the central opening of a wooden sheave to a pulley-block, or of a hub to a carriage or truck wheel, &c.—and interiorly it is lined with brass in two separate rings, *a a*. These brass rings *a a* are fastened to the interior of the said box by rivets or screws *b b*, passing from the one into the other, or otherwise, and in the present instance are two in number, and of an equal width, which is such as to leave within the box A, between their inner ends, *c d*, an annular groove, *f*, but otherwise to make a complete lining of brass to the interior of the said box.

B is a flat ring entering the groove *f* between the two parts of the lining *a a*, and projecting in a radial line therefrom toward the center of the opening of the lining-rings. This flat ring B carries rollers *g*—in the present instance seven in number. Each roller is made of brass and in two parts, which are joined

together by a steel pintle, C, which passes axially through them and through a hole, *h*, in the said flat ring B. The pintle is fast in each part of the roller and loose within its hole *h* of the flat ring B, and the rollers are severally situated in relation to each other and to the center or axis and inner periphery of the lining-rings, and the diameter of the rollers *g* is such as to secure an arrangement of said rollers about and within the lining-rings and their bearing both on the shaft or axle in connection with which the bushing is to be used, and on the inner periphery of the lining-rings *a a*, and without contact between the shaft and the inner periphery of the ring-carrier B for the rollers *g*.

The parts of each roller are, as is obvious, the one upon one side and the other upon the other side of their carrying plate or ring B, and the pintle C, which connects them, is first driven into the one part and riveted, and then into the other and similarly riveted; and in order to secure the proper space between their ends toward each other and prevent any bind by such ends on the flat faces of their carrying-plate the pintle has shoulders *l* (shown in Figs. 2 and 5) to limit the approach of the parts of the rollers toward each other on the pintle when driven and riveted or otherwise fastened thereto. These shoulders *l* are made by having the pintle the largest in diameter at its central portion.

The separate parts above mentioned and their arrangement together as described make an anti-frictional bushing of my improved construction, and in the production thereof the ring-carrier for the rollers is provided with its rollers, as stated, and then, having fastened one part of the ring-lining *a a* in place in the box A, the carrying-plate with the rollers is inserted, and then the other part of the ring-lining is inserted and secured, which completes the bushing.

Among many advantages of the present improved construction may be mentioned that the carrying ring-plate for the rollers is, as it were, a solid plate or ring, and thus sufficiently strong to sustain all the strain which comes upon it; that the rollers, by being made in parts joined together by a pintle in the manner described, possess the greatest amount of

strength, and enable, as it were, a solid plate or ring to be used, as has been described; that the rollers can be flush with the ends of the bushing-box, and thus the better sustain the strain, and again be less susceptible of twisting and will run the steadier; that the combination of iron, galvanized or otherwise protected against rust, and of a brass lining thereto, obviously, while reducing the expense of manufacture, secures and possesses all the advantages of a box made wholly of brass, brass being the most desirable metal to use in all parts of the bushings, especially bushings to be used in pulley-sheaves, &c., and it is the least affected by exposure to moisture, salt-water, &c., and secures the best running-surfaces.

It is preferable to make the rollers of brass, and I intend to so make them; and, again, the pintles joining their parts I prefer to make of steel, although they may be made of brass, &c.

The groove *f*, between the two ends of the box A, in combination with the plate having the rollers, obviously secures the rollers in their place between the two ends of the bushing and holds them against movement lengthwise; and in this regard, instead of having holes in the plate-ring B to receive the rollers, the ring may be notched or recessed at its outer edge therefor.

The holes *h* in the carrying-plate for the roller-pintles C it is preferable to have elongated in a direction radial with the center of the bushing, as shown in detail in Fig. 4, which is a view of the roller-carrying plate of itself. Elongated holes allow of a freer play and movement to the rollers when in operation, as is obvious.

The rings *a a*, instead of being made separately and riveted or fastened in the case, as above described, may be cast with the case,

proper cores for the production of the groove *f* being used in casting; and again the case may be made in sections bolted or otherwise secured together, and the case, together with the brass lining-rings, may be adapted for the rings to be screwed in the case.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A roller made in parts, in combination with an axial pintle, C, having shoulders *l*, substantially as and for the purpose described.

2. A ring, B, having holes *h*, in combination with rollers *g*, made in parts and attached thereto, substantially as and for the purpose described.

3. The box or casing A, made of iron suitably protected against rust and lined with brass rings *a*, having a groove, *f*, between them within the box, substantially as and for the purpose described.

4. A box or casing, A, made of iron, in combination with brass lining-rings *a a*, having a groove, *f*, between them, and with a ring or plate, B, which carries a series of frictional rollers, *g*, and is arranged within said groove, all substantially as described, for the purpose specified.

5. The combination, with the box or case A, of two rings, *a a*, arranged within and lining the case, and separated from each other to create an annular groove, *f*, and a ring or plate, B, arranged to rotate within the said groove and provided with a series of holes, within which are arranged the connecting-journals of friction-rollers, substantially as described.

H. LOUD.

Witnesses:

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