

(No Model.)

O. R. CHAPLIN

AXLE BOX.

No. 252,017.

Patented Jan. 10, 1882.

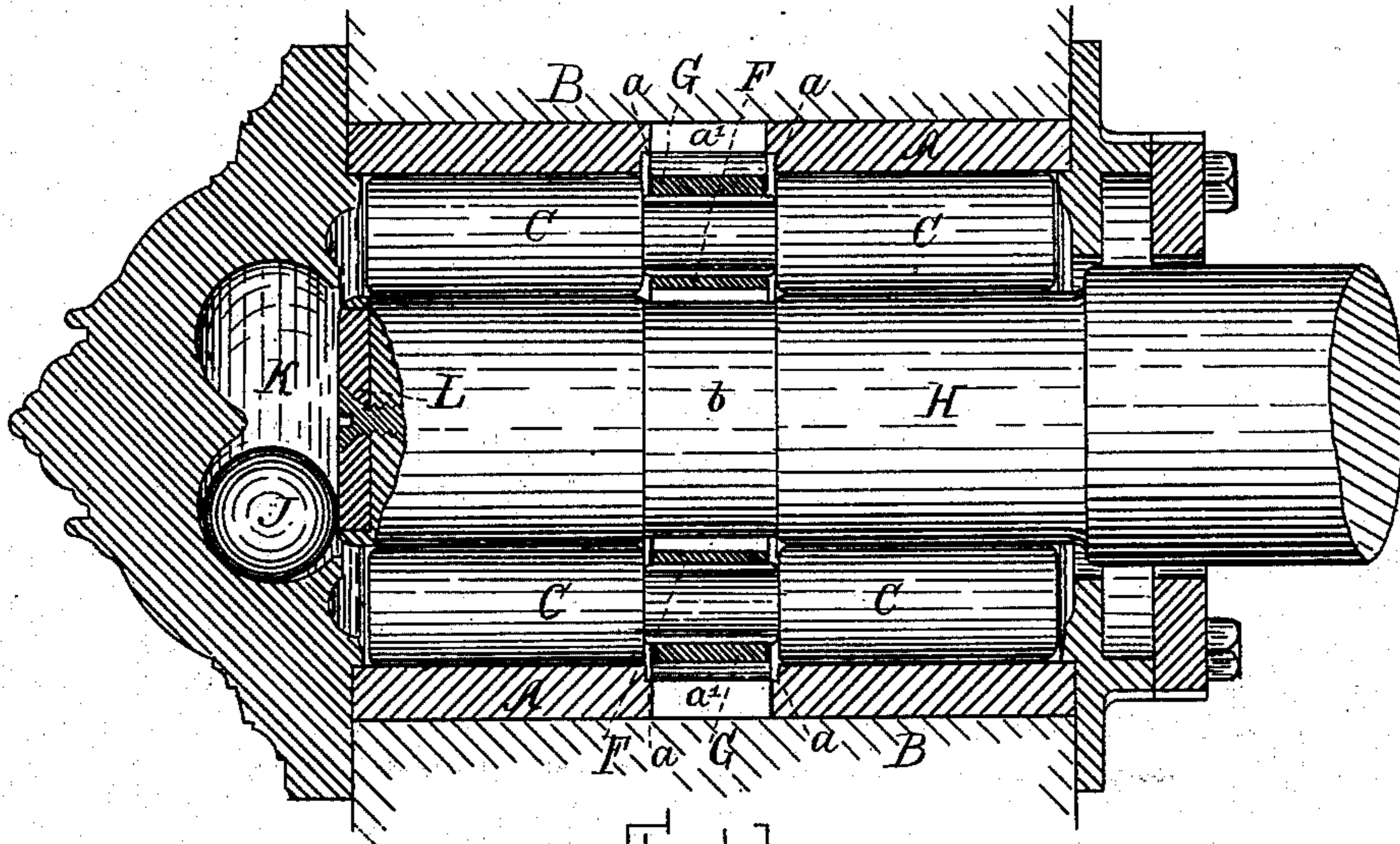


FIG. 1.

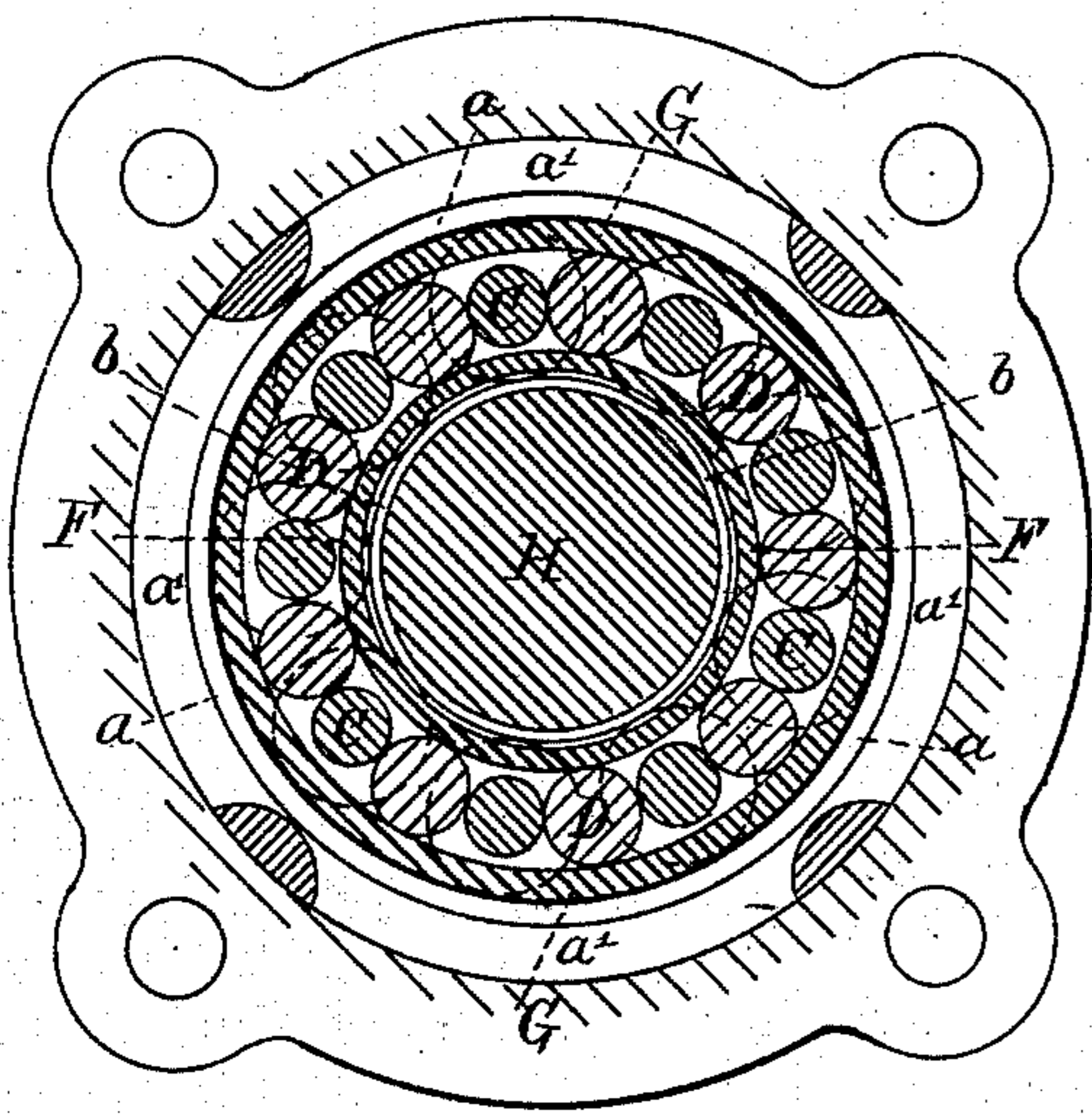


FIG. 2.

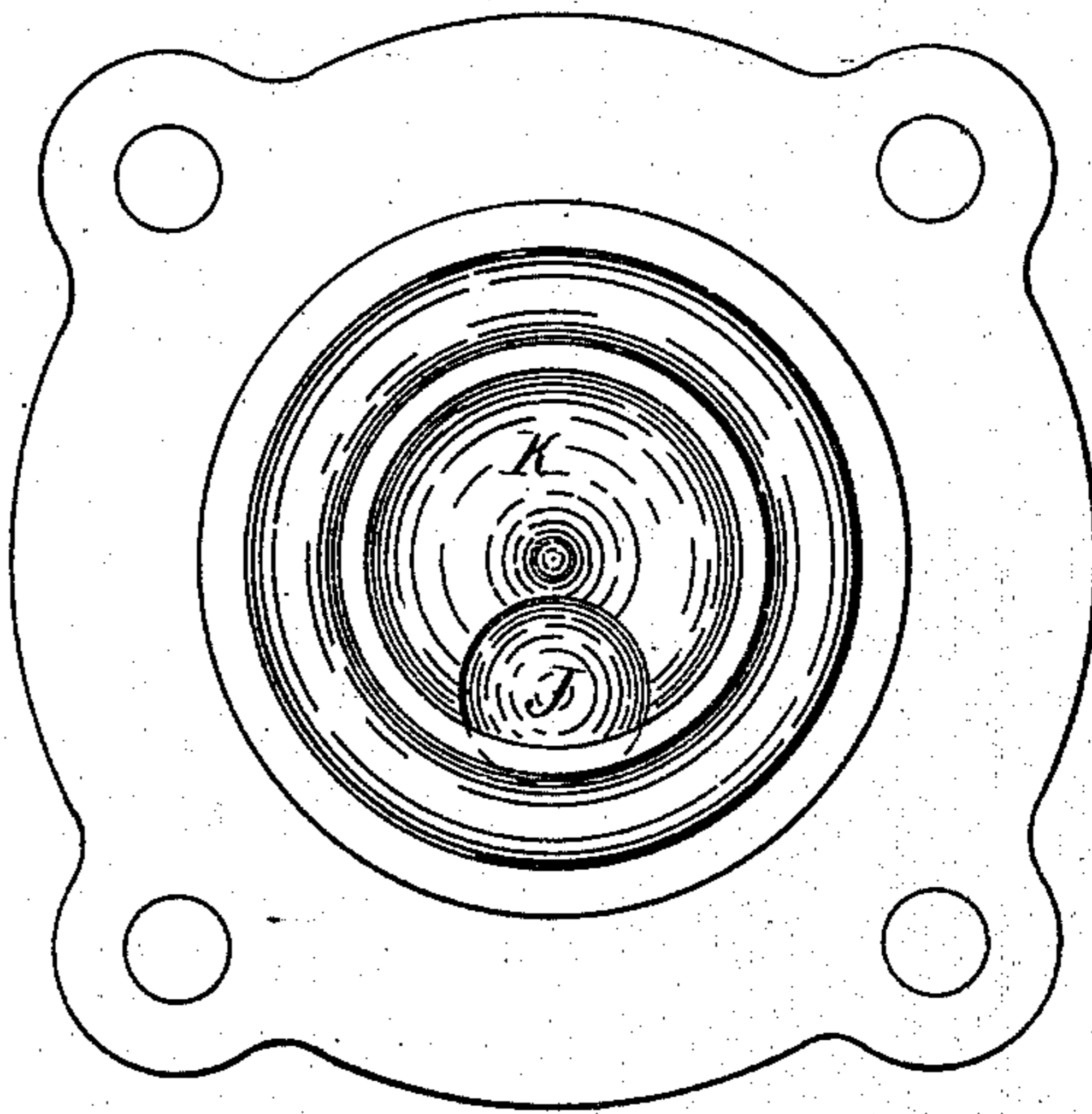


FIG. 3.

Wm. Gittel.
J. R. Snow.

Orril R. Chaplin
by J. E. Maynard
his atty

UNITED STATES PATENT OFFICE.

ORRIL R. CHAPLIN, OF BOSTON, MASSACHUSETTS.

AXLE-BOX.

SPECIFICATION forming part of Letters Patent No. 252,017, dated January 10, 1882.

Application filed May 31, 1880. (No model.)

To all whom it may concern:

Be it known that I, ORRIL R. CHAPLIN, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improved Axle-Box, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, making a part hereof, in which—

Figure 1 is a section through the axis of a box embodying all the features of my invention in the best form known to me. Fig. 2 is a cross-section. Fig. 3 is an interior view of the cap.

A is a journal-box, of hard composition—such as bronze, gun-metal, or the like—which is fitted into the cast-iron box B. This box B, as shown, is adapted for use as the axle-box of a railway-car, but will be made for the special use required, my invention being applicable to journals or axles of all kinds.

The boxes B and A may of course be made in one piece for some axles; but for railway-cars the construction shown is preferable. In my Patent No. 189,427, dated April 10, 1877, the box was necessarily made in two parts, because it was impossible to put the rolls and their supporting-rings constructed as shown in that patent into the box endwise; and one main purpose of my present invention is to remedy this defect, it being very desirable that the rolls and their supporting-rings should be capable of being put into and taken out of the box endwise.

The rolls C are shaped as shown in Fig. 1, and are separated from each other by the rolls D, and all these rolls are kept in place by the inner and outer rings, F G. The outer ring, G, is of an outside diameter not greater than the inside diameter of the box A, and the interior diameter of the inner ring, F, is greater than the diameter of the axle H. Consequently the series of rolls C D, when arranged as shown in Fig. 2, can be inserted endwise into box A. This part of my invention consists in a bearing composed of a circle of bearing-rolls and a circle of separator-rolls held together by an inner and outer ring, (being so far much the same as in my Patent No. 189,427, above referred to,) the outside diameter of the outer ring being no greater than the diameter of a

circle inclosing and tangent to the bearing-rolls, and the inside diameter of the inner ring being greater than a circle drawn within and tangent to the bearing-rolls.

For the best results the separating-rolls D should be of materially larger diameter than the smaller portions of the rolls C, and these smaller portions must of course be large enough for strength. Consequently the thickness of ring G cannot exceed, when made according to my present invention, one-half the difference between the diameter of rolls D and the larger parts of rolls C, and as this ring should be abundantly strong it is desirable to make it as thick as the other features of construction will allow.

If a groove, *a*, be formed in the box A, the ring G may be made of an outside diameter very nearly equal to the inner diameter of the box, or so that it will just fit the box; but when in use this ring will not of course remain concentric with the box, and the groove *a* allows this motion of the axis of ring G out of line with the axis of the box without bringing its outer surface in contact with the inner surface of the box.

The groove *b* around the axle permits the inner ring, F, to be made of a diameter only a trifle greater than that of the axle, and yet prevents contact of ring F with the axle when the box is in use. These two features also constitute parts of my invention, and they are each of much practical value, as they permit the rings F and G being made abundantly strong, and much stronger than they could be made without these grooves. The end-thrust is received on a ball, J, sustained in a groove, K. L is a hardened thrust-plate or the end of the axle.

The box A, when inserted in the outer box, B, is best made as shown in the drawings; but when used without the outer box, B, the openings *a'* are of course omitted.

What I claim as my invention is—

1. In an anti-friction bearing composed of the necked bearing-rolls C and separator-rolls D, the rings F and G, for holding them together, the outer ring, G, having an outer diameter no greater than the outer diameter of the circle of bearing-rolls, and the inner ring,

F, having an inner diameter greater than the inner diameter of the circle of bearing-rolls, as and for the purposes set forth.

2. In an axle-box with anti-friction rolls C
5 D, the ring G, of a diameter that will allow it to be inserted through the end of the box, in combination with the groove *a* in the box to

prevent contact of ring G with the box when in use, as set forth.

ORRIL R. CHAPLIN.

Witnesses:

J. E. MAYNADIER,
J. R. SNOW.