

(No Model.)

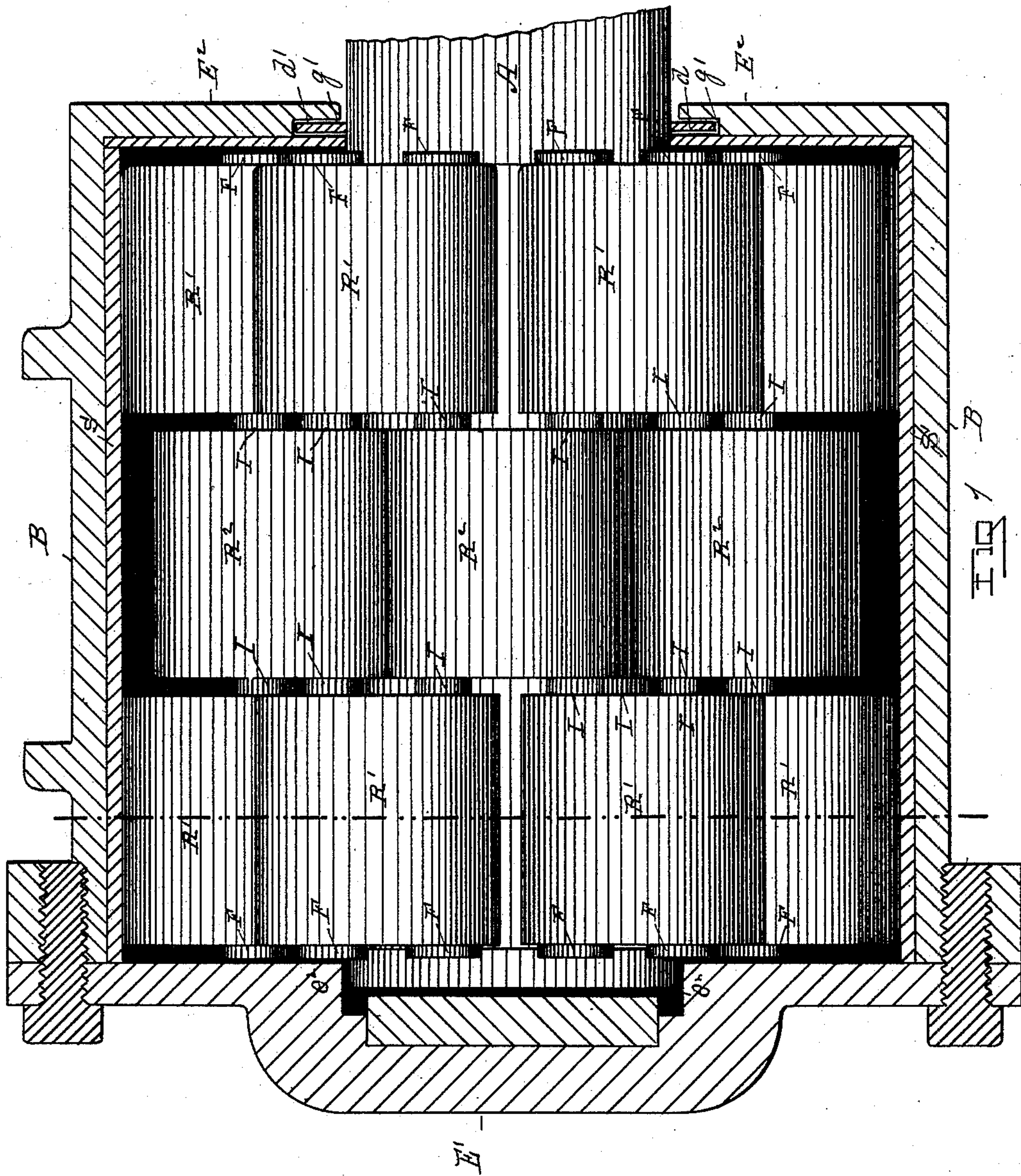
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C. D. MENEELY.

ROLLER BEARING.

No. 445,680.

Patented Feb. 3, 1891.



WITNESSES

William A. Sweet

Charles S. Brintnall

INVENTOR

Charles D. Meneely
by W. E. Hagan, atty.

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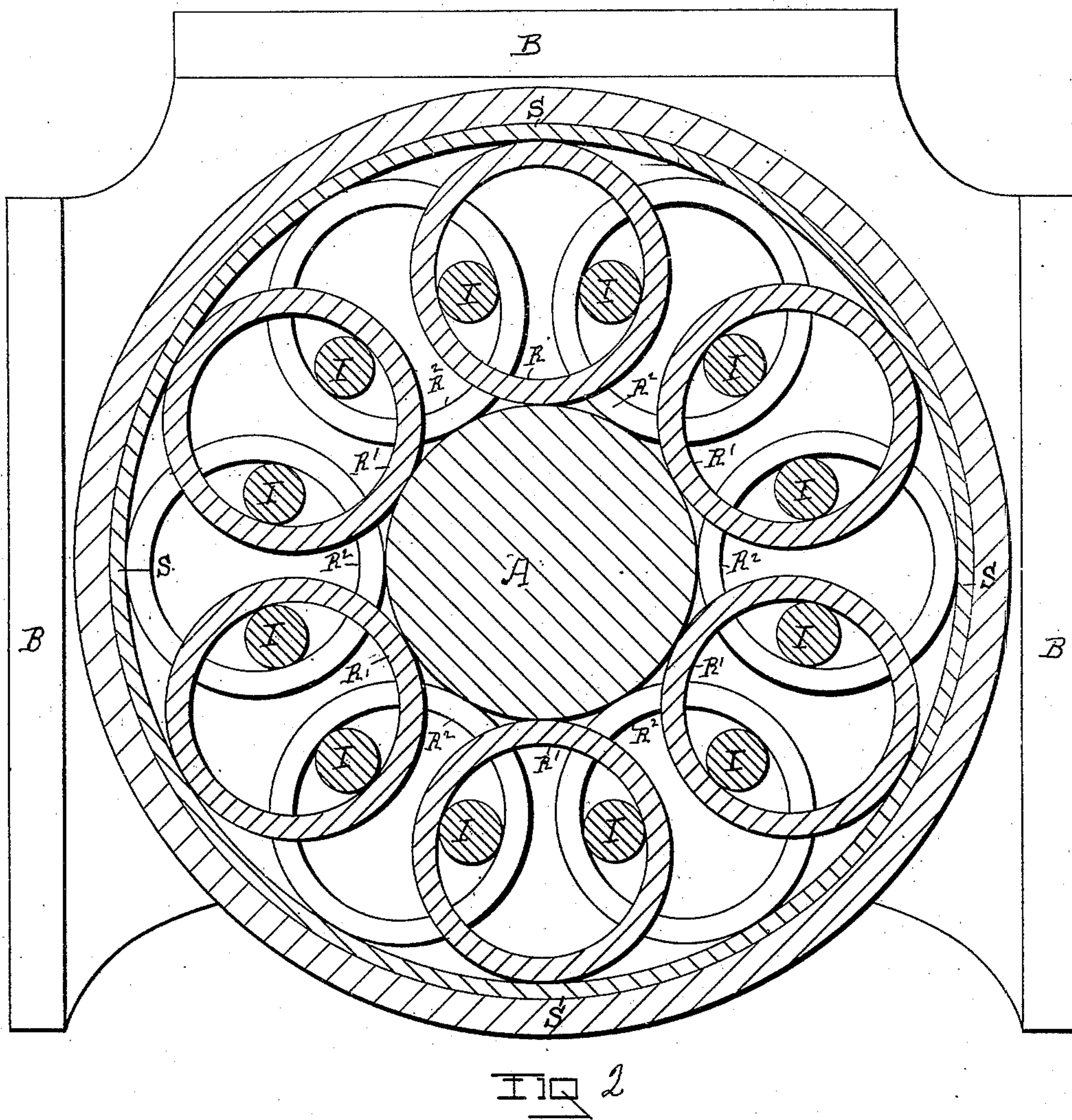
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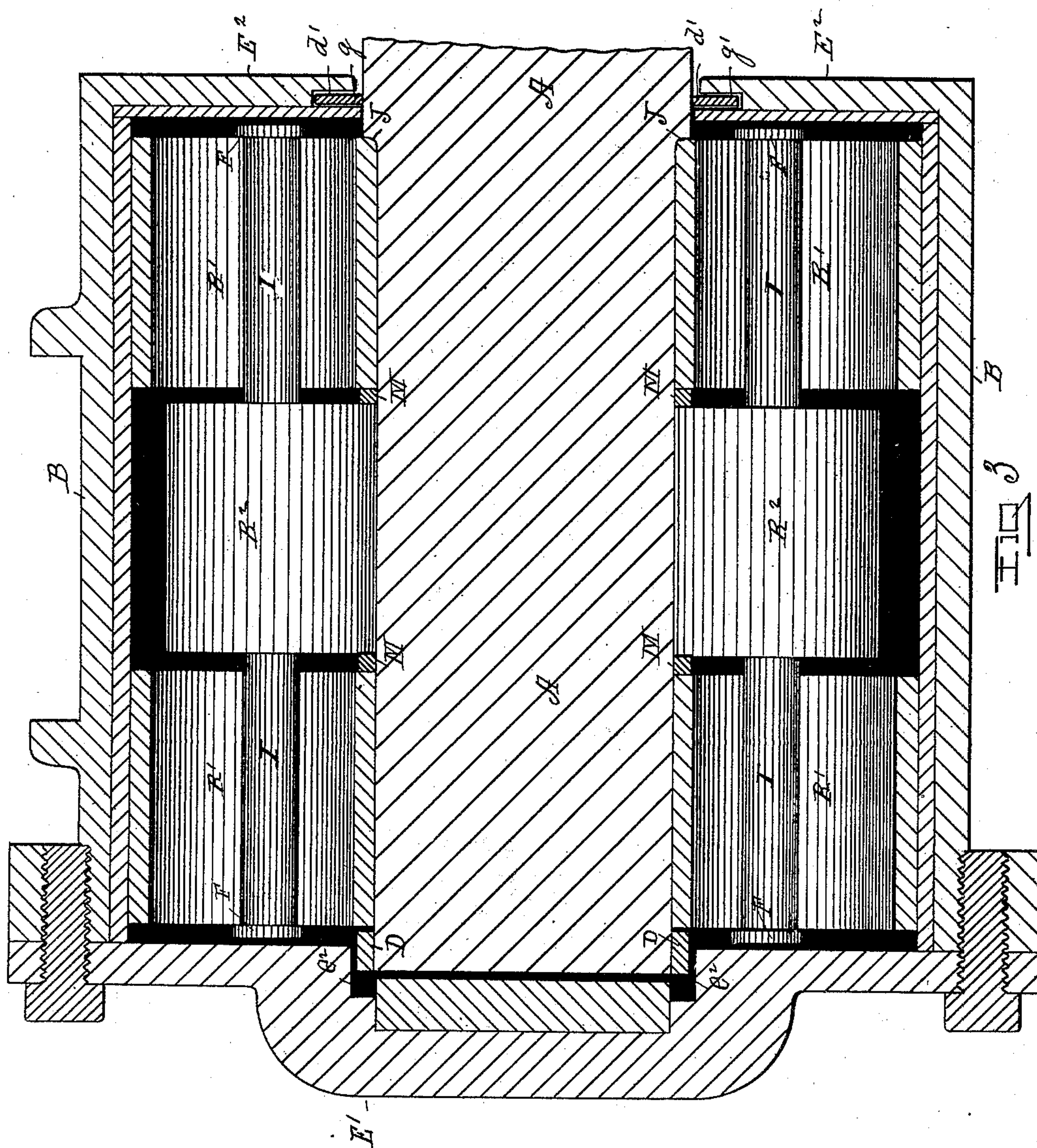
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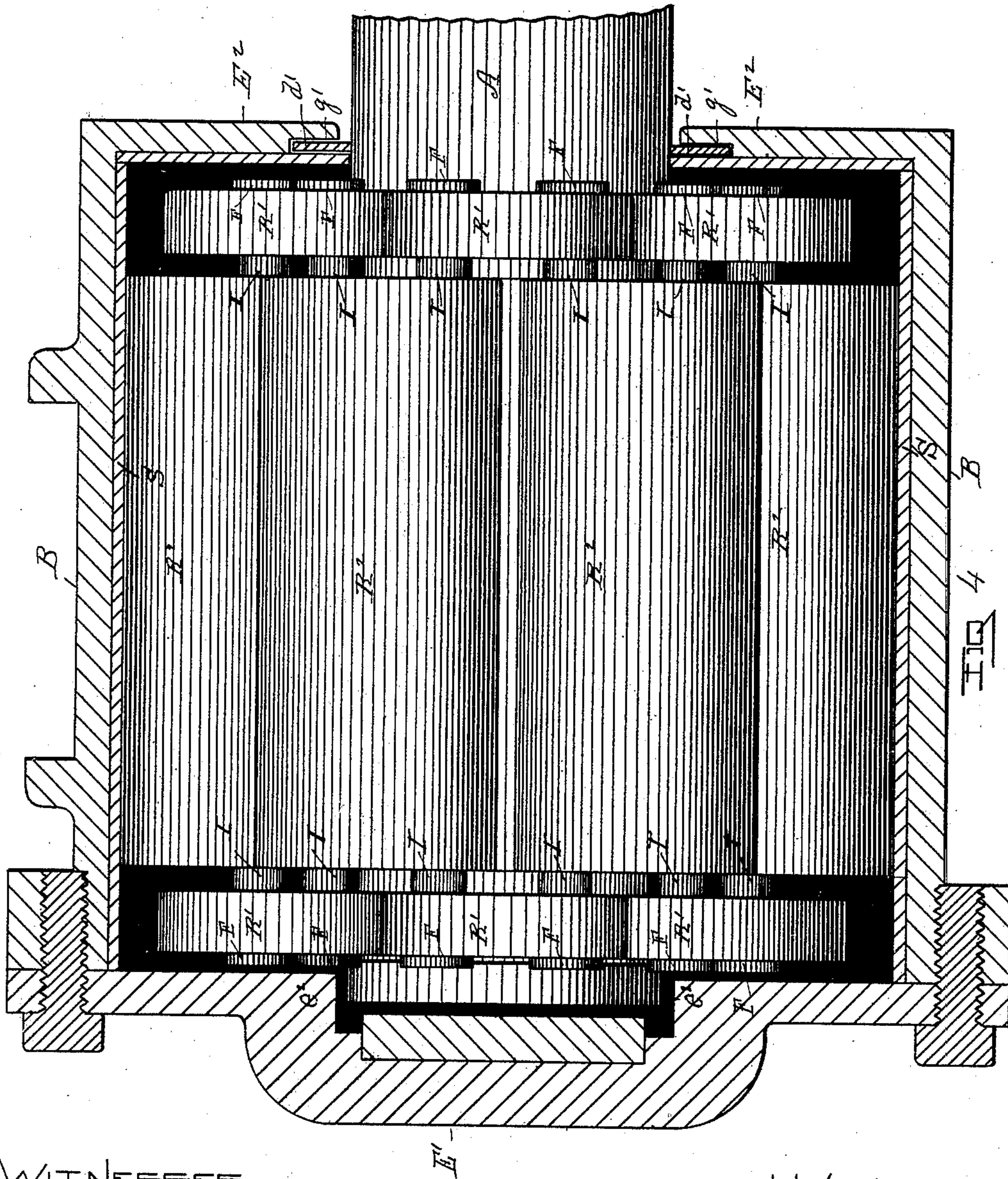
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UNITED STATES PATENT OFFICE.

CHARLES D. MENEELY, OF ALBANY, NEW YORK.

ROLLER-BEARING.

SPECIFICATION forming part of Letters Patent No. 445,680, dated February 3, 1891.

Application filed September 10, 1890. Serial No. 364,526. (No model.)

To all whom it may concern:

Be it known that I, CHARLES D. MENEELY, of the city of Albany, county of Albany, and State of New York, have invented new and useful Improvements in Roller-Bearings, of which the following is a specification.

My invention relates to improvements in roller-bearings; and my invention has for its object to reduce the weight of the bearings and to render them more efficient for the purposes for which they are used by dividing up and increasing the measure of their bearing-surface relatively to the weight they have to sustain.

My invention consists (as will be more fully detailed hereinafter in connection with its illustration) in the combination, with a bearing-box and axle, of a series of tube-form rollers which in length are shorter than the bearing proper, with said rollers arranged between the bearing-box and axle to be in axial alignment with the latter and placed so as to break joints at their ends and to lap past one another thereat, and two rods made to pass through each of the rollers that are in axial alignment with each other upon the interior and diametrically opposite sides of said rollers, and with one of said rods of each of the rollers in axial alignment also arranged to pass through one of the two rollers that break joints thereat where adjacent, so as to interlock a series of tube-form rollers around the axle and between the latter and the bearing-box.

My invention also consists of certain details of construction, which will be more fully set forth in the claims.

Accompanying this specification to form a part of it there are four plates of drawings containing four figures illustrating my invention, with the same designation of parts by letter-reference used in all of them.

In these illustrations, Figure 1 is a central longitudinal section taken through the bearing-box and sleeve, with the axle, the tube-form rollers, and the rods shown in side elevation. Fig. 2 is a cross-section taken through the bearing-box, the axle, alternating tube-form rollers, and the rods by which the rollers are interlocked around the axle, with the rollers back of those thus illustrated in section shown in end elevation. Fig. 3 is a lon-

gitudinal section taken through the axle, bearing-box, the end rollers at the top and bottom of the bearing-box, with one of the tube-form rollers where on top of the axle and where below the latter shown in side elevation. Fig. 4 shows a modification in which the bearing-box is shown in central and longitudinal section, the axle and rollers being shown in side elevation, with the centrally-placed rollers of the bearing made longer than the end rollers.

The several parts of the apparatus thus illustrated are designated by letter-reference, and the function of the parts is described as follows:

The letter B designates the bearing-box, and A the axle; E', the outer end of the bearing-box, and E² its inner end, the latter being made with a groove g' to allow for the movement therein of a dust-guard d encircling the axle. The outer end or cap of the bearing-box is made with a recess e² to receive the end of the axle.

The letters R' designate tube-form rollers, which are arranged in axial alignment with the axle, between the latter and the bearing-box, and also in alignment with each other.

The letters R² designate other tube-form rollers that are arranged between the bearing-box and axle, so as to be in axial alignment with the latter; but these rollers R² are so placed relatively to the rollers R' that the ends of the former will break joints or lap past the ends of the latter. These rollers R² and R' are made shorter in length than the bearing proper, and are preferably made to each have the same length; but, if desired, they may be made of different lengths, as shown at Fig. 4.

The letters I designate rods or spindles, of which there are two for each of the rollers in alignment with each other. These rods or spindles are arranged to pass through the rollers R' from end to end of the bearing, and are so placed within the interior of said rollers as to be upon the inner and diametrically-opposite sides of the rollers in alignment with each other, and each of them to intermediately pass through the rollers R², where the ends of two of the latter rollers lap past the ends of the rollers R', so that two of said rods or spindles pass through such of the rollers as

are in alignment upon the inner and diametrically-opposite sides thereof, and each of said two rods also passes through one of the two rollers R^2 , where lapping past the ends of the rollers R' to thus alternately interlock or interweave the tube-form rollers around the axle, and between the latter and the bearing-box.

The letter S designates a sleeve that is arranged on the inner face of the bearing-box, and the letter J designates a shoulder formed on the axle to make the latter where constituting the bearing proper smaller in diameter, and which shoulder serves to regulate and keep in position the end rollers of the bearing and to prevent their lateral movement on the axle.

The letter D designates a ring that is formed on and secured to the outer end of the axle to keep the outer ends of the rollers in position.

The letters N designate rings that are secured to the axle, so as to pass between the ends of the rollers R' and R^2 to prevent lateral movement of the rollers on the axle.

The letters F designate flanges produced on the outer ends of the rods or spindles I to keep the rods in place.

With the rollers thus made in a tube form and arranged between the axle and bearing-box, said rollers being alternately interwoven by means of the rods to encircle the axle between the latter and the bearing-box, when the axle turns the rollers also turn, as well as the rods or spindles, with the latter acting to keep the rollers in alignment with the axle with the rollers in position relatively to the axle, so that the weight upon the latter is sustained by more bearing-points than if the rollers extended from end to end of the bearing in one continuous point of contact.

While I have shown the length of the bearing part of the axle as divided into three parts consisting of the rollers R' and the rollers R^2 , with one of the latter and two of the former in length constituting the length of the bearing, if desired, the number of the tube-form rollers may be increased, provided they are arranged to break joints or lap past each other at their ends, with such of the rollers as are in alignment having two rods or spindles which pass through the rollers on the inner and diametrically-opposite sides thereof, and each of which rods also passes through each of the two rollers whose ends break joints therewith to thus interlace or interweave a series of rollers so placed around the axle between it and the bearing-box.

I am aware that bearings made with solid rollers having journals thereon, which latter were linked together by loose rings, but which

latter were not constructed to bear upon the axle and did not answer the purpose of rollers have been used.

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

1. The combination, with a bearing-box and axle, of a series of tube-form rollers that in length are shorter than the bearing-box, with said rollers arranged to be in axial alignment with the axle and to break joints or lap past each other at their inner ends, with rods arranged to pass through said rollers to alternately interweave or interlock said rollers around the axle between the latter and the bearing-box, substantially in the manner as and for the purposes set forth.

2. The combination, with a bearing-box and axle, of tube-form rollers that in length are shorter than the bearing-box, with said rollers arranged to be in axial alignment with the axle and to break joints at their inner ends, with two rods passing through each of the rollers that are in alignment with each other, and alternately through each two of the rollers where breaking joints at the ends of the rollers in alignment with each other in connected series around the axle between the latter and the bearing-box, substantially in the manner as and for the purposes set forth.

3. The combination, with the axle A, made with the shoulder J and the end ring D, of the bearing-box B, made with the sleeve S, the tube-form rollers R' and R^2 , arranged between said bearing-box and axle, so as to be in axial alignment with the latter, but to break joints and lap past each other at their ends, and the rods I, arranged to pass through said rollers from end to end of the bearing, substantially in the manner as and for the purposes set forth.

4. The combination, with the axle A, made with the shoulder J, the end ring D, and rings M, of the bearing-box B, made with the sleeve S, the tube-form rollers R' and R^2 , arranged between the bearing-box and axle, so as to be in axial alignment with the latter, but placed so as to break joints or lap past each other at their ends, and the rods I, made with the end flanges F and arranged to pass through said rollers from end to end of the bearing, substantially in the manner as and for the purposes set forth.

Signed at Troy, New York, this 9th day of July, 1890, and in the presence of the two witnesses whose names are hereto written.

CHARLES D. MENEELY.

Witnesses:

W. E. HAGAN,
CHARLES S. BRINTNALL.