

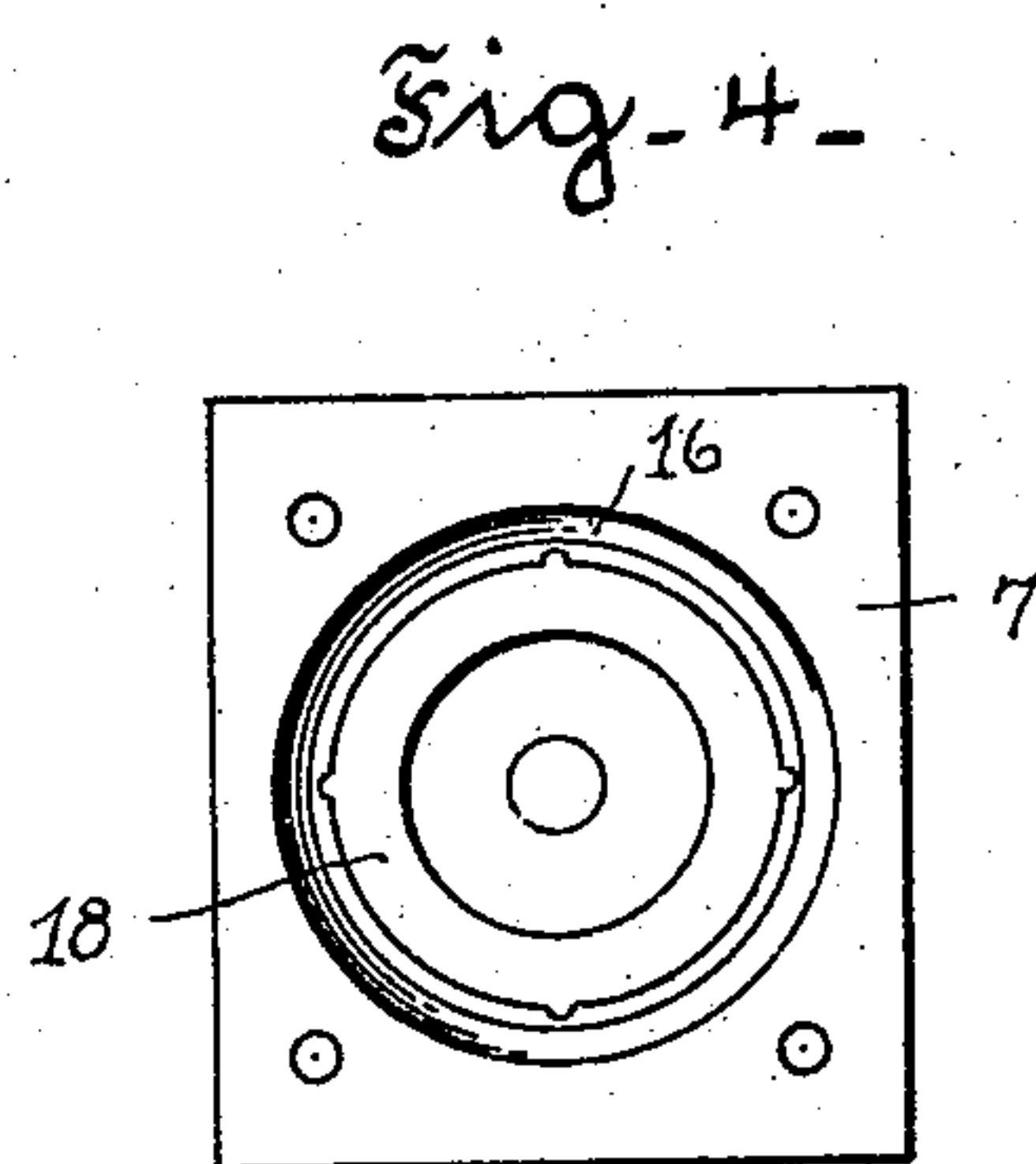
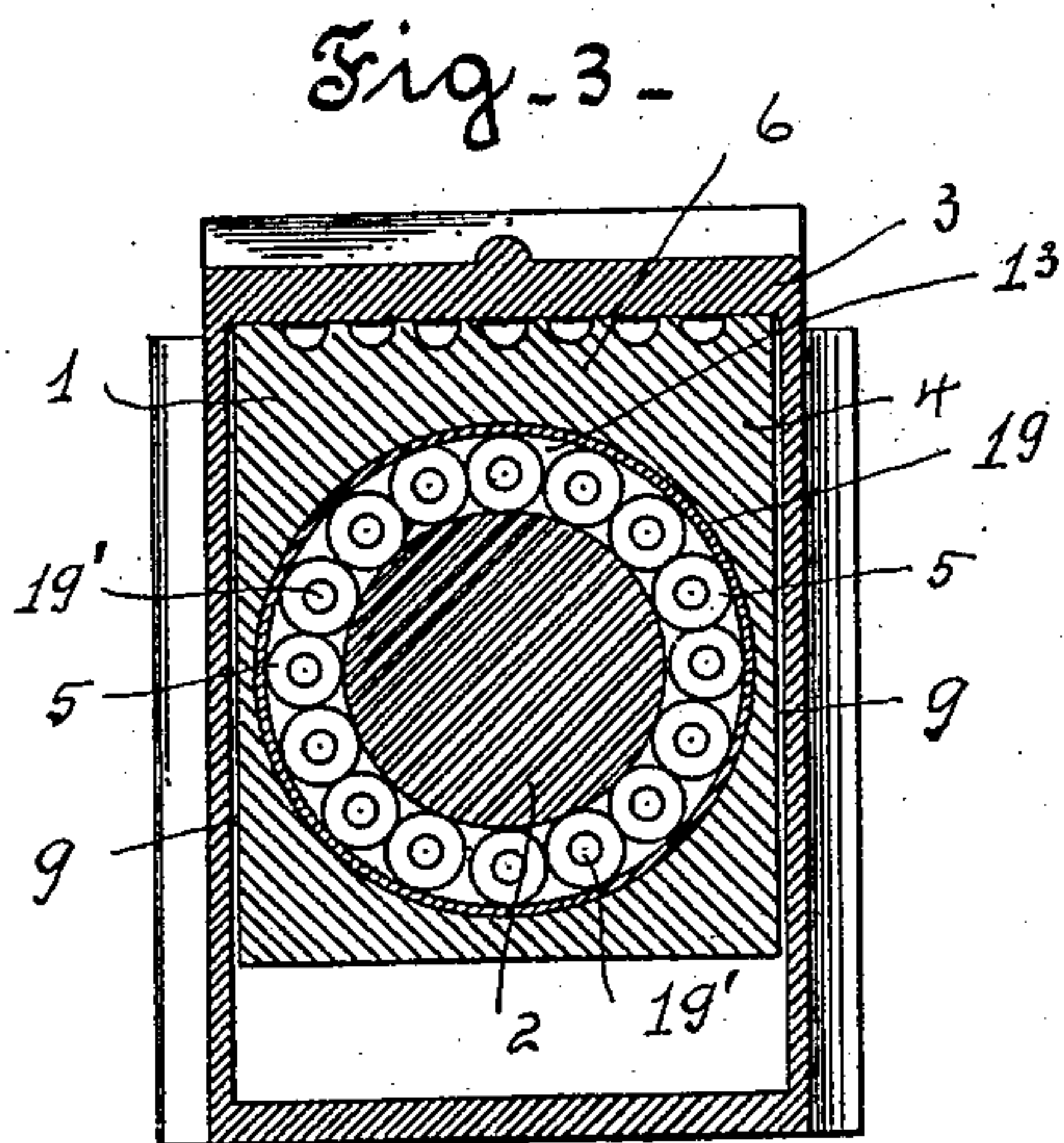
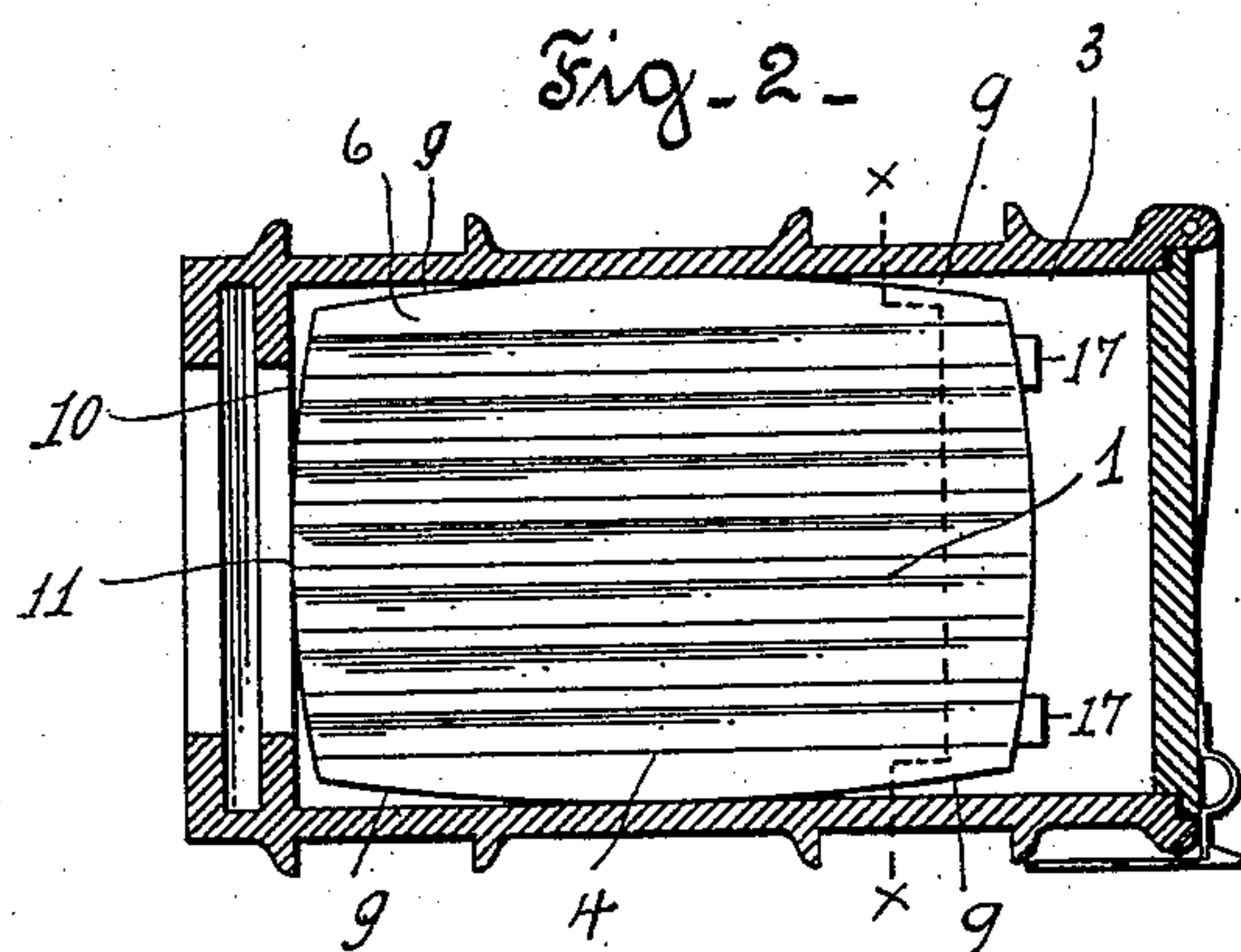
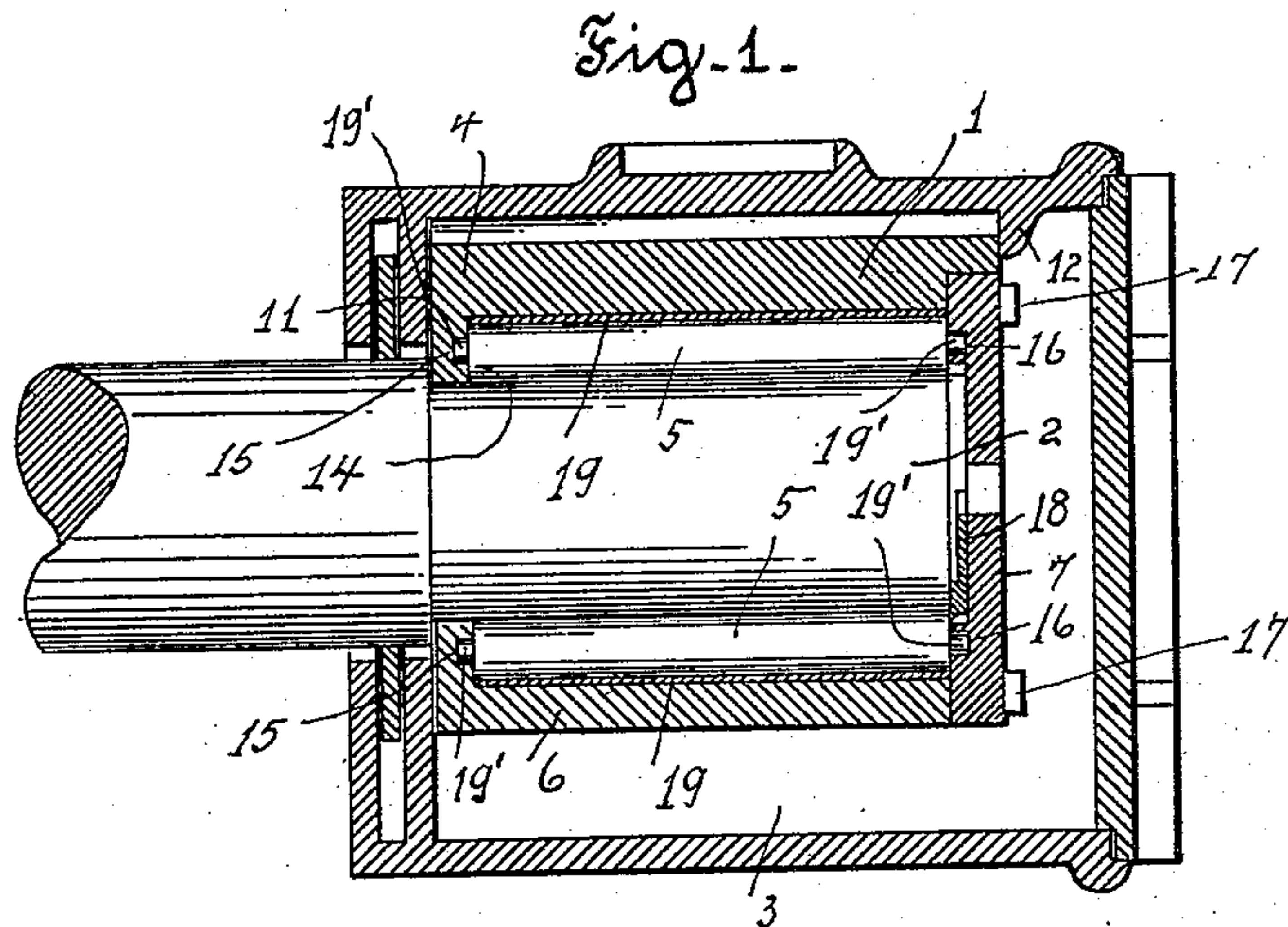
No. 690,484.

Patented Jan. 7, 1902.

F. W. THOMAS.
ROLLER BEARING.

(Application filed Nov. 4, 1901.)

(No Model.)



Witnesses -
Geo. A. Whitney
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Inventor.
Frank W Thomas
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UNITED STATES PATENT OFFICE.

FRANK W. THOMAS, OF TOLEDO, OHIO.

ROLLER-BEARING.

SPECIFICATION forming part of Letters Patent No. 690,484, dated January 7, 1902.

Application filed November 4, 1901. Serial No. 80,980. (No model.)

To all whom it may concern:

Be it known that I, FRANK W. THOMAS, a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have invented a new and useful Improvement in Roller-Bearings for Car-Axle Journals, of which the following is a specification.

My invention relates to a roller-bearing for car-axle journals, and has for its object to provide a bearing of the kind that will greatly reduce friction and that is adapted to allow lateral movement of the axle and journal within the journal-box. I accomplish this object by constructing a bearing as herein- after described and illustrated in the drawings, in which—

Figure 1 is a vertical longitudinal section of a journal-box and the bearing in position therein on the journal. Fig. 2 is a horizontal section through the top of the journal-box, showing a top view of the bearing-cage. Fig. 3 is a cross-section through the box, bearing, and journal on line X X, Fig. 1; and Fig. 4 is a view of the inner side of the front end plate of the bearing-cage, showing detachable wear-plate.

In the drawings, 1 designates the bearing in position on a car-axle journal 2, within a car-axle journal-box 3 of the ordinary type and equipment, excepting that the size of the opening at the front end and the closure therefor is increased.

The bearing 1 comprises the cage 4 and a plurality of rollers 5 of equal length and diameter. The cage 4 is formed of an oblong rectangular metal block 6 of equal length with the journal and the front end closure-plate 7. The top 8 of the cage is flat and preferably provided with incuts to reduce the frictional area, and the sides 9 are outwardly curved lengthwise of the block, as shown in Fig. 2, increasing the width of the block from the ends toward the center until the sides at the widest part of the block touch the side walls of the journal-box. The rear end 10 of the block 6 and outer face of the front end plate 7 are also curved outward from side to side of the cage, increasing the length of the cage from the sides toward the centers of the ends until the ends of the cage contact, respectively, with the inner rear wall 11 and the depending bearing-flange 12 of the jour-

nal-box. The block 6 is provided with a central longitudinal bore 13, extending from the front end to the rear end wall 14, through which the bore is concentrically extended at a reduced diameter, adapted to closely receive the journal, but without friction. The rear end wall 14 in its inner face is provided with the circular groove 15, and opposite thereto, cut into the inner face of the end plate 7, is a circular groove 16, both grooves being of equal diameter and concentric with the bore 13. The end plate 7 is secured to the front end of block 6 by the bolts 17. Within the circle of groove 16 the plate 7 is recessed to receive a detachable wear-plate 18, adapted to contact with the outer end of the journal. The bore 13 is preferably provided with a steel bushing 19; but when the surface around the bore is case-hardened or chilled the bushing may be omitted. Rollers 5, which are preferably of hardened metal, are of sufficient number and diameter when longitudinally disposed around the journal within the cage to be in diametric contact with the journal and the inner face of the cage and lightly with each other. Each of said rollers is provided at the ends with axial spindles 19' of a diameter to freely enter the grooves 15 and 16, respectively, without contact with the sides of the grooves. When the bearing thus constructed is removed from the journal, the spindles 19 prevent the rollers from dropping out of the cage and retain them in position for mounting the bearing on the journal. By jacking up the car-truck until the bearing is free from the depending flange 12 of the journal-box the bearing may be removed from or mounted on the journal.

It is apparent that by the construction shown and described the friction of the bearing will be greatly reduced and will be mainly that produced by the temporary contact of the ends of the rollers with the ends of the cage and the end of the journal with the wear-plate while the car is passing around curves. By curving the sides and ends of the bearing-cage, as shown and described, the bearing is adapted to allow lateral movement of the journal without looseness in the journal-box, and the axle is thereby relieved from a rigid alinement with its journal-boxes and is

made free to assume an angle thereto, whereby when the flange of a wheel of the axle contacts with the outer rail of a curve the axle is thereby set at an angle to the truck-frame adapted to move the wheels in the direction of the curve freely and with greatly-reduced strain.

In application Serial No. 43,706 I have shown, described, and claimed a similar bearing provided with an oil-chamber in the bottom of the cage and with means for supplying oil therefrom to the rollers within the cage. For all light-weight cars, however, for which the bearing herein shown and described is designed, little, if any, lubricant is required, and this may be supplied through an oil-hole at any suitable and convenient place in the wall of the cage. In the form of my invention herein shown I have dispensed with the

use of an automatic oiler and an oil-supply therefor.

What I claim to be new is—

The combination, in a journal-box, of a bearing-cage, cylindrical within and open at the rear to receive the journal, and rectangular without, and having outwardly-curved sides and ends adapting it to lateral movement within the journal-box, while in position on the journal and in contact with the walls of the box, and rollers disposed around the journal within the cage.

In witness whereof I have hereunto set my hand this 28th of October, A. D. 1901.

FRANK W. THOMAS.

Witnesses:

S. N. YOUNG,
FRANK W. LONG.