

No. 624,006.

J. D. FULLEN.

Patented May 2, 1899.

JOURNAL BOX FOR CAR AXLES.

(Application filed Dec. 31, 1898.)

(No Model.)

Fig. 1.

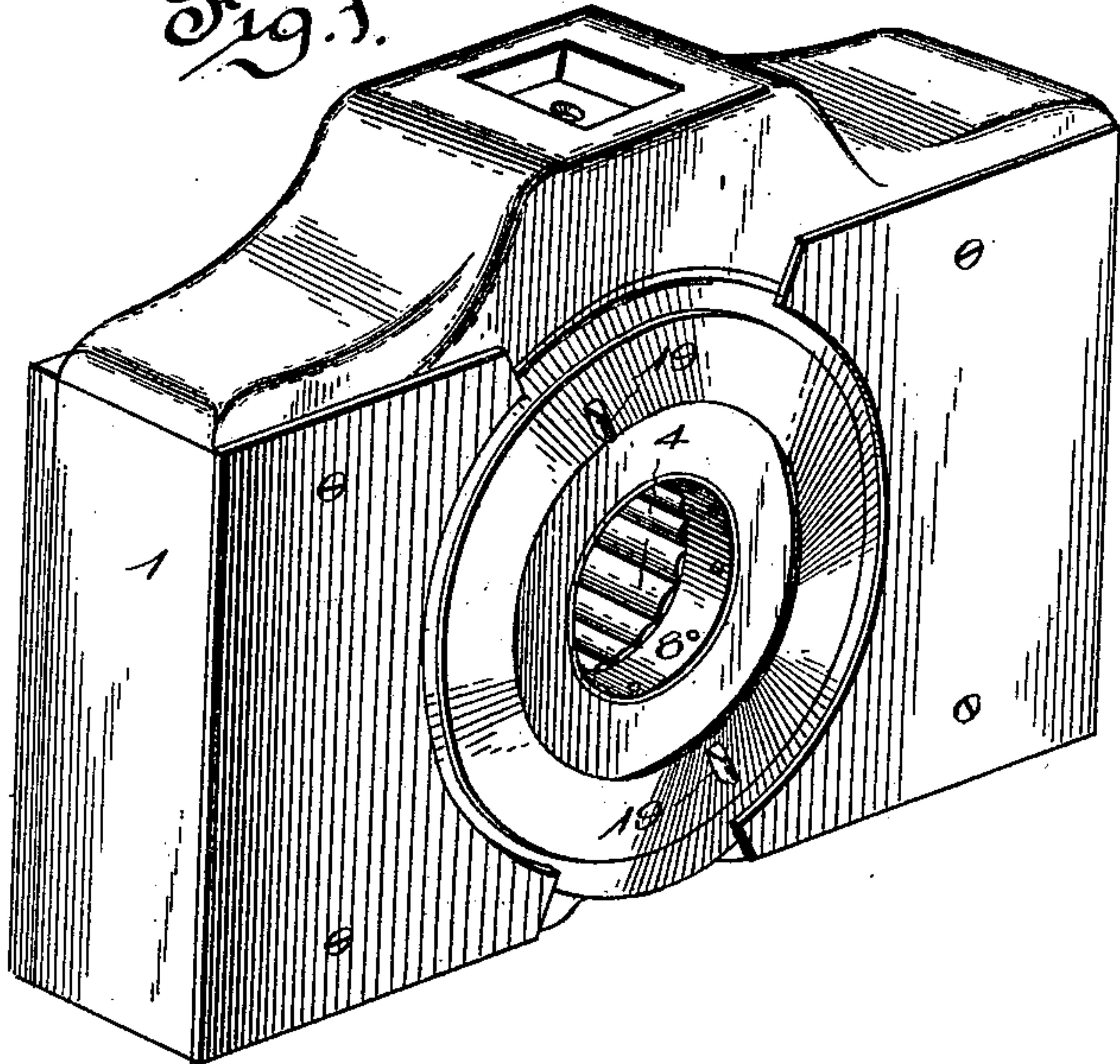


Fig. 4.

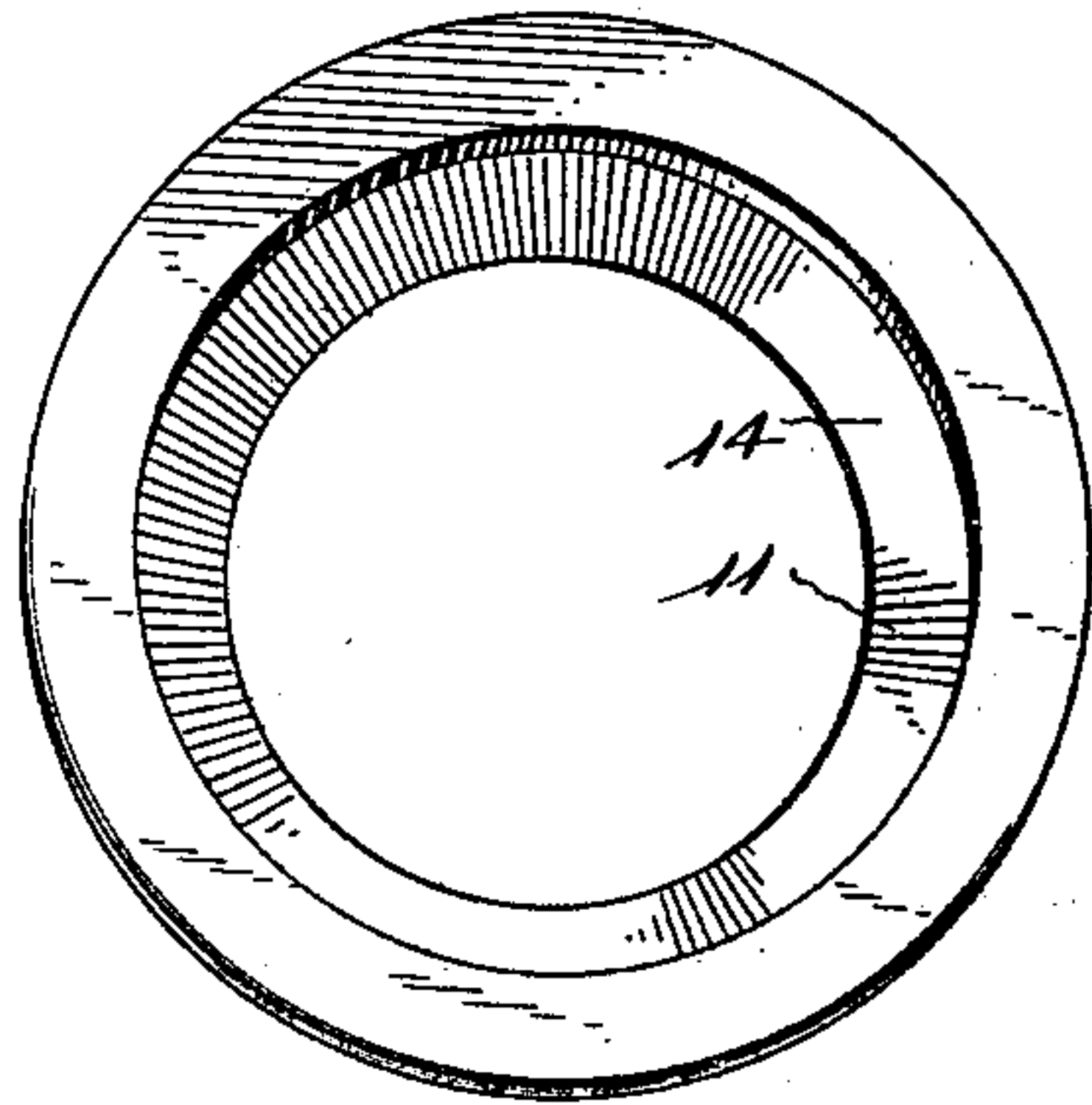


Fig. 2.

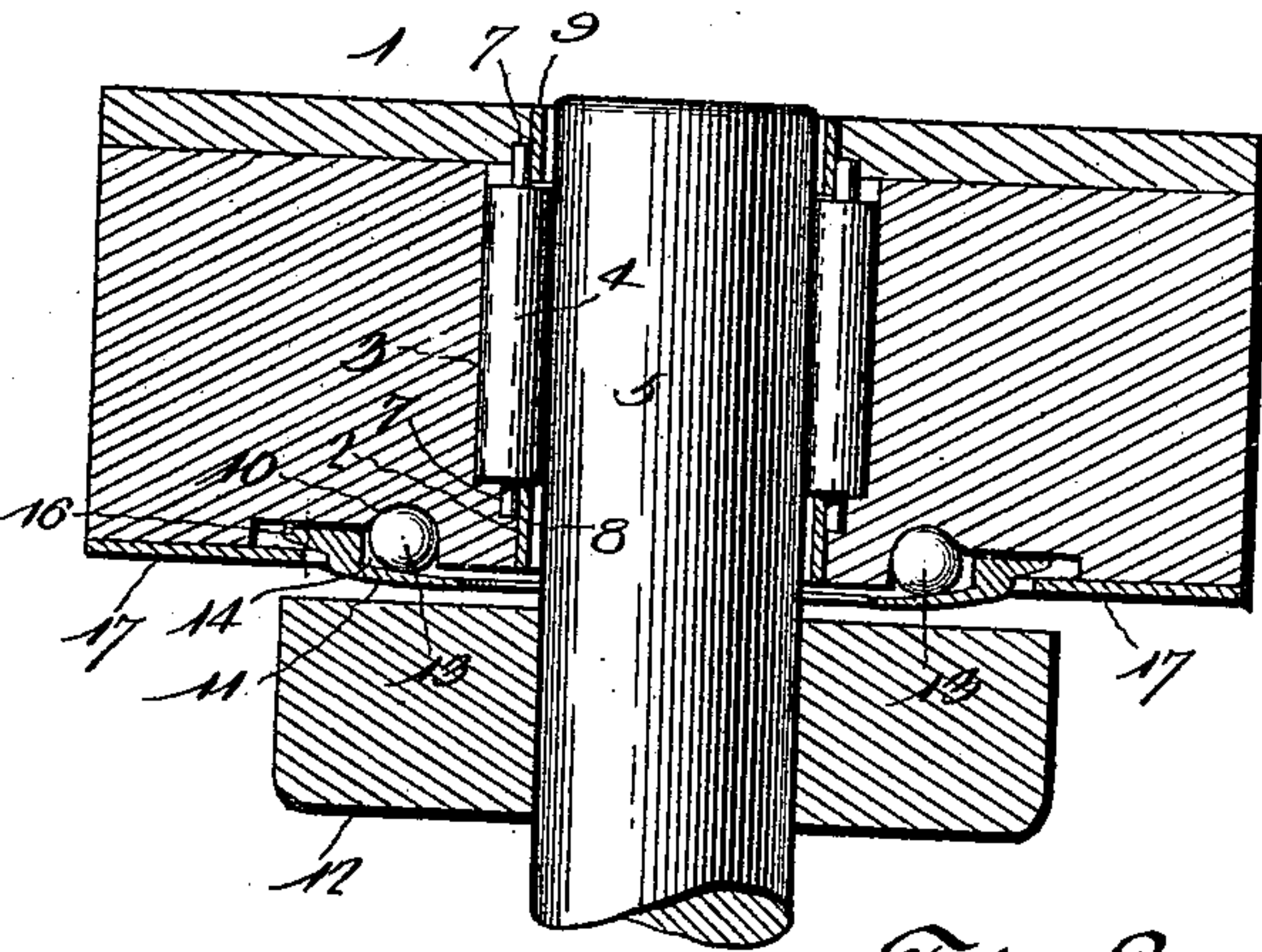
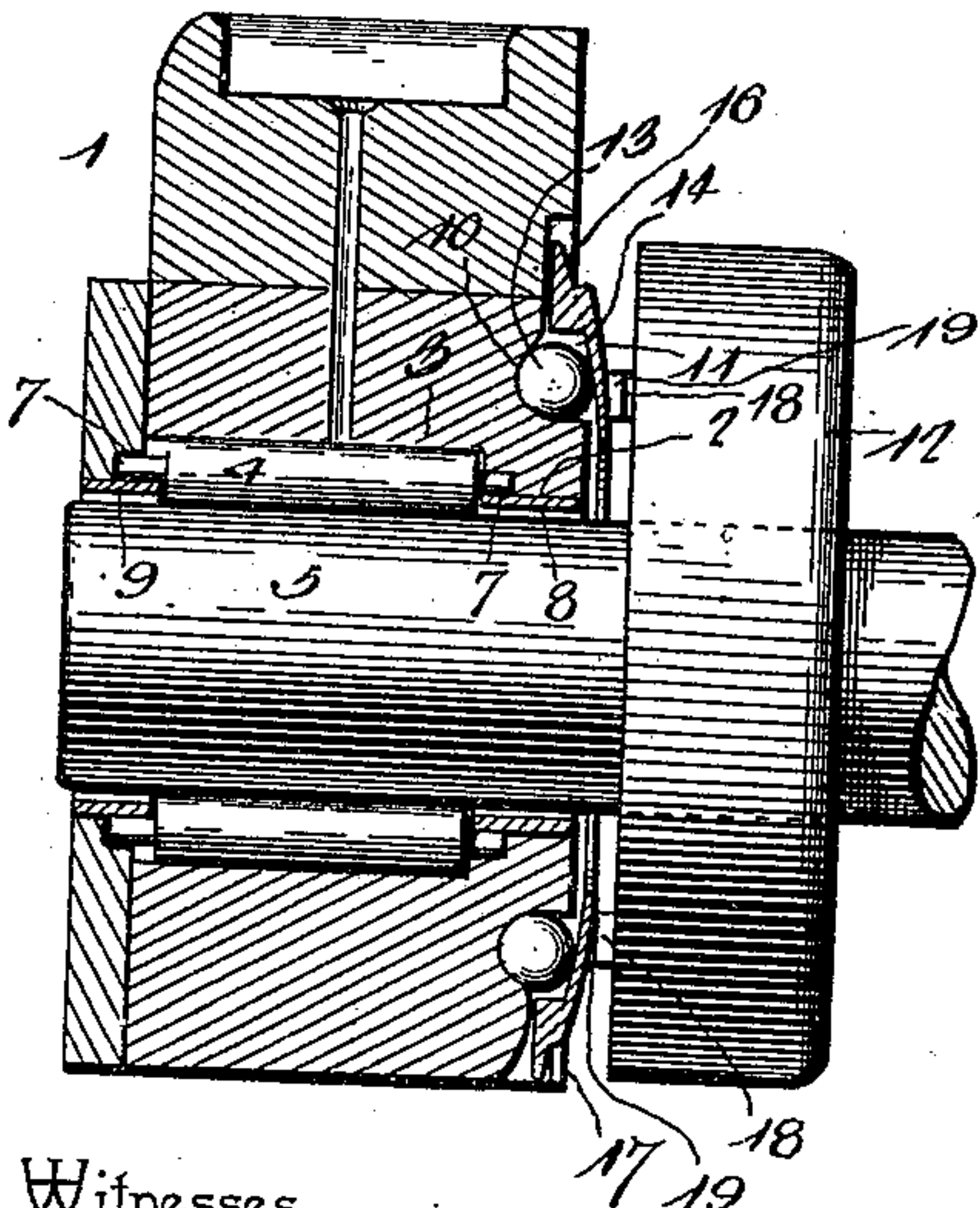


Fig. 3.

Witnesses

J. Frank Culverwell.

By his Attorneys.

J. Davis Fuller, Inventor.

J. F. Riley

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# UNITED STATES PATENT OFFICE.

JEFFERSON DAVIS FULLEN, OF BARNETT, VIRGINIA, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, OF TWO-THIRDS TO S. ASTON, JR., OF LEBANON, VIRGINIA, AND WILLIAM E. BURNS.

## JOURNAL-BOX FOR CAR-AXLES.

SPECIFICATION forming part of Letters Patent No. 624,006, dated May 2, 1899.

Application filed December 31, 1898. Serial No. 700,780. (No model.)

*To all whom it may concern:*

Be it known that I, JEFFERSON DAVIS FULLEN, a citizen of the United States, residing at Barnett, in the county of Russell and State of Virginia, have invented a new and useful Journal-Box for Car-Axles, of which the following is a specification.

The invention relates to improvements in journal-boxes for car-axles.

10 The object of the present invention is to improve the construction of journal-boxes for car-axles and to provide a simple, inexpensive, and efficient one adapted to prevent the wear usually incident to the end thrust of the axle on a curve and to enable the end bearing to move horizontally and vertically in addition to its rotary movement.

15 The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

20 In the drawings, Figure 1 is a perspective view of a journal-bearing constructed in accordance with this invention. Fig. 2 is a vertical sectional view taken longitudinally of the axle, the latter being in position. Fig. 3 is a horizontal sectional view of the same. Fig. 4 is a detail perspective view of the movable bearing-ring.

25 Like numerals of reference designate corresponding parts in all the figures of the drawings.

30 1 designates a journal-box provided in its journal-opening 2 with an annular recess 3, in which is arranged an annular series of anti-friction-rolls 4, extending longitudinally of the journal 5 of a car-axle and provided at their ends with reduced portions or journals 6, 7, and the said anti-friction-rolls are retained in the recess of the journal-box by inner and outer rings 8 and 9, arranged within the opening 2 and overhanging the annular recess, as clearly illustrated in Figs. 2 and 3 of the accompanying drawings. These longitudinally-disposed anti-friction-rolls which receive the journal 5 are adapted to reduce the friction and wear to a minimum and prevent the journal-box from becoming heated.

35 In order to prevent the wear usually inci-

dent to the end thrust of an axle in passing around a curve, the journal-box is provided at its inner face with an annular recess 10, forming a ball-race and receiving a rotary bearing-ring 11, which is interposed between the rear face of the journal-box and a collar 12 of the axle. The ball-race receives an annular series of anti-friction-balls 13, and the bearing-ring is provided at its inner face with a recess 14, forming an annular groove or race to cooperate with that of the journal-box. The outer face of the bearing-ring is reduced at its periphery to provide a projecting flange 16, which extends beneath a pair of plates 17, located at opposite sides of the recess 10 and having their inner edges curved to conform to the configuration of the bearing. The plates 17, which are substantially oblong, as shown, are secured to the rear face of the journal-box and retain the bearing-ring in place.

40 The collar 12 of the axle is provided at its inner face with oppositely-disposed lugs 18, and the bearing-ring 11 has corresponding lugs 19, whereby the said bearing-ring is interlocked with the axle and is adapted to rotate when the axle turns. When the track is straight, the bearing-ring simply rotates, but it is also capable of vertical movement to compensate for any vertical play of the parts; but when the car is passing around a curve it is adapted to move laterally to accommodate itself to the movements of the axle, and the balls move freely and permit such movement of the bearing-ring without wearing or straining any of the parts and with a minimum of friction.

45 The invention has the following advantages: The journal-box, which is simple, strong, and inexpensive in construction, is adapted to reduce friction to a minimum and prevent the parts from becoming hot. The end bearing-ring, which is interposed between the collar of the axle and the journal-box, is adapted to rotate and is capable of vertical and horizontal movement to prevent the parts from becoming worn and also to avoid heating by the end thrust of an axle when passing around a curve. The balls, which are free to move with the bearing-ring, are braced by the



ring and the journal-box, so that they will not break from the jar and vibration of the axle and the journal-box.

Changes in the form, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

What is claimed is—

1. In a device of the class described, the combination of a journal-box having a vertical face at its back and provided therein with a ball-race, a series of antifriction-balls mounted in the ball-race, and a bearing-ring arranged over the balls in position to receive the end thrust of an axle, said bearing-ring being capable of vertical and horizontal movement to relieve the journal-box of friction from the end thrust of an axle when passing around a curve, substantially as described.

2. In a device of the class described, the combination of a journal-box provided at its back with a ball-race, a series of antifriction-balls arranged in the race, a bearing-ring covering the balls and provided with a groove to receive the same, said bearing-ring being pro-

vided with a peripheral flange, and plates secured to the journal-box at opposite sides of the bearing-ring, conforming to the configuration of the same and engaging the flange thereof, substantially as described.

3. In a device of the class described, the combination with an axle provided with a collar having lugs, of a journal-box, a bearing-ring mounted on the journal-box at the back thereof and interposed between the same and the collar of the axle, said bearing-ring being provided with lugs to be engaged by those of the said collar and being capable of rotary, vertical and horizontal movement, and antifriction devices interposed between the bearing-ring and the journal-box, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

J. DAVIS FULLER.

Witnesses:

WM. H. BAYS,

WM. W. BAYS, Jr.