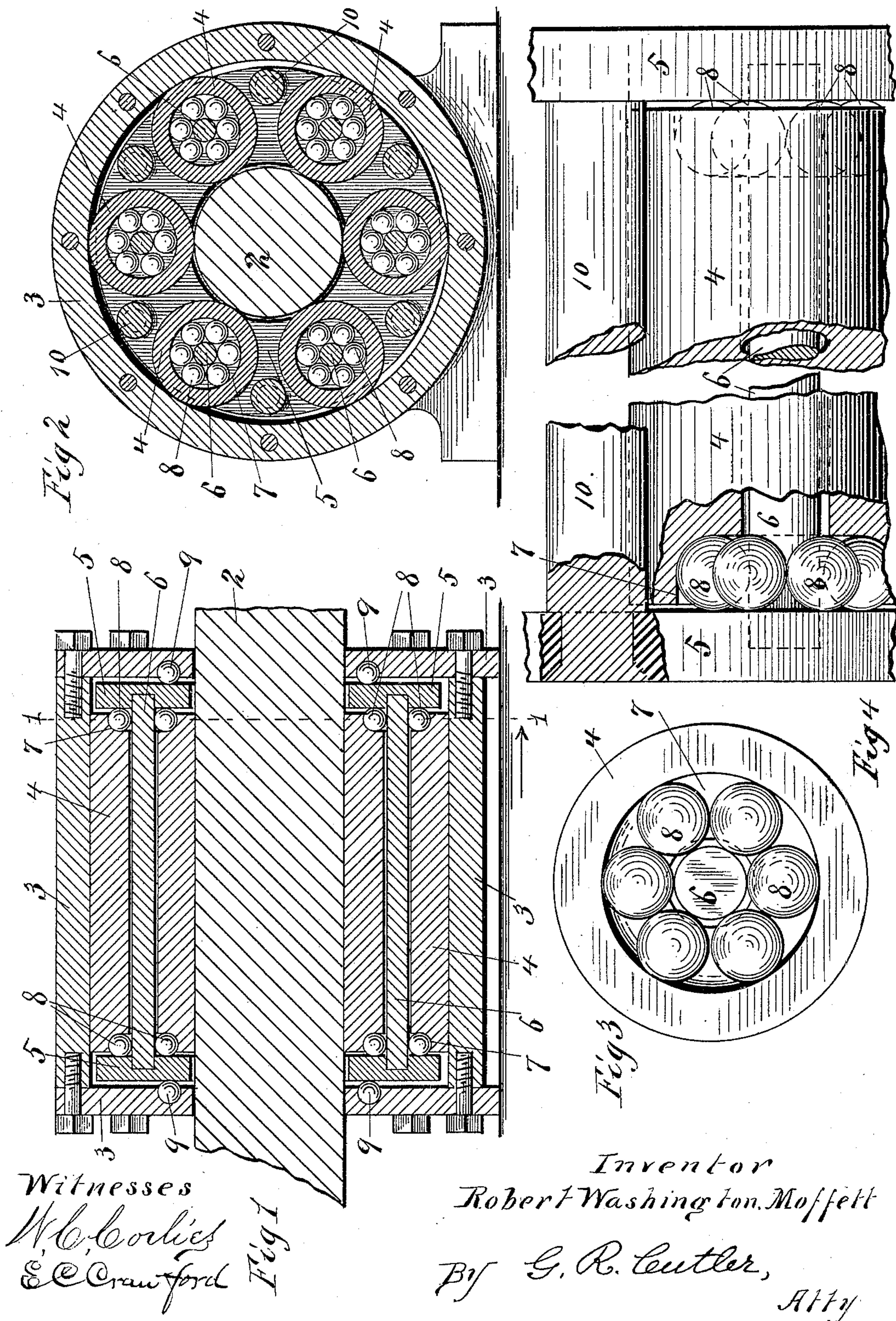


(No Model.)

R. W. MOFFETT.
ANTI-FRICTION JOURNAL BEARING.

No. 435,074.

Patented Aug. 26, 1890.



UNITED STATES PATENT OFFICE.

ROBERT WASHINGTON MOFFETT, OF DENVER, COLORADO.

ANTI-FRICTION JOURNAL-BEARING.

SPECIFICATION forming part of Letters Patent No. 435,074, dated August 26, 1890.

Application filed December 18, 1889. Serial No. 334,186. (No model.)

To all whom it may concern:

Be it known that I, ROBERT WASHINGTON MOFFETT, a citizen of the United States, residing at Denver, in the county of Arapahoe and State of Colorado, have invented a certain new and useful Improvement in Anti-Friction Journal-Bearings, of which the following is a specification, reference being made to the accompanying drawings, in which—

Figure 1 is a longitudinal vertical central section of a journal-bearing embodying my improvement. Fig. 2 is a cross-section of the same, taken on the line 1 1 of Fig. 1, looking in the direction of the arrow in the latter figure. Fig. 3 is a detached detail end view of one of the anti-friction rollers, its spindle, and the intervening anti-friction balls; and Fig. 4 is a detached detail side elevation of a part of the roller-cage, showing the mode of connecting the retaining-rings together.

Heretofore anti-friction journal-bearings have been constructed in which the journal has impinged upon a surrounding series of rollers interposed between itself and its journal-box. To keep these rollers parallel with their surrounded journal and prevent their mutual interference, they have been spaced relatively to each other by providing each with a spindle, the ends of which are lodged in the retaining-rings of a roller-cage. Sometimes this mode of construction has been so far refined that each of the rollers above referred to impinges upon its own spindle, not directly, but only through the interposition of similarly-acting but smaller and auxiliary rollers. In these latter cases, however, no similar provision for preserving the proper alignment of these auxiliary rollers has been heretofore attempted, and in practice it has been found that these auxiliary rollers will not preserve their parallelism with their inclosed spindle. To obviate this difficulty I discard the auxiliary rollers and use ball-bearings between the main roller and its spindle, and by locating these balls at each end of each main roller, between it and the adjacent face of the retaining-ring of the roller-cage, they perform the additional function of spherical anti-friction lateral bearings between these parts. My method of construction, by which I attain both these objects, is

well illustrated by the accompanying drawings, which represent the best embodiment of my invention now known to me.

In the drawings, 2 is the main journal, to which my anti-friction bearing is applied, and 3 is the journal-box in which it is incased.

4 is one of the series of anti-friction rollers interposed between this journal-box and its journal 2 all around the latter.

5 is the retaining-ring, in which are mounted the spindles 6 of the rollers 4. To obviate friction between this roller and its spindle, each end of the former is provided with a cup-shaped concavity 7, which forms a seat for a series of balls 8, surrounding the spindle. At the same time this seat 7 is of a depth slightly less than the diameter of the balls, the object being to interpose the latter between the roller and the retaining-ring, so as to obviate all friction arising from the end-thrust of the former against the latter. The end-thrust of the retaining-ring itself against the end of the journal-box is taken up by the balls 9 in the usual manner. It will be observed that the retaining-ring is thus kept clear, not only of the roller and the end of the journal-box, but of the main journal and the sides of its journal-box as well, this latter result being attained by making the ball-seat 7 of a diameter barely large enough to surround the balls and their inclosed spindle, while the internal and extreme diameters of the retaining-rings are such as to afford it ample clearance, both as to the main journal and those sides of the journal-box parallel therewith. Therefore, aside from occasional end-thrust, the bearing-pressure between the main journal and its journal-box is thus transmitted solely through the rollers 4, the retaining-rings being in no sense supports of, but, on the contrary, a load, but only to the extent of their own weight, upon these rollers, (with the intervention of the spindles 6 and balls 8.)

To keep the main rollers parallel with each other and their inclosed main journal, the retaining-rings are firmly connected together by the bolts 10, forming the usual roller-cage.

I claim as my invention and desire to secure by Letters Patent—

1. In an anti-friction journal-bearing, a bearing-roller, its spindle, and interposed balls, in combination, substantially as set forth.
- 5 2. In an anti-friction journal-bearing, bearing-rollers, retaining-rings provided with spindles for said rollers, and balls interposed

between the rollers, the spindle, and the adjacent retaining-ring, in combination, substantially as set forth.

ROBERT WASHINGTON MOFFETT.

Witnesses:

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