

No. 667,990.

Patented Feb. 12, 1901.

J. E. NORWOOD.

ANTIFRICTION SIDE BEARING FOR RAILWAY CARS.

(Application filed June 8, 1900.)

(No Model.)

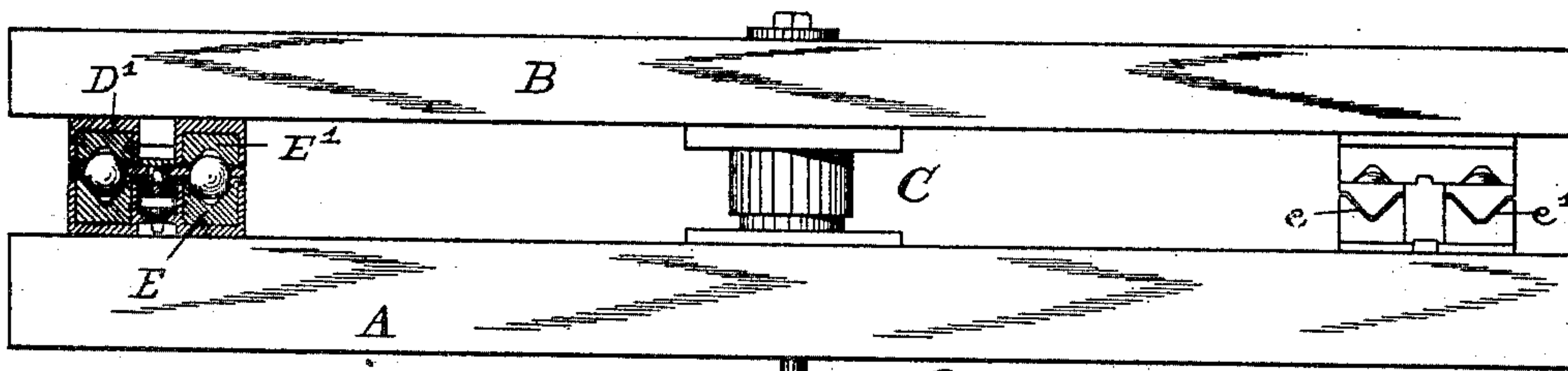


Fig. 1.

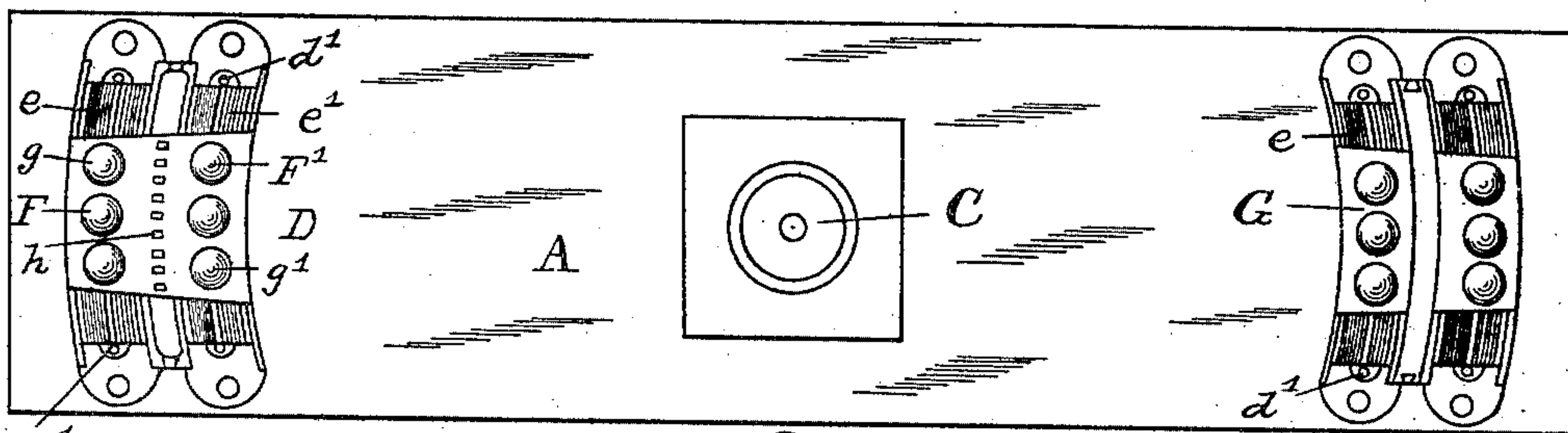


Fig. 2.

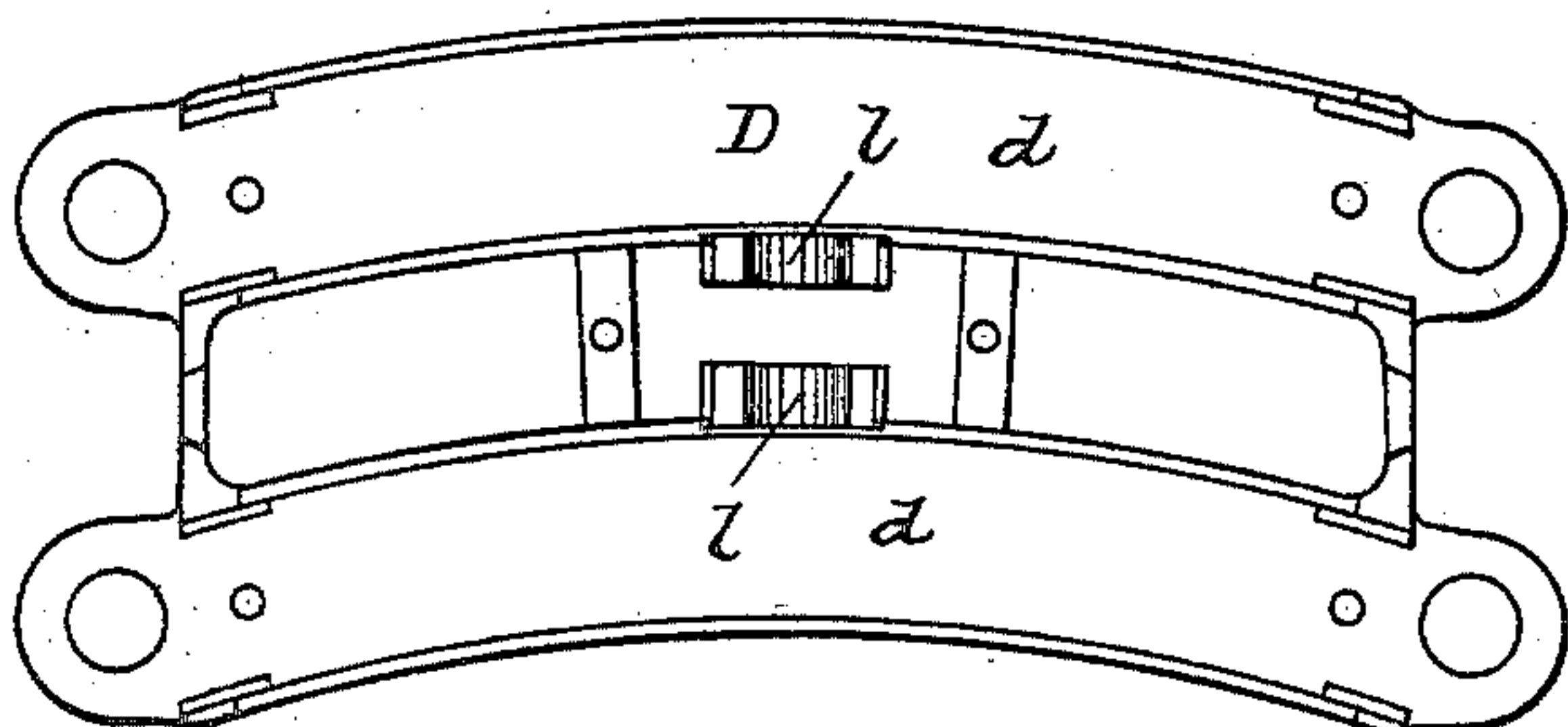


Fig. 3.

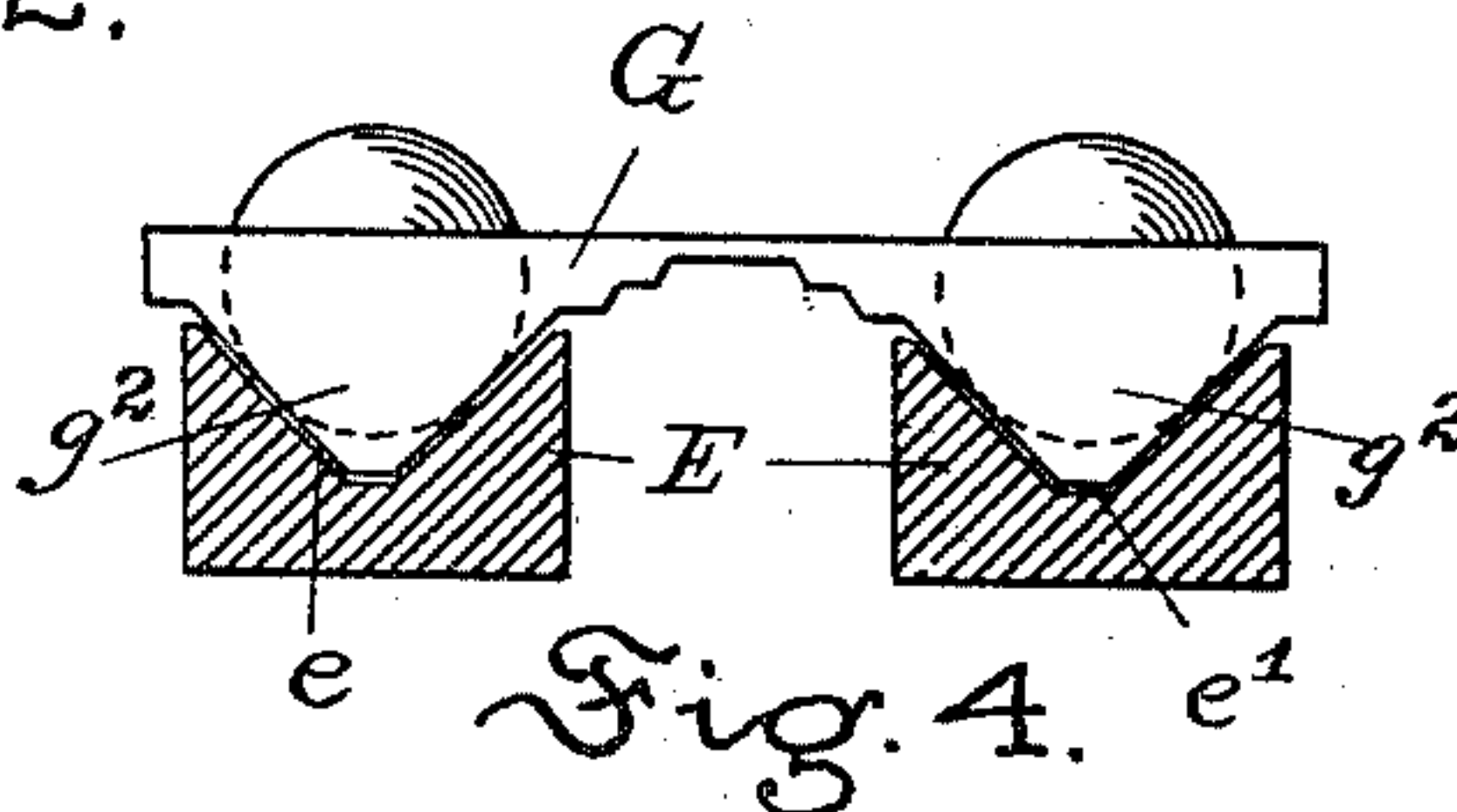


Fig. 4.

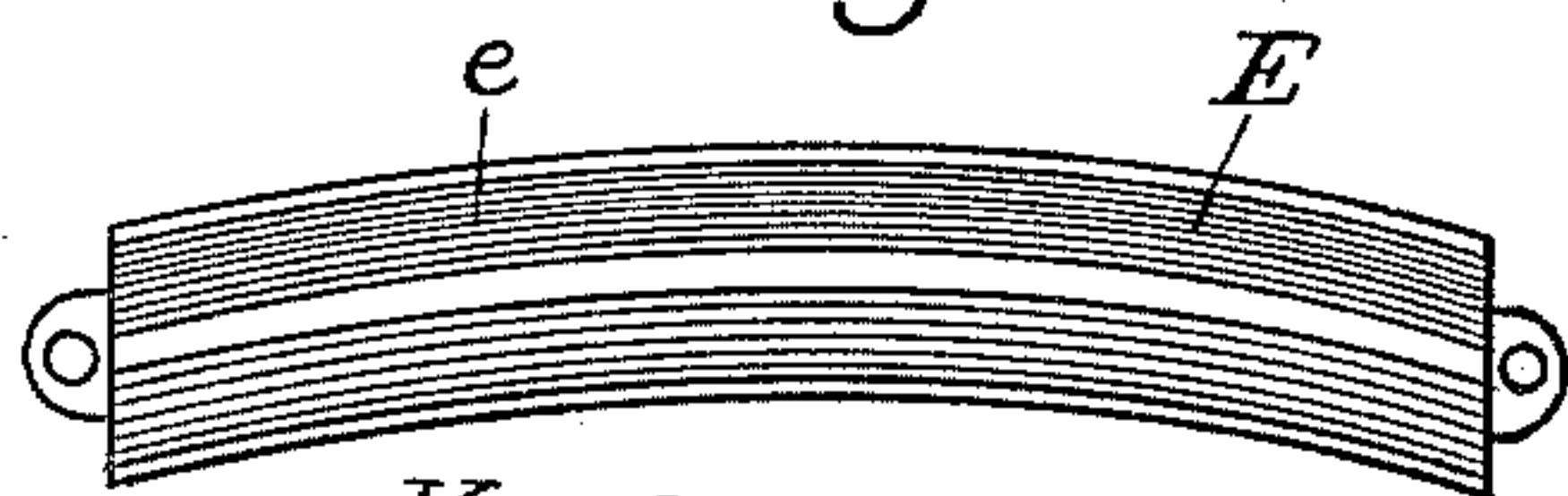


Fig. 5.

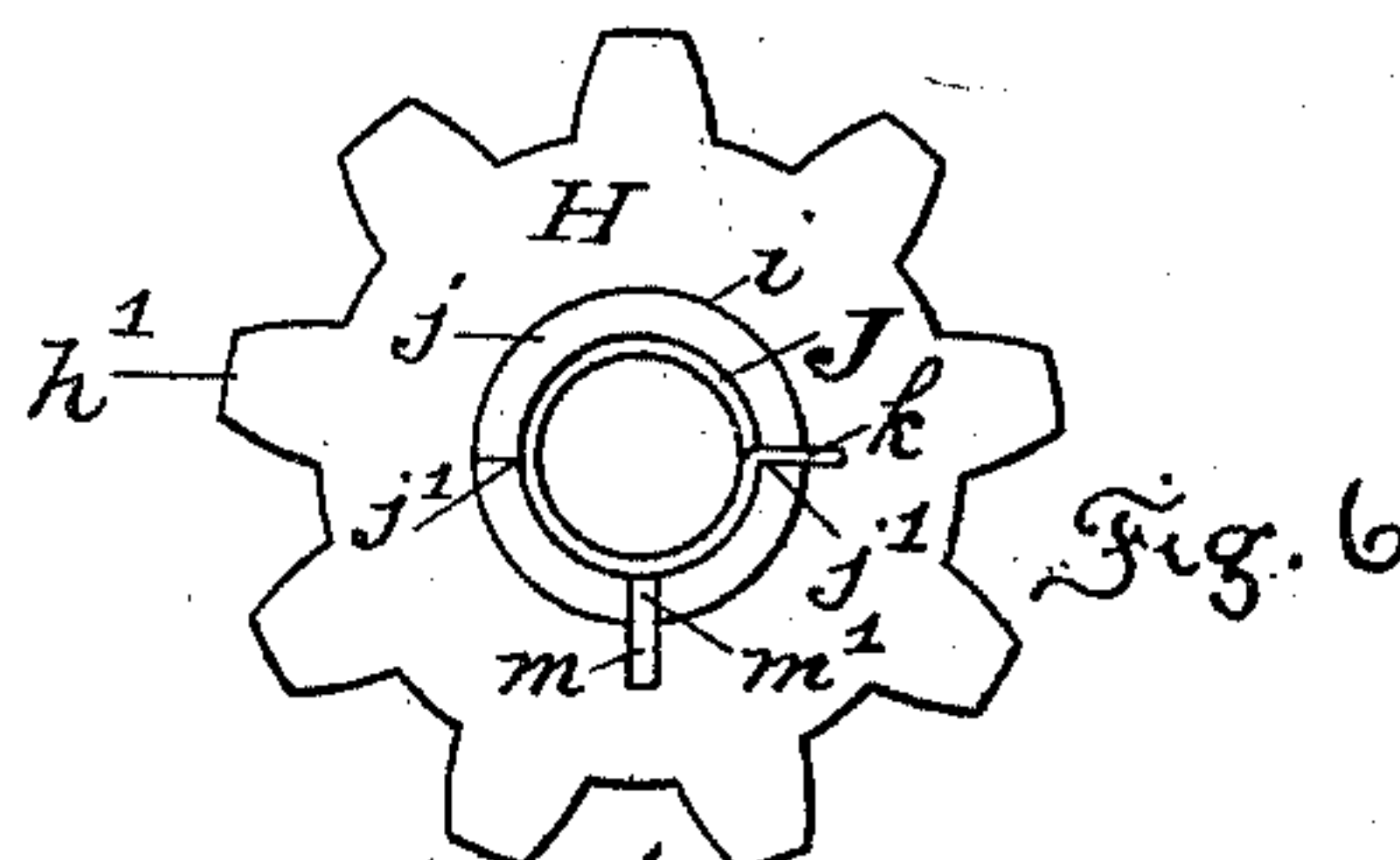


Fig. 6.

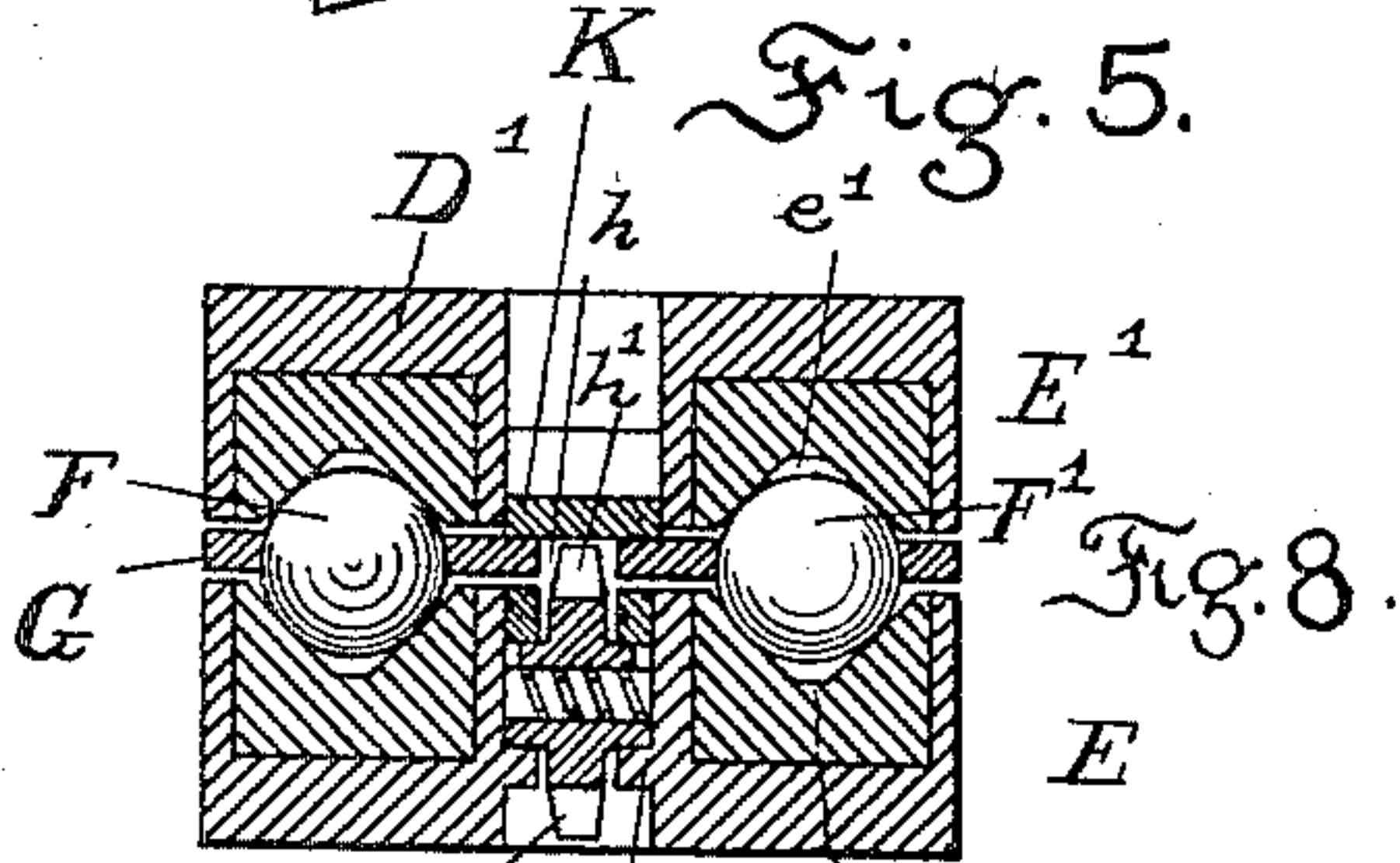


Fig. 8.

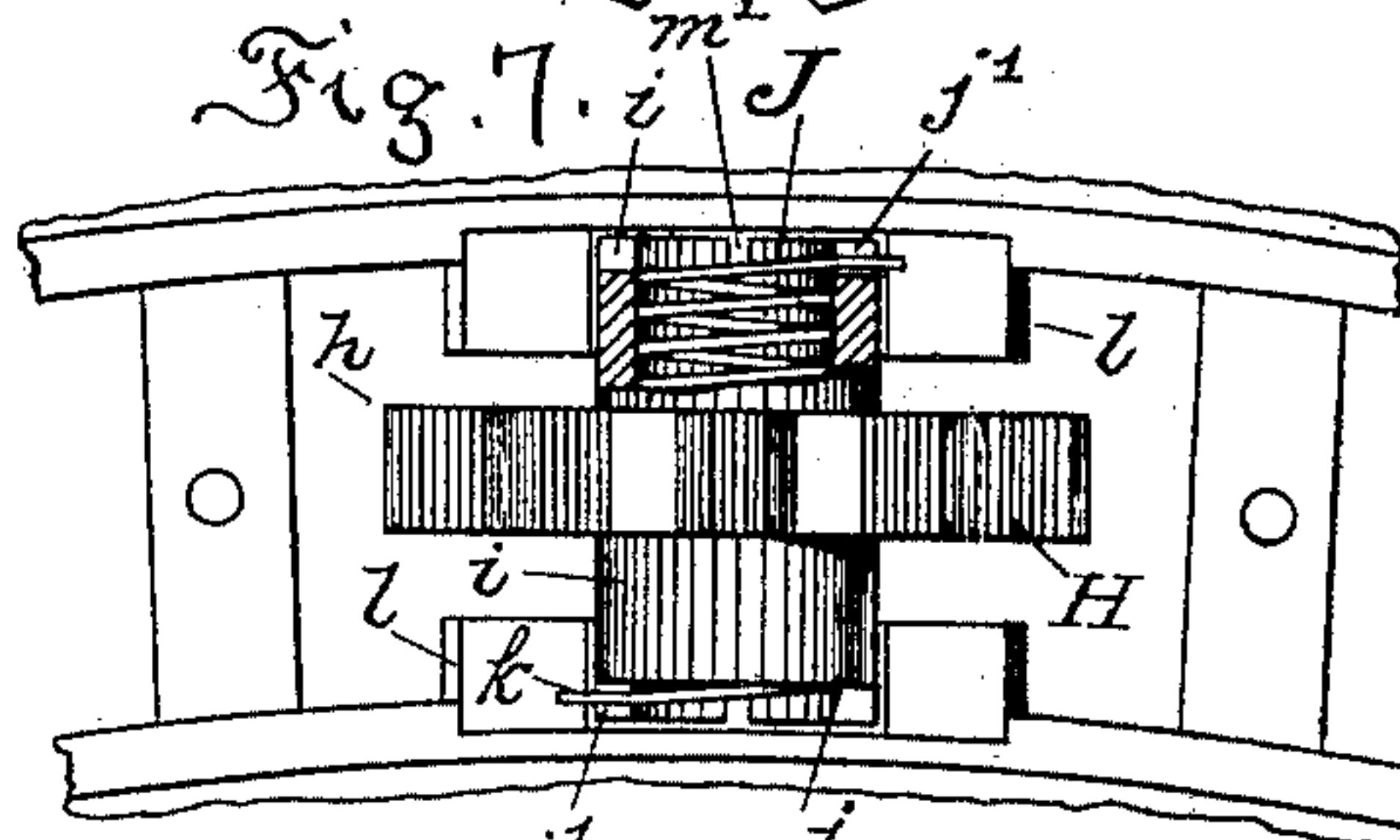


Fig. 7.

Witnesses:
H. F. Meyer for
T. S. Stett.

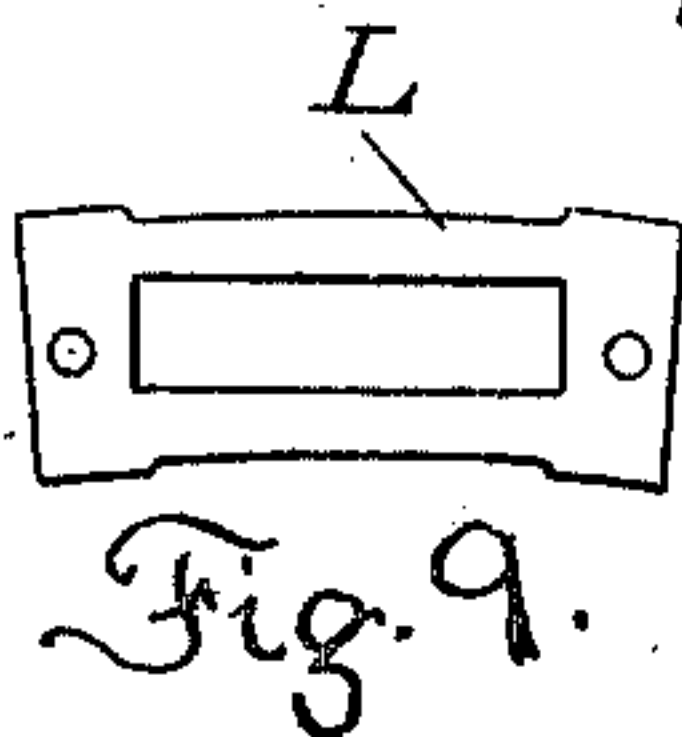


Fig. 9.

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JOHN E. NORWOOD, OF BALTIMORE, MARYLAND.

ANTIFRICTION SIDE BEARING FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 667,990, dated February 12, 1901.

Application filed June 8, 1900. Serial No. 19,494. (No model.)

To all whom it may concern:

Be it known that I, JOHN E. NORWOOD, a citizen of the United States, residing at Baltimore, State of Maryland, have invented certain new and useful Improvements in Antifric-
5 tion Side Bearings for Railway-Cars, of which the following is a specification.

My invention relates to antifric-
10 tion side bearings for railway-cars; and its object is to provide a side bearing which will prevent side motion of the car-body when rounding a curve, which will be kept cleared of dirt, and in which the antifric-
15 tion-balls will be automatically and positively brought back into a central position whenever the weight of the car-body is taken off the side bearing on the truck-bolster.

The invention consists in certain constructions, arrangements, and combinations of the
20 parts, which will be hereinafter fully described and claimed.

Reference is to be had to the accompanying drawings, forming part of this specification, in which—

25 Figure 1 is an elevation of the truck and body bolsters of a railway-car employing side bearings constructed according to the principles of my invention, one side bearing being shown in section and the other in elevation.
30 Fig. 2 is a plan view of the truck-bolster, the upper ball-boxes being removed and one cover-plate K for the separator-frame being also removed. Fig. 3 is a detail plan view of a lower ball-box. Fig. 4 is a detail cross-
35 section of the wear-plates and an end elevation of the separator-frame and antifric-
tion-balls. Fig. 5 is a detail plan view of one of the wear-plates. Fig. 6 is a detail side view of the centering-wheel. Fig. 7 is a detail edge
40 view of the centering-wheel with a part of the hub broken away to show the centering-spring. Fig. 8 is an enlarged transverse section of one side bearing, and Fig. 9 is a detail view
45 of the cover-plate for the hub of the centering-wheel.

Referring to the drawings, A designates the truck-bolster, B the car-body bolster, and C the center bearing.

50 The truck-bolster A near each end has secured thereto a segmental box D, formed with two parallel curved sockets d , in which are secured by rivets d' two wearing-plates E,

formed of hardened steel and each of which is provided with a curved channel e , angular in cross-section, as shown particularly in Fig. 55
4. The car-body bolster B is also provided with a ball-box D' near each end in registry with the box D and provided similarly to the box D with two hardened-steel wearing-plates E', each formed with a curved channel e' , an-
60 gular in cross-section. Two sets of antifric-
tion-balls F F' roll and are confined between the juxtaposed angular curved channels e and e' , and I provide by this arrangement
65 what I term a "four-point" bearing—that is to say, each ball has four diametrically-op-
posed points of contact with the wearing-plates E and E' and are compelled to move in the direction of curvature only, and hence
70 side-slipping motion of the car-body when rounding curves is effectually prevented.

G designates a ball-separator frame formed with two rows of cage-holes $g g'$, which are slightly smaller in diameter than the balls, and the frame G fits down over the balls with
75 each ball projecting up through one of the holes, so that all the balls of each set are retained in the same relative position with respect to one another and move back and forth with the frame. At each end of the separa-
80 tor-frame G are two downwardly-extending V-shaped flanges g^2 , having inclined side edges and fitting down in the channels $e e'$, so that as the frame moves the flanges g^2 in the channels will push all the dirt out of the
85 channels and keep the latter clean. The ball-separator frame G is provided between the two rows of cage-holes $g g'$ with a slightly-curved row of apertures h , and underneath the frame in horizontal bearings l , which are
90 formed between the two curved sockets d of the box D, is journaled a centering-wheel H, having cog-teeth h' on its periphery taking in the said apertures h . This wheel also has a tubular hub i , each end of which has one-half
95 cut away, as at j , for a short distance, and thus the cut-away side is a little shorter than the other side, and shoulders j' are formed on the long side. A torsional helical spring J is within the tubular hub, and each end k of
100 this spring is bent laterally and rests upon the shoulders j' and extends over into engagement with the said bearings l . With this arrangement the spring J will be compressed

when the wheel H is rotated in either direction by the movement of the separator-frame G, and as soon as the pressure which moves the frame is relieved the spring and wheel
5 will bring the said frame back to its central normal position.

A slotted cover-plate L fits down over the hub of the centering-wheel H and holds it in its bearings *l*, and a narrow curved cover-plate K has position over the separator-frame
10 G between the two rows *g g'* of cage-holes and prevents the frame from jumping out of engagement with the teeth of the wheel when the pressure of the car-body is suddenly re-
15 lieved.

As shown particularly in Figs. 6 and 7, the centering-wheel H has an opening *m*, communicating with a slot *m'* in the tubular hub *i*, through which the bent ends *k* of the spring
20 pass when the spring is inserted in the hub.

While I have shown each ball-box provided with two wear-plates E and two rows of anti-friction-balls, I do not wish to confine myself to such exact arrangement, as it is obvious
25 that one wear-plate and one row of balls may be dispensed with, and I may construct the bearing with a single row of balls.

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

1. In a side bearing for railway-cars, the combination of the upper and lower ball-boxes; curved wear-plates secured in said ball-boxes and formed with V-shaped chan-
35 nels angular in cross-section; anti-friction-balls rolling within said channels; and a ball-separator frame interposed between the upper and lower wear-plates and having cage-holes in which the balls are received and at
40 its ends downwardly-extending flanges having inclined side edges fitting in the channels

of the lower wear-plates whereby to keep said channels clear of dirt.

2. In a side bearing for railway-cars, the combination of the upper and lower ball-
45 boxes; anti-friction-balls rolling between said boxes; a ball-separator frame interposed between said upper and lower boxes and having cage-holes receiving said balls and a row of apertures *h*; and a centering-wheel having
50 teeth which take in said apertures.

3. In a side bearing for railway-cars, the combination of the upper and lower ball-boxes; anti-friction-balls rolling between said boxes; a ball-separator frame interposed be-
55 tween said upper and lower boxes and having cage-holes receiving said balls and a row of apertures *g'*; a centering-wheel having teeth taking in said apertures, and provided with a tubular hub; and a spring in said hub which
60 normally keeps the said frame in central position.

4. In a side bearing for railway-cars, the combination of the upper and lower ball-
65 boxes, the lower ball-box being formed with horizontal bearings; anti-friction-balls rolling between said boxes; a ball-separator frame interposed between said upper and lower boxes and formed with cage-holes receiving said balls and a row of apertures; a centering-
70 wheel journaled in the said horizontal bearings and having teeth taking in said apertures and provided with a tubular hub formed with shoulders; and a torsional spring in said hub having its ends in contact with said shoulders
75 and in engagement with the said bearings.

In testimony whereof I affix my signature in the presence of two witnesses.

JOHN E. NORWOOD.

Witnesses:

THOS. C. BAILEY,
CHARLES L. VIETSCH.