

(No Model.)

2 Sheets—Sheet 1.

D. G. GRANT.
BEARING FOR STREET CARS.

No. 401,159.

Patented Apr. 9, 1889

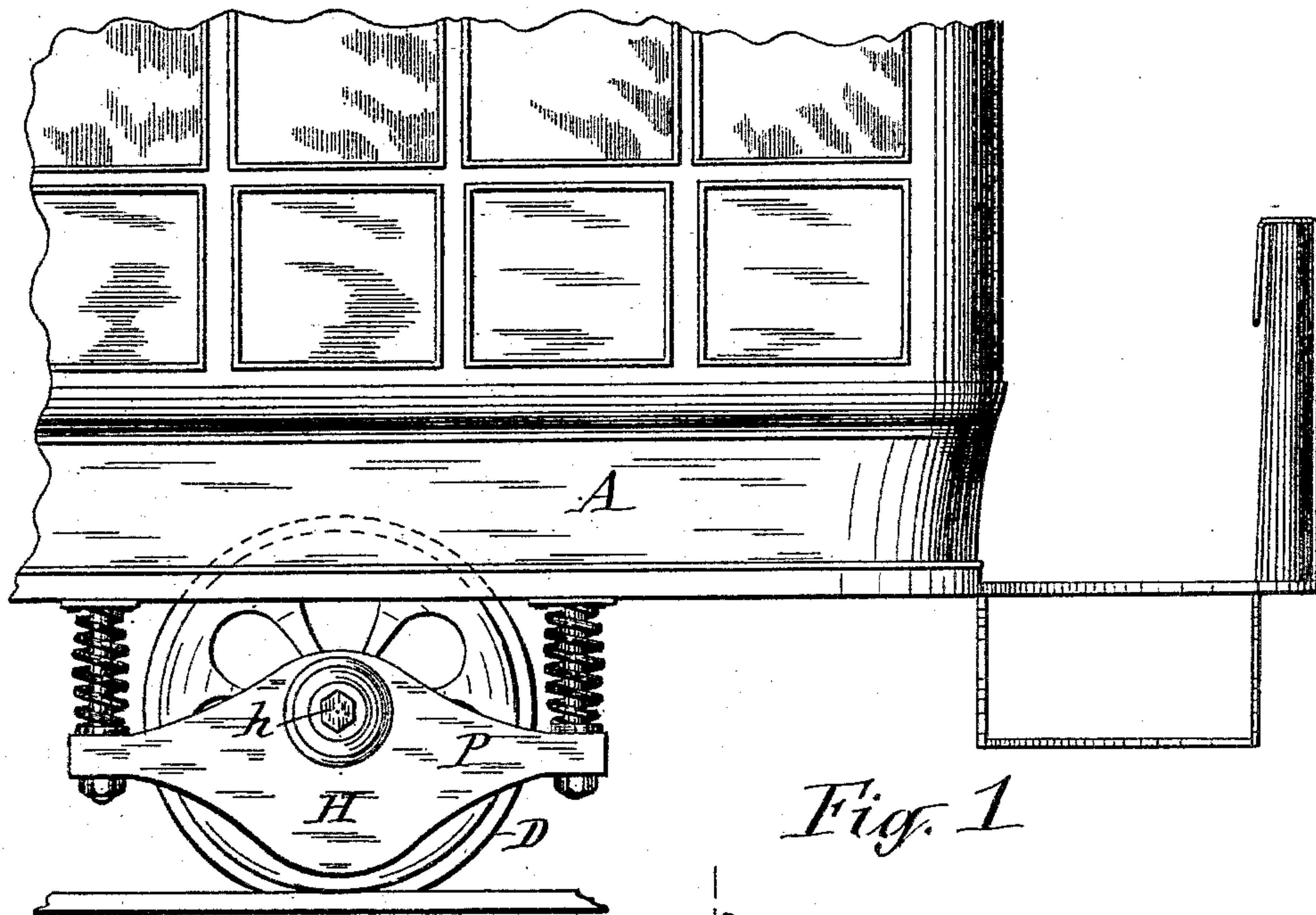


Fig. 1

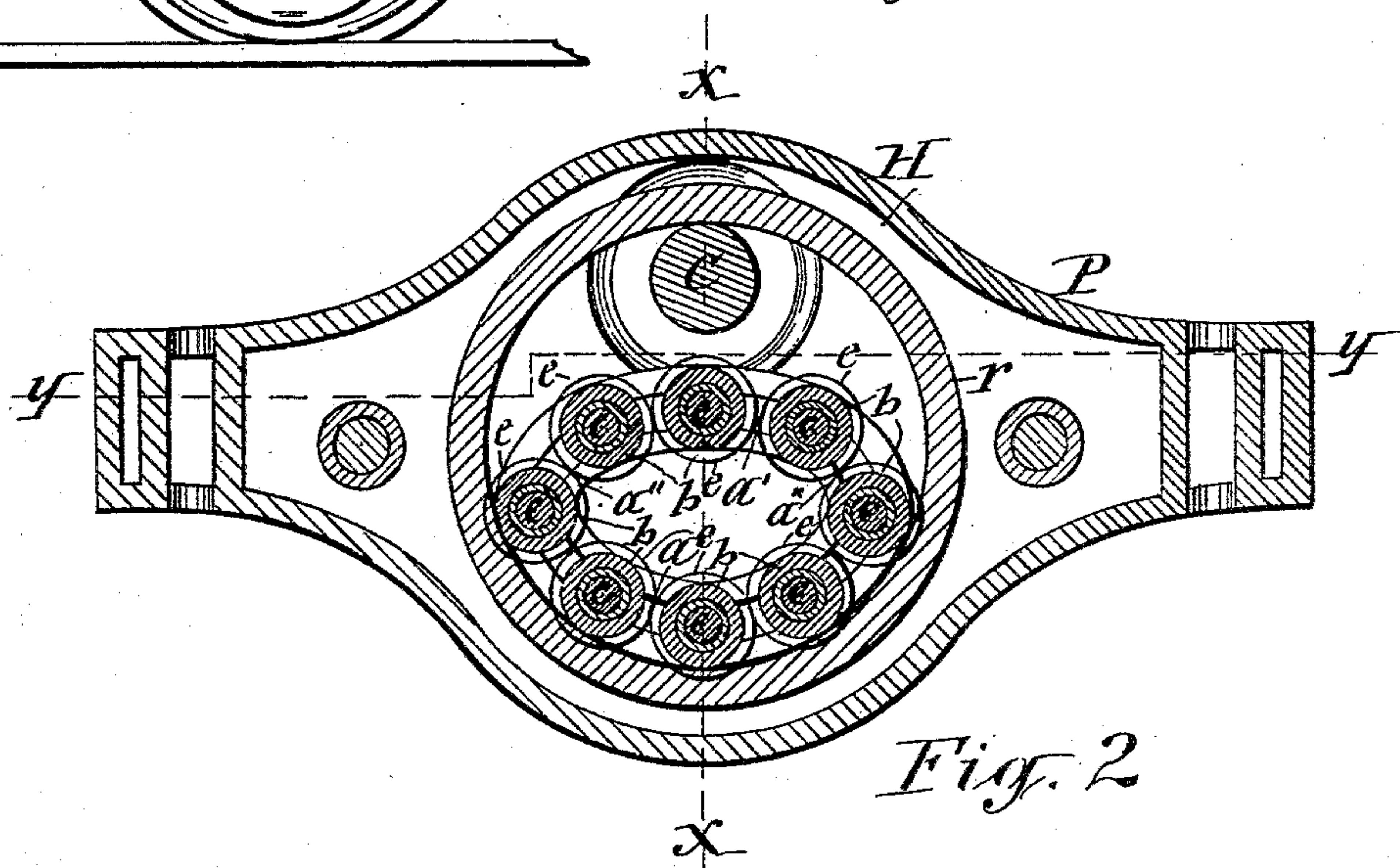


Fig. 2

WITNESSES:

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Mark W. Dewey.

INVENTOR :

David G. Grant
BY
Hull, Laessle & Hull
ATTORNEYS.

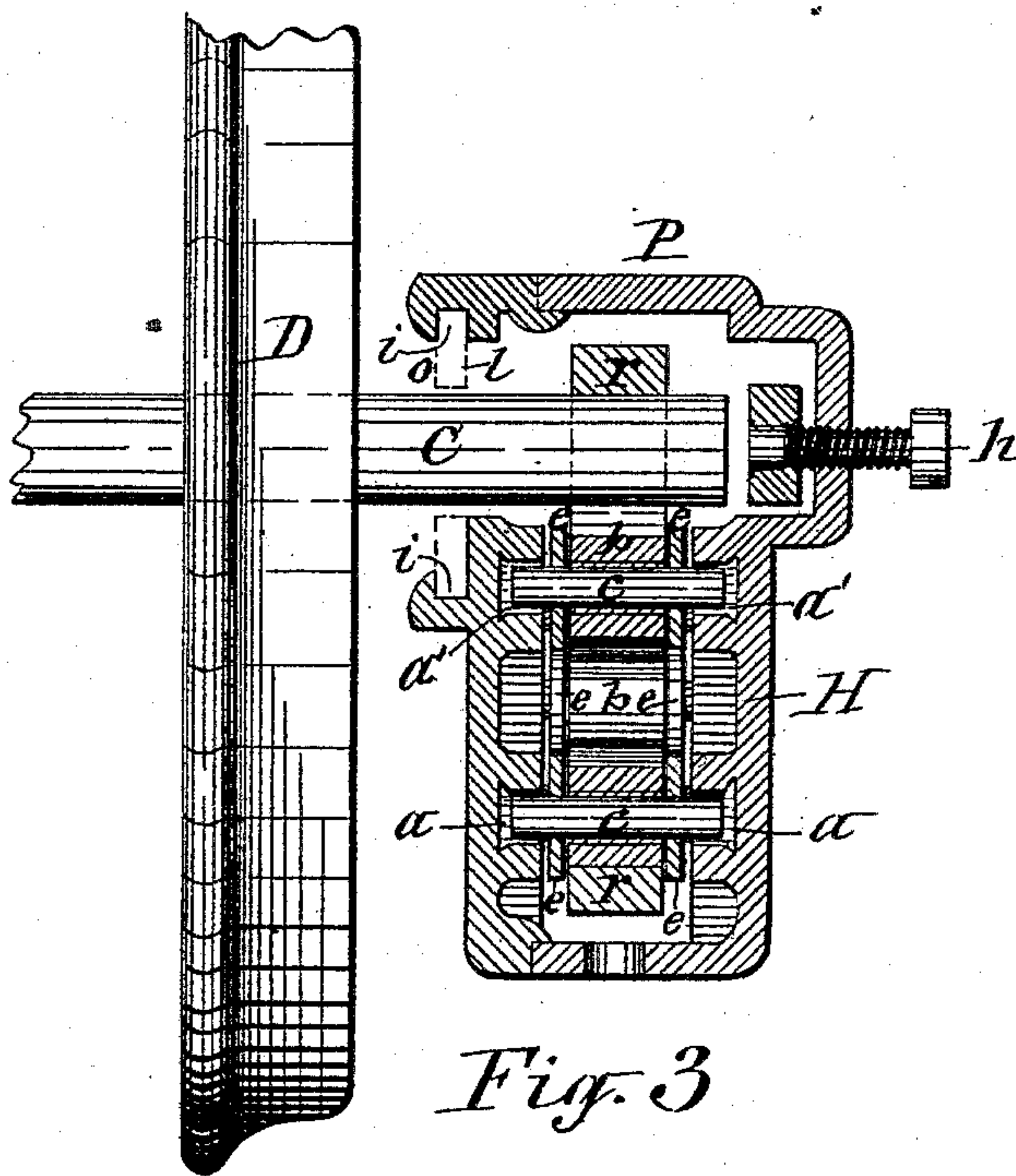
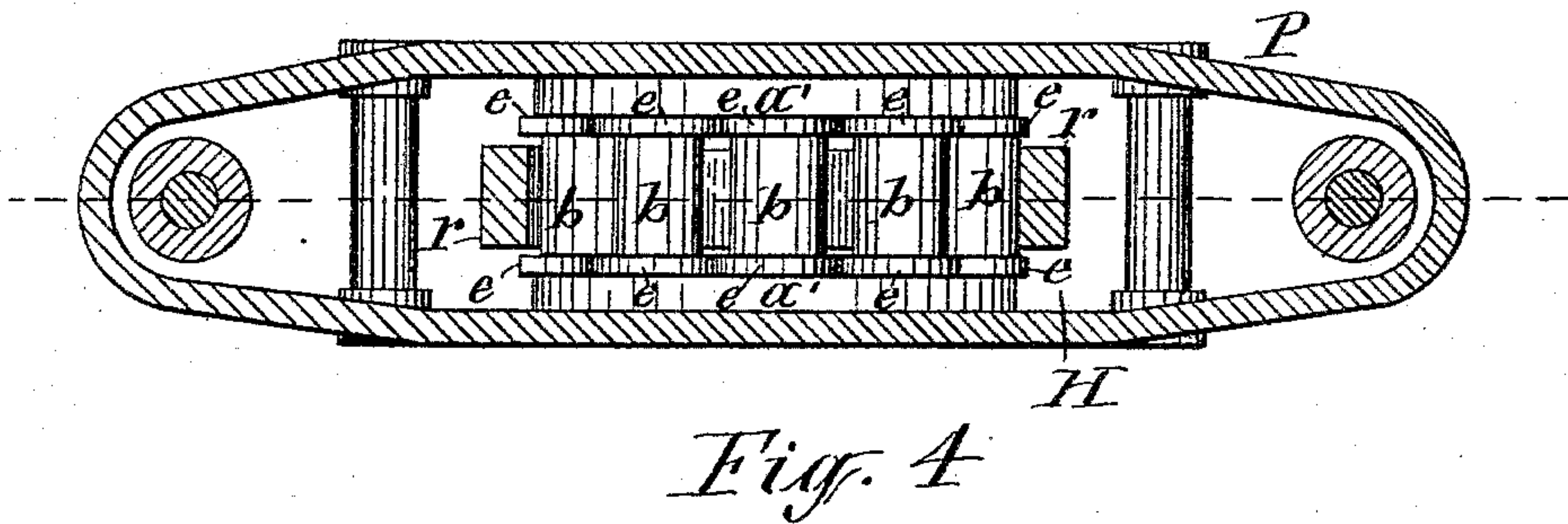
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Drury, Laess & Drury
ATTORNEYS.

UNITED STATES PATENT OFFICE.

DAVID G. GRANT, OF SYRACUSE, NEW YORK, ASSIGNOR OF ONE-HALF TO
MARION A. ANDREWS, OF SAME PLACE.

BEARING FOR STREET-CARS.

SPECIFICATION forming part of Letters Patent No. 401,159, dated April 9, 1889.

Application filed January 7, 1889. Serial No. 295,654. (No model.)

To all whom it may concern:

Be it known that I, DAVID G. GRANT, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and
5 useful Improvements in Bearings for Street-Cars, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to the bearings by
10 which the body of the car is supported on the axles.

The object of the invention is to reduce to a minimum the friction of the aforesaid bearings; and to that end the invention consists
15 in the novel construction and combination of parts, hereinafter fully described and specifically set forth in the claims.

In the annexed drawings, Figure 1 is a side view of one end of a street-car equipped with
20 my improved axle-bearings. Fig. 2 is an enlarged vertical longitudinal section of my invention. Fig. 3 is a vertical transverse section on line $x x$, Fig. 2; and Fig. 4 is a horizontal longitudinal section on line $y y$, Fig. 2.

Similar letters of reference indicate corresponding parts.

A represents the body of a street-car, to which are elastically connected hangers or pedestals P, by which the car-body is supported on the trucks or axles C of the carrying-wheels D by the following improved means.

Upon each end of the axle C, I hang a ring, r , which is considerably larger in diameter
35 than the axle, and therefore rides eccentrically and rotatably thereon and in a suspended and vertical position. This ring is made to serve as a vertical annular track movable at differential speeds with the axle, for the purpose hereinafter presently explained. The
40 pedestal P, I form with a housing, H, which incloses the aforesaid ring or annular track. At opposite sides of the ring r , I form on the inner sides of the housing H endless tracks, each of which has its main portion a of segmental form longitudinally and concentric
45 with the lower portion of the ring r and of a shorter radius, so that said track portion a is higher than the lower portion of the ring.
50 The remainder, a' , of the endless track on the

pedestal is eccentric in relation to the ring r , and preferably of the form of an arch beneath the axle and joined with the portion a by sharp curves $a'' a''$.

$b b b$ designate anti-friction rollers, which
55 are adapted to rotate independent of each other. The journals $c c$ of said rollers travel in the tracks $a a'$, and the rollers are mounted on the central portions of the journals and travel on the inner side of the lower portion
60 of the ring or annular track r . The car-body is thus supported on anti-friction rollers mounted on the lower portions of vertical tracks which are carried by the axles of the car-wheels, and are arranged to revolve at
65 differential speeds with said axles.

In order to further guard against friction, I pivot on each of the journals c , at opposite ends of the roller b , supplemental anti-friction rollers $e e$, which are larger in diameter
70 than the intermediate roller b , and capable of rotating independently thereof.

By employing four or six or eight or any other even number of rollers $b b$ in each set each supplemental roller e is allowed to move
75 in unison with the adjacent supplemental rollers, and thus friction by the contact of the peripheries of said rollers is obviated.

In order to prevent the axle C from becoming displaced longitudinally or being shifted
80 endwise, I insert into the housing H, from the exterior thereof and in line with the end of the axle, a set-screw, h , against the inner end of which the end of the axle abuts when moved longitudinally.

The pedestal P is without any bearing on the axle. The opening o in the pedestal, through which the axle passes, may be partly closed to exclude dust from the housing H by
85 a board, l , slipped into grooves $i i$, formed on the housing at the top and bottom edges of the opening o , as represented in Fig. 3 of the drawings.

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

1. A car-axle bearing consisting of a vertical annular track carried eccentrically and rotatably on the axle, a pedestal secured to the car-body and provided with an endless track,
100

and a plurality of anti-friction rollers provided with bearings traveling on the two tracks, substantially as set forth and shown.

2. A car-axle bearing consisting of a vertical
5 annular track carried eccentrically and rotatably on the axle, a pedestal secured to the car-body and carrying an endless track a portion whereof is concentric with the lower portion of the aforesaid annular track, and anti-
10 friction rollers provided with bearings on the endless track of the pedestal and mounted on the lower portion of the annular track carried on the axle, as aforesaid.

3. A car-axle bearing consisting of a ring
15 suspended vertically from the axle and riding eccentrically and rotatably thereon, a pedestal secured to the car-body and having affixed to it an endless track a portion whereof is concentric with the lower portion of the sus-
20 pended ring, and the remainder of said track being eccentric in relation to the aforesaid ring, and rollers adapted to travel independently of each other and provided with bearings in the aforesaid track and upon the in-
25 ner side of the lower portion of the suspended ring, substantially as set forth.

4. A car-axle bearing consisting of a ring
suspended vertically from the axle and riding eccentrically and rotatably thereon, a pedes-
30 tal secured to the car-body and formed with a housing inclosing the aforesaid ring, endless tracks on the inner sides of the said housing and having their main portions concentric with the lower portion of the ring, and the re-
35 mainder of the said tracks of the form of arches beneath the axle, and rollers adapted to travel independently of each other, and provided with bearings in the aforesaid tracks

and on the inner side of the lower portion of the ring, substantially as described and shown. 40

5. In an anti-friction axle-bearing, the combination, with the stationary track and movable track parallel therewith and rollers interposed between said tracks and adapted to rotate independently of each other, of supple- 45
mental rollers of larger diameters than the aforesaid rollers and pivoted to the ends thereof and concentric therewith, substantially as and for the purpose set forth.

6. The combination, with the car-body and axle, of the ring *r*, hung on the axle, the pedestal *P*, connected to the car-body and formed with the housing *H*, inclosing the aforesaid ring, and formed also with segmental tracks *a a*, concentric with the lower portion of the 55
ring, and with the arching tracks *a' a'* beneath the axle, the journals *c c c*, traveling in the tracks *a a'*, the rollers *b b b*, mounted on the central portions of said journals and traveling on the inner side of the lower portion of 60
the ring *r*, the supplemental rollers *e e e*, mounted on the aforesaid journals at opposite ends of the rollers *b b b* and of greater diameter than the latter rollers, and the set-screw *h*, passing through the housing *H* from 65
the outer side thereof and in line with the axle, substantially as described and shown.

In testimony whereof I have hereunto signed my name, in the presence of two witnesses, at Syracuse, in the county of Onondaga, in the 70
State of New York, this 31st day of December, 1888.

DAVID G. GRANT. [L. S.]

Witnesses:

J. J. LAASS,
C. H. DUELL.