

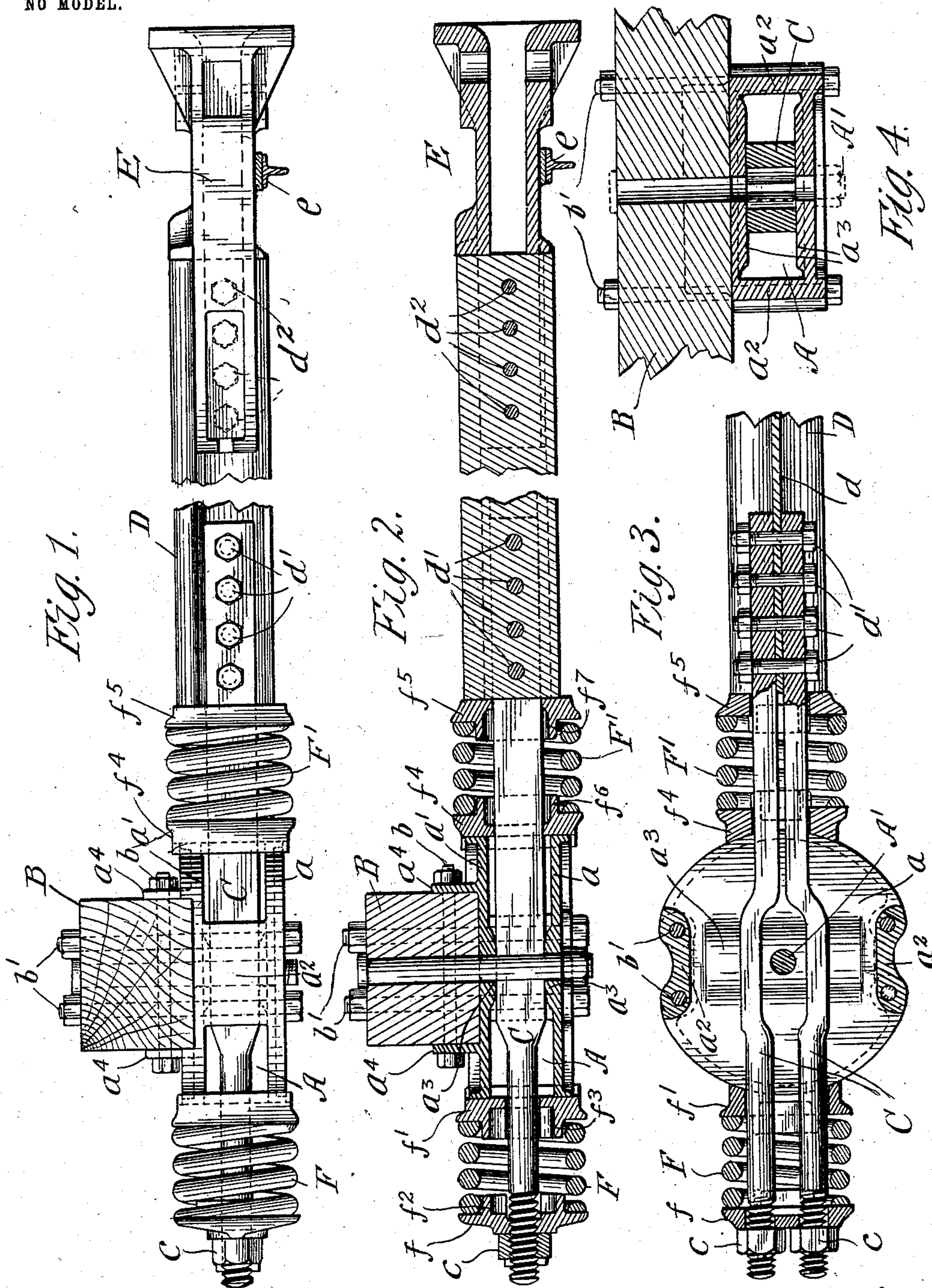
No. 749,888.

PATENTED JAN. 19, 1904.

W. T. VAN DORN.
RAILWAY DRAFT RIGGING.

APPLICATION FILED OCT. 1, 1903.

NO MODEL.



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RAILWAY DRAFT-RIGGING.

SPECIFICATION forming part of Letters Patent No. 749,888, dated January 19, 1904.

Application filed October 1, 1903. Serial No. 175,261. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM T. VAN DORN, a citizen of the United States, and a resident of Chicago, Cook county, Illinois, have invented certain new and useful Improvements in Railway Draft-Rigging; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in railway draft-rigging, and more particularly to a draft-rigging designed for use on street or elevated railways or the like. Heretofore it has been frequently difficult to suitably connect the draft-rigging with the motor end of a street-car or the like in such a manner as to obtain the most effective action on curves or on uneven tracks or with electric cars to avoid contact with the motor should it be desired to couple several cars together, and in most of the devices heretofore in use while some slight lateral movement was provided for in the draft-iron it has been a common difficulty that on short curves the draft-rigging does not readily adapt itself to the movement of the car. As a consequence undue strain is brought upon the mechanism, sometimes resulting in accident. It is also important with devices of this class, inasmuch as the road-beds are frequently irregular, that a considerable amplitude of vertical oscillation or movement be provided for to avoid undue strain upon the draw-head and draft-rigging, and instances are numerous where trains have broken in two, endangering lives and property, because of too great rigidity of the draft-rigging.

The object of this invention is to provide a draft-rigging adapted to be secured to the bolster or to the under timbers of the car-frame and so constructed as to enable the same to be connected with the car in such manner as to preclude possibility of contact with or injury to the motor should one be used and also to afford the greatest possible amplitude of oscillation in the draw-head and draft-iron both laterally and vertically.

It is also an object of the invention to provide a draft-rigging of great strength in pro-

portion to its weight, durable and efficient in service, and to simplify and improve as well as cheapen the construction.

The invention consists in the matters hereinafter described, and more fully pointed out and defined in the appended claims.

In the drawings, Figure 1 is a side elevation of a device embodying my invention, showing the same connected with the draw-head. Fig. 2 is a vertical central section of the same. Fig. 3 is a horizontal section taken just above the draft-iron. Fig. 4 is a transverse central section of the same.

As shown in said drawings, A indicates a casing circular in form and comprising the upper and lower circular plates a a' , provided with a central aperture to receive a king-bolt or the like and which are connected at diametrically opposite sides by the side walls or webs a^2 a'^2 . Each of said plates, as shown, is provided on the inner side with a central transversely-extended convex ridge a^3 , between which the middle portion of the draft-iron C fits and is capable of a considerable amplitude of vertical oscillation. On the upper side of the upper plate a' of said casing are the parallel upwardly-extending transverse flanges a^4 a'^4 , which are adapted to engage on each side of a transverse member B, such as a bolster or an end sill of the car-frame or other suitable support and to which said casing is rigidly secured by means of bolts b , which extend through said flanges and bolts b' , which extend downwardly through said transverse member or sill and the integral webs or side walls a^2 of the casing.

The draft-iron C, as shown in the drawings, comprises two substantially parallel rods or bars which extend through said casing, fitting closely between the convex ridges a^3 , and are flattened at their front ends and rigidly secured on each side of the web d of the T-rail D or other draft-bar by means of bolts d' , extending through said bars and said web. The tail of the draw-bar E is slotted longitudinally to engage on each side of the web of said T-rail, as shown in the drawings, and is secured thereto by bolts d^2 . The rear ends of said draft-iron C extend outwardly through and beyond the casing, and each of the bars com-

prising the same is threaded to receive nuts *c* at the end thereof.

A strong coiled spring *F* is secured on the rear end of said draft-iron and bears at its rear end on a washer *f*, through which said bars pass and which bears against the nuts *c*. At its front end said spring bears against a washer *f'*, similar to the washer *f*, but which bears against the rear curved side of the casing and is shaped on its face complementally with the curvature of said casing and is adapted to slide thereon. Each of said washers on its face adjacent said spring is provided with an inwardly-directed flange *f*² *f*³, which project into the ends of said spring and hold said spring in operative engagement on the washers. In a like manner a strong coiled spring *F'* is secured between the front side of said casing and the rear end of said T-rail and, as shown, bears against the washers *f*⁴ *f*⁵, similar to those already described, and in a like manner provided with inwardly-directed flanges *f*⁶ *f*⁷, which engage in the end of said spring to hold the same in operative alinement. The washer *f*⁴ is shaped complementally with the curvature of the front side of said casing and adapted to slide thereon, as shown in Fig. 3, so that in rounding a curve said draft-iron is free to swing in said casing, using the bolt *A'*, which passes through the central aperture in the casing, as a pivot. Vertical oscillation is permitted, as before described, owing to the rounded conformation of the ridges *a*³ and the fact that said casing on the front and rear sides is provided with a comparatively large opening which permits considerable movement of the draft-iron vertically without contacting with the plates *a a'*. For the purpose of affording a perfect bearing for the washers *f' f*⁴ an integral peripheral flange is provided on each of said plates, of which that on the upper plate *a'* extends upwardly, while that on the lower plate extends downwardly. Said flanges, together with the edges of said plates, afford a comparatively broad bearing for said washers *f' f*⁴ when actuated vertically by the oscillation of the draw-bar.

The operation is as follows: The draft-rigging constructed as described may of course be used in conjunction with any draw-head and on any type of car. The casing *A*, which is unitary in character, can of course be secured at the bolster, with the king-pin passing therethrough, provided such attachment does not interfere with the motor. When a motor is used in advance of the bolster, a transverse member *B*, which may be an end sill or any other suitable support, affords attachment for said casing and may be positioned far enough in advance of the motor to prevent contact therewith under any possible conditions. The construction of said casing lends itself readily to such attachment, the bolts *b b'* acting to rigidly hold the same in place, while the king-

bolt or bolt *A'* affords a central pivot for the draft-iron. Said draft-iron need not be made of two bars, but, if preferred, may be cast or forged to a desired shape to afford an aperture for the king-bolt and to receive at its opposite ends the end of the rail or bar *D* and the spring *F* and washer *f*.

When cars coupled with the draft-rigging embodying my invention are rounding a curve, said draft-iron swings around said king pin or bolt as a pivot and on said convex ridges *a*³ through a wide angle, while permitting the ends of the draft-iron and the draw-head to swing vertically through a considerable arc, though the draft-iron at all times fits closely between the ridges *a*³ in the casing. Thus while the rear end of the draw-bar is supported in said casing and the draw-head and the front end of the rigging are supported in the usual manner on the carrying-iron of the usual construction a degree of flexibility is attained never before possible.

Obviously many details of construction may be varied without departing from the principles of this invention.

I claim as my invention—

1. In a draft-rigging a unitary pivot-casing comprising horizontal upper and lower plates circular in form and integrally connected by relatively short side members, means for rigidly securing the same to the car and a central transverse, convex ridge on the inner side of each of said plates adapted to engage between the same a draft-iron or the like.

2. As an article of manufacture a circular pivot-casing comprising upper and lower circular plates, short side walls connecting the same, said plates being crowning centrally on the inner side to afford a pivot-bearing for a draft-iron extended therethrough.

3. A casing for the purpose specified comprising an upper and lower circular plate having a central aperture to receive a king-bolt, short integral walls connecting the same, a peripheral outwardly and vertically directed flange on each of the said plates affording a broad bearing at the edge of each of the same, a convex ridge on the inner side of each of said plates at the middle portion thereof adapted to receive a draft-iron between the same, the king-bolt affording a pivot-bearing therefor and means on one of said plates adapted to afford rigid connection with a part of the car-frame.

4. An article of manufacture comprising a circular unitary casing of cast metal having an opening extending therethrough and widely extended laterally at the front and rear of the casing, transverse rounded bearing-ridges in the top and bottom of the casing affording a pivot-bearing for a draft-iron or the like, and short side walls connecting the top and bottom of said casing.

5. A circular casing comprising an upper and a lower plate each provided centrally on

the inner side with a transverse rounded ridge disposed oppositely of each other and apertured centrally to receive a pivot-bolt, parallel flanges on the upper of said plates adapted to engage on opposite sides of a sill or the like, a draft-iron extending through said casing and fitting closely between said oppositely-disposed ridges, a spring on said draft-iron on each side of said casing having positive bearing at one end of said draft-iron and an antifriction-washer on said draft-iron at the front and at the rear of said casing and curved to conform with the face thereof and against which the other ends of said springs bear and a flange on each washer which engages in said end of said spring.

6. The combination with a unitary circular casing provided with a wide laterally-extended opening on the front and rear thereof and having flanges on the top of the same for engagement with a part of the car-frame, of a transversely-extended rounded ridge in the top and the bottom of the casing at the middle thereof, a draft-iron extending through the casing and connected at its front ends with a draw-head, an adjustable stop at the rear end of said draft-iron, a spring on each end of said draft-iron, an antifriction-washer on each side of said casing curved to fit thereto and bearing thereagainst and against which said springs press and relatively broad flanges extending upwardly and downwardly on the top and bottom of the casing at the front and rear edges and affording a broad seat for said washers and upon which the same slide vertically and laterally.

7. In a device of the class described the

combination with centrally-apertured upper and lower plates, of means passing there-through and adapted to rigidly engage said plates to a car-frame, a convex bearing-surface on the inner side of each plate and a draft-iron engaged between said bearing-surfaces and adapted for simultaneous vertical and lateral oscillation.

8. In a draft-rigging an upper and lower rounded plate, means for securing said plates to a car-frame, oppositely-disposed raised bearing-surfaces on the inner surface of each plate, a draft-iron engaged between said bearing-surfaces, a broad peripheral curved flange on the edges of said plates and automatically-adjustable means carried on the draft-iron and engaging on said flanges and adapted to hold the draft-iron between said plates.

9. In a draft-rigging a plurality of apertured circular plates each having a central raised bearing-surface on the inner face thereof, means for securing said plates to the car-frame, a draft-iron pivotally engaged between said bearing-surfaces and adapted for both independent and simultaneous lateral and vertical oscillation, concave washers on said draft-iron at diametrically opposite edges of said plate and springs bearing against a rigid part on the draft-iron and acting to hold said washers in positive bearing against said plates.

In testimony whereof I have hereunto subscribed my name in the presence of two subscribing witnesses.

WILLIAM T. VAN DORN.

Witnesses:

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