

H. F. POPE.
RADIAL DRAFT GEAR.

APPLICATION FILED MAR. 9, 1909.

Patented Dec. 6, 1910.

3 SHEETS-SHEET 1.

977,473.

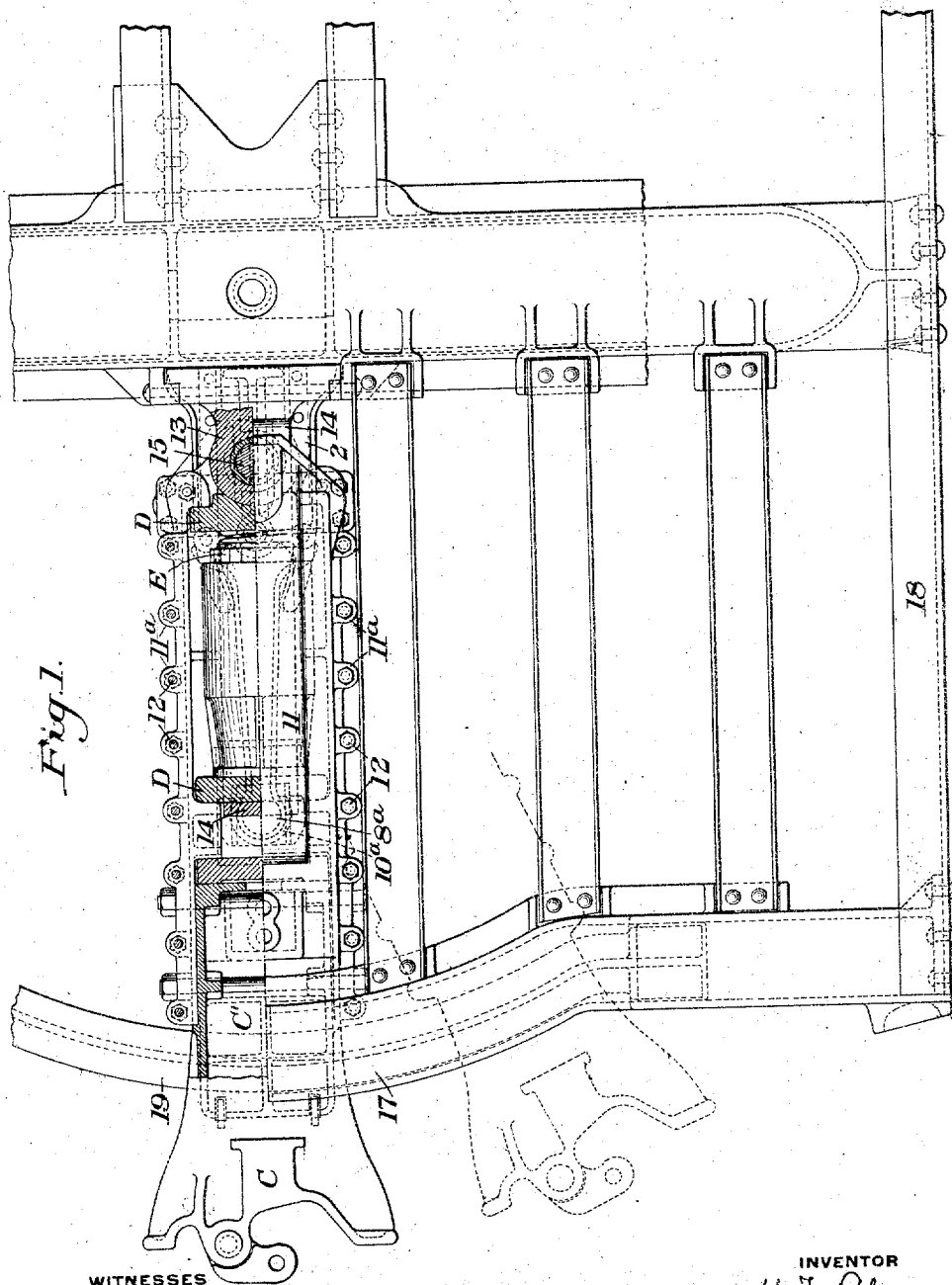


Fig. 1.

WITNESSES

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3 SHEETS—SHEET 2.

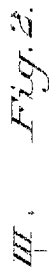
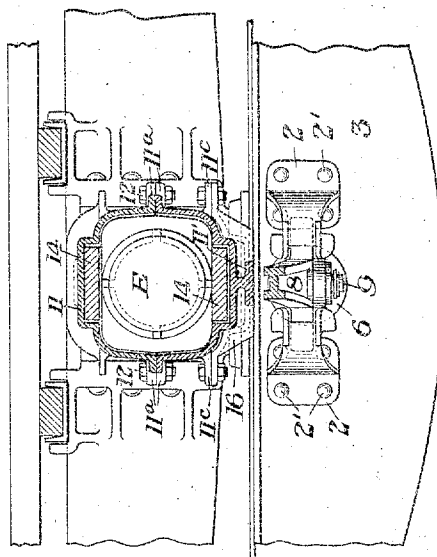


Fig. 3.



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UNITED STATES PATENT OFFICE.

HENRY F. POPE, OF CLEVELAND, OHIO, ASSIGNOR TO THE NATIONAL MALLEABLE CASTINGS COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

RADIAL-DRAFT GEAR.

977,473.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, HENRY F. POPE, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new and useful Improvement in Radial-Draft Gears, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

10 Figure 1 is a plan view of a radial draft gear constructed in accordance with my invention; Fig. 2 is a vertical longitudinal section; Fig. 3 is a vertical cross section on the line III—III of Fig. 2; Fig. 4 is an enlarged sectional view similar to Fig. 2; and 15 Fig. 5 is a detail front view of the pivot pin support.

One purpose of my invention is to provide means for the insertion of the pivot pin 20 connecting the draft gear to the car from below. As radial draft gears are now constructed, the pivot pin is removed through an opening through the floor of the car.

Another purpose of my invention is to 25 construct the end sill in such a manner that the central portion thereof is radial substantially on the arc of motion of the coupler head.

Referring to the drawings, 2 represents a 30 bracket for the truck connection, which bracket is riveted or otherwise secured at 2' to the face of the truck bolster 3, and projects forwardly beneath the rear end of the radial draft gear, as shown in Fig. 2. A 35 spring is set upon a plunger 5, the rear head 5' of which forms a spring seat. The spring and plunger are placed telescopically within the bracket 2 through its open end, as shown in Fig. 2, and in assembling the parts a 40 temporary shim is placed between the rear head of the plunger and the face of the bolster. An annular face plate or head 6 is then passed over the front end of the plunger 5, and is secured to the front end of the 45 bracket 2 by bolts 7, and when these bolts are tightened, thus drawing the head 6 into place, an inward compression is put upon the spring 4. When the parts have thus 50 been assembled, an arm 8 which forms the guiding arm for the radial draft gear, is pivoted to the front end of the plunger 5 by means of a pin 9.

The forward end of the guiding arm 8 has the form of a flattened ball 8^a, the top 55 and bottom surfaces being flattened and the

lateral curved portion fitting within the correspondingly curved surfaces 10^a in a bracket 10. This bracket is preferably made of two sections riveted together, and at its upper portion there is a recessed 60 socket 10^a, adapted to engage and slide upon a T-shaped guideway or extension 11^a at the bottom of the frame 11 of the draft gear.

The bracket 2 has a vertical hole 2^a (Fig. 2) through which the pivot pin 15 of the 65 draft gear can be removed downwardly whenever it is necessary to do so. In order to remove the pivot pin, it is, of course, necessary first to withdraw the spring 4 and plunger 5 from the bracket.

The draft gear shown in Figs. 1, 2 and 3 70 has a frame 11 made in two parts longitudinally divided and bolted together at the sides by means of vertical bolts 12, extending through lateral flanges 11^a (Fig. 3).

I derive an advantage from constructing 75 the draft gear frame in two horizontally divided parts, since in this way I am enabled to better distribute the strains of buffing and draft to all parts of the frame. The 80 lugs against which the followers of the draft rigging bear are formed on the sides of the frame and are thus partly on the top member and partly on the bottom member and the strains therefrom are therefore evenly 85 distributed.

The coupler C is rigidly affixed within a socket at the forward end of the frame and the center line of the coupler shank C' is 90 coincident with the center line of the frame 11 of the draft rigging which is contained within the frame and with followers D and the spring mechanism or friction mechanism E. It is also coincident with the center line 95 of the lug 13, to which the draft gear is pivotally connected by means of the pin 15. By placing these parts symmetrically in alinement, a better action is secured than where the coupler is offset from a direct line 100 with the draft rigging, and all tendency to bend the parts of the draft gear under severe buffing strains is avoided.

14 is the U-shape yoke of the draft rigging which is set within the frame, the closed 105 portion of the U-shape yoke extending around the forward follower D. Heretofore, the yoke has been reinforced at its rear end by having an upwardly extending rib at the top and a downwardly extending 110 rib at the bottom, but in my present inven-

tion I construct the yoke at the top and bottom with inwardly projecting ribs 14'. This enables me to extend the top and bottom walls of the frame 11 in a substantially straight line rearwardly over the pivot pin 15, and to secure greater strength at the rear end of the frame and to form abutments for the ends of the yoke on the frame, which prevents the ends of the yoke from being spread vertically under pulling strains.

The pivot pin 15 is inserted through the ends of the yoke and through the lug 13 from below, and as above stated, can be removed downwardly through the hole 2'. This is important because when the pivot pin is inserted from above in cars having flooring directly above the pivot pin, it is necessary to insert the pin and remove it through the floor, which is objectionable. By inserting it from below, no hole need be provided in the upper wall of the frame 11, and it is only necessary to slot the bottom wall of the frame at 11' sufficiently to inclose the small diameter of the pin and to permit the frame to slide longitudinally over the pin during buffing and draft. The head 15' of the pivot pin is below the bottom wall of the frame, and in order to support the pin and to tie together the parts of the bottom of the frame in order to compensate for the slot 11', I provide a support 16, which is bolted to the strengthening ribs 11' of the frame. The frame thus has a substantial bearing on the top of the lug 13 and it is not necessary to provide a rear carry-iron for it.

17 is the end sill of the car frame, which is preferably made of a steel casting, the side portions being extended at right angles to the longitudinal side sills 18 of the car and the central portion being curved on the arc of motion of the coupler, so as to maintain approximately the same distance between the horn of the coupler and the front face of the sill in any position of the coupler. Heretofore, segmental buffing plates have been applied to the front face of a straight sill for this purpose but the present construction accomplishes the result better by shaping the sills themselves in the manner above described.

19 is the carry-iron riveted to the bottom of the end sills and supporting the coupler shank.

The operation of the truck connection above described is as follows: The draft gear being free to move laterally on the pivot pin 15, the guiding arm 8, by reason of its sliding engagement with the coupler through the bracket 10, will guide the coupler substantially to the center of the railway track, whether the car is standing upon a straight portion or a curved portion of the track, for the arm 8 will be maintained at right angles to the truck bolster and the spring 4

will offer sufficient resistance to move the coupler laterally without further compression. The relative distances between the bracket 10, the pivotal point 15, of the draft gear, and the head C of the coupler are such that the coupler head will be guided as described substantially to the center of the track.

The advantages of my invention will be appreciated by those skilled in the art. It simplifies the construction of the radial draft gear and its parts and renders it more efficient in operation and both of these advantages are of great importance in a device of this kind which is subjected to rough usage and must be simple and comparatively cheap in order to be practically efficient. Another advantage of my invention results from the provision of means for the insertion of the pivot pin from below, thus avoiding the necessity of an orifice through the floor of the car, and thereby providing means for the renewal of a defective pin of a loaded car, without disturbing its contents.

Within the scope of my invention as defined in the claims, modifications may be made in the construction and arrangement of the parts, since

What I claim as new is:

1. A draft gear having a radially swinging draft member, a pivot pin connecting it to the car and insertible vertically from below, and a support below the pivot pin for holding it in place.
2. A draft gear having a radially swinging draft member, a draft rigging, a yoke, a pivot pin connecting the yoke to the car and insertible vertically from below, and a support on the draft member extending under the lower end of the pin.
3. A draft gear having a frame, a draft rigging having a yoke pivotally connected to the car and contained within the frame, said yoke having substantially flush outer surfaces and inwardly projecting reinforcing portions and a pivot pin extending through the reinforcing portions.
4. A draft gear having a coupler frame, a draft rigging, and a pivoted yoke within the same, said frame having top and bottom walls extending to a point back of the pivot in substantially straight lines.
5. A draft gear having a coupler frame, a draft rigging, a pivoted yoke within the same and a pivot pin for the yoke insertible vertically from below, said frame having top and bottom walls, the top wall extending to a point back of the pivot pin and over the top of the pivot pin and confining the yoke.
6. A draft gear having a coupler frame, a draft rigging, a pivoted yoke within the same, and a pivot pin for the yoke insertible vertically from below, said frame having top and bottom walls, the top wall extending

to a point back of the pivot pin and over the top of the pivot pin and confining the yoke, and the bottom wall of the frame extending beneath the yoke and having an elongated opening inclosing a portion of the pin and allowing a longitudinal movement of the frame.

7. A draft gear having a coupler frame, a draft rigging, a pivoted yoke within the same, said frame having top and bottom walls extending to a point back of the pivot in substantially straight lines, and a pivot pin for the yoke insertible from below

through the yoke and through a slotted portion of the coupler frame.

8. A draft gear having a coupler frame, a draft rigging, and a pivoted yoke within the frame, said frame being in close proximity to the yoke at its pivotal point to restrain the yoke from outward bending.

In testimony whereof, I have hereunto set my hand.

HENRY F. POPE.

Witnesses:

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HARRY E. ORR.