E. G. DEAN.

LOCOMOTIVE AND TENDER CONNECTION.

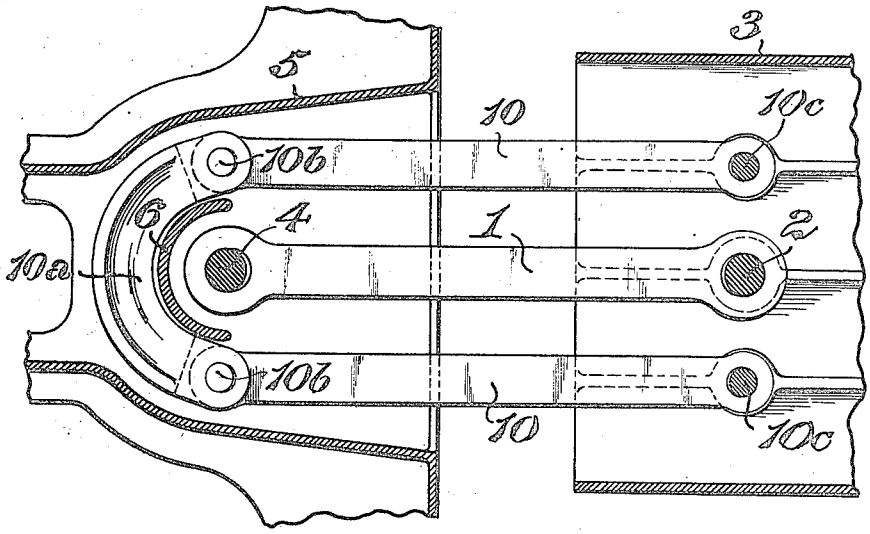
APPLICATION FILED APR. 20, 1918.

1,323,679.

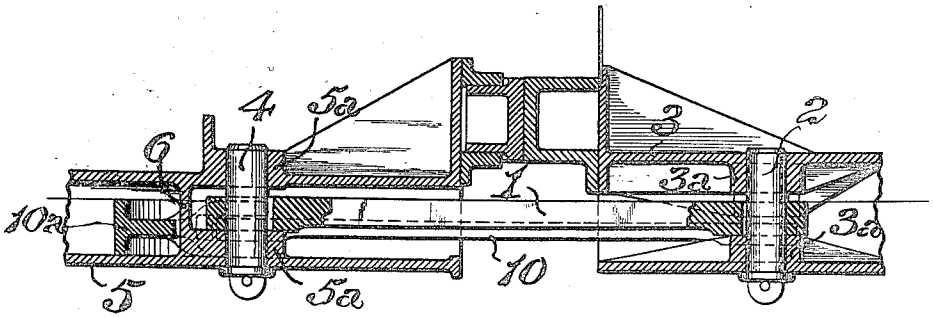
Patented Dec. 2, 1919.

2 SHEETS—SHEET 1.

-FIG. 2-



-FIG. 1-



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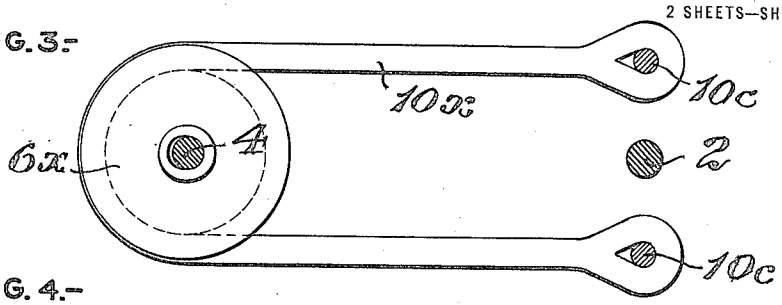
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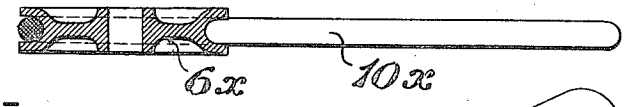
1,323,679. Patented Dec. 2, 1919.

2 SHEETS—SHEET 2.

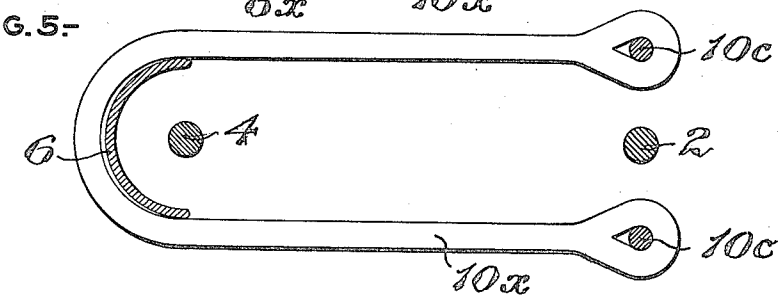
-FIG. 3.-



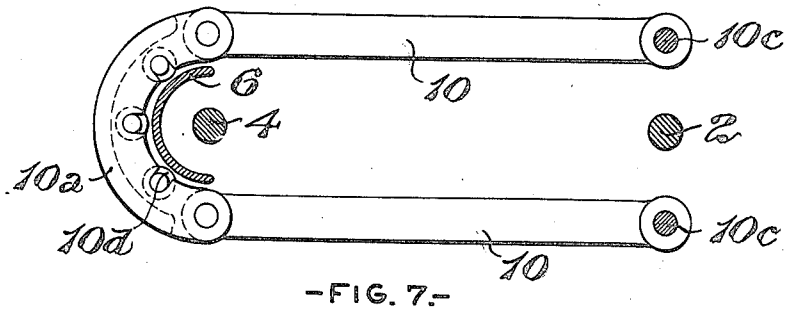
-FIG. 4.-



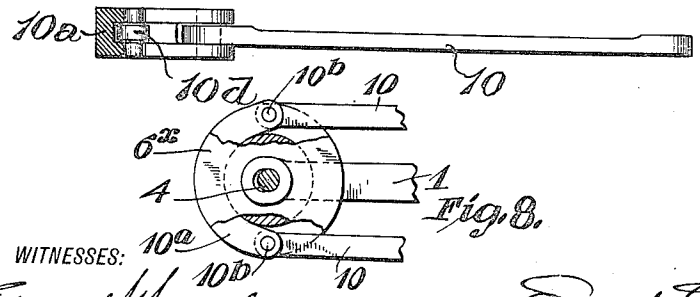
-FIG. 5.-



-FIG. 6.-



-FIG. 7.-



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UNITED STATES PATENT OFFICE.

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LOCOMOTIVE AND TENDER CONNECTION.

1,323,679. Specification of Letters Patent. Patented Dec. 2, 1919.

Application filed April 20, 1918. Serial No. 229,730.

To all whom it may concern:

Be it known that I, ERNEST G. DEAN, a citizen of the United States, residing at Schenectady, in the county of Schenectady and State of New York, have invented a certain new and useful Improvement in Locomotive and Tender Connections, of which improvement the following is a specification.

My invention relates to means for detachably connecting a locomotive engine and tender, of the general class or type in which a draft connection supplemental to the main draw bar, is applied to prevent the separation of the two vehicles, in the event of the breakage of the latter, instances of which are exemplified in the United States patents of H. A. Hoke, No. 1,216,692, February 20, 1917, and C. L. Heisler, No. 1,257,859, February 26, 1918. The object of my invention is to provide a connecting appliance of such character, which shall be of ready and inexpensive application in standard constructions of the vehicles to be connected, reliable in operation; and in which the degree of slack requisite in the supplemental safety connection shall be reduced to the minimum, and shall be substantially the same whether the vehicles are passing curves or tangents of the track.

The improvement claimed is hereinafter fully set forth.

In the accompanying drawings: Figure 1 is a vertical longitudinal central section through an appliance embodying my invention, and through the adjoining portions of a locomotive and tender on which it is fixed; Fig. 2, a horizontal section through the same; Figs. 3, 5, 6, and 8, diagrammatic plan views, partly in section, illustrating structural modifications; Fig. 4, a longitudinal central section through the construction shown in Fig. 3, and, Fig. 7, a similar section through the construction shown in Fig. 6.

In the practice of my invention, referring descriptively to the specific embodiment thereof which is herein exemplified, a locomotive and tender are, as heretofore, connected by a main draw bar, 1, which is coupled to the locomotive by a pin, 2, passing through eyes or sockets, 3^a, on the foot plate, 3, and, to the tender, by a pin, 4, passing through eyes or sockets, 5^a, on the draw bar pin casting, 5.

The locomotive and tender are also connected by an auxiliary or safety connection, of chain or flexible type, which, in the form shown in Figs. 1 and 2, comprises two straight bar links, 10, 10, of equal length, extending longitudinally on opposite sides of the main draw bar, 1, and preferably, as shown, disposed parallel therewith and nearly in the same horizontal plane, and an intermediate segmental link, 10^a, to which the rear ends of the links, 10, 10, are articulated by pins, 10^b, 10^b. The forward ends of the links, 10, 10, are coupled to pins, 10^c, 10^c, on the foot plate of the locomotive, which are preferably, as shown, of the same diameter as the pins, 10^b, so that the links, 10, 10, shall be interchangeable, end for end, and the segmental intermediate link, 10^a, passes around a segmental bearing, 6, formed on or firmly secured to, the draw bar pin casting, 5, of the tender. In the normal operation of the appliance, the auxiliary connection is not subjected to any strain of draft, it being exempted therefrom by making the links, 10, 10, of such length that a slight space, providing for slack or lost motion, is present between the bearing, 6, and the link, 10^a. In the event of the breakage of the main draw bar, the strain of draft is immediately taken by the auxiliary or safety connection, and the separation of the locomotive and tender is thereby prevented.

It will be seen that under the above described construction, the longitudinally extending links of the auxiliary or safety connection will remain substantially parallel with the main draw bar, when passing around curves, and the slack required for the auxiliary connection will therefore be reducible to the minimum, and will remain substantially constant on both curves and tangents.

Figs. 3 to 5 inclusive illustrate a structural modification, in which the auxiliary or safety connection is in the form of a flexible cable, 10^x, which, operatively, constitutes the mechanical equivalent of the articulated chain, 10, 10^a, 10, first described. The forward ends of the cable, 10^x, are looped around the pins, 10^c, on the locomotive, and, as shown in Fig. 5, the rear loop or bight of the cable passes around the segmental bearing, 6, on the tender, space for slack or lost motion being allowed, as in the former instance. In the further structural modification shown in Figs. 3 and 4, the tender bearing for the auxiliary or safety connection is

in the form of a sheave, 6^x, around which the bight of the cable passes, and which is fitted, with proper allowance for lost motion, on the tender draw pin, 4.

Figs. 6 and 7 illustrate roller bearings, 10^d, fitted in the segmental link, 10^a, of Figs. 1 and 2, and abutting on the bearing, 6, when the connection is rendered operative by the breakage of the main draw bar, and Fig. 8 shows the segmental link 10^a, extending around a sheave, 6^x, fitted on the tender draw bar pin, 4, as in Figs. 3 and 4.

It will be obvious that, if desired, the bearing, 6, and the pins, 10^c, of the connection, may be transposed in location, *i. e.* the former may be on the locomotive and the latter on the tender.

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

1. In a locomotive and tender connection, the combination of a main draw bar, pivoted at one end to a locomotive and at the other to a tender; and a flexible auxiliary or safety connection, coupled, at two points, to the locomotive and adapted to abut, with the capacity of slack or lost motion, on a single bearing on the tender, the main draw bar and the safety connection lying in substantially the same horizontal plane.

2. In a locomotive and tender connection, the combination of a main draw bar, pivoted at one end to a locomotive and at the other to a tender; a flexible auxiliary or safety connection, having its ends coupled to the locomotive; and a bearing on the tender, around which said connection is looped with the capacity of slack or lost motion, relatively to the tender, the main draw bar and the flexible auxiliary connection lying in substantially the same horizontal plane.

3. In a locomotive and tender connection, the combination of a main draw bar, pivoted at one end to a locomotive and at the other to a tender; an articulated flexible auxiliary or safety connection comprising two substantially parallel side members and an intermediate segmental member having its ends coupled to the locomotive; and a bearing on the tender, around which said connection is looped with the capacity of slack or lost motion, relatively to the tender.

4. In a locomotive and tender connection, the combination of a main draw bar, pivoted at one end to a locomotive and at the other to a tender; an auxiliary or safety connection comprising two longitudinally extending substantially parallel links, each pivoted to the locomotive, and an intermediate segmental link, articulated to said longitudinally extending links; and a curved bearing on the tender, around which said segmental link is fitted, with the capacity of slack or lost motion, relatively to the tender.

5. In a locomotive and tender connection, the combination with a main draw bar pivoted at one end to the locomotive and at its other end to the tender, of a supplemental draw bar or safety connection consisting of a pair of links pivoted to the locomotive, and a curved link movable in a path substantially concentric with the pivot of the main draw bar, said pair of links having pivotal connection with the curved link and said curved link having a lost motion connection with the tender.

6. In a locomotive and tender connection, the combination with a main draw bar, pivoted to the locomotive and tender, of a supplemental draw bar or safety connection comprising a pair of rigid links pivoted to the locomotive and a rigid curved link, to the ends of which the afore-mentioned links are pivoted, and a long curved bearing for said curved link on the tender, there being a lost motion connection between said curved link and bearing.

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