

May 7, 1935.

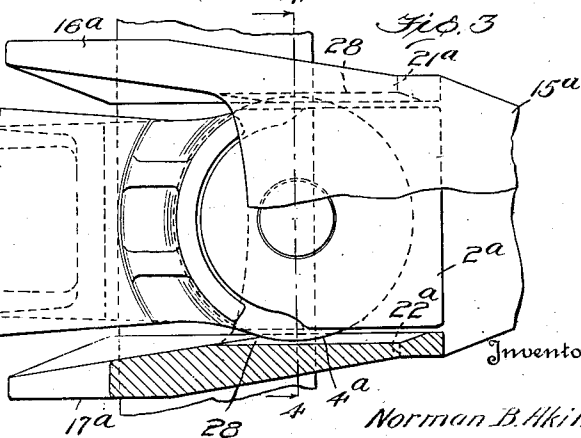
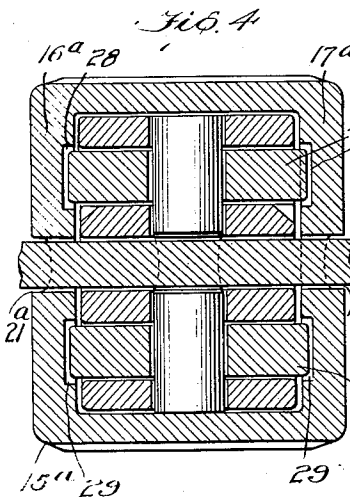
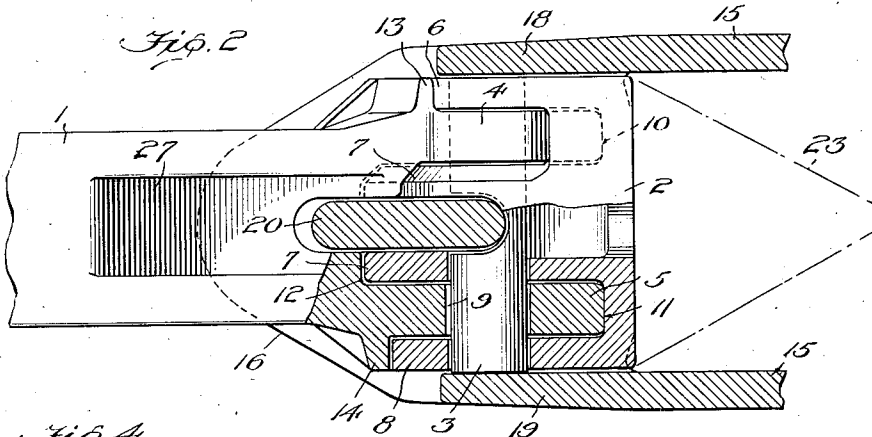
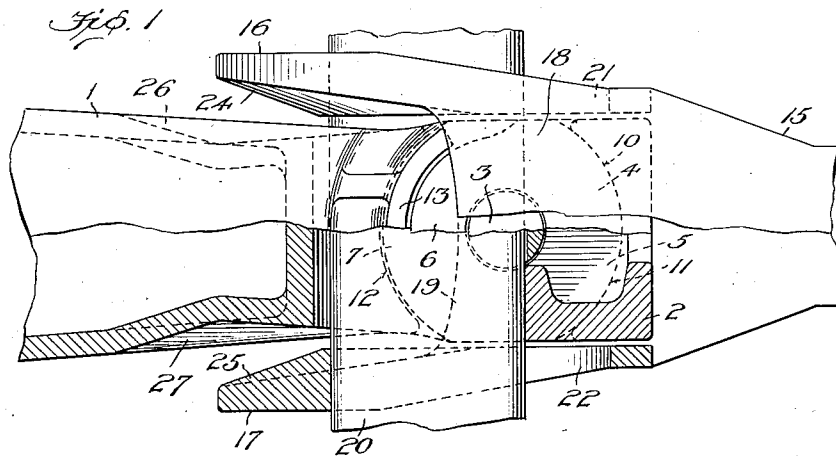
N. B. AKITT

2,000,682

DRAFT RIGGING

Filed Dec. 31, 1923

2 Sheets-Sheet 1



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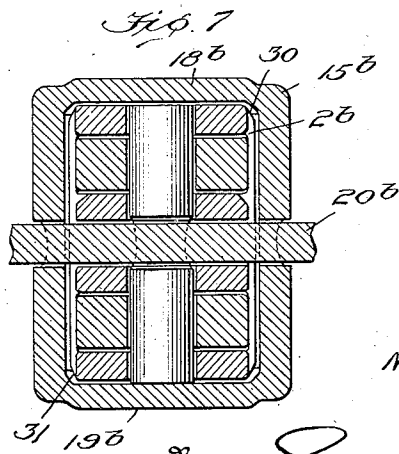
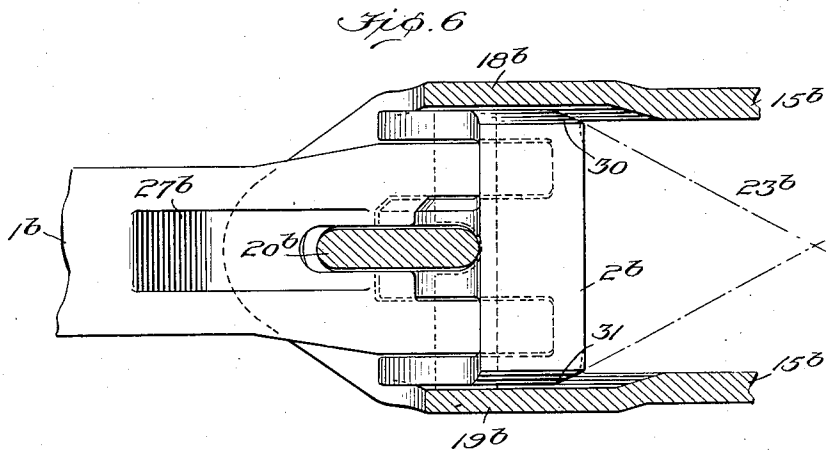
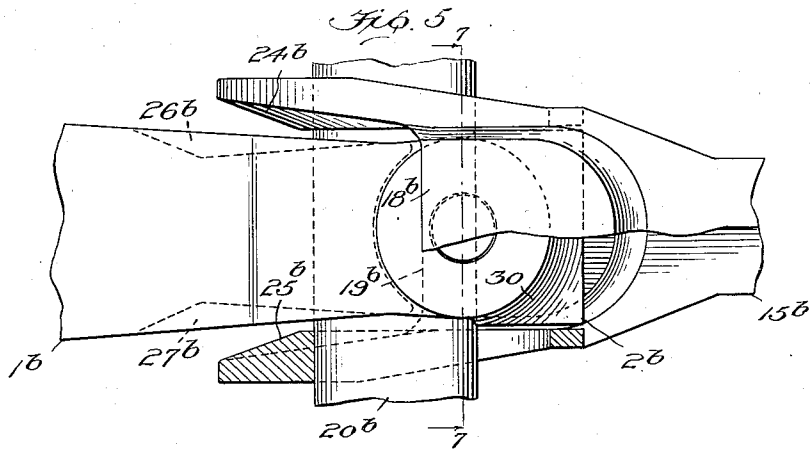
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DRAFT RIGGING

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2 Sheets-Sheet 2



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# UNITED STATES PATENT OFFICE

2,000,682

## DRAFT RIGGING

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Application December 31, 1928, Serial No. 329,503

6 Claims. (Cl. 213-69)

This invention relates to draft rigging for railway rolling stock and more particularly to the connection between the coupler and associated yoke.

5 The principal object of my invention, generally considered, is the provision of a yoke, preferably of the vertical type, with a hooded front end and a coupler, preferably of the swivel butt type, connected to the yoke by means of a horizontal key extending through registering slots in the 10 butt of the coupler and the side walls of the yoke, the upper and lower arms of the yoke extending close to the upper and lower ends of the pivotal means connecting the swivel block of the coupler to the shank thereof so that said pivotal means is normally maintained in position without additional connecting devices, the walls in the yoke 15 around the slots therein being strengthened by inwardly extending reinforcements and the side walls of the coupler stem being channeled to provide clearance for said reinforcements upon angling therebetween, the side walls of the yoke, if necessary, being channeled for receiving the coupler shank loops.

25 Another object of my invention is to provide a swivel butt coupler connected to the hooded front end of an associated yoke by a horizontal key, the side walls of said hooded end being strengthened by inwardly extending reinforcements around the key slots and the sides of the 30 coupler shank being formed with corresponding channels to clear said reinforcements upon angling of the coupler.

35 A further object of my invention is to provide a swivel butt coupler and yoke connection in which the arms or top and bottom walls of the front end of the yoke snugly embrace the butt of the coupler to retain the pivotal means in place without the necessity of auxiliary devices.

40 A still further object of my invention is to provide a swivel butt coupler and yoke assembly in which the coupler shank is formed with rearwardly extending loops intercalated with corresponding loops on a swivel block and pivotally 45 connected thereto, said coupler loops being extended to a greater width than the normal distance between the side walls of the yoke for increasing the strength thereof, said side walls being channeled to clear the side edges of said 50 loops.

Other objects and advantages of the invention relating to the particular arrangement and construction of the various parts will become apparent as the description proceeds.

55 Referring to the drawings illustrating my in-

vention, the scope whereof is defined by the appended claims.

Figure 1 is a fragmentary plan of a hooded vertical yoke and associated swivel butt coupler connected thereto by a horizontal key, shown 5 partly in horizontal section and embodying my invention.

Figure 2 is a partial side elevation and partial central longitudinal section of the coupler, yoke and associated parts illustrated in Figure 1. 10

Figure 3 is a fragmentary plan and horizontal sectional view corresponding to Figure 1 but showing a modification.

Figure 4 is a transverse sectional view on the line 4-4 of Figure 3 looking in the direction of the 15 arrows.

Figures 5 and 6 are views corresponding respectively to Figures 1 and 2 but showing another modification.

Figure 7 is a transverse sectional view on the 20 line 7-7 of Figure 5 looking in the direction of the arrows.

Referring to the drawings in detail, like parts being designated by like reference characters, and first considering the embodiment illustrated 25 in Figures 1 and 2, there is shown the stem or shank 1 of a swivel butt coupler pivotally connected to a swivel block or articulated portion 2 thereof by means of a pivot pin 3 extending through the shank loops or rearwardly extending 30 flanges or webs 4 and 5 on the coupler and intercalated flanges or webs 6, 7 and 8 on the swivel block. As is usual in swivel butt couplers of the type illustrated, the shank loops 4 and 5 have their rear edges formed cylindrical and coaxial 35 with the apertures 9 therein for receiving the associated pivot pin 3, which edges engage correspondingly curved pocketed portions 10 and 11 on the swivel block for transmitting buffing forces thereto while permitting the desired angling 40 therebetween. The corresponding edges of the flanges 6, 7 and 8 may be curved coaxial with the corresponding pin receiving apertures and fit into a correspondingly curved pocket 12 and closely approach correspondingly curved shoulders or 45 flanges 13 and 14 on the shank of the coupler, a slight clearance, however, being desirably provided as illustrated so that the bearing for the transmission of buffing forces is between the curved edges of the shank loops and the curved 50 walls of the pockets receiving said loops.

Associated with the coupler 1 is a yoke 15, the front end of which is hooded so that there are provided side walls 16 and 17, a top wall 18, and a bottom wall 19. In the present embodiment, 55

the walls 18 and 19 are merely extensions of the top and bottom arms of the yoke which is illustrated as of the vertical type. It will be understood, however, that I do not wish to be limited to this showing, as if desired, a yoke of the horizontal type may be employed. The butt of the coupler 1 preferably fits snugly between the walls 18 and 19 of the yoke, so that when assembled therewith, said walls serve to retain the pivot pin 3 against withdrawal in either an upward or downward direction, even if it broke at the notched central portion thereof. Said pivot pin is desirably intersected or partially cut in half by the associated connecting key 20, the clearance provided in the notched portion of the pin being such that said key does not normally engage the pin, thereby avoiding undesired wear. The key extends through registering slots 21 and 22 in the side walls or loops 16 and 17 of the yoke and corresponding slots in the shank of the coupler and the associated swivel block for operatively connecting said coupler and yoke while permitting rearward movement of the coupler with respect to the yoke upon the application of buffing forces to transmit such forces to compress associated cushioning mechanism indicated diagrammatically at 23 by dot and dash lines.

The side loops or walls 16 and 17 of the yoke 15 are desirably strengthened around the slots 21 and 22 by inwardly extending reinforcements 24 and 25, tapering to a maximum adjacent the front ends of said slots, for increasing the strength of connection between said coupler and yoke. It will be clear that these reinforcements limit the permissible angling of a coupler shank of normal construction with respect to said yoke and therefore the coupler shank illustrated is, in accordance with my invention, formed with channels 26 and 27 of a size and shape corresponding with the reinforcements 24 and 25, and with their midportions preferably forwardly offset with respect to the front edge of the coupler slot a distance equivalent to a normal rearward movement of the coupler on buff, whereby they are disposed mainly in the widened portion of the stem, which, as shown most clearly in Fig. 1, has side walls converging inwardly to the key slot therein, thereby permitting an equivalent extra amount of angling of the coupler stem, particularly when the cushioning mechanism 23 is under compression and the stem of the coupler is moved further inward between the arms of the yoke than as illustrated in the drawings, as it will be understood that a greater amount of angling is apt to occur on buff than on draft, due to the tendency of the coupler-yoke connection to buckle on buff.

In the present embodiment, the shank loops 4 and 5 are flattened at their edges so as to fit between the walls 16 and 17 of the yoke. This of course slightly decreases the strength of said shank loops and in order to maintain the strength and avoid flattening the loops to any extent, I show in Figures 3 and 4, another embodiment of my invention in which the shank loops 4<sup>a</sup> and 5<sup>a</sup> have a transverse diameter corresponding with the radius of the curved edges 10 and 11, so that the width thereof is greater than the normal distance between the side walls 16<sup>a</sup> and 17<sup>a</sup> of the yoke 15<sup>a</sup>. In order to permit insertion of the coupler stem 1<sup>a</sup> and swivel block 2<sup>a</sup>, the swivel block may be formed to correspond with the swivel block 2 of the first embodiment, and the side walls 16<sup>a</sup> and 17<sup>a</sup> of the yoke 15<sup>a</sup> are preferably channeled or grooved as indicated at 28 and 29 to provide clearance for said unflattened side

loops, thereby maintaining the strength thereof. Inasmuch as the side walls of the yoke 15<sup>a</sup> are considerably stronger than the coupler shank loops, the slight channeling therein does not affect the strength of the combination. The channels or grooves 28 and 29 above and below the key slots 21<sup>a</sup> and 22<sup>a</sup> are extended rearwardly or inwardly a sufficient distance to permit the normal rearward or inward movement of the coupler 1<sup>a</sup> upon the application of buffing forces. Except as specifically described and illustrated, the construction of the present embodiment may correspond with that of the first embodiment.

Referring now to the embodiment of my invention illustrated in Figures 5, 6 and 7, a coupler yoke connection is shown involving a coupler stem or shank 1<sup>b</sup> and pivotally connected swivel block 2<sup>b</sup> associated with a vertical yoke 15<sup>b</sup> as in the previous embodiment. The construction of the present embodiment corresponds with that of the first embodiment illustrated in Figures 1 and 2 except that the coupler stem 1<sup>b</sup> is of normally smaller height or depth on account of the omission of the flanges or shoulders 13 and 14. The yoke 15<sup>b</sup>, of the vertical type like the yoke 15, is of normal height, while the swivel block 2<sup>b</sup> may be of greater height than that of the first embodiment. In order therefore to permit insertion of the swivel block 2<sup>b</sup> between the upper and lower walls or arms of the yoke, the forward portions 18<sup>b</sup> and 19<sup>b</sup> thereof are offset away from each other, that is, upwardly and downwardly respectively in order to accommodate the height of the swivel block. Said offset portions are continued rearwardly to an extent sufficient to permit a normal rearward movement of the swivel block 2<sup>b</sup> upon compression of the associated cushioning mechanism 23<sup>b</sup> where said walls are slightly inclined or gradually converge to the normal distance therebetween, as illustrated particularly in Figure 6. The upper and lower surfaces of the swivel block 2<sup>b</sup> are preferably beveled as indicated at 30 and 31 to correspond with the converging of the walls 16<sup>b</sup> and 19<sup>b</sup>. Except as specifically described in connection with the present embodiment, the same may correspond with that of the first embodiment, said coupler and yoke being operatively connected by a draft key 20<sup>b</sup>, and the side walls of the coupler stem being channeled as indicated at 26<sup>b</sup> and 27<sup>b</sup> to receive corresponding reinforcements 24<sup>b</sup> and 25<sup>b</sup> on the yoke.

Although I have illustrated and described certain preferred embodiments of my invention, it will be understood that I do not wish to be limited to an exact showing, as modifications may be made therein within the spirit and scope of my invention as defined by the appended claims.

Having now described my invention, I claim:

1. A yoke with a hooded front end, the side walls of which are channeled to individually receive edge portions of coupler shank loops extended to a width greater than that of the adjacent forward portion of the shank proper.

2. In a draft rigging, in combination, a yoke formed at its forward end with side walls, a coupler and pivotally connected swivel block received between the side walls of said yoke, said coupler having spaced rearwardly extending, normally horizontal, webs, the side edge portions of which are generally cylindrical, intercalated with forwardly extending webs on the swivel block and pivotally connected thereto, said coupler webs being wider than the adjacent forward portion of the coupler and the normal distance between the side

walls of the yoke, said side walls being correspondingly channeled for individually receiving the adjacent portions of said webs, and permitting the insertion thereof in place, and means connecting said coupler and yoke.

3. In railway draft rigging, in combination, a yoke comprising vertically spaced arms and provided with side walls at its forward end forming a hooded portion, a swivel butt coupler, comprising a coupler stem and an associated swivel block, received in said hooded portion, said coupler stem having rearwardly extending, generally horizontal, spaced flanges intercalated with corresponding forwardly extending flanges on said swivel block and pivotally connected thereto, said coupler flanges having generally cylindrical side portions extending outwardly beyond the portion of the stem forwardly thereof and the normal distance between the side walls of said hooded portion, said side walls being correspondingly channeled to provide for individually slidably receiving the side edge portions of said flanges, said coupler stem and the side walls of said yoke being slotted to receive a connecting draft key, the slots in said side walls being extended rearwardly of the normal position of said key to allow for rearward movement of said coupler with respect to said yoke, those portions of said side walls around the slots being provided with inwardly extending reinforcements, tapering to a maximum adjacent the front edges of said slots, the adjacent side portions of said coupler stem being correspondingly channeled to receive said reinforcements, said channeled portions being forwardly offset with respect to the yoke, when the coupler is disposed normally, so that the maximum channelling registers with the maximum reinforcement when the coupler is subjected to buffing forces, pushed rearwardly to the limit, and liable to maximum angling with respect to said yoke.

4. In a draft rigging, in combination, a yoke, and a coupler with a stem fitting between the arms of said yoke, said stem being connected to the yoke and formed with spaced rearwardly extending, normally horizontal, walls, the side edge portions of said walls being generally cylindrical and the width being greater than the adjacent forward portion of the coupler and the normal distance between the corresponding portions of the yoke, said yoke portions having corresponding

channels to individually receive the adjacent edge portions of said spaced walls.

5. In a draft rigging, in combination, a vertical yoke formed with side walls at its forward end, a swivel butt coupler received between said walls, said coupler comprising rearwardly extending, normally horizontal, spaced flanges intercalated with corresponding forwardly extending flanges on a swivel block and pin connected thereto, said coupler flanges having generally cylindrical side portions extending laterally beyond the adjacent forward portions of the coupler between the side walls of the yoke, said side walls having corresponding channels individually receiving and providing clearance for said flanges, and means connecting said coupler and yoke for the transmission of draft forces while permitting relative rearward movement of the coupler upon the application of buffing forces.

6. In railway draft rigging, in combination, a vertical yoke comprising upper and lower arms and side walls connecting the forward portions of said arms, a coupler with a stem fitting between said side walls and formed with longitudinal channels on opposite sides, an auxiliary portion, a pin pivotally connecting said stem and auxiliary portion, said stem, auxiliary portion and yoke side walls being slotted, and a horizontal key extending through the slots in said coupler stem, auxiliary member, and side walls, the inner faces of said yoke side walls being spaced to clear said auxiliary portion and the forward portions converging rearwardly to provide reinforcements of maximum strength adjacent the front ends of said slots, said coupler stem having side walls converging rearwardly to the key slot therein and the channels being tapered in depth to correspond with the yoke reinforcements and provide for nesting of said reinforcements therein, the point of maximum depth of said channels being offset forwardly from the normal position of the front ends of the yoke slots an amount corresponding approximately with the normal rearward movement of the coupler with respect to the yoke on buff, so that upon rearward movement of the coupler with respect to the yoke, as provided by the elongation of the slots, the yoke reinforcements are received in the channels in the coupler stem.

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