COUPLER AND YOKE CONNECTION

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This invention relates to improvements in coupler and yoke connections.

One object of the invention is to provide a simple and efficient connecting means between a coupler having a shouldered butt end and the yoke member of a railway draft rigging, providing for lateral swinging movement of the coupler with respect to the yoke.

A more specific object of the invention is to provide a yoke having a head at the front end, defined by top, bottom and side walls, adapted to receive the shouldered butt of the coupler shank therebetween, wherein means is provided for pivotally connecting the coupler shank to the yoke for lateral swinging movement, including retaining blocks having shouldered engagement with the coupler butt member and pins detachably connected to the blocks and having pivotal engagement with the bearing means on the top and bottom walls of the yoke.

Other and further objects of the invention will more clearly appear from the description and claims hereinafter following.

In the drawing, forming a part of this specification, Figure 1 is a horizontal, longitudinal, sectional view of a portion of the underframe structure of a railway car, at one end thereof, illustrating my improvements in connection therewith. Figure 2 is a longitudinal, vertical, sectional view, corresponding substantially to the line 2—2 of Figure 1. Figure 3 is a detailed, perspective view of one of the retaining blocks employed in connection with my improvements. And Figure 4 is a view similar to Figure 2, illustrating a different embodiment of the invention.

Referring first to the embodiment of the invention illustrated in Figures 1, 2 and 3, I provide, broadly, a yoke member A; a coupler B; a pair of retaining blocks C; and a pair of locking pins D.

The coupler member B, the inner end portion of which is illustrated in the drawings, includes the usual shank member 15, provided with a shouldered butt section 16. As shown, the butt section 16 is of greater height than the shank and has transversely disposed, vertical, top and bottom abutment shoulders 17—17 at the forward end thereof, the coupler shank forwardly of the shoulders 17 having the top and bottom sides thereof curved, as indicated at 18—18. The coupler member, as described, is of a well known form which is commonly employed in connection with railway draft riggins.

The yoke member A, the forward end portion of which only is illustrated in the drawings, comprises the usual top and bottom arms 19—19 connected by a rear vertical end section, not shown. The arms 19 are connected at their forward ends by vertical side walls 20—20. The forward end portions of the top and bottom members 19 of the yoke are thickened, as indicated at 21—21, and form the top and bottom walls of the head member of the yoke which is adapted to receive the inner end of the shank of the coupler B.

As most clearly illustrated in Figure 2, the shouldered butt member 16 of the coupler shank fits between the top and bottom walls 21 of the yoke and is permitted to have sliding movement inwardly with respect to the yoke. The top and bottom walls 21 of the yoke are provided with vertically aligned pin-receiving openings 22 which extend entirely through these walls. Forwardly of the pin-receiving openings 22, the top and bottom walls of the yoke are provided with interior bearing pockets 23—23 which communicate with and form continuations of the inner end sections of the openings 22. The bearing pockets 23 have the front walls thereof rounded so as to cooperate with the retaining pins D, hereinafter more fully described.

The retaining blocks C are of similar design and, as most clearly shown in Figures 2 and 3, each block is provided with flat side faces 24—24, a flat transverse inner end face 25.
25, and a rounded front face 26. The width of the block C is such as to fit between the side walls of the head portion of the yoke. Each block C is also provided with a vertically disposed pin-receiving opening 27.

When the parts are assembled, the shouldered portion 17 of the coupler butt is disposed some distance inwardly of the front end of the head of the yoke, and the retaining blocks C are disposed on opposite sides of the Shank of the coupler above and below the same in such a position that the pin-receiving openings thereof register with the bearing pockets 23 in the top and bottom walls of the yoke. The inner faces 28 of the bearing blocks C are curved so as to conform with the curved surfaces 18 of the coupler Shank adjacent the shoulders 17 of the butt section thereof, the blocks thus neatly fitting the coupler Shank.

The blocks C are anchored to the yoke by means of the pins D, which are seated in the openings 27 of the blocks and have their outer end portions protruding from the openings and seated in the bearing pockets 23. The pins D are of such a diameter to form bearing or trunnion members which cooperate with the curved front bearing surfaces of the pockets 23. As most clearly shown in Figure 2, the inner ends of the pins D present curved faces to conform with the curved surfaces 18 of the coupler Shank.

As will be evident, when the parts are assembled as illustrated in Figure 2, the pins D will limit the outward movement of the retaining blocks C and the blocks, in turn, will limit outward movement of the coupler B by engagement of the end abutment faces 25 of the blocks C with the shoulders 17 of the butt section 16 of the coupler B. The coupler Shank is thus connected to the yoke for swinging movement on the pins 23 and has movement inwardly of the yoke.

In connecting the yoke to the coupler butt, the inner end of the coupler Shank is inserted through the open front end portion of the head of the yoke and the retaining blocks C are placed in position above and below the Shank of the yoke immediately in front of the shoulders 17 of the butt section. The coupler Shank, with the blocks C thus assembled therewith, is moved inwardly of the yoke until the pin-receiving openings 27 of the blocks C are brought into alignment with the openings 22 in the top and bottom walls of the yoke. The retaining pins D are then inserted through the openings 22 into the openings 27 of the blocks C. When the pins are seated in the openings so that the inner ends of the same engage the coupler Shank, the outer ends of the pins will be so disposed that they may be entered within the bearing pockets 23 by pulling the coupler forwardly. When the outer ends of the pins are seated within the bearing pockets 23, the coupler is mounted for lateral swiveling movement with respect to the yoke, and the pins, by engagement with the front end walls of the pockets, positively limit the outward movement of the retaining blocks, which in turn, by engagement with the shoulders of the butt section of the coupler, limit the outward movement of the latter.

As shown, the coupler Shank is provided with the usual coupler key-receiving opening, but no use is made of the same, in that a coupler key is not made use of in my improved coupler and yoke connecting means.

When a draft or pulling action is applied to the coupler B, the force is transmitted through the shoulders 17 of the butt section of the coupler Shank to the retaining blocks C which are held from outward movement by the pins D. When a buffing force is applied to the coupler B, the same may move inwardly of the yoke and, in case the blocks C move therewith, movement of the pins D inwardly of the yoke is accommodated by the connecting sections of the pockets 23 and recesses 22.

Referring next to the embodiment of the invention illustrated in Figure 4, a coupler of the same type as illustrated in Figures 1, 2 and 3 is employed, the same being provided with vertical abutment shoulders 17 corresponding to the shoulders 17 hereinbefore described. The improved construction comprises a yoke E, retaining blocks F and pins G.

The general construction of the yoke is similar to that hereinbefore described, the top and bottom walls of the same being thickened at the forward end of the yoke, as indicated at 80. The retaining pins G are of the same design as the pins D, hereinbefore described, and the top and bottom walls of the yoke are provided with aligned openings 31 through which these pins may be inserted to assemble the yoke with the blocks F. The blocks F are provided with rearwardly extending arms 32—32 which overhang the shouldered butt section of the coupler Shank; otherwise, these blocks are of the same design as the blocks C, hereinbefore described, each block being provided with a pin-receiving opening 33 corresponding to the pin-receiving opening 27 of the block C hereinbefore described. The top and bottom walls of the yoke are also provided with interior pockets 34, which are similar to the pockets 23 described in connection with the embodiment of the invention illustrated in Figures 1, 2 and 3, and communicate with the openings 31.

In order to provide for rearward movement of the retaining blocks F, the top and bottom walls of the yoke member are recessed, as indicated at 35, to accommodate the rearwardly extending portions 32 of the blocks.

The parts are assembled in the same manner as described in connection with the embodiment of the invention illustrated in Figures 1, 2 and 3, and when the parts are disposed in the position illustrated in Figure 4, the outer ends of the pins G form trunnion holes 35.
members which cooperate with the bearing walls of the pockets 34 and serve to limit the outward movement of the blocks 32 of the butt end section of the coupler, limit the outward movement of the latter.

While I have herein shown and described what I consider the preferred manner of carrying out my invention, the same is merely illustrative and I contemplate all changes and modifications which come within the scope of the claims appended hereto.

I claim:

1. In a railway draft rigging, the combination with a coupler having the butt end enlarged with respect to the adjacent shank portion, thereby providing transverse abutment walls at the forward end of said enlarged portion; of a yoke member having a swiveled connection with said coupler, said swiveled connection including retaining blocks embracing the coupler shank in front of said enlarged butt portion and having shouldered engagement with the transverse walls of the coupler butt; and separate detachable means for pivotally connecting each of the blocks to the yoke at a point forwardly of said enlarged butt portion.

2. In a railway draft rigging, the combination with a coupler; of a yoke having pin receiving pockets provided with retaining shoulders; and means for swiveling the coupler to the yoke, including retaining blocks having shouldered engagement with the butt of the coupler shank and pins within the pockets detachably connected to the blocks and having pivot bearing connection with the yoke, said pins being interlocked with the shoulders of said pockets when the parts are assembled to prevent accidental removal of the same.

3. In a railway draft rigging, the combination with a yoke having a head at one end, adapted to receive the shouldered butt of a coupler, said head being defined by spaced top, bottom and side walls, said coupler butt fitting between said top and bottom walls; retaining blocks interposed between the coupler shank and said top and bottom walls of the yoke and limiting outward movement of the coupler by engagement with the shoulders of said butt; and removable pins for pivotally connecting said blocks to the top and bottom walls of the yoke, said top and bottom walls being provided with interior bearing pockets and said pins projecting outwardly of the blocks and having their outer ends seated in said bearing pockets.

4. A yoke member for railway draft riggings, adapted to be attached to a coupler, having the shank thereof provided with a shouldered butt section, said yoke having spaced top and bottom walls at the forward end thereof, adapted to receive the coupler butt therebetween, said top and bottom walls being provided with pin-receiving openings and interior bearing pockets, said pin-receiving openings communicating with the bearing pockets; retaining blocks being disposed outwardly of the shoulders of the butt of the coupler and acting as stops in conjunction with said shoulders to limit outward movement of the coupler; anchoring pins pivotally connecting the said blocks and coupler to the yoke, said pins being detachably secured to the blocks and having shouldered engagement with the walls of the bearing pockets of the yoke to mount said coupler for swinging movement on the yoke, said coupler butt and retaining blocks being movable inwardly of the yoke to permit attachment of the pins to the blocks by inserting the same through the pin-receiving openings of the top and bottom walls of the yoke.

In witness that I claim the foregoing I have hereunto subscribed my name this 10th day of May, 1928.

JOHN F. O'CONNOR.