June 5, 1934. F. H. KAYLER 1,961,443

SWIVEL BUTT COUPLER

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Fig. 1

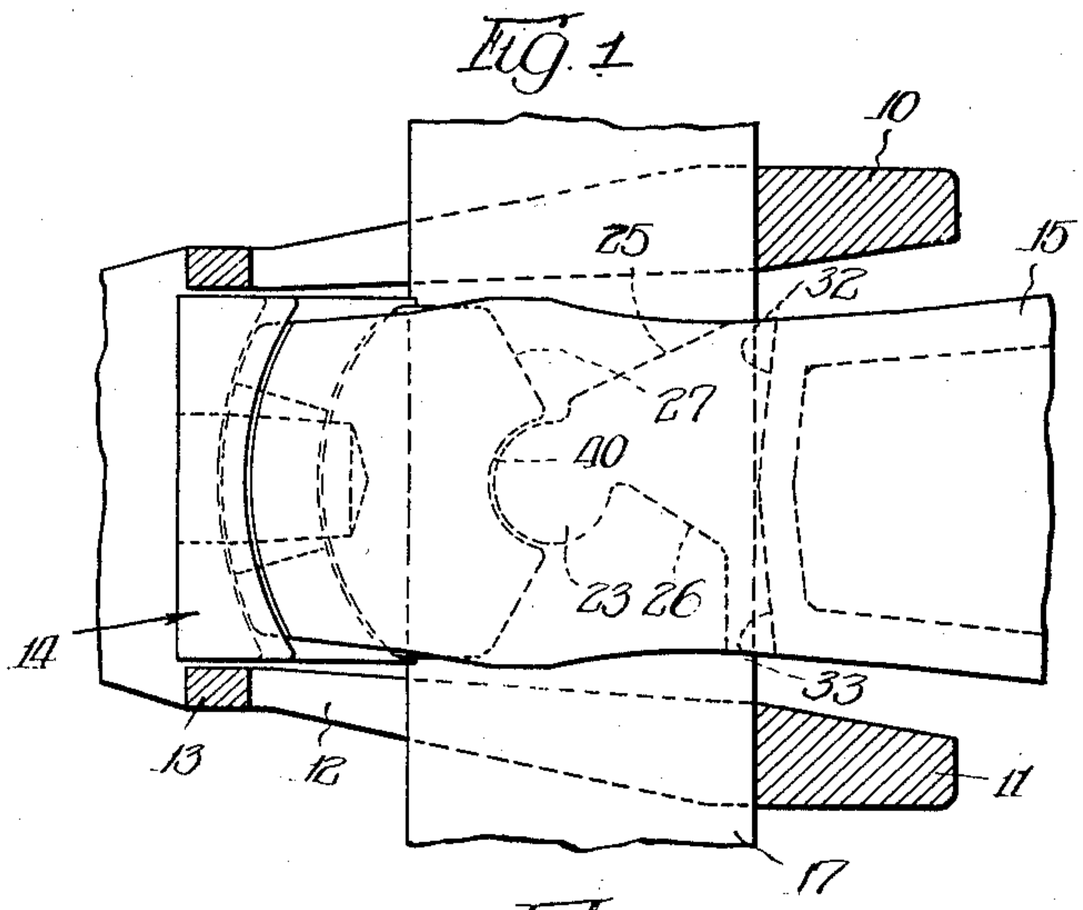


Fig. 2.

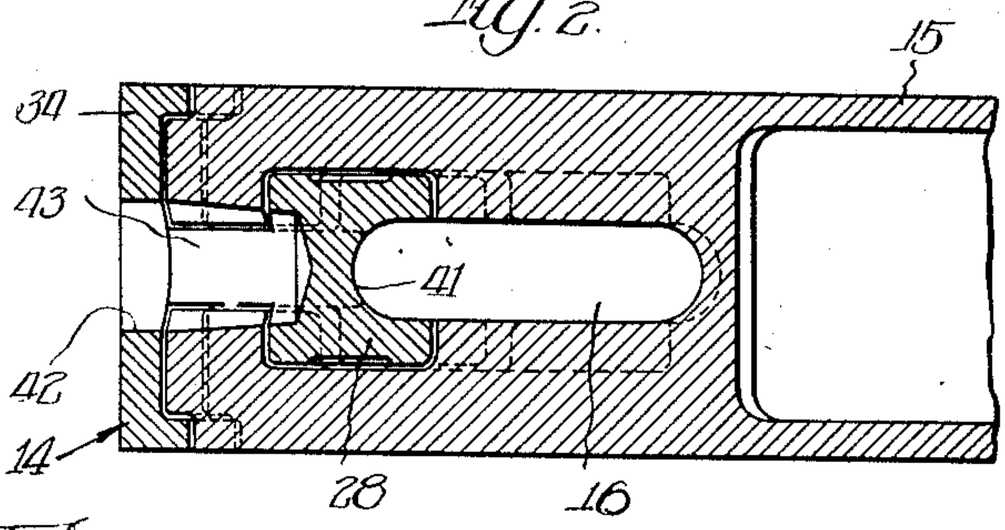


Fig. 3.

Fig. 4

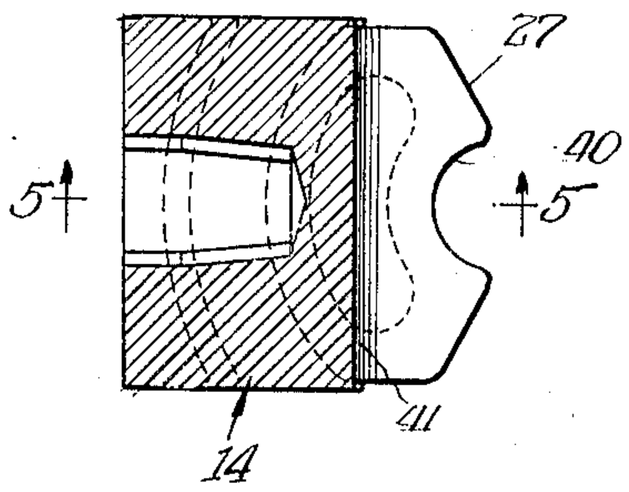
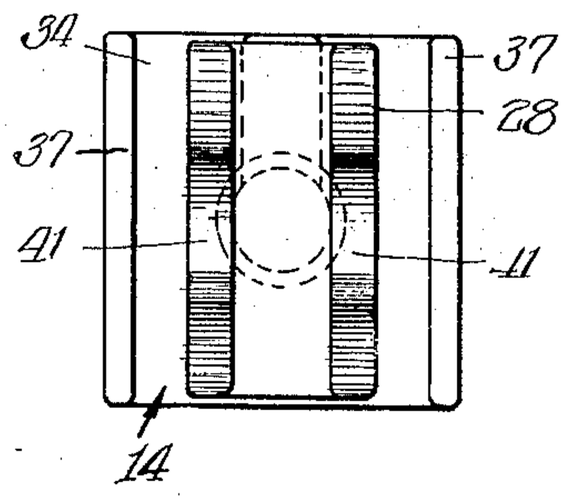


Fig. 5.



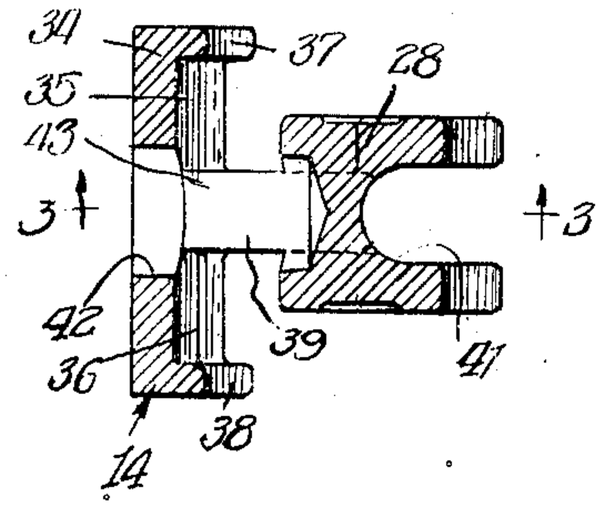


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Fig. 6

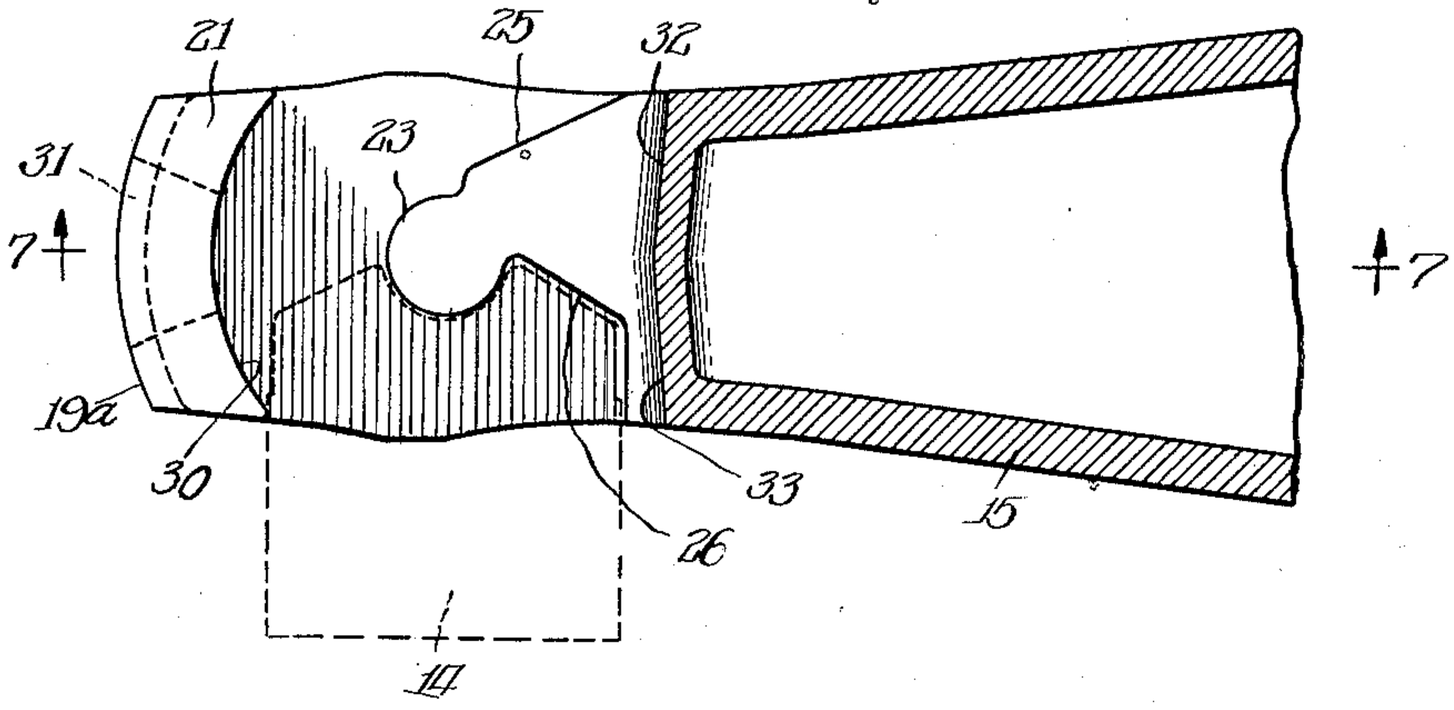


Fig. 7

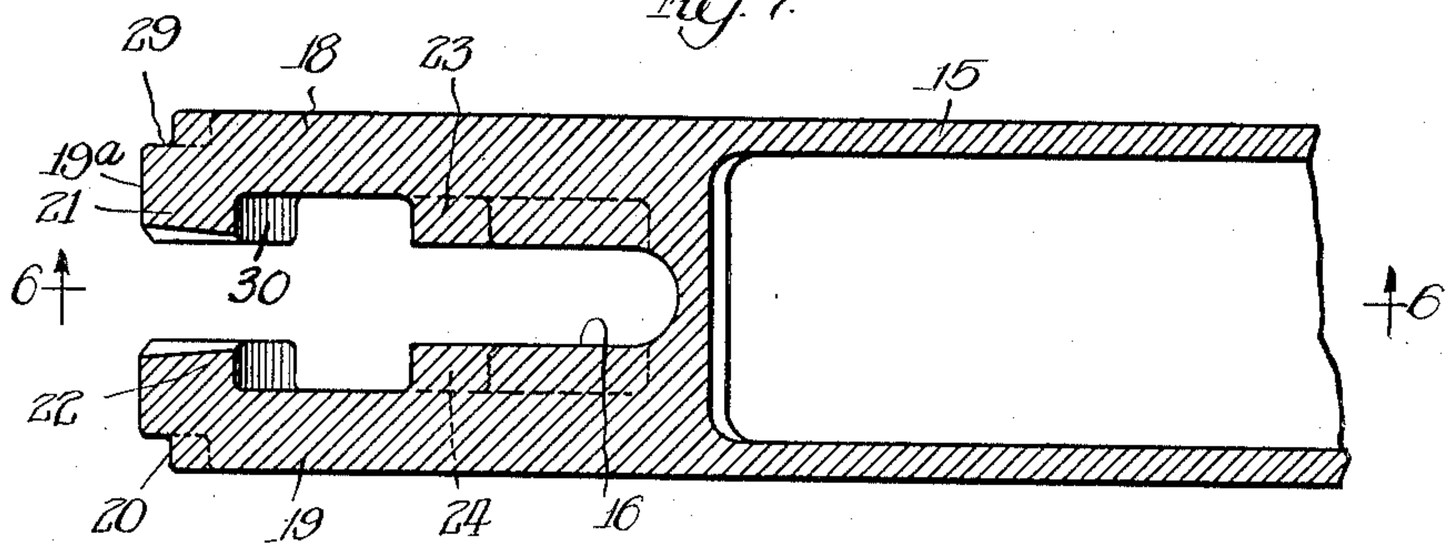
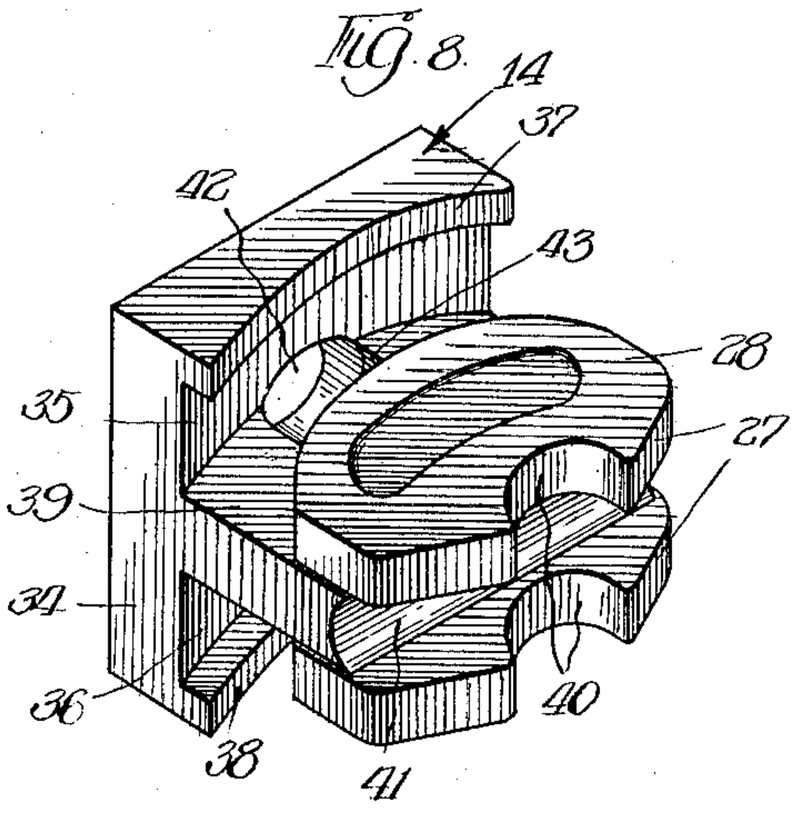


Fig. 8.



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UNITED STATES PATENT OFFICE

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SWIVEL BUTT COUPLER

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Application October 22, 1928, Serial No. 314,043

22 Claims. (Cl. 213—69)

This invention pertains to new and useful improvements in draft rigging wherein an embodiment of the device is illustrated as being in the nature of a swivel butt coupling.

An object of this invention is to provide a draft device of great simplicity, strength and compactness of structure which fulfills all requirements of service and manufacture and eliminates maintenance costs such as are attendant upon the use of tail pins, nuts, cotters and blocks commonly employed in the connection of couplers to their draft yokes.

Another object is to provide a draft rigging in the nature of a swivel butt coupler which may be used with the conventional type of yoke and other draft gear.

Still another object is to provide a swivel butt coupler providing substantially full bearing to the draft key in tension and one which transmits stresses incident of buff and draft directly without distortion, regardless of the position of the coupler.

A further object is to provide a swivel butt coupler which may be readily assembled or disassembled, but one in which the parts in operative position are themselves positively interlocked to form a unitary structure without the assistance of any external locking means.

A still further object is to provide a draft appliance in the nature of a swivel butt coupler which is interchangeable with the standard A. R. A. type of coupler and which may be used with the conventional design of cast steel vertical yoke, or with the Farlow arrangement of horizontal yoke, provision being made for accommodation of the round prong extending from the front follower of this Farlow arrangement.

With these and various other objects in view, the invention may consist of certain novel features of construction, and operation, as will be more fully described and particularly pointed out in the specification, drawings and claims appended hereto.

In the drawings, which illustrate an embodiment of the device, and wherein like reference characters are used to designate like parts,—

Figure 1 is a fragmentary longitudinal top plan view, partly in section, showing the assembly of the swivel butt coupler with a vertical plane yoke;

Figure 2 is a fragmentary sectional side elevation showing the relation of the parts of the swivel butt coupler in assembled position;

Figure 3 is a sectional plan of the swivel butt block, the same being taken substantially in the plane as indicated by the line 3—3 of Figure 5;

Figure 4 is a front elevation of the swivel butt block illustrated in Figure 3;

Figure 5 is a sectional elevation of the swivel butt block, the same being taken substantially in the plane as indicated by the line 5—5 of Figure 3;

Figure 6 is a fragmentary plan of a portion of the coupler shank adapted to cooperate with the swivel butt block, the same being taken substantially in the plane as indicated by the line 6—6 of Figure 7, the dotted lines of Figure 6 illustrating the initial position of the swivel butt block in assembling said block with the coupler shank;

Figure 7 is a fragmentary sectional elevation of the coupler shank illustrated in Figure 6, the same being taken substantially in the plane as indicated by the line 7—7 of Figure 6;

Figure 8 is a perspective elevation of the swivel butt block illustrated in Figures 3, 4 and 5.

In general, the yoke 10 is provided with the usual draft gear, not shown, the vertically extending jaws 11 of said yoke being provided with aligned keyways 12, a portion 13 of said keyways forming a guide for the swivel butt block 14 disposed in said yoke and cooperating with the front follower or other draft appliance, not shown. The coupler shank 15 is provided with a portion meshing or interlocking with complementary portions on the swivel butt block 14 and a keyway 16 is provided in the coupler shank and swivel butt block to accommodate the key 17 extending therethrough, through the keyway 12, and through suitable keyways formed in adjacent draft sills.

Referring now more particularly to Figures 6 and 7, the coupler shank 15, of any convenient construction, is provided with vertically arranged, spaced members 18 and 19 having substantially concentric arcuate portions 19*a* and 20 formed at the rear portion thereof and determining facing lugs 21 and 22 on members 18 and 19. Members 18 and 19 are also provided on their inner faces with vertically aligned center pivot bosses 23 and 24 which bosses merge into the coupler shank 15, as illustrated at 25 and 26, the portion 26 being more cut out than the portion 25 for a purpose to be later described, the slope of said portions 25 and 26 being determined by the slope of the forwardly extending boss cooperating portions 27 of the buffing block head 28. The bosses 23 and 24 are spaced from each other to form a portion of the keyway 16. The top end portions of members 18 and 19 are provided with arcuate butt engaged grooves 29 and 30, and the lugs 21

and 22 have a cut out or prong engaging portion 31 for the accommodation of the prong of the Farlow draft gear. The coupler shank adjacent the end portions 18 and 19 is provided with sloped, vertically extending walls 32 and 33 provided adjacent the forward part of the keyway 16 to permit angling movement of the coupler shank when the assembly is in operative position.

Referring now more particularly to Figures 3, 4, 5 and 8, the swivel butt block consists essentially of a body portion 34 provided with arcuate surfaces 35 and 36 disposed adjacent and adapted to cooperate with the arcuate face 19*a* of the coupler shank, and is also provided with spaced, arcuate, overhanging flanges 37 and 38 adapted to engage in grooves 29 and 30 for interlocking the butt block with the coupler shank. Adjacent the horizontal center of the body portion there is provided a tongue 39 integral with said body portion and provided with a head 28, said head being provided with the sloping portions 27 for facilitating assembly with the coupler shank, said portions terminating in arcuate portions 40 adapted to have cooperative engagement with the bosses 23 and 24. The head is also provided with a cut out portion 41 forming part of the keyway 16, making the head portion bifurcated. The body portion and the tongue 39 are provided with an aperture 42 and a cutout portion 43, respectively, for the accommodation of the forwardly extending prong of the Farlow draft gear. In assembling the coupler shank and swivel butt block, the block is placed in the position as shown at 14 in Figure 6, wherein the cooperation between the surfaces 27 and the portion 26 may be appreciated, and the block is then rotated in a clockwise direction until it assumes the position as indicated in Figures 1 and 2, i. e., in alignment with the coupler shank. The assembly may then be applied to the yoke, the flat back of the body portion 34 cooperating with the front follower or with the Farlow draft gear, the prong thereof being accommodated in the aperture formed in the block and coupler shank, and the key 17 may be applied in operative position through the keyways formed in the draft sills, keyways 12 of the yoke, and keyway 16 in the coupler shank and swivel butt block.

In operation then, draft strains are transmitted from the shank to the butt block where they are transmitted directly through the head 28 to the key 17 and on to the draft sills, it being noticed that the flanges 37 and 38 which cooperate with the grooves 29 and 30 prevent any tendency of the lugs 21 and 22 spreading apart under these tensile stresses of the coupler. Angling of the coupler is permitted by virtue of the swivel butt connections and the sloping faces 32 and 33 of the keyway 16. In buff the stresses are, of course, transmitted through the shank to the swivel butt block and thence to the draft gear, all regardless of the position of the coupler shank with respect to the other parts of the draft assembly. It will thus be seen that there is provided a very compact arrangement, and it is to be understood that I do not wish to be limited by the exact embodiment of the device shown, which is merely by way of illustration and not limitation, as various and other forms of the device will, of course, be apparent to those skilled in the art, without departing from the spirit of the invention or the scope of the claims.

I claim:

1. In a draft appliance, the combination of a coupler butt having a slotted end forming jaws thereon, a pivot boss and a concentric arcuate portion formed on the inner wall of each of said jaws, a buffing block having a tongue inserted between said jaws, said block having portions providing surfaces engaging said bosses and said arcuate portions on the coupler.

2. In a draft appliance, the combination of a coupler butt having a slotted end forming jaws thereon, a pivot boss and a concentric arcuate portion formed on the inner wall of each of said jaws, a buffing block having a tongue positioned between said jaws, said block having portions providing surfaces engaging said bosses and said arcuate portions on the jaws, and integral means formed on the block for engaging the outer wall of said jaws for preventing spreading of said jaws.

3. A coupler formed with a stem comprising a shank formed with a rearwardly opening pocket, a swivel block with a forwardly extending portion received in said pocket, said shank and block being formed with interlocking lugs provided with coaxially curved bearing surfaces disposed so as to provide for the transmission of draft and buffing forces between the stem and butt, said stem being slotted to receive a connecting draft key.

4. A coupler comprising a stem formed with a rearwardly opening pocket, a swivel block with a forwardly extending portion received in said pocket, said forwardly extending portion being shouldered and the sides of the pocket being provided with complementary shoulders, all of which are coaxially curved for the transmission of forces therebetween while permitting lateral angling of the parts, the swivel block being also provided with angular lugs disposed rearwardly of and overlying the walls of the stem pocket, the engaging surfaces between the lugs and walls being curved coaxially with the shoulders to increase the interlocking and swiveling area between the parts.

5. A car coupler involving a shank member having a curved rear end face and a curved interior surface concentric therewith and having a transversely extending slot in advance of said interior surface, said slot being widened at its rear end, a key seat member positioned in said widened portion of the slot and having a curved rear face cooperating with the interior curved surface of the shank member, a bearing block having a curved forward face cooperating with said curved rear end face of the shank member, and a tie bar integrally uniting said key seat member and the bearing block, said shank member being provided with a laterally and rearwardly opening slot for receiving said tie bar.

6. A car coupler involving a shank member having a curved rear end face and a curved interior surface concentric therewith and having a transversely extending slot adapted to receive a coupler connecting key, a key seat member having a curved rear face cooperating with the interior curved surface of the shank member, said slot having a widened portion for receiving the key seat member, a bearing block having a curved forward face cooperating with said curved rear end face of the shank member, and a tie bar integrally uniting said key seat member and the bearing block, said shank member being provided with a laterally and rearwardly opening slot for receiving said tie bar and being formed with a laterally elongated opening communicating with said slot for the tie bar, said bearing block being provided with an opening in alignment with said elongated opening of the shank

member, and said key seat member being provided on its rear face with a recess in alignment with said opening in the bearing block.

7. A car coupler involving a shank member having a curved rear end face and a curved interior surface concentric therewith and having a transversely extending slot adapted to receive a coupler connecting key, said slot being widened at its rear end, a key seat member positioned in said widened portion of the slot and having a curved rear face cooperating with the curved interior surface of the shank member, a bearing block having a curved forward face cooperating with said curved rear end face of the shank member, and a plurality of laterally spaced tie bars integrally uniting said key seat member and the bearing block, said shank member being provided at its rear end on opposite sides with laterally and rearwardly opening slots for respectively receiving said tie bars.

8. A coupler comprising a stem formed with a rearwardly disposed opening, a swivel block with a forwardly extending portion received in said opening, said portion and stem being provided with interengaging shoulders having coaxially curved surfaces for the transmission of forces therebetween while permitting lateral angling of the parts, the swivel block being also provided with portions overhanging the walls of the stem opening to increase the interlocking between the parts, the engaging surfaces between the overhanging portions and walls being curved coaxially with the interengaging shoulders to increase the swiveling area between the parts.

9. A coupler comprising a stem formed with a rearwardly disposed opening, a swivel block with a forwardly extending portion received in said opening, said stem and block being formed with interlocking portions provided with coaxially curved bearing surfaces disposed so as to provide for the transmission of draft and buffing forces between the stem and block, said stem being formed with an opening for receiving a connecting draft key.

10. A coupler comprising a stem formed with a rearwardly disposed opening, a swivel block with a forwardly extending portion received in said opening, said portion and stem being provided with interengaging shoulders having coaxially curved surfaces for the transmission of forces therebetween while permitting lateral angling of the parts, the swivel block being also provided with portions overhanging the walls of the stem opening to increase the interlocking between the parts.

11. A coupler comprising a stem formed with a rearwardly disposed opening, a swivel block with a forwardly extending portion received in said opening, said portion and stem being provided with interengaging shoulders having coaxially curved surfaces for the transmission of forces therebetween while permitting lateral angling of the parts, the swivel block being also provided with portions overhanging the walls of the stem opening to increase the interlocking between the parts, said forwardly extending portion of said block having a key seating element cooperating with a key inserted through said opening.

12. A coupler comprising a stem formed with a rearwardly disposed opening, a swivel block with a forwardly extending portion received in said opening, said portion having a key seating element cooperating with a key inserted through said opening, said stem and block being formed with interlocking lugs provided with curved bearing surfaces disposed so as to provide for the transmission of draft and buffing forces between the stem and block, said block being also provided with portions overhanging the walls of the stem opening to increase the interlocking between the parts, the engaging surfaces between the overhanging portions and walls being curved coaxially with the curved surfaces of the interlocking lugs to increase the swiveling area between the parts.

13. A coupler comprising a stem formed with a rearwardly disposed opening, a swivel block with a forwardly extending portion received in said opening, said portion having a key seating element cooperating with a key inserted through said opening, said stem and block being formed with interlocking lugs provided with curved bearing surfaces disposed so as to provide for the transmission of draft and buffing forces between the stem and block, said block being also provided with portions overhanging the walls of the stem opening to increase the interlocking between the parts.

14. A coupler comprising a stem formed with a rearwardly opening pocket, and a swivel block with a forwardly extending portion being shouldered for engagement with complementary shoulders of said pocket, said shoulders being coaxially curved for the transmission of forces therebetween while permitting lateral angling of the parts.

15. A coupler having a stem formed with an opening at its rear end, a swivel block with a forwardly extending portion projecting into said opening, said stem and block being formed with interlocking lugs provided with complementary curved bearing surfaces so disposed as to provide for the transmission of draft and buffing forces between the stem and block, and a recess provided in said block and having an opening in the rear face thereof for receiving a projecting element of a draft device.

16. A coupler having a stem formed with an opening at its rear end, a swivel block with a forwardly extending portion projecting into said opening, said stem and block being formed with interlocking lugs provided with complementary curved bearing surfaces so disposed as to provide for the transmission of draft and buffing forces between the stem and block, and a recess provided in said block and having an opening in the rear face thereof for receiving a projecting element of a draft device, said stem being slotted to receive a connecting draft key.

17. A coupler having a stem formed with an opening at its rear end, a swivel block with a forwardly extending portion projecting into said opening, said forwardly extending portion having a key seating element cooperating with a draft key received in said opening, said stem and block being formed with interlocking lugs provided with complementary curved bearing surfaces so disposed as to provide for the transmission of draft and buffing forces between the stem and block, and a recess provided in said block and having an opening in the rear face thereof for receiving a projecting element of a draft device.

18. A coupler comprising a stem formed with a rearwardly disposed opening, a swivel block with a forwardly extending portion received in said opening, said portion and stem being provided with interengaging shoulders having coaxially curved surfaces for the transmission of forces therebetween while permitting lateral angling of

the parts, said portion having a key seating element cooperating with a key inserted through said opening.

19. In a draft appliance, the combination of a coupler butt having a slotted end forming jaws thereon, a pivot boss and a concentric arcuate portion formed on the inner wall of each of said jaws, a buffing block having a tongue inserted between said jaws, said bosses being formed on one side with a portion adapted to engage and position said tongue when said block is disposed substantially normal to said coupler butt in position to be moved into operative position therewith, said block being adapted to be swung angularly relative to said butt and having portions providing surfaces engaging said bosses and arcuate portions on said butt when in normal operative position.

20. In a draft appliance, the combination of a coupler butt having a slotted end forming jaws thereon, a pivot boss and a concentric arcuate portion formed on the inner wall of each of said jaws, a buffing block having a tongue inserted between said jaws, said bosses being formed on one side with a portion adapted to engage and position said tongue when said block is disposed substantially normal to said coupler butt in position to be moved into operative position therewith, said block being adapted to be swung angularly relative to said butt and having portions providing surfaces engaging said bosses and arcuate portions on said butt when in normal operative position, said bosses having a portion on the other side thereof engaging with said tongue to limit angular movement of said block and butt.

21. In a draft appliance, the combination of a coupler butt having a slotted end forming jaws thereon, a pivot boss and a concentric arcuate portion formed on the inner wall of each of said jaws, a buffing block having a tongue inserted between said jaws and interlocking therewith between said bosses and arcuate portions and having flange portions overhanging said jaws, said bosses being formed on one side with a portion adapted to engage and position said tongue when said block is disposed substantially normal to said coupler butt in position to be moved into operative position therewith, said block being adapted to be swung angularly relative to said coupler butt whereby said flange portions are in overhanging relation to said jaws, said block having portions providing surfaces engaging said bosses and arcuate portions on said butt when in normal operative position.

22. In a draft appliance, the combination of a coupler butt having a slotted end forming jaws thereon, a pivot boss and a concentric arcuate portion formed on the inner wall of each of said jaws, a buffing block having a tongue inserted between said jaws and interlocking therewith between said bosses and arcuate portions and having flange portions overhanging said jaws, said bosses being formed on one side with a portion adapted to engage and position said tongue when said block is disposed substantially normal to said coupler butt in position to be moved into operative position therewith, said block being adapted to be swung angularly relative to said coupler butt whereby said flange portions are in overhanging relation to said jaws, said block having portions providing surfaces engaging said bosses and arcuate portions on said butt when in normal operative position, said bosses having a portion on the other side thereof engaging with said tongue to limit angular movement of said block and butt.

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