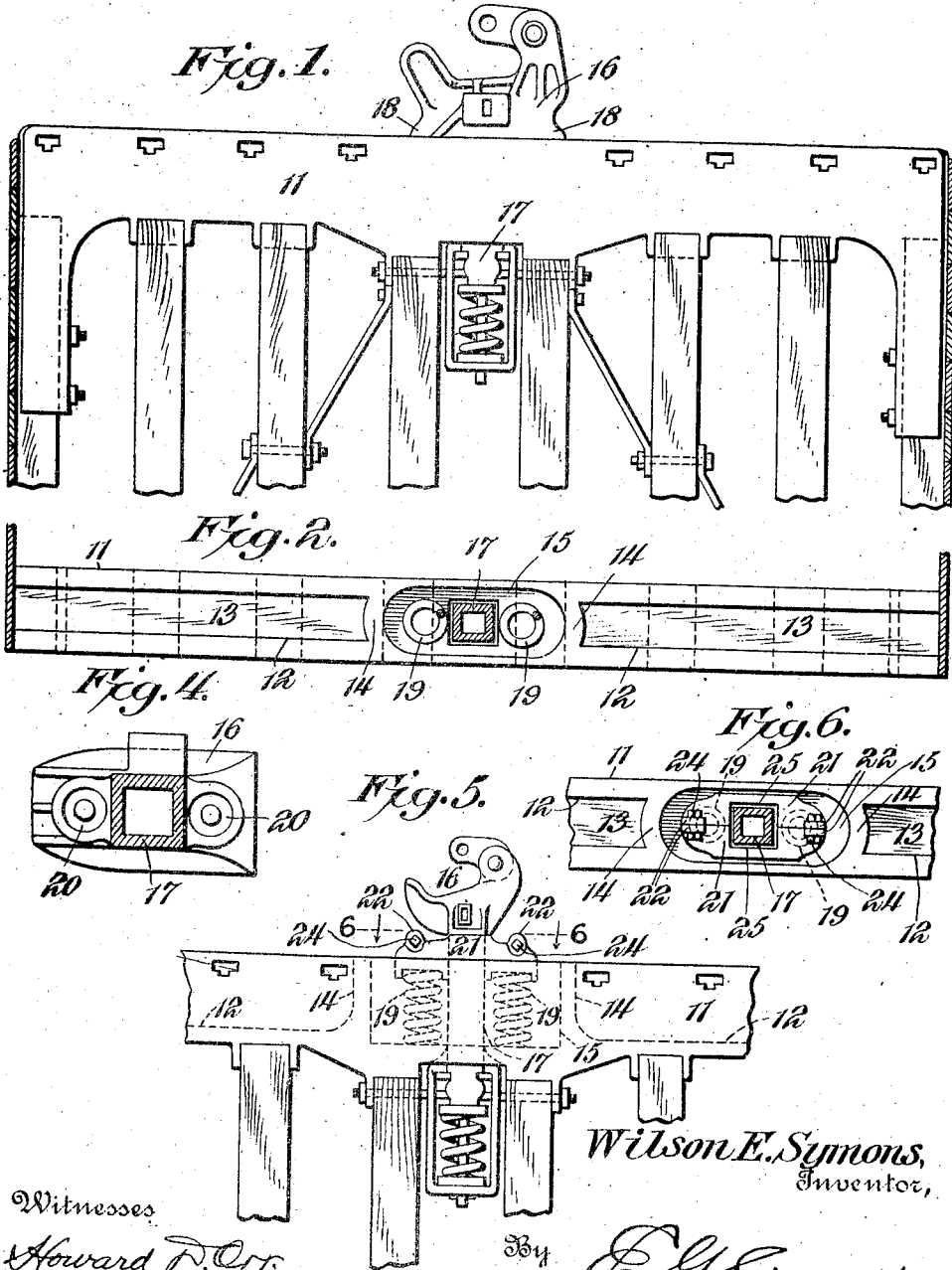


W. E. SYMONS.
DRAFT RIGGING FOR CARS.
APPLICATION FILED OCT. 16, 1911.

1,040,052.

Patented Oct. 1, 1912.
3 SHEETS—SHEET 1.



Witnesses
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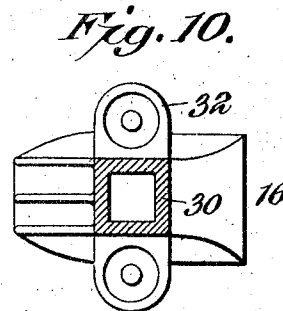
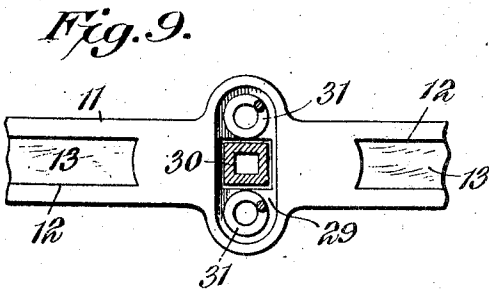
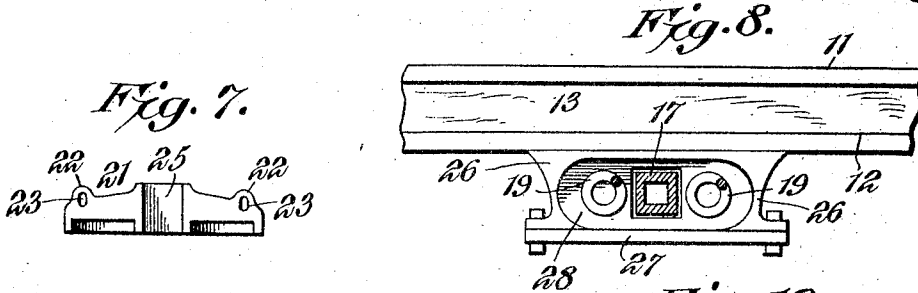
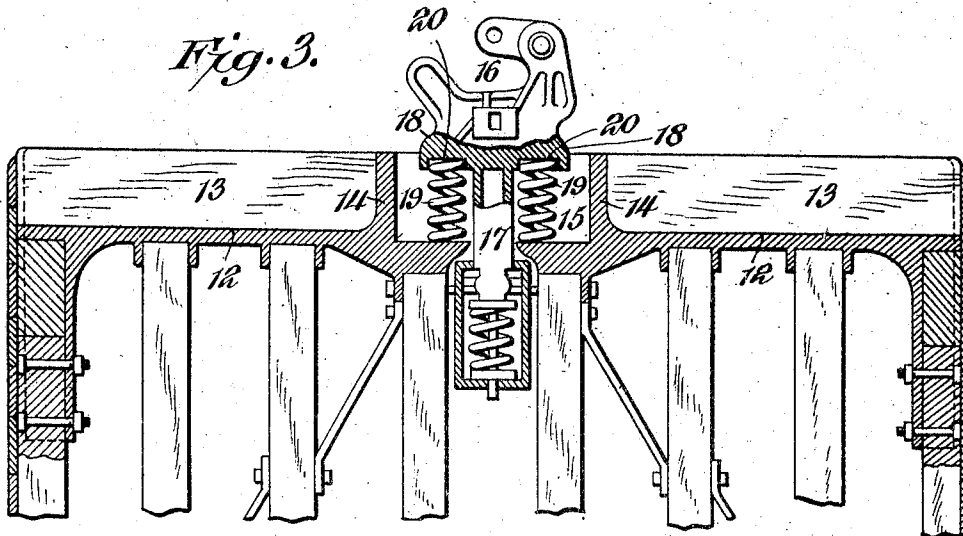
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3 SHEETS—SHEET 2.



Wilson E. Symons, Inventor,

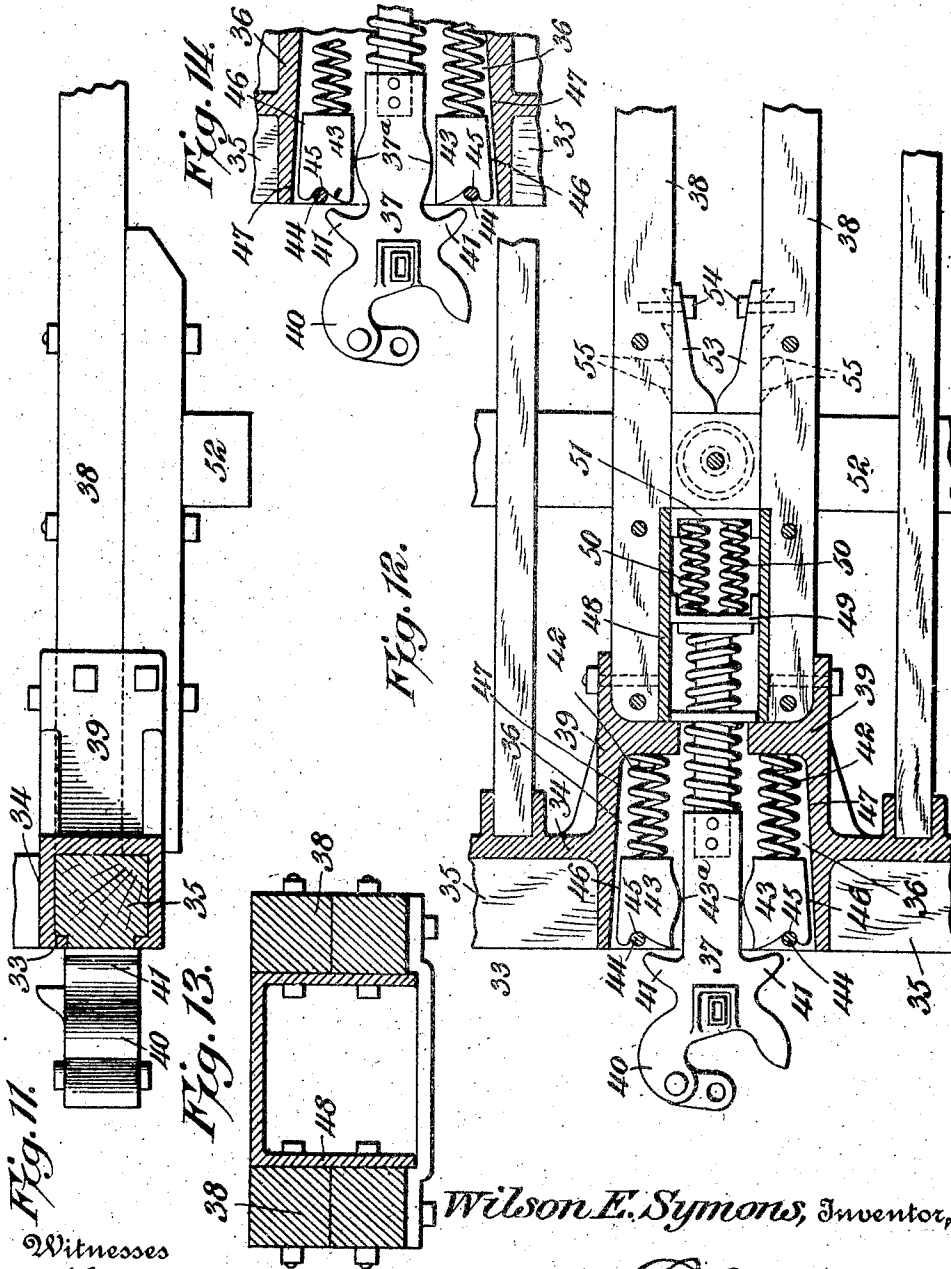
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3 SHEETS-SHEET 3.



Witnesses

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UNITED STATES PATENT OFFICE.

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DRAFT-RIGGING FOR CARS.

1,040,052.

Specification of Letters Patent.

Patented Oct. 1, 1912.

Application filed October 16, 1911. Serial No. 654,912.

To all whom it may concern:

Be it known that I, WILSON E. SYMONS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Draft-Rigging for Cars, of which the following is a specification.

This invention relates more particularly to draft rigging for railway cars, and the present application contains the subject-matter divided out of the application which eventuated in a Patent, No. 866,404, dated Sept. 17, 1907, and is a continuation of application, Serial No. 412,444, filed Jan. 24, 1908.

The principal object of the present invention is to provide novel and effective rigging employed in connection with the end sill covered by the patent, and having means which effectively absorbs all shocks and jars, while permitting the necessary lateral movement of the coupler when rounding curves or when being coupled on curves.

A further object is to provide novel mechanism of a simple nature in which both spring and friction resistance is opposed to the movement of the coupler.

The preferred embodiment of the invention is illustrated in the accompanying drawings, wherein:—

Figure 1 is a plan view of one end of the under frame of a car having the draft rigging mounted thereon. Fig. 2 is an end view of the same, the draw bar being shown in section. Fig. 3 is a horizontal sectional view of the same. Fig. 4 is a cross sectional view through the coupler shank. Fig. 5 is a plan view showing a slightly modified form of coupler shank. Fig. 6 is a cross sectional view on the line 6—6 of Fig. 5. Fig. 7 is a detail view of one of the yoke sections. Fig. 8 is a detail end view showing the manner of mounting the coupler below the plane of the end sill. Fig. 9 is a similar view of another modification of the invention. Fig. 10 is a cross sectional view through the coupler shank showing the form of coupler employed in connection with said modification. Fig. 11 is a longitudinal sectional view through a portion of an under frame of a car showing a modified form of construction in side elevation. Fig. 12 is a horizontal sectional view therethrough. Fig. 13 is a detail cross sectional view illustrating the casing with the parts removed. Fig. 14

illustrates a slight modification of the structure disclosed in Fig. 12.

Similar reference numerals designate corresponding parts in all the figures of the drawings.

In the embodiment illustrated in Figs. 1 to 4 inclusive, the end sill, designated generally by the reference numeral 11, is of the type disclosed in the aforementioned patent, and is in the form of a metallic shell having sockets 12 in which are preferably placed wooden core sections 13. The inner ends of these sockets terminate at spaced walls 14 that constitute the end walls of an elliptical socket 15 formed directly in the end beam.

The coupler, which is designated 16 is provided with an annular shank 17, which slidably passes through the socket, and is capable of a limited lateral swinging movement therein. The coupler head is provided with oppositely extending horns 18, and springs 19 located in the socket on opposite sides of the shank, have their inner ends bearing against the rear wall of said socket, while their outer ends bear against the said horns, these horns being provided with suitable seats 20 to receive the outer ends of the spring.

In the structure disclosed in Figs. 1 to 4 inclusive, the horns 18 are integral with the head of the coupler; but in case an old coupler is employed, the said horns may be provided by clamping upon the shank, yoke sections 21, shown in Figs. 5, 6 and 7. These yoke sections have ears 22 provided with slots 23, through which the holding bolts 24 pass, and have central seats 25 in which the coupler shank is engaged. The slots 23 permit a slight relative play between the sections, and prevent shearing of the bolts.

In the embodiments already described, the socket 15 is formed directly in the body of the end sill shell, and is horizontally disposed, but in case the coupler is to be supported below the end sill, said sill as shown in Fig. 8, is provided with a central depending bracket comprising spaced depending ears 26 connected at their lower ends by a tie bar 27. The socket 28, thus produced is elliptical in form, and contains the mechanism above described.

Still another embodiment of the invention is illustrated in Figs. 9 and 10. In this instance, the socket, which is designated 29, is arranged vertically; the shank 30 of the

coupler passing therethrough, and said socket being wide enough to permit the lateral play of the shank and consequently of the coupler. The springs 31, are located above and below the shank 30 and the horns 32 of the coupler head, are consequently located above and below the shank. This structure, however, operates in exactly the same manner as the other embodiments of the invention.

The mechanism above described, is entirely practicable with the metallic end sill, the springs are entirely housed, and so associated, that they absorb all buffing jars and shocks. At the same time, the coupler can play laterally to a limited extent in order to permit the cars to round curves and be coupled on curves without difficulty.

What is probably the preferred form of construction is illustrated in Figs. 11, 12 and 13. In this embodiment, the end sill, designated 33 is of substantially the same character as that already described, consisting of a shell 34 in which are located wooden core blocks 35. This shell is provided with a central elliptical socket 36 through which the coupler shank 37 passes. The rear end of said coupler shank is located between a pair of spaced center sills 38 secured to the rearwardly projecting portion 39 of the end sill. The coupler head 40 is provided with oppositely disposed horns or extensions 41, and springs 42, located in the socket 36, on opposite sides of the shank, to oppose the inward movement of said horns. Interposed between these springs 42 and the horns 41 are friction devices in the form of blocks 43, the outward movements of which are limited by suitable bolts 44 extending across the outer end of the socket 36. The blocks 43 have recesses 45 in their front ends, in which said bolts normally engage. The horns 41, as shown, pass between the bolts 44 and engage the inner portions of the outer ends of the blocks, thus effecting the outward swinging movements of said blocks and causing their outer faces 46 to bear against the opposite side walls 47 of the socket. These walls, as will be evident by reference to Fig. 12 are located in angular relation to the longitudinal line of draft, and are convergently disposed. Moreover the blocks 43, as shown, have rounded inner faces 43^a arranged to bear against the sides of the coupler shank 37 so as to rock on the latter as it moves longitudinally. Instead of rounding the faces of the blocks 43, the opposite sides of the coupler shank 37 may be bulged, as shown at 37^a in Fig. 14, the same action being secured by either arrangement. With this structure therefore, when the coupler head is forced inwardly, the horns 41, engaging the blocks, will swing the same outwardly, causing frictional engagement between said blocks and the walls

47, which will resist the inward movement of the coupler. By this arrangement, the rocking blocks are held practically in equilibrium, the horns bearing against the front inner corners, the inner sides of the blocks having rocking bearings against the opposite sides of the coupler shank and the rear outer corners of said blocks operating against the inclined faces 47. This arrangement therefore produces the desired frictional resistance while precluding the possibility of the edges of the blocks 43 digging into the bearing faces. This movement is furthermore resisted by the springs 42, in the same manner as in the first described embodiments. These springs 42 also act to resist the outward swinging movements of the blocks and return them as soon as the pressure upon them by the coupler head is relieved.

The rear end of the shank 37 is located in a substantially U-shaped casing 48 secured to and between the center sills 38, and is provided with a sliding plate 49 against which the front ends of other springs 50 bear. The rear ends of these springs bear against another plate 51 and this plate abuts against the front face of the body bolster 52. In order to securely prevent any lateral displacement on the part of the body bolster, buffer brackets 53 are preferably located against the rear side of the same, being secured to the center sills by bolts 54 and having teeth shown at 55 which are embedded in the center sills. With this structure therefore both spring and frictional resistance to the inward movement of the coupler head is secured and the parts are effectively reinforced.

From the foregoing, it is thought that the construction, operation and many advantages of the herein described invention will be apparent to those skilled in the art, without further description, and it will be understood that various changes in the size, shape, proportion and minor details of construction, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a structure of the character set forth, the combination with an end sill having a socket, of a coupler having a shank slidably passing through the socket, and springs located in the socket and resisting the movement of the coupler.

2. In a structure of the character set forth, the combination with an end sill having a socket, of a coupler having a shank slidably passing through the socket, and springs located in the socket on opposite sides of the shank and operating against the coupler.

3. In a structure of the character set forth, the combination with an end sill having a socket, of a coupler having a shank slidably passing through the socket, said coupler also having oppositely extending horns in line with the portions of the socket on opposite sides of the shank, and springs located in said portions of the socket and operating against the horns.

4. In a structure of the character set forth, the combination with an end sill comprising a metallic shell and having intermediate spaced walls forming a socket between them, of a coupler having a shank slidably passing through the socket and having oppositely extending horns, and coiled springs located in the socket and operating against the rear sides of the horns.

5. In a structure of the character set forth, the combination with an end sill having a socket, of a coupler having a shank extending through the socket, springs located in the socket on opposite sides of the shank, and horns projecting from opposite sides of the coupler and operating against the springs.

6. In a structure of the character set forth, the combination with an end sill comprising a metallic shell having an elliptical socket, of a coupler having a shank extending through the socket, springs located in the socket on opposite sides of the shank, and horns projecting from opposite sides of the coupler and operating against the springs.

7. In a structure of the character set forth, the combination with an end sill comprising a metallic shell having an elliptical socket, and an opening in the rear wall of the socket, of a coupler having a shank extending through said opening, springs located in the socket on opposite sides of the shank, and horns projecting from opposite sides of the coupler in front of the socket and operating against the springs.

8. In a structure of the character set forth, the combination with a frame member having frictional faces fixed in spaced relation, of a coupler having bearing portions and a shank spaced from and passing between the said faces, springs disposed between the member substantially parallel with the axis of the shank at opposite sides thereof for resisting movement of the coupler, and friction devices interposed between the bearing portions and the springs and having frictional engagement with the said faces.

9. In a structure of the character set forth, the combination with a frame member having friction faces, of a coupler having bearing portions, springs for resisting the movement of the coupler, and rocking friction blocks interposed between and having their ends engaging the bearing portions

of the coupler and the springs, each block having its side face in frictional engagement with the adjacent face of the member.

10. In a structure of the character set forth, the combination with a frame member having a socket provided with friction walls, of a coupler having a shank that passes through the socket and disposed between the walls, said shank having an off-set horn at each side, a friction block operated against by each horn and having a lateral frictional engagement with the adjacent friction wall and being movable longitudinally of the shank, each horn effecting the lateral movement of the block, and a spring bearing against each block for resisting the movement of the coupler, while permitting the lateral movement of said block under the action of the coupler.

11. In a structure of the character set forth, the combination with an end sill having a socket, provided with side walls that are disposed at an inclination to the line of draft, of a coupler having a shank extending through the socket and having oppositely disposed off-set horns, friction blocks arranged at opposite sides of the coupler to be engaged by the horns thereof, each block operating against the adjacent side wall, and a spring bearing against the rear of each block to resist the movement of the coupler while permitting the lateral movement of the block.

12. In a structure of the character set forth, the combination with an end sill having a socket provided with convergently disposed side walls, of a coupler head having oppositely extending shoulders, and a shank that extends through the socket, laterally movable friction blocks located on opposite sides of the shank and borne against by the shoulders, said blocks frictionally engaging the side walls, and springs located in the rear portions of the socket and bearing against the rear ends of the blocks.

13. In a structure of the character set forth, the combination with an end sill having a socket provided with opposite side walls, of a coupler having a shank extending through the socket, friction blocks located in the socket on opposite sides of the shank and cooperating with the side walls of the socket, springs bearing against the rear ends of the blocks, spaced stops engaged by the front ends of the blocks for limiting the outward movement thereof, and horns carried by the coupler and operating against the inner portions of the blocks between the stops for swinging said blocks outwardly.

14. In a structure of the character set forth, the combination with an end sill having a socket, of a coupler having a shank that extends through the socket and having oppositely disposed horns, springs located

in rear of the horns to resist the inward movement of the coupler, and springs located in rear of the shank for resisting said inward movement of the coupler.

15. In a structure of the character set forth, the combination with the under frame of a car body, said under frame comprising an end sill, center sills secured thereto, and a body bolster located transversely of the center sills, of brackets secured to the center sills, and bearing against the rear side of the body bolster, a coupler having a shank extending through the socket of the end sill, and rocking devices located in the socket in engagement with the coupler to resist the inward movement thereof and allow a limited lateral movement.

16. In a structure of the character set forth, the combination of a frame member having spaced faces, of a coupler extending between the faces and having bearing portions and a shank, and friction blocks arranged to slidably engage the said faces, each bearing block being urged against its respective bearing portion of the shank and having a line contact therewith for rocking engagement with the shank.

17. In a structure of the character set forth, the combination of a frame member having spaced faces, of a coupler having bearing portions and a shank, and friction blocks arranged to slidably engage the said faces, each block being operated against by one of the bearing portions and having a

rounded inner face that rocks against one side of the shank.

18. A draft rigging including spaced members, a coupler having a shank slidable between the members, a buffer spring arranged in rear of the shank for cushioning the same, and frictional means including separate blocks mounted independently of the buffer spring and shank and members and operating at a point intermediate the ends of the shank and disposed between the same and members for retarding the inward or rearward movement of the shank, said blocks having a rocking engagement with the shank and a biting engagement with the members.

19. A draft rigging comprising spaced members, a coupler having a shank slidable between the members, a buffer spring arranged in rear of the shank for cushioning the same, and frictional means operating at a point intermediate the ends of the shank and including rocking blocks mounted independently of the spring and movable with respect to the said members to retard the inward movement of the shank.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

WILSON E. SYMONS.

Witnesses:

GEORGE S. PERREN,
M. G. PATERSON.