

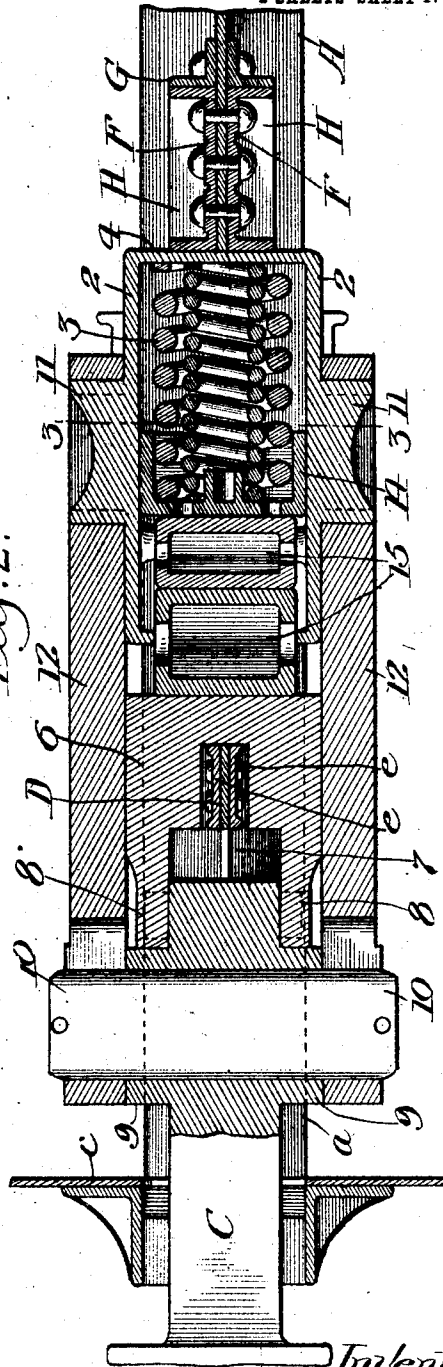
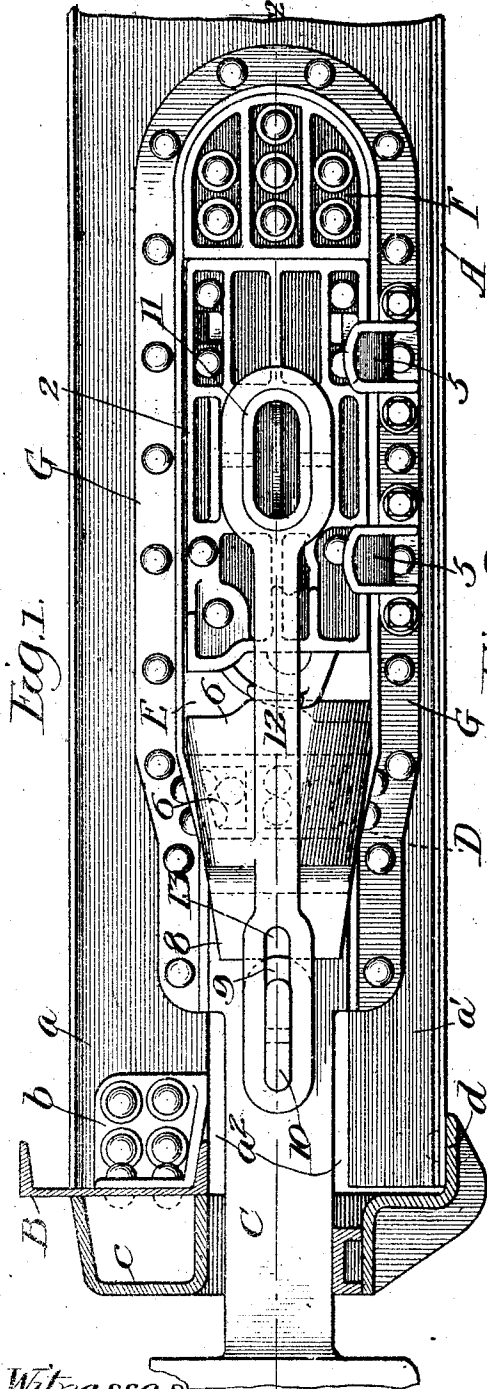
W. P. BETTENDORF, DEC'D.  
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DRAFT RIGGING.

APPLICATION FILED MAY 23, 1908.

Patented May 7, 1912.

2 SHEETS—SHEET 1.

1,025,445.



Witnesses:  
C. W. Kennedy  
E. A. Rundy

Inventor  
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by Frank D. Thomsen  
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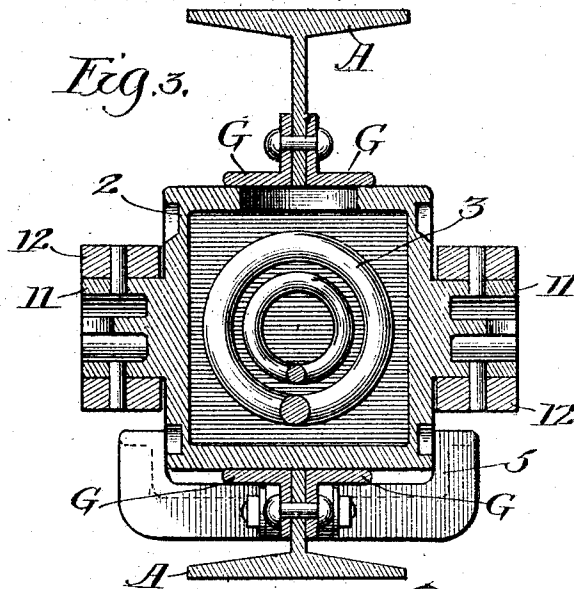
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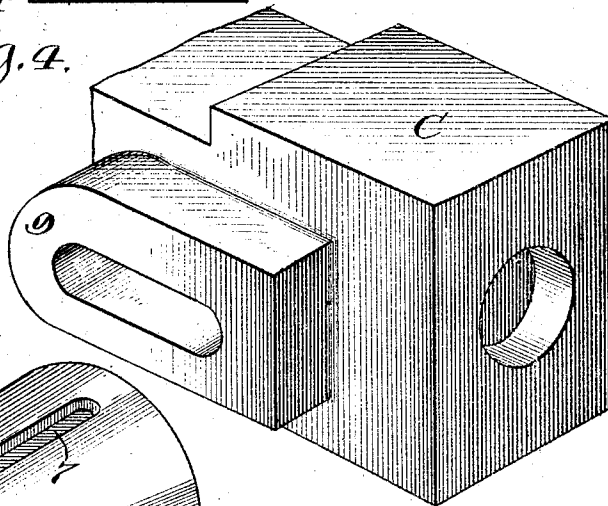
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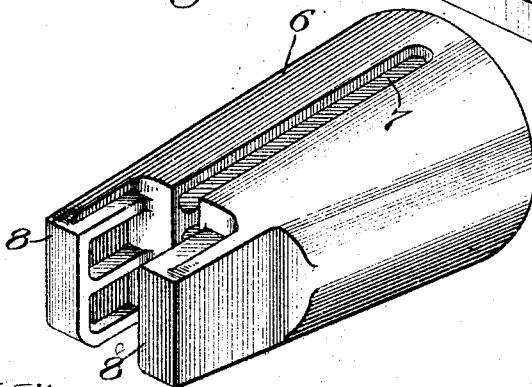
2 SHEETS—SHEET 2.



*Fig. 4.*



*Fig. 5.*



Witnesses  
*W. H. H. H. H.*  
*E. H. H. H.*

Inventor  
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# UNITED STATES PATENT OFFICE.

WILLIAM P. BETTENDORF, OF DAVENPORT, IOWA; J. W. BETTENDORF ADMINISTRATOR  
OF SAID WILLIAM P. BETTENDORF, DECEASED.

## DRAFT-RIGGING.

1,025,445.

Specification of Letters Patent.

Patented May 7, 1912.

Application filed May 23, 1908. Serial No. 434,669.

*To all whom it may concern:*

Be it known that I, WILLIAM P. BETTENDORF, a citizen of the United States, and a resident of Davenport, in the county of Scott and State of Iowa, have invented certain new and useful Improvements in Draft-Riggings, of which the following is a clear, full, and exact description.

My invention relates to draft-rigging, which is particularly applicable to railway cars, the underframes of which comprise a single I-beam center-sill.

The object of my invention is to support the draft-rigging in a suitable opening in the ends of a single rolled beam of the center-sill, in such manner that the strain of the stress and pull can be communicated to said center-sill in such manner that said strain is communicated to all parts of the same.

A further object is to provide an integral column connecting the web of the bifurcated ends of the single center-sill, above and below the draft-rigging, through which the pulling strain of the draft-rigging is communicated to the underframe of the car. And a further object is to separate the forward part of the draft-rigging from the part in which the springs are housed and to so construct the same as to give it an independent longitudinal movement extending it forward of the aforesaid web column. And a still further object is to connect the rear portions of the draw-bar with the housing for the springs, by links, the forward ends of which are constructed to permit of a limited buffing movement of the draw-bar of the car-coupler before receiving the buffing impact and communicating the same directly to said housing. This I accomplish by the means hereinafter fully described and as particularly pointed out in the claims.

In the drawings: Figure 1 shows a broken away end portion of a single center-sill, having its extremity secured to the end-sill of the car and having my improvements applied thereto. Fig. 2 is a longitudinal horizontal section taken on dotted line 2—2, Fig. 1. Fig. 3 is a transverse section taken on dotted line 3—3, Fig. 2. Fig. 4 is a per-

spective view of the rear broken away end of the draw-bar, drawn to a slightly larger scale. Fig. 5 is a perspective view of the buffing-block.

In the drawings A represents a single I-beam center-sill, the ends of which are provided with bifurcations  $a, a'$ , the uppermost of which is secured, by means of suitable corner castings  $b$ , to the end-sill B of the car. This end-sill is shown to be constructed of a channel-beam the flanges of which project inward, and it is provided, in the vertical plane of the coupling C, with a cast metal frame  $c$ , that surrounds the opening through which said coupler extends. The lower horizontal portion of said frame  $c$  is flanged rearwardly, at about the center of width thereof to form a seat  $d$ , upon which the lower flange of the lower bifurcations  $a'$  rests, and is secured by rivets or otherwise.

Coupling C extends longitudinally back into the longitudinally elongated slot or space  $a^2$  separating the bifurcations  $a, a'$ , and its rear end terminates near the crotch of the same. This crotch is formed by a vertical column D, consisting of an integral portion of the web of the center-sill, and reinforcing plates  $e$  riveted to each side thereof, and it constitutes the dividing medium between the longitudinally extending opening E in which parts of the draft-rigging are located and the space between said bifurcations  $a$  and  $a'$ . Opening E is, preferably, in alinement with and is greater in height than space  $a^2$ , and the vertical edge of the web of the center-sill forming its rear end is reinforced and strengthened by means of peculiarly shaped cast-plates F, which are riveted thereto, substantially as shown. The edge of these plates in the same transverse plane as the adjacent end of opening E, is vertical, whereas the opposite edge, preferably, describes a semi-circle, and the entire outer edges of said plates are flanged laterally, substantially as shown. The rear portion of the edges of the space  $a^2$  between the bifurcations and the upper and lower edges of opening E are reinforced by a U-shaped angle-iron strip G, the end of which farthest from the coupler is bent and extends around

the rear semi-circular end of reinforcing plates F. These binding strips G, are of such size that their lateral flanges project to the same extent as flanges H of said reinforcing-plates, and the upper and lower edges of the reinforcing-plates *e* of column D are flanged outward and riveted to the horizontal flanges of said binding-strip. As thus constructed the openings in the single rolled metal beam constituting the center-sill, for the reception of the draft-rigging, do not weaken the end of said center-sill, but add to its strength, and its ability to receive and resist the stress of the pulling and pushing of the draft-rigging.

The draft-rigging comprises a housing 2 for the springs 3, that consists of a tubular casing whose rear end 4 is closed and normally bears against the forward flanged end of the reinforcing plates H, and whose other end is open. This housing is placed in openings E, and retained therein by the up-turned ends of brackets 5, that are secured by rivets or bolts to the vertical flanges of the angle iron binding strips, below openings E. The length of housing 2 is less than opening E and its forward end does not reach column D, and in the space between said column and the housing, a buffing-block 6 is placed, that consists of a flanged truncated cone-shaped casing, whose rear end is solid, and which, in front of this rear solid portion, is provided with a vertical slot 7, that extends to and through its forward end. This slot 7 is of sufficient width to enable the forward portions of the resulting divisions of the block to pass forward on each side of column D. The forward ends of these divisions are provided with longitudinal extensions 8, 8, the space between which is increased to enable them to pass forward a short distance on either side of the rear end of the coupler. A short distance from its rear end the sides of the coupler are provided with laterally projecting bosses 9, against which the forward extremities of extensions 8 normally impinge, and said coupler is provided with a transverse opening which strikes through bosses 9 and forms a seat for a transverse key 10, whose ends project beyond the outer surface of said bosses a suitable distance. The vertical sides of the housing 2, preferably in the same horizontal plane as key 10 and about midway its length, are provided with lateral trunnions 11 and links 12 that connect these trunnions 11 with the projecting ends of the key 10. Links 12 consist, preferably, of a longitudinal bar the rear end of which is enlarged and provided with an opening to enable it to be slipped over the trunnions 11, and its forward ends are also enlarged and provided with a horizontally elongated opening 13, corresponding in height to the thickness,

but greater in length than the width of the key, the ends of which extend through said openings.

The springs 3 are located in the rear portion of the housing 2, and have their rear ends bear against the closed end, 4, of the same. The forward ends of said springs, however, bear forward against a follower-plate 14, within said housing the normal position of which is in a transverse plane slightly forward of the center of trunnions 11. The rear end of the buffer-block 6 communicates its movement to said follower-plate by means of one or more eccentrically journaled rolling members 15, the construction of which it is unnecessary to dwell on as they constitute part of a well known type of draft rigging now extensively in use.

In operation, when a pushing motion is imparted to the coupler it moves to the rear independently of the links 12 for a short distance, and, through the medium of the buffer-block and the rolling members 15, 15, slightly compresses the springs 3, which latter neutralize the shock and impart the strain through the rear end of opening E to the center-sill until the ends of the key come in contact with the rear end of elongated openings 13 of the links 12, whereupon the buffing strain is imparted direct to the housing of the springs and, through it to the center-sill. When the draw-bar is subjected to a pulling strain, the key 10, through the medium of links 12 draws the housing forward and compresses springs 3 against the follower-plate 14, members 15, the buffing-block 6, and the column D, until the limit of the forward compression of the springs is reached, or until said springs compress sufficient to resist the pulling strain. Thus it will be seen that the pulling strain is imparted to the center-sill and, through it, to the underframe of the car, through the medium of the column D, and the buffing or pushing strain, which is much greater than the pulling strain, is imparted to the center-sill through the rear end of opening E and the plates reinforcing the same to the center-sill.

What I claim as new is:—

1. The combination with a draft-rigging, of an end-sill, a frame secured to the outer side thereof and surrounding an opening through which the draw-bar extends, and a single I-beam center-sill the end of which is bifurcated to receive said draw-bar and the lower bifurcation of which is secured to said frame below said draw-bar.

2. The combination with a draft-rigging, of suitable end-sills and a single I-beam center-sill the ends of which are bifurcated and secured to said end-sills, and which is provided with a longitudinally elongated opening in alinement with the space be-

tween said bifurcations from which it is separated by a portion of the web of said beam.

3. The combination with a draft-rigging, 5 of suitable end-sills, and a single I-beam center-sill the ends of which are bifurcated and secured to said end-sills, and which is provided with a longitudinally elongated opening for the reception of the parts of 10 said draft-rigging, which is separated from the space between said bifurcations by a web integral with the web of said I-beam, and is of a greater height than said space.

4. The combination with a draft-rigging, 15 of suitable end-sills, and a single I-beam center-sill the ends of which are bifurcated and secured to said end-sill, and a longitudinally elongated opening in the web of said I-beam which alines with and is separated 20 from the space between said bifurcations by a portion of the web of the I-beam, and means for reinforcing the end of said opening farthest from the end-sill.

5. The combination with a draft-rigging, 25 of suitable end-sills, and a single I-beam center-sill the ends of which are bifurcated and secured to said end-sill, and a longitudinally elongated opening in the web of said I-beam, which alines with and is separated 30 arated from the space between said bifurcations by a portion of the web of the I-beam, and a reinforcing plate at the end thereof farthest from said draw-bar.

6. The combination with a draft-rigging, 35 of suitable end-sills, and a single I-beam center-sill the ends of which are bifurcated and secured to said end-sill, and a longitudinally elongated opening in the web of said I-beam which alines with and is separated 40 from the space between said bifurcations by a portion of the web of the I-beams and means for reinforcing the longitudinal edges of said opening.

7. The combination with a draft-rigging, 45 of suitable end-sills, and a single I-beam center-sill the ends of which are bifurcated and secured to said end-sill, and a longitudinally elongated opening in the web of said I-beam which alines with and is separated 50 from the space between said bifurcations by a portion of the web of the I-beam, and angle-irons for reinforcing the longitudinal edges of said opening.

8. The combination with a draft-rigging, 55 of suitable end-sills, and a single I-beam, center-sill the ends of which are bifurcated and secured to said end-sill, and a longitudinally elongated opening in the web of said I-beam which alines with and is separated 60 from the space between said bifurcations by a portion of the web of the I-beam, and a continuous U-shaped strip of angle iron on each side of the web of the center-sill secured so as to reinforce the longitudinal 65 edges of said opening.

9. The combination with the end-sills of a car, and a single rolled metal beam center-sill the ends of which are connected to said end-sills and are bifurcated and provided with a longitudinally elongated opening in alinement with and separated from 70 the bifurcations by a vertically disposed integral portion of the web of the said center-sill, of a draw-bar entering the space between said bifurcations, longitudinally disposed 75 springs, means for supporting the springs that normally engage the rear end of the same, and longitudinally disposed links connecting said means to said draw-bar.

10. The combination with the end-sills of a 80 car, and a single rolled metal center-sill the ends of which are connected to said end-sills and are bifurcated and provided with a longitudinally elongated opening in alinement 85 with and separated from the bifurcations by a vertically disposed integral portion of the web of said center-sill, of a draw-bar entering the space between said bifurcations, a transverse key seated in a suitable opening 90 in the rear portion of the draw-bar and having its ends projecting laterally beyond the sides of the same, longitudinally disposed springs, means for supporting the 95 same in said openings that normally engage the rear end of the same, and longitudinally disposed links the forward ends of which are provided with longitudinally elongated openings which enter the web of and are 100 fitted over the projecting ends of said key, and engage with said means.

11. In a car the combination with end-sills, and a single rolled metal beam center-sill the ends of which are connected to said 105 end-sills and bifurcated longitudinally, and is provided with a longitudinal opening alining with and separated from said bifurcations by a vertically disposed integral part of the web of said center-sill, longitudinally disposed springs and reciprocal 110 means for retaining the same, of a draw-bar movable in the space between said bifurcations, a buffer-block interposed between said springs and draw-bar, and links connecting the spring retaining means and said 115 draw-bar.

12. In a car the combination with end-sills, and a single rolled metal beam center-sill the ends of which are connected to said 120 end-sills and bifurcated longitudinally, and provided with a longitudinal opening alining with and separated from said bifurcations by a vertically disposed integral part of the web of said center-sill, longitudinally disposed springs, and reciprocal means 125 for retaining the same, of a draw-bar movable in the space between said bifurcations, a buffer-block interposed between said springs and draw-bar and divided longitudinally for a portion of its length so as to 130

pass on either side of said vertically disposed web, and links connecting the spring retaining means and said draw-bar.

13. In a car the combination with end-sills, and a single rolled metal beam center-sill the ends of which are connected to said end-sills and bifurcated longitudinally, and provided with a longitudinal opening alining with and separated from said bifurcations by a vertically disposed integral part of the web of said center-sill, longitudinally disposed springs and reciprocal means for retaining the same, of a draw-bar movable in the space between said bifurcations, a buffer-block interposed between said springs and draw-bar and divided longitudinally for a portion of its length so as to pass on either side of the vertically disposed web portion, and having longitudinally disposed forward extensions projecting from its forward end and passing forward on each side of said draw-bar, and links connecting the spring retaining means and said draw-bar.
14. In a car the combination with end-sills, and a single rolled metal beam center-sill the ends of which are connected to said end-sills and bifurcated longitudinally, and provided with a longitudinal opening alining with and separated from said bifurcations by a vertically disposed integral part of the web of said center-sill, longitudinally disposed springs, and reciprocal means for retaining the same, a draw-bar movable in the space between said bifurcations and provided with lateral shoulders, a buffer-block interposed between said springs and draw-bar and divided longitudinally for a portion of its length so as to pass on either side of the vertically disposed web portion, and having longitudinally disposed forward extensions projecting from its forward end and passing forward on each side of said draw-bar and engaging the lateral shoulders of the same, and links connecting the spring retaining means and said draw-bar.
15. In a car the combination with suitable end-sills, and a single rolled metal beam center-sill the ends of which are bifurcated and secured to said end-sills, and having its ends bifurcated and provided with a longitudinally elongated opening alining with and separated from the space between said bifurcations by a vertically disposed web-column, of draft-rigging comprising a suitable tubular housing the rear end of which normally engages the rear closed end of said opening, springs carried by said housing, a follower-plate engaged by the forward ends of said springs, and reciprocal in said housing, a draw-bar the rear end of which terminates adjacent to said web-column between said bifurcations, a buffer-block divided longitudinally for a portion of its length so as to pass forward on either side of said web-column and

having its forward edge engage said draw-bar, means connecting said follower-plate and buffer-block, and links connecting said housing and draw-bar which latter has a slight rearward movement independent of said links.

16. In a railway draft rigging, the combination with a single center sill in line with the draw-bar, and furnished with pockets to receive the draw-bar and cushioning devices of the draft rigging, of combined center sill reinforcing and draft lug members secured to the center sill web and having transversely extending integral limbs extending between the portions of the center sill web above and below the draft rigging cushioning devices, substantially as specified.

17. In a draft rigging, the combination with a draw-bar and a horizontally disposed draw-bar yoke, of a center sill in line with the draw-bar, having its upright web furnished with a recess to receive the draft rigging cushioning devices, and center sill reinforcing and draft lug members secured to said center sill web and surrounding said pocket therein, substantially as specified.

18. In a draft rigging, the combination with a draw-bar of a yoke, followers and cushioning devices, of a center sill in line with the draw-bar, and having its upright web cut out to form a recess or pocket to receive the draft rigging followers and cushioning devices, and web-reinforcing and draft-lug members secured to said center sill web and surrounding said recess, said web-reinforcing and draft-lug members fitting on both sides of said center sill web, substantially as specified.

19. In a draft rigging, a center sill having a portion of its central web cut out to form a pocket to receive draft rigging followers and cushioning devices, and provided with combined web reinforcing and draft lug members secured to said web and surrounding said pocket at sides and ends, substantially as specified.

20. In a draft rigging, a center sill having a portion of its central web cut out to form a pocket to receive draft rigging followers and cushioning devices, and provided with combined web reinforcing and draft lug members secured to said web and surrounding said pocket at sides and ends, substantially as specified.

21. A draft and buffing gear comprising a single draft beam, cheek plates secured to opposite sides of the beam, a draw bar, followers, a cushioning device in connection with the followers, and means connecting the draw bar with the rear follower.

22. A draft and buffing gear comprising a single flanged metallic beam, cheek plates secured to opposite sides of the beam, a draw bar, followers, a cushioning device in connection with the followers, and means con-

necting the draw bar with the rear follower.

23. A draft and buffing gear comprising an I beam with part of its web removed, cheek plates secured to opposite sides of the beam, a draw bar, followers, a cushioning device in connection with the followers, and means connecting the draw bar with the rear follower.

In testimony whereof I have hereunto set my hand and seal this 7th day of April, 10 A. D. 1908.

WILLIAM P. BETTENDORF. [L. S.]

Witnesses:

G. S. THOMPSON,  
E. K. LUNDY.