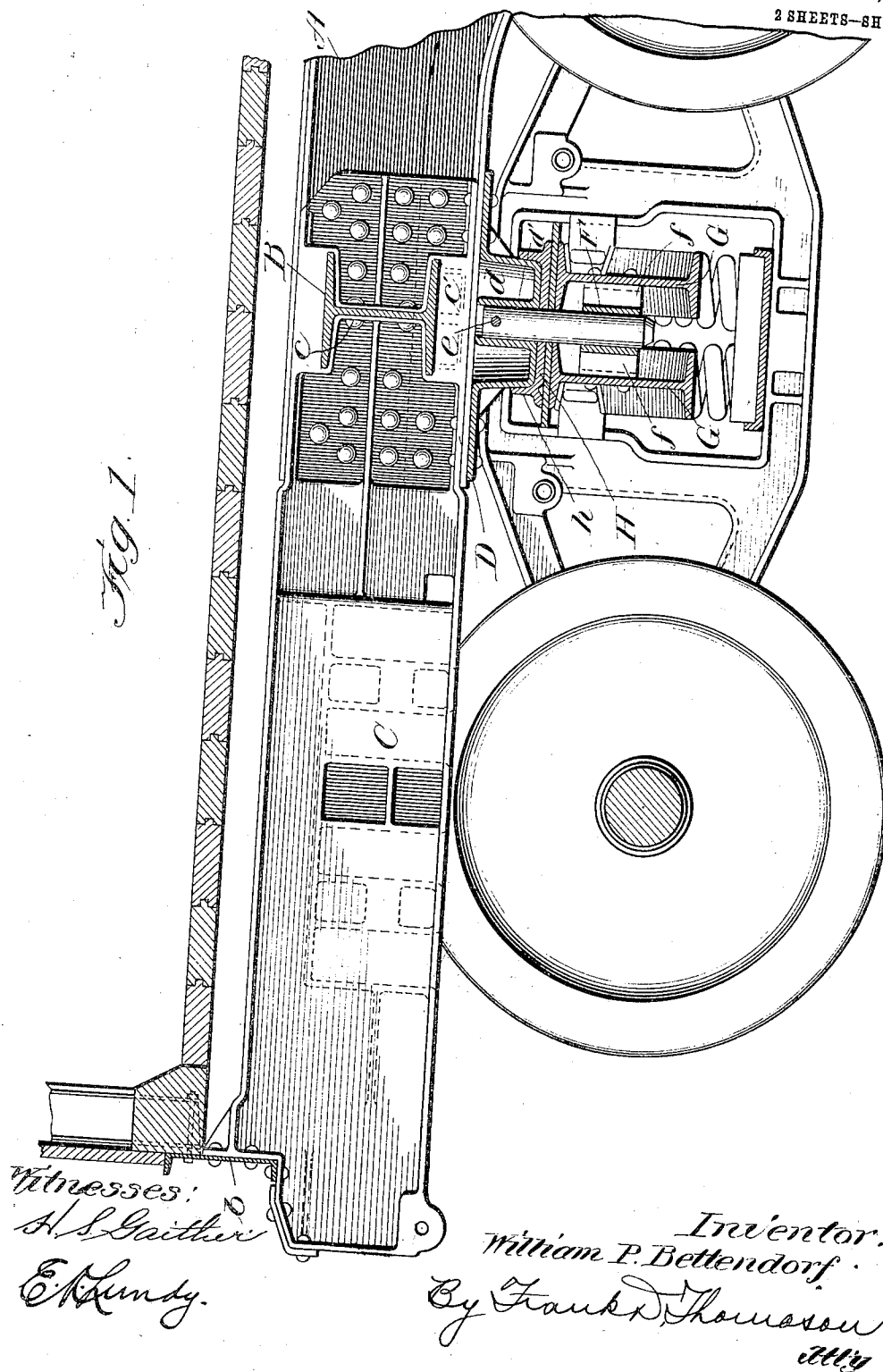


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UNDERFRAME FOR CARS.
APPLICATION FILED NOV. 3, 1909.

Patented May 10, 1910.

2 SHEETS—SHEET 1.



Witnesses:
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William P. Bettendorf.
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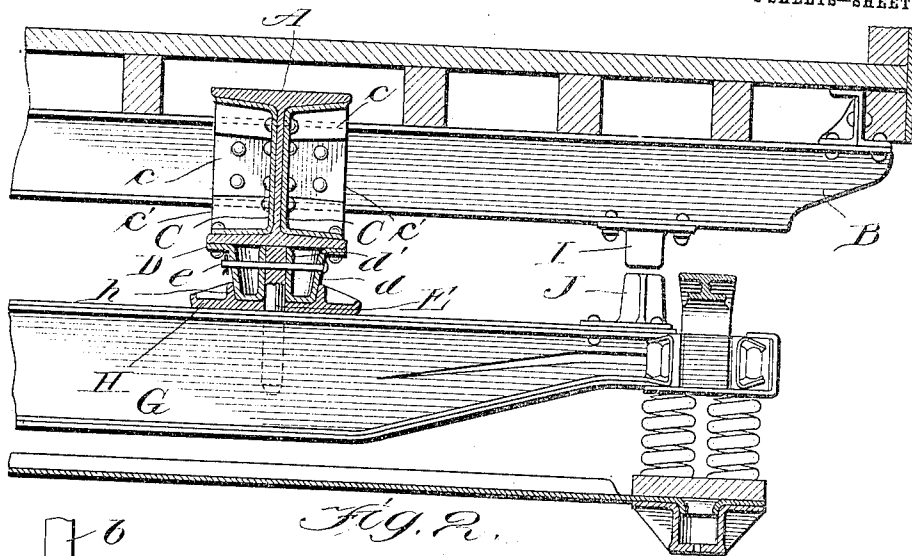


Fig. 2.

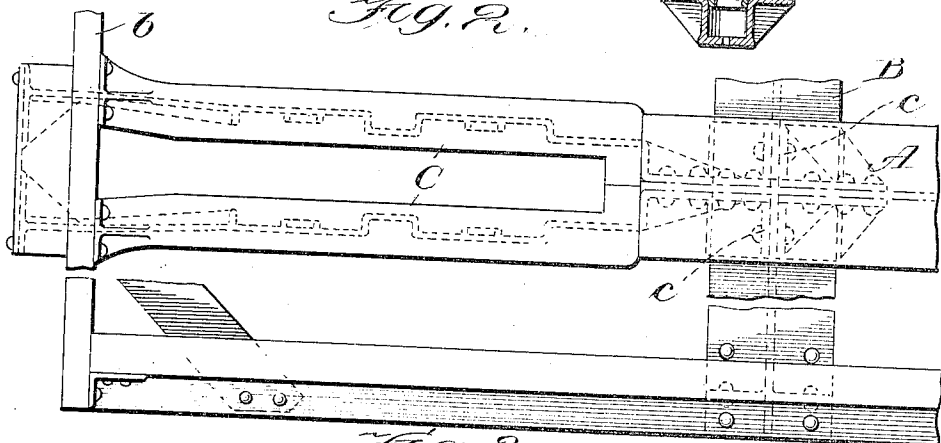


Fig. 3.

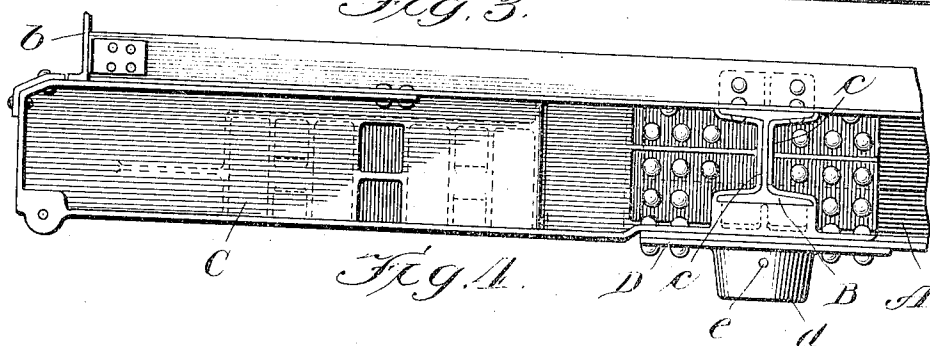


Fig. 4.

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UNITED STATES PATENT OFFICE.

WILLIAM P. BETTENDORF, OF DAVENPORT, IOWA.

UNDERFRAME FOR CARS.

957,182.

Specification of Letters Patent.

Patented May 10, 1910.

Application filed November 3, 1908. Serial No. 526,693.

To all whom it may concern:

Be it known that I, WILLIAM P. BETTENDORF, a citizen of the United States, residing at Davenport, in the county of Scott and State of Iowa, have invented new and useful Improvements in Underframes for Cars, of which the following is a full, clear, and exact description.

My invention relates to the underframes of railway cars, especially underframes that are constructed wholly or partly of metal. In the make-up of underframes of this type, especially where the center-sill is made of I-beams and the draft-sills are made of cast-metal, the weakest place in these elements is at the point where one or the other is intersected by the body-bolster. In order to accommodate said body-bolster the vertical web, and sometimes the lower flange of the center-sill and the draft-sills are cut-away to arch over the same. This displacement of the metal of the center-sill or the cast draft-sills of necessity weakens that particular portion of the underframe, and it is therefore the object of my invention to construct both the center-sill and the draft-sills in a novel manner so that the body-bolster may be passed through the same without appreciably affecting the strength of either. This I accomplish by lapping the adjacent ends of the center-sill and the draft-sills past each other, riveting or otherwise securing the same together, and passing the body-bolster through a suitable opening made in said sills, all in the manner hereinafter fully described and as particularly pointed out in the claims.

Referring to the accompanying drawings, which form a part hereof, it will be seen that, Figure 1 is a longitudinal central section taken through the floor, underframe, and truck of a railway car, showing the manner of applying my improvements thereto. Fig. 2 is a transverse vertical section of the same taken in front of the bolsters and looking toward the opposite end of the car. Fig. 3 is a fragmental plan view of one end portion of my improved center-sill and one side-sill of the underframe. Fig. 4 is a side elevation of a similar portion of the underframe from which the truck and other parts have been removed.

In the drawings, A, represents a suitable center-sill, that is constructed, preferably, of a suitable single commercial form of I-

beam. This center-sill extends longitudinally toward the opposite ends of the car beyond the transverse plane of the body-bolsters B, and terminates between said bolsters and the end-sills *b* of the same. At the points where the plane of the body-bolsters intersect the center-sill, the metal of the vertical web of the latter is, preferably displaced to form openings that conform in shape to the transverse contours of the body-bolsters.

Secured to and extending beyond the ends of the center-sill are suitable oppositely shaped draft-sills C, C, for the reception and retention of the draft-rigging (not shown). These draft-sills are preferably of cast-metal and form bifurcated extensions of said center-sill, the ends of which farthest therefrom are secured to the end-sills *b*. The inner ends of these draft-sills lap past the adjacent ends of the center-sills and extend past the transverse vertical plane of the bolsters. At the point of intersection of the center-sill by the body-bolster the webs of these draft-sills are provided with openings similar to that made in the center-sill, and these openings are, preferably, surrounded by integral lateral flanges *c*, *c*, between which the bolster B passes and is secured. These flanges, *c*, project laterally from the central vertical web of the draft-sill casting a distance preferably corresponding to the width of the upper and lower flanges of the center-sill, and the lower portion of flanges *c* may be reinforced, if desired, to form a shelf *c'* as it were, that adds rigidity to that portion of the underframe. In this construction the bolster is necessarily elevated to a plane too high to permit the center-bearing of the car to be secured directly thereto. I therefore prefer to make this bearing of a plate D, that is shaped so as to be secured to the underside of the lower flange of the center-sill, and is provided with a downwardly elongated bearing-boss *d*, the center of which is in vertical alinement with the point of intersection of the bolster and center-sill. A tubular-shaped core *d'* projects upwardly from the center of this boss *d* and provides a suitable socket for the upper end of a king-bolt E that is retained therein by means of a transverse pin *e* passed through said core and boss (as shown in detail in Fig. 2 of the drawing). The bearing for

the lower end of the king-bolt E, preferably, comprises a suitable hollow sleeve F arranged in vertical alinement with the core *d'* and which is provided with laterally projecting brackets or webs *f* that are riveted or otherwise secured to the vertical webs of the metallic construction forming the truck-bolster G of the car. Mounted on the top of the truck-bolster, midway its ends, is the female bearing-plate H, having a central opening down through which the king-bolt passes, and having its circular flange or concentric rib *h* of such shape as to form a seat for the lower portion of the male bearing-boss.

In view of the increased distance between the body-bolster and truck-bolster resulting from my improved construction it is necessary to elongate the side-bearings of either the truck-bolster or the body-bolster. These side-bearings I and J are made in the usual manner and are riveted to the body-bolster and truck-bolster at points just inside the vertical plane of the side-frames of the car-truck, and I prefer to make the side-bearing of the truck-bolster the elongated member, substantially as shown.

The construction of the truck and side-frames herein shown are very similar to those set forth and described in United States Letters Patent No. 849,194, granted to me April 2nd, 1907, for improvements in car-trucks, and therefore needs no detailed description herein.

What I claim as new is:—

1. An underframe for cars comprising a center-sill terminating between the end sills and bolsters thereof, and draft-sills the rear ends of which bend toward and lap past the ends of said center-sill at the intersecting plane of the body-bolsters.

2. An underframe for cars comprising a single I-beam center-sill and draft-sills that lap past the end of the center-sill between the upper and lower edges thereof in the intersecting plane of the body-bolsters.

3. An underframe for cars comprising a single I-beam center-sill and cast-metal draft-sills that lap past the ends of the center-sills in the intersecting plane of the body-bolsters.

4. An underframe for cars comprising a single center-sill and cast-metal draft-sills that lap past the end of the center-sill between the upper and lower edges thereof in the intersecting plane of the body-bolsters.

5. An underframe for cars comprising a center-sill and draft-sills that lap past the end of the center-sill between the upper and lower edges thereof in the intersecting plane of the body-bolsters and are directly connected together.

6. An underframe for cars comprising a single center-sill and draft-sills that lap past the end of the center-sill between the

upper and lower edges thereof in the intersecting plane of the body-bolsters and are directly connected together.

7. An underframe for cars comprising a single I-beam center-sill and cast-metal draft-sills that lap past the ends of the center-sills in the intersecting plane of the body-bolsters and are directly connected together.

8. An underframe for cars comprising a single center-sill and cast-metal draft-sills that lap past the end of said center-sill at the intersecting plane of the body-bolsters and are directly connected to the vertical web of the same.

9. An underframe for cars comprising a center-sill and draft-sills that lap past the end of said center-sill between the upper and lower edges thereof and have parts of their lapping portions displaced to permit the passage of the body-bolsters.

10. An underframe for cars comprising a single center-sill and draft-sills that lap past the end of said center-sill between the upper and lower edges thereof and have parts of their lapping portions displaced to permit the passage of the body-bolsters.

11. An underframe for cars comprising a single I-beam center-sill and cast-metal draft-sills that lap past the end of said center-sill and have parts of their lapping portions displaced to permit the passage of the body-bolsters.

12. An underframe for cars comprising a single center-sill and cast-metal draft-sills that lap past the end of said center-sill and together with said center-sill have parts of their lapping portions displaced to permit the passage of the body-bolsters.

13. An underframe for cars comprising a center-sill and draft-sills that lap past the end of said center-sill and are directly connected thereto and together therewith have parts of their lapping portions displaced to permit the passage of the body-bolsters.

14. An underframe for cars comprising a single center-sill and draft-sills that lap past the end of said center-sill and are directly connected thereto and together with said center-sill have parts of their lapping portions displaced to permit the passage of the body-bolsters.

15. An underframe for cars comprising a single I-beam center-sill and cast-metal draft-sills that lap past the end of said center-sill and are directly connected together and have parts of their lapping portions displaced to permit the passage of the body-bolsters.

16. An underframe for cars comprising a center-sill and draft-sills that lap past the end of said center-sill, and have together therewith openings in their lapping portions to permit the passage therethrough of the body-bolsters.

17. An underframe for cars comprising a single center-sill and draft-sills that lap past the ends of the center-sill between the upper and lower edges thereof and have together therewith openings in their lapping portions to permit the passage therethrough of the body-bolsters.

18. An underframe for cars comprising a single I-beam center-sill and cast-metal draft-sills that lap past the ends of the center-sill and have openings in their lapping portions to permit the passage therethrough of the body-bolsters.

19. An underframe for cars comprising a single center-sill and cast-metal draft-sills that lap past the ends of the center-sill between the upper and lower edges thereof and together therewith have openings in their lapping portions to permit the passage therethrough of the body-bolsters.

20. An underframe for cars comprising a center-sill and draft-sills that lap past the ends of the center-sill between the upper and lower edges thereof and are directly connected thereto and have openings in their lapping portions to permit the passage therethrough of the body-bolsters.

21. An underframe for cars comprising a single center-sill and draft-sills that lap past the ends of the center-sill between the upper and lower edges thereof and are directly connected together and having openings in their lapping portions to permit the passage therethrough of the body-bolsters.

22. An underframe for cars comprising a single I-beam center-sill and cast-metal draft-sills that lap past the end of said center-sill and are directly connected together and have openings in their lapping portions to permit the passage therethrough of the body-bolsters.

23. An underframe for cars comprising a center-sill and draft-sills that lap past the end of said center-sill and have openings in said overlapping portions, body-bolsters passing through said openings above the plane of the lower edges of said sills, and center-bearing plates secured to said lower edges.

24. An underframe for cars comprising a center-sill and draft-sills that lap past the end of said center-sill and have openings in said overlapping portions, body-bolsters passing through said openings above the plane of the lower edges of said sills, and center-bearing plates having an elongated bearing-boss secured to said lower edges.

25. An underframe for cars comprising a

center-sill and draft-sills that lap past the end of said center-sill and have openings in said overlapping portions, body-bolsters passing through said openings above the plane of the lower edges of said sills, a suitable truck-bolster, and a king-bolt the top of which is below said sills.

26. An underframe for cars comprising a center-sill and draft-sills that lap past the end of said center-sill and have openings in said overlapping portions, body-bolsters passing through said openings above the plane of the lower edges of said sills, center-bearing plates secured to said lower edges, and a king-bolt.

27. An underframe for cars comprising a center-sill and draft-sills that lap past the end of said center-sill and have openings in said overlapping portions, body-bolsters through said openings above the plane of the lower edges of said sills, center-bearing plates secured to said lower edges, and a king-bolt secured in place and retained below said body-bolster and independent thereof.

28. An underframe for cars comprising a single center-sill and draft-sills the rear ends of which bend toward and lap past the adjacent ends of the center-sill at the intersecting planes of the body-bolsters.

29. An underframe for cars comprising a single center-sill the ends of which terminate between the end-sills and body-bolsters, and draft-sills that lap past the adjacent ends of the center-sill in the intersecting planes of the body-bolsters.

30. An underframe for cars comprising a single center-sill, and cast metal draft-sills that lap past and are directly secured to the end portions of said center-sill and are provided between the flanges of their lapping portions with openings to permit the passage of the body-bolsters.

31. An underframe for cars comprising a single center-sill and cast metal draft-sills that lap past and are directly connected to opposite sides of the end portion of said center-sill, and together therewith have openings in their lapping portions between their flanges to permit the passage therethrough of the body-bolsters.

In witness whereof I have hereunto set my hand this 29th day of October 1909.

WILLIAM P. BETTENDORF.

Witnesses:

A. B. FRENIER,
JOHN H. PLOEHN.