

W. P. BETTENDORF, DEC'D.  
J. W. BETTENDORF, ADMINISTRATOR.

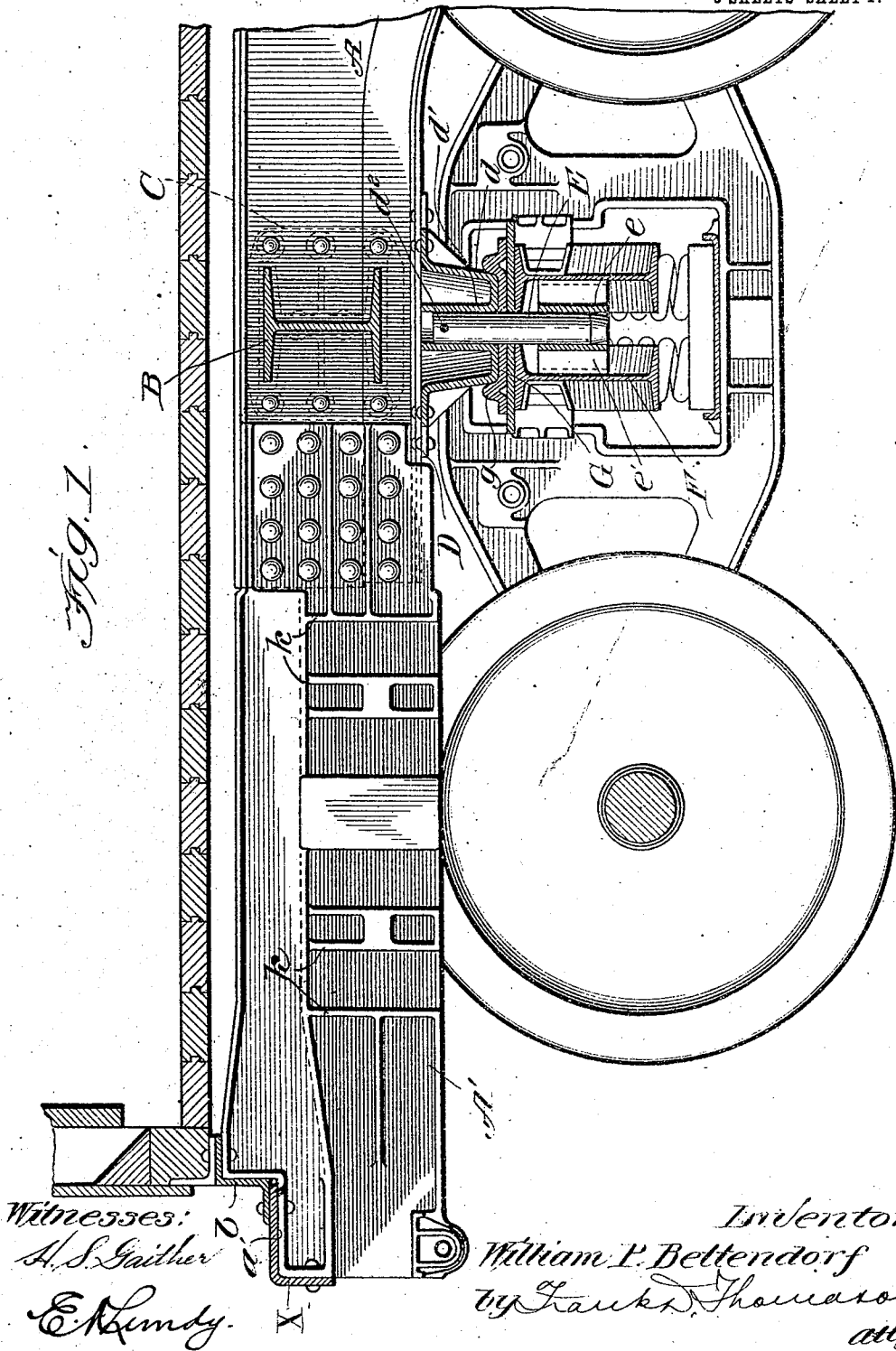
UNDERFRAME FOR CARS.

APPLICATION FILED NOV. 8, 1909.

1,061,351.

Patented May 13, 1913.

3 SHEETS-SHEET 1.



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Fig. 2.

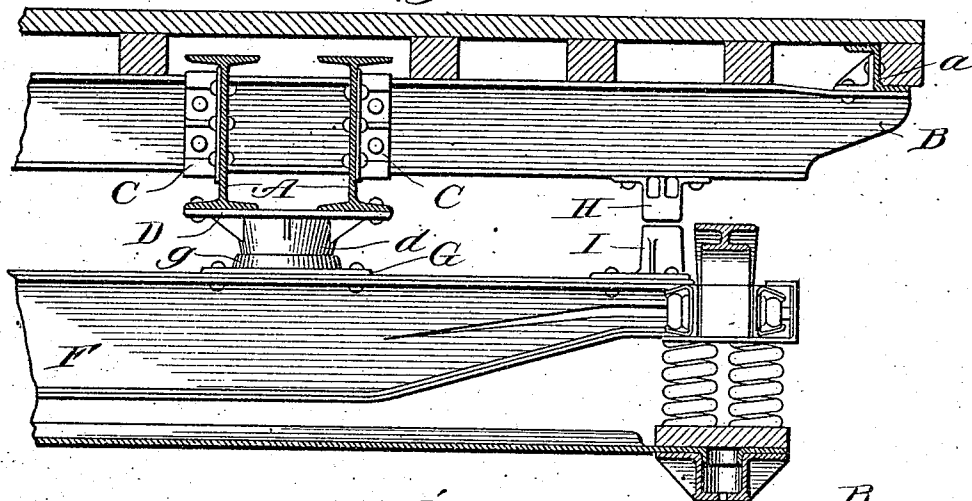
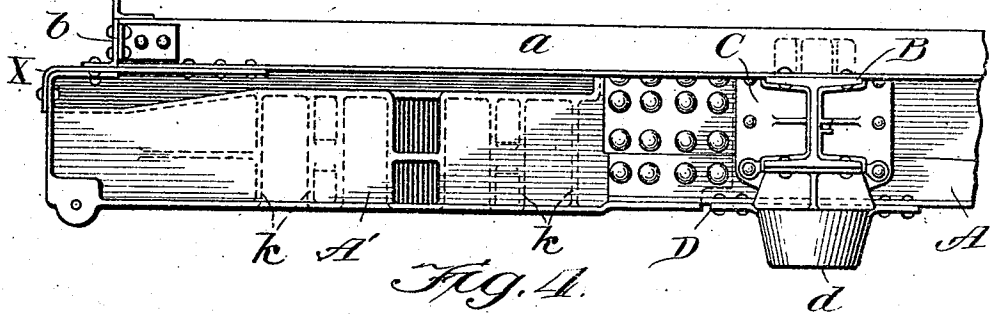
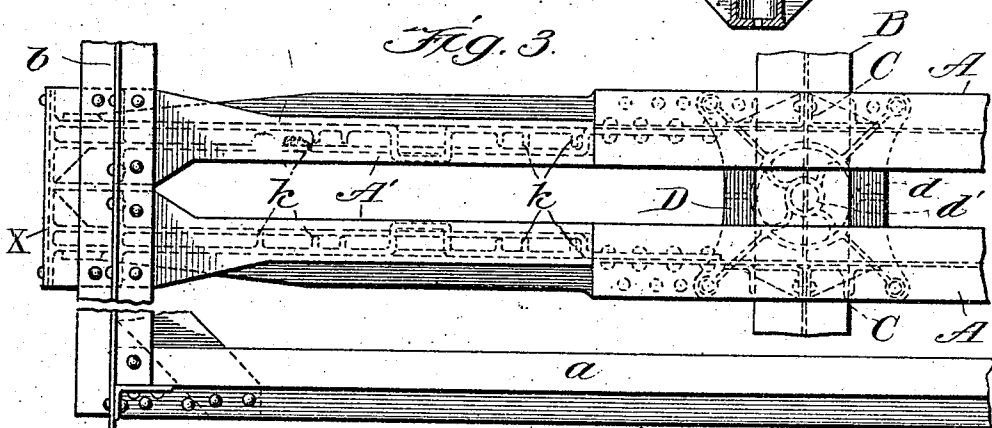


Fig. 3.



Witnesses:

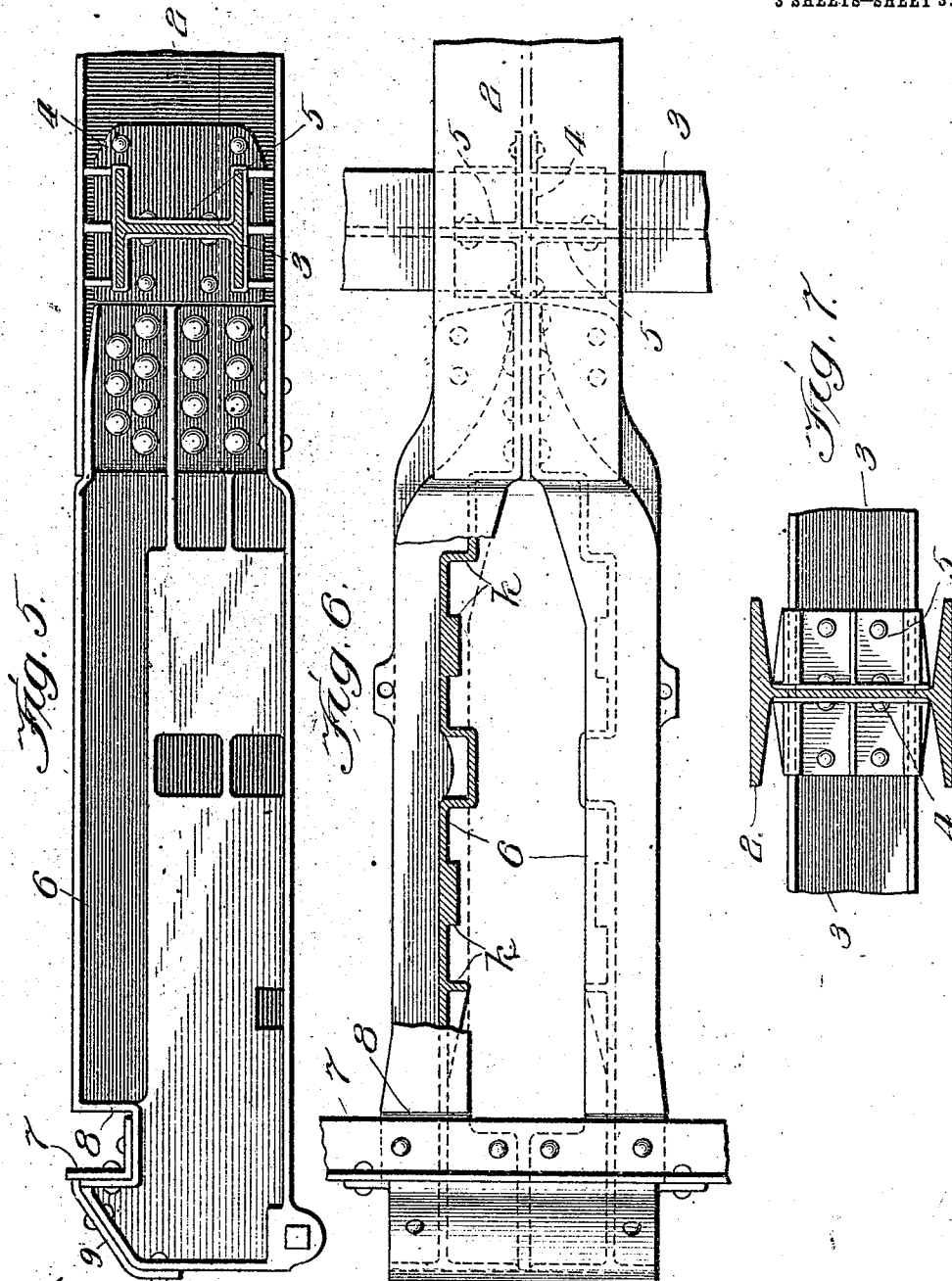
Harry S. Gaither  
E. K. Lindy

Inventor:  
William P. Bettendorf  
by Frank D. Thompson  
att'y

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# UNITED STATES PATENT OFFICE.

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

## UNDERFRAME FOR CARS.

1,061,351.

Specification of Letters Patent.

Patented May 13, 1913.

Application filed November 8, 1909. Serial No. 526,868.

*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 constructed of commercially formed beams and castings.

More particularly stated, my improvement relates to the arrangement of the center-sill and the draft-sills with a view to making the same staunch and durable in construction and capable of withstanding or resisting the shocks and strains to which the underframe, and especially the draft-sills and center-sill are subjected, while the car is in use.

It is the object of my invention to accomplish this in an effective manner, having in mind both economy of construction and the rigorous requirements imposed upon car-manufacturers. I accomplish this by extending the center-sill past the body-bolsters of the car in each direction, securing the draft-sills to the extended ends of the same to the end-sills, and passing the body-bolsters through the center-sill back of the inner ends of the draft-sills, all in the manner hereinafter fully described and as more particularly pointed out in the claims.

By reference to the accompanying drawings, which form a part hereof, it will be seen that Figure 1 is a longitudinal central sectional view taken through the floor, underframe, and truck of a railway car, showing my improvements applied thereto. Fig. 2 is a transverse vertical section of the same, taken in front of the body-bolster, and looking toward the opposite end of the car. Fig. 3 is a fragmental plan view of one end portion of the center-sill and one side-sill. Fig. 4 is a side elevation of a similar portion of the underframe from which the truck and its parts have been omitted. Fig. 5 is a fragmental side elevation similar to Fig. 1 (omitting the car-truck) of a slightly modified construction wherein but a single center-sill is used. Fig. 6 is a top plan view of the same, and Fig. 7 is a transverse vertical section there-

of taken in front of the body-bolster, and looking toward the opposite end of the car.

Referring to Figs. 1 to 4 of the drawings, A, A, represent a suitable center-sill, that is, preferably, constructed of two longitudinally disposed parallel I-beams extending continuously from near one end of the car to near the other end thereof, and having its ends passing beyond the transverse vertical plane of the body-bolsters B and terminating at a point mediate said body-bolsters and the end-sills b of the car. The body-bolsters are, preferably, of any suitable construction, and their ends support the angular metal side-sills a. These bolsters are, preferably, made of one or more I-beams, and pass through openings in the web of the center-sill, the contour of which conform to the transverse contours of the bolster. Reinforcing gusset-plates C, C, having openings therein, corresponding to the transverse outline of said bolsters, are riveted or otherwise suitably secured to the vertical webs of the center-sill and said bolsters, and retain the latter in proper position. The draft-sills A', A', between which suitable draft-rigging are mounted, are preferably of cast-metal, and have reduced ends that are riveted or otherwise secured to the portions of the center-sill A and are provided with integral stop-lugs for the reception of the usual follower-plates of the draft-rigging (not shown). The outer ends of these draft-sills converge toward each other so that between their ends the vertical webs are spaced apart a suitable distance. The outer ends of said sills extend beyond the end-sills b of the car and are suitably secured to and support the same, while their rear ends are reduced and lap past the adjacent ends of the center-sill members and terminate at points between the body-bolsters and said end-sills. The portions of these draft-sills that extend beyond the end-sills are adapted to form buffers to take up the shock and relieve the strain on the end-sills, and their extremities are protected by suitably shaped striking-plate X. The seat for the end-sills is made in extended ends of these draft-sills by displacing a portion of the metal of the upper part thereof at the point where the end-sills intersect said draft-sills, or by forming a stepped portion, substantially as

shown. Owing to the fact that this construction elevates the lower flange of the bolster to such an extent that the center-bearing and king-bolt cannot conveniently be disposed in the customary manner, it becomes necessary to take care of these parts in some other manner. This I accomplish by the novel arrangement, shown in detail in Fig. 1 of the drawings, in which the center-bearing plate D is shown to be secured to and spanning the lower flanges of the center-sill members in alinement with the intersecting plane of the same, with its central portion forming a vertically elongated bearing-boss *d*.

A hollow core *d'* projects axially up from the bottom of boss *d*, and provides the upper bearing for the king-bolt E, which latter is secured in place by a transversely disposed pin *d''* driven through its upper end and through the upper portion of boss *d* and the core *d'*. The lower bearing for the king-bolt comprises a hollow sleeve *e* provided with lateral flanges or webs *e'*, that are secured to the vertical webs of the metallic construction forming the truck-bolsters F of the car. Mounted on the upper portion of the truck-bolster F in vertical alinement with the central bearing-boss, is the female portion G of said center-bearing. This member G preferably comprises a suitably shaped plate provided with a circular flange *g* of proper shape to form a seat for the lower portion of the bearing-boss *d*, and it has a central opening down through which the king-bolt E passes. This construction necessitates the elongation of one or the other (or both) of the side-bearings H and I, that are mounted, respectively, upon the body-bolsters and the truck-bolsters, and, as shown in Fig. 2 of the drawings, I prefer to make the side-bearing H, that is mounted on the truck-bolster, the elongated member, substantially as shown.

I have heretofore described my improvements applied to a double I-beam center-sill, but of course it will be understood that the same may be applied to a single I-beam center-sill, or a composite center-sill, or the like. In Figs. 5, 6, and 7, I show a modified construction wherein my improvements are shown employed in connection with a single I-beam center-sill 2. This center-sill 2 extends beyond the body-bolster 3 at each end of the car, and it is intersected by the latter, preferably mediate its upper and lower flanges. A reinforcing gusset-plate 4 is secured to both sides of the web of the center-sill, and the metal thereof is displaced to accommodate said bolster, and said plates have lateral flanges 5 surrounding the bolster-opening that project outwardly substantially the width of the center-sill flanges, and are riveted or otherwise suitably secured to the web of the bolster. The draft-sills 6, 6,

comprise suitable integral castings for the draft-rigging that are secured to the ends of the center-sills projecting beyond the body-bolsters. The opposite ends of these draft-sills extend to and under and are secured to the end-sills 7 of the underframe, substantially as shown, and in order to accommodate these end-sills, said draft-sills have a suitable portion 8 thereof displaced to form a seat, as it were, for said end-sills, beyond which they extend to form the car-buffers that are provided with suitable striking-plates 9. As in the preferred form of my invention the portions of the draft-sills lapsing past the center-sill are slightly reduced in height so that the same may be conveniently secured to the web of said center-sill between the flanges thereof.

What I claim as new is:—

1. An underframe for cars comprising end-sills and integral body-bolsters of flanged form extending from side-sill to side-sill, a continuous center-sill terminating at points mediate the end-sills and body-bolsters which latter pass through the web of the center-sill mediate the flanges thereof, and cast-metal draft-sills that have their rear ends bend toward, lap past, and secure to the web of the ends of the center-sill in front of the transverse plane of the body-bolsters.

2. An underframe for cars comprising end-sills and integral body-bolsters of flanged form extending from side-sill to side-sill, a continuous center-sill terminating at points mediate the end-sills and body-bolsters which latter pass through the web of the center-sill mediate the flanges thereof, center bearing-plates secured to the flange of said center-sill below the body-bolsters, and cast-metal draft-sills that have their rear ends bend toward, lap past, and secured to the web of the ends of the center-sill in front of the transverse plane of the body-bolsters.

3. An underframe for cars comprising end-sills and integral body-bolsters of flanged form extending from side-sill to side-sill, a continuous center-sill terminating at points mediate the end-sills and body-bolsters which latter pass through the web of the center-sill mediate the flanges thereof, and cast-metal draft-sills that have their rear ends bend toward, lap past, and secured to the web of the ends of the center-sill in front of the transverse plane of the body-bolsters, and having their forward portions built toward each other.

4. An underframe for cars comprising end-sills and integral body-bolsters of flanged form extending from side-sill to side-sill, a continuous center-sill terminating at points mediate the end-sills and body-bolsters which latter pass through the web of the center-sill mediate the flanges thereof, center bearing-plates secured to the flange

of said center-sill below the body-bolsters, and cast-metal draft-sills that have their rear ends bend toward, lap past, and secured to the web of the ends of the center-sill in front of the transverse plane of the body-bolsters, and having their forward portions built toward each other.

5. An underframe for cars comprising end-sills and integral body-bolsters of flanged form extending from side-sill to side-sill, a continuous center-sill terminating at points mediate the end-sills and body-bolsters which latter pass through the web of the center-sill mediate the flanges thereof, draft-sills having their rear ends secured to and lapping past the end of the center-sill in front of said body-bolsters and connecting said center-sill to said end-sills, and a striking-plate secured directly to the front ends of said draft-sills.

6. An underframe for cars comprising end-sills and integral body-bolsters of flanged form extending from side-sill to side-sill, a continuous center-sill terminating at points mediate the end-sills and body-bolsters which latter pass through the web of the center-sill mediate the flanges thereof, cast-metal draft-sills that have their rear ends bend toward, lap past, and secured to the web of the ends of the center-sill in front of the transverse plane of the body-bolsters, and having their front ends extending past the end-sills, and a striking-plate secured directly to the front ends of said draft-sills.

7. An underframe for cars comprising end-sills and integral body-bolsters of flanged form extending from side-sill to side-sill, a continuous center-sill terminating at points mediate the end-sills and body-bolsters which latter pass through the web of the center-sill mediate the flanges thereof, center bearing-plates secured to the flange of said center-sill below the body-bolsters, cast-metal draft-sills that have their rear ends bend toward, lap past and secured to the web of the ends of the center-sill in front of the transverse plane of the body-bolsters, and a striking-plate secured directly to the front ends of said draft-sills.

8. An underframe for cars comprising end-sills and integral body-bolsters of flanged form extending from side-sill to

side-sill, a continuous center-sill terminating at points mediate the end-sills and body-bolsters which latter pass through the web of the center-sill mediate the flanges thereof, center bearing-plates secured to the flange of said center-sill below the body-bolsters, cast-metal draft-sills that have their rear ends bend toward, lap past and secured to the web of the ends of the center-sill in front of the transverse plane of the body-bolsters, and having their front ends extending past the end-sills, and a striking plate secured directly to the front ends of said draft-sills.

9. An underframe for cars comprising end-sills, side-sills, integral body-bolsters of flanged form extending continuously from side-sill to side-sill, a single center-sill the ends of which terminate between said body-bolsters and end-sills, and cast-metal draft-sills that have their rear ends bend toward, lap past, and secured to the web of the ends of the center-sill in front of the transverse plane of the body-bolsters.

10. An underframe for cars comprising end-sills, side-sills, a single center-sill the ends of which terminate between the body-bolsters and end-sills, said body-bolsters which are of flanged form and extend continuously from side-sill to side-sill and pass through the web of the center-sill, and cast-metal draft-sills that have their rear ends bend toward, lap past, and secured to the web of the ends of the center-sill in front of the transverse plane of the body-bolsters.

11. An underframe for cars comprising end-sills and integral body-bolsters of flanged form extending from side-sill to side-sill, a continuous center-sill terminating at points mediate the end-sills and body-bolsters which latter pass through the web of the center-sill mediate the flanges thereof, gusset reinforcing plates secured to said center-sill that are pierced by said body-bolsters, and draft-sills that have their ends bend toward, lap past, and secured to the web of the ends of the center-sill in front of the transverse plane of the body-bolsters.

In witness whereof I have hereunto set my hand this 4th day of November 1909.

WILLIAM P. BETTENDORF.

Witnesses:

A. B. FRENIER,  
HENRY BELLINGHAUSEN.