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A. E. OSTRANDER.

CAR UNDERFRAME.

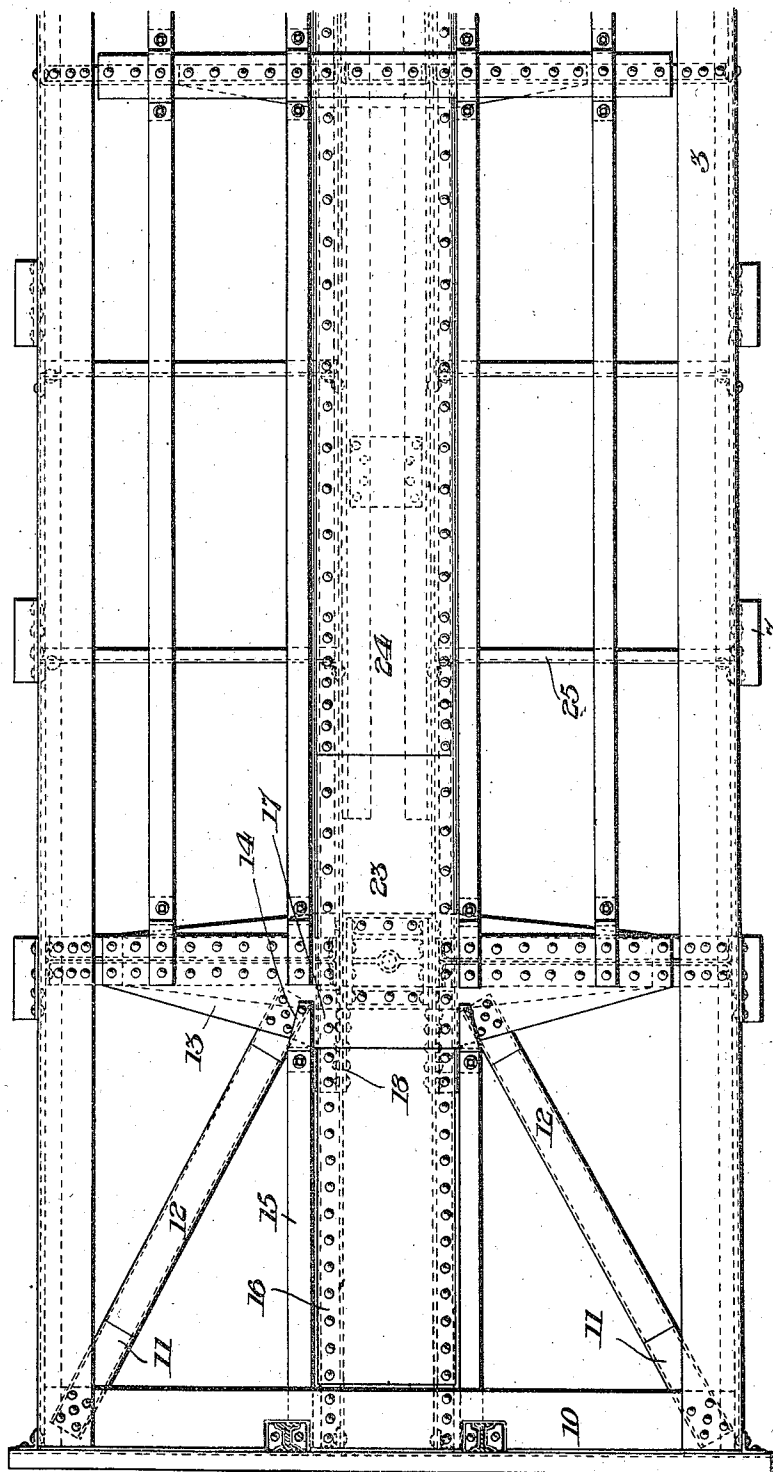
APPLICATION FILED MAY 21, 1910.

1,042,469.

Patented Oct. 29, 1912.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses:

Alex. Scott  
Wm. H. Finkel

Inventor:  
Allen E. Ostrander  
by F. H. Gibbs  
Att'y

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2 SHEETS-SHEET 2.

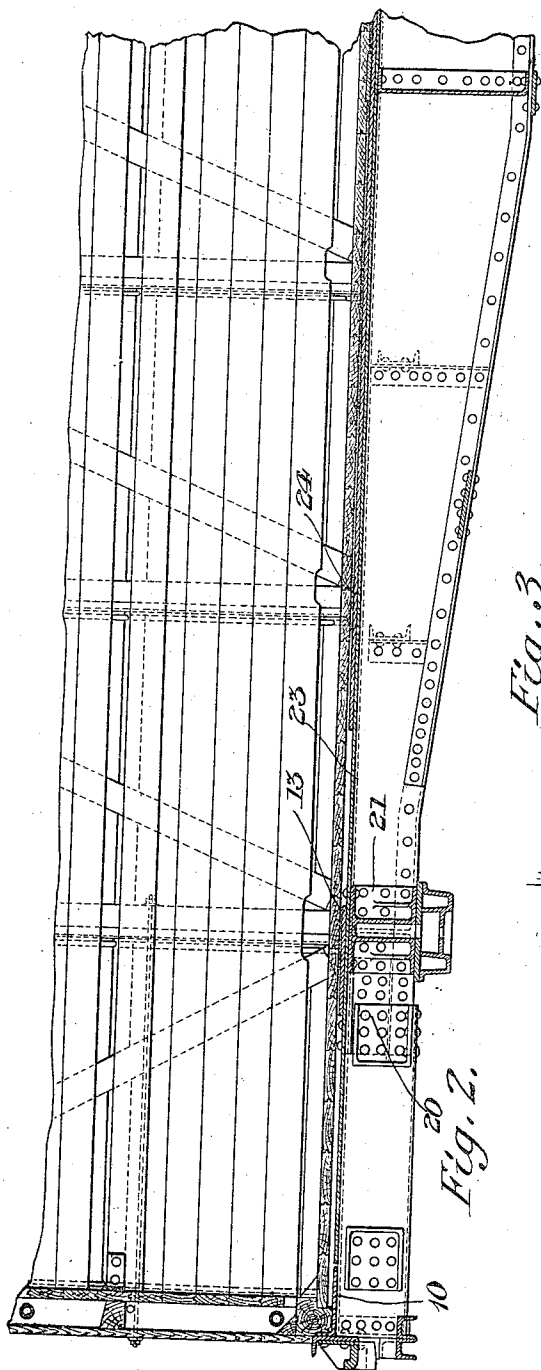


Fig. 2.

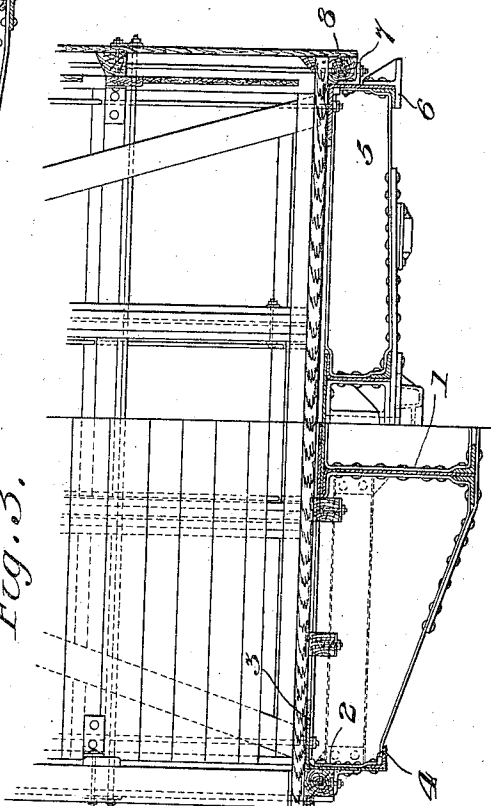


Fig. 3.

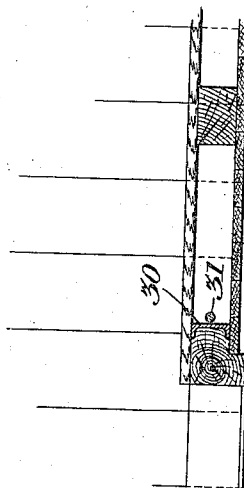


Fig. 4.

Witnesses:

*Alvin Scott*  
*W. H. Finckel*

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# UNITED STATES PATENT OFFICE.

ALLEN E. OSTRANDER, OF RIDGEWOOD, NEW JERSEY, ASSIGNOR TO AMERICAN CAR AND FOUNDRY COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF NEW JERSEY.

CAR-UNDERFRAME.

1,042,469.

Specification of Letters Patent.

Patented Oct. 29, 1912.

Application filed May 21, 1910. Serial No. 562,705.

*To all whom it may concern:*

Be it known that I, ALLEN E. OSTRANDER, residing at Ridgewood, New Jersey, and being a citizen of the United States, have invented certain new and useful Improvements in Car-Underframes, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and to use the same, reference being had to the accompanying drawings, which illustrate the preferred form of the invention, though it is to be understood that the invention is not limited to the exact details of construction shown and described, as it is obvious that various modifications thereof will occur to persons skilled in the art.

In said drawings:—Figure 1 is a plan view of the end portion of my improved underframe. Fig. 2 is a central longitudinal sectional view through the underframe and a portion of the car body. Fig. 3 shows—at the right hand side—a transverse section taken relatively just back of the bolster, and at the left hand side a transverse section between one of the principal cross-bearers and the body bolster, looking in the direction of the cross-bearer. Fig. 4, shows a fragmental section of the post illustrating a method of bracing the same for the construction shown and a manner of utilizing a tie-rod within the walls of the car to reinforce the construction.

Referring to the parts, 1—1 indicate the center sills which are of the fish belly type with pressed integral top flanges and separately formed and attached lower flanges substantially as shown in Ostrander Patent No. 861,313 of July 30th, 1907.

2—2 indicate the sills in which—to a great extent—the invention resides whereby side sills are economically formed and adapted to be attached to the other members of the car in the manner and for the purpose hereinafter specifically set forth. The side sills 2 are provided with integral vertical web portions and top flange portions—3— which flanges 3 are of more than ordinary width provided in pressed side sill constructions and are turned inwardly as best shown in the plan view. The side sills like the center-sills, are of slightly increasing depth between the bolsters, though preferably not as deep as are the center sills. The

end sills are preferably of rolled channel 55 shape.

Extending continuously throughout the length of the side sills 2 in proximity to the bottom edges thereof are inturned angles 4, the vertical legs of which are connected by suitable rivet connections with the vertical webs of the side sills and rest against the inner faces of the webs of said sills, the horizontal legs of said angles 4 extending under the bolsters 5 and between said bolsters 5 and the inturned flange 6 of the jacking casting commonly applied to the ends of body bolsters.

Extending longitudinally at intervals throughout the side sills are angle brackets 7, on which brackets rest nailing strips 8 of wood which are commonly used in box car constructions to serve as nailing strips to secure the floor and sheathing boards in position.

The top flange of the side sill is made extremely wide and like the angle 4 projects inwardly so as to provide first a plain surface against which the nailing strip 8 may rest and by reason of the excessive width of the top flange to provide means to prevent torsional disturbance of the superstructure carried by the underframe, the wide top flange of the side sill being attached to, and overlapping, the body bolsters and principal cross bearers of the underframe, thereby permitting a maximum number of rivets through said top flange for connecting said top flange with said bolster and cross bearers and providing a continuous member extending throughout the length of the car of sufficient area transversely of the car, in said top flange, for such rigid connection of the parts enumerated as is required in high capacity box cars.

The mere widening of one of the flanges of the side sills is not the primary object of the invention as I am aware that a side sill has heretofore been produced in which one of the flanges was wider than the other flange, increasing in width toward the end of the car and being of less width nearer the middle, but that does not respond to the purpose of the present invention owing to the fact that such prior construction provided a sill which was weakest laterally at the middle of the length of the car where the greatest lateral strength is required. In

my construction, the top flanges 3 of the side sills are of substantially uniform width from end to end and in addition to the connection of said top flanges with the bolsters and cross bearers the end portions of said flanges overlap the end sill plates 10, as shown in plan view thereby providing at each corner of the underframe just back of the outer end portion of the end sills superposed plates 3 and 10, to which are connected the diagonal braces 11 preferably of channel form, upon which rest the wood nailing strips 12, which nailing strips are of less length than said diagonal braces 11—

15 which extend rearwardly below and are secured by rivet connection with the top bolster cover plates 13. Resting on said bolster cover plates and projecting over the forward edges thereof are angle brackets 14

20 which dip downwardly and outwardly from said bolster cover plates, thereby providing steps upon which rest the longitudinally extending nailing strips 15, which latter nailing strips extend under the end sill platform

25 plates 10 as shown in the plan view.

The draft sills 16 and center sills are connected in any suitable manner as at 17 and 18.

Extending throughout the length of the underframe between the sill platform plates 10 is a sill cover plate 23 over which passes the top bolster cover plate 13, suitable rivets passing through the plate 21, the outstanding flanges of the center sills and draft sills.

35 In addition to the sill cover plate 23 there is provided another sill cover plate 24 which terminates short of the bolsters, said cover plate 24 extending past the transversely extending cross ties 25 which latter are preferably of rolled angles.

40 As will be noted in the plan view, the brackets 14 are wider at their forward ends than at their rear ends so as to provide sufficient clearance for the rivets which connect the diagonal braces 12 with the bolster cover plates 13.

45 The side framing comprises the usual posts and diagonal braces and said posts are stiffened by channels 30 which are substantially co-extensive with the said posts, while the tie rods 31 are placed in close proximity to said channels 30 and by reason of their position serve to hold said vertically disposed channels in position.

50 Thus it will be observed that I provide composite center and side sills, deepest at their middle portions proportioned to carry a maximum load, at the same time the parts are so proportioned, and assembled as to provide maximum resistance to transverse bending in service.

What I claim is:

1. In a car underframe, composite side 65 sills having relatively wide top flanges and relatively narrow bottom flanges, the said

flanges being of uniform width throughout their length and adapted to project inwardly to embrace the ends of the cross bearers, the web connecting the said flanges increasing in depth between the bolsters, in combination with center sill construction and with an end cover plate connected with the center and side sills.

2. In a car underframe, composite side sills having relatively wide top flanges and relatively narrow bottom flanges, the said flanges being of uniform width throughout their length and adapted to project inwardly to embrace the ends of the cross bearers, the web connecting the said flanges increasing in depth between the bolsters, in combination with center sill construction increasing in depth between the bolsters and with end cover plates connected with the said center sills and said side sills.

3. In a car underframe, composite side sills having relatively wide top flanges and relatively narrow bottom flanges the said flanges being of uniform width throughout their length and adapted to project inwardly to embrace the ends of the cross bearers, the web connecting the said flanges increasing in depth between the bolsters, in combination with center sill construction increasing in depth between the bolsters, cross members uniting the center and side sills and comprising diaphragms increasing in depth from the side sill construction to the center sills and with end cover plates connected with the center and side sills.

4. In a car underframe, a composite side sill having relatively wide top flanges and relatively narrow bottom flanges, the said flanges being of uniform width throughout their length and adapted to project inwardly to embrace the ends of the cross bearers, the web connecting the said flanges increasing in depth between the bolsters, in combination with center sill construction having outwardly extending flanges, the web connecting the said flanges increasing in depth between the bolsters, cross bearers adapted to be embraced between the inwardly projecting flanges of the side sills and the outwardly extending flanges of the center sill construction, the web of said cross bearers increasing in depth from the side sills to the center sill construction, end frame cover plates connected with the center sill construction and the side sills and diagonal braces extending from the juncture of the side sills and end cover plate to the juncture of the bolsters and the center sill construction.

5. In a car underframe, a composite side sill having relatively wide top flanges and relatively narrow bottom flanges, the said flanges being of uniform width throughout their length and adapted to project inwardly to embrace the ends of the cross bearers, the

web connecting the said flanges increasing  
in depth between the bolsters, in combina-  
tion with center sill construction having out-  
wardly extending flanges, the web connect-  
5 ing the said flanges increasing in depth be-  
tween the bolsters, an inwardly extending  
flange on the center sills, cross bearers adapt-  
ed to be embraced between the inwardly pro-  
10 jecting flanges of the side sills and the out-  
wardly extending flanges of the center sill  
construction, the web of said cross bearers  
increasing in depth from the side sills to the  
center sill construction, a series of cross ties

uniting said center sill construction and the  
cross bearers, an end frame cover plate con- 15  
nected with the center sill construction and  
the side sills and diagonal braces extending  
from the juncture of the side sills and end  
cover plate to the juncture of the bolsters  
and the center sill construction. 20

In witness whereof I have hereunto set  
my hand in the presence of two witnesses.

ALLEN E. OSTRANDER.

Witnesses:

F. H. GIBBS,

C. A. HUMPHRIES.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,  
Washington, D. C."

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