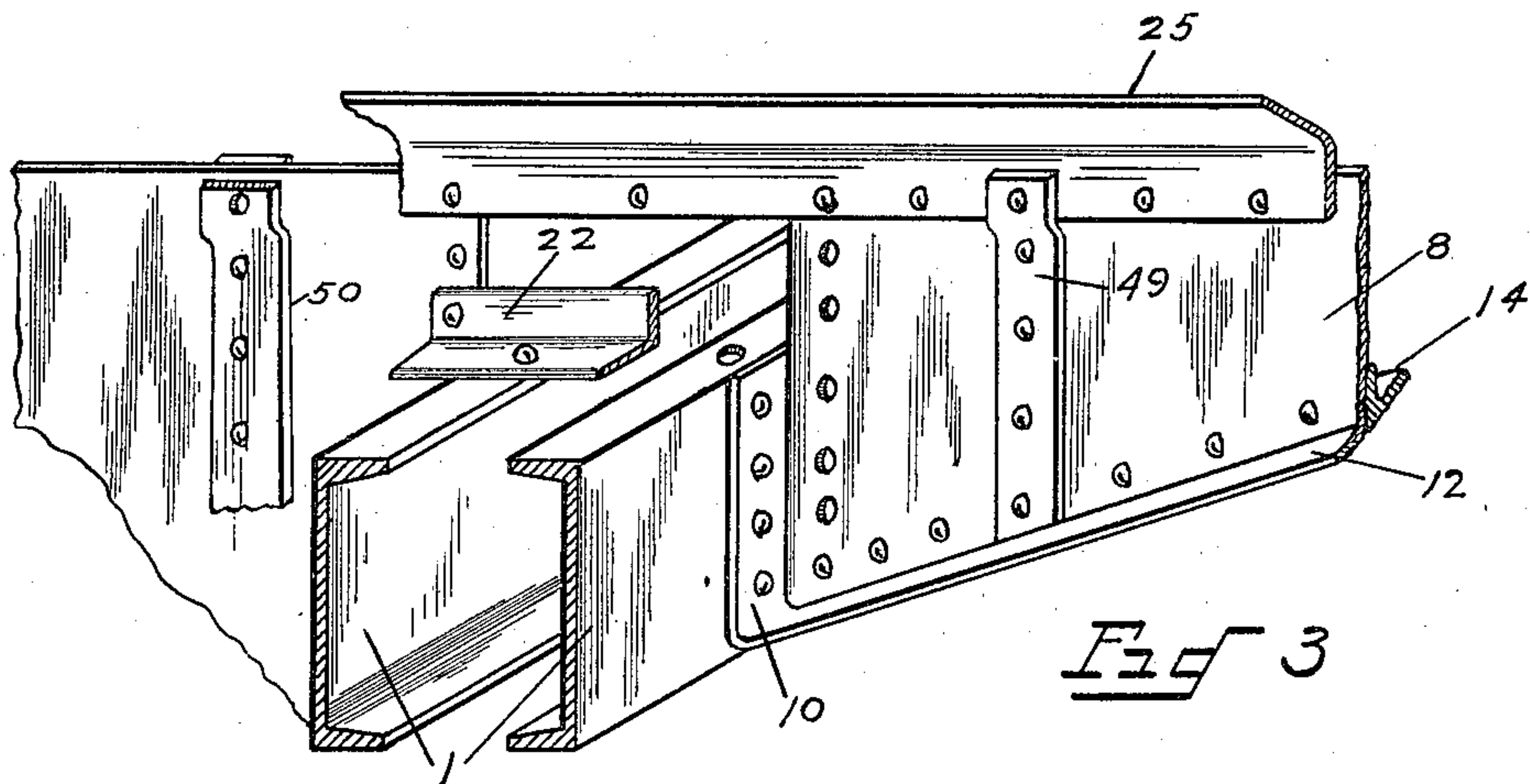
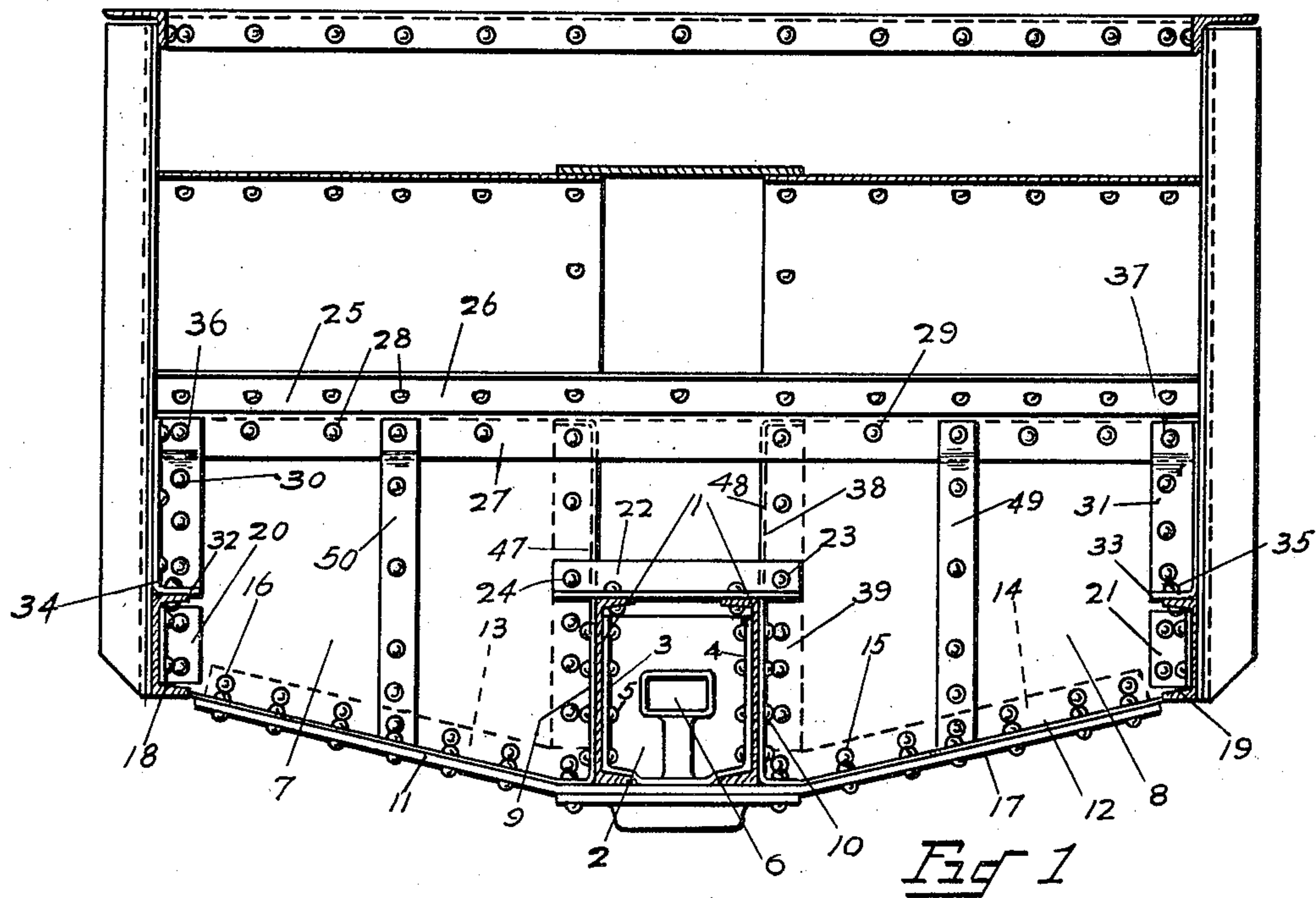


A. BECKER.  
CAR UNDERFRAME.  
APPLICATION FILED FEB. 4, 1909.

999,293.

Patented Aug. 1, 1911.

2 SHEETS—SHEET 1.



WITNESSES:

Ray Breunholtz  
A. Rager.

Anton Becker INVENTOR.

BY

Geo. W. Rightmire ATTORNEY.

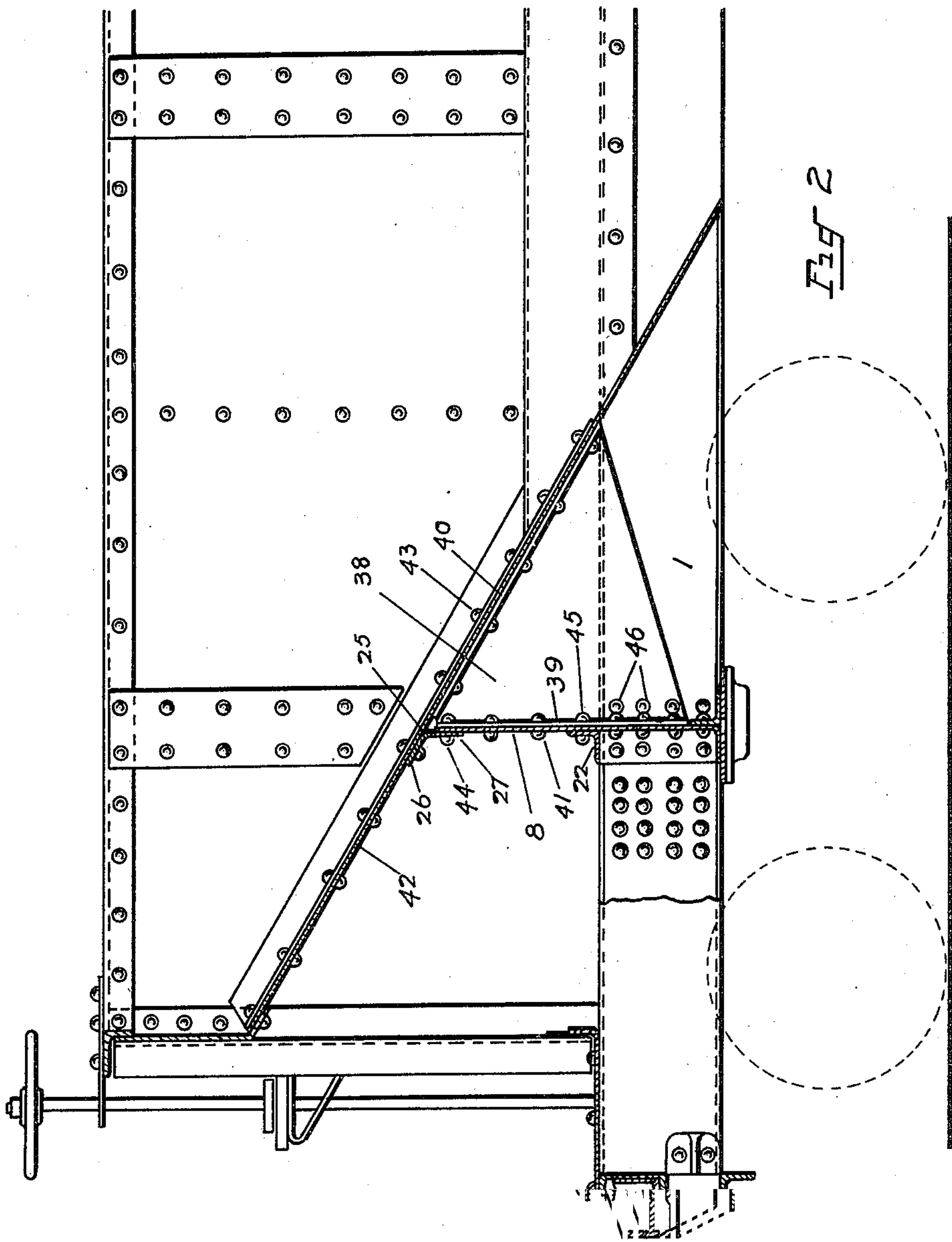
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2 SHEETS—SHEET 2.

999,293.



WITNESSES:

*Robert H. ...*  
*...*

*A. Becker* INVENTOR.

*...*  
ATTORNEY.



# UNITED STATES PATENT OFFICE.

ANTON BECKER, OF COLUMBUS, OHIO, ASSIGNOR TO THE RALSTON STEEL CAR COMPANY, OF COLUMBUS, OHIO, A CORPORATION OF OHIO.

## CAR-UNDERFRAME.

999,293.

Specification of Letters Patent.

Patented Aug. 1, 1911.

Application filed February 4, 1909. Serial No. 476,134.

*To all whom it may concern:*

Be it known that I, ANTON BECKER, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Car-Underframes, of which the following is a specification.

My invention relates to improvements in car underframes, especially to the bolster and floor supporting constructions of a hopper car.

The invention includes especially bolster diaphragms which are extended upwardly above the center girder construction and form a support for the floor sheets; these diaphragms are preferably connected transversely over the center girder and are provided with a tension member which is also secured to the floor; also, reinforcing means are provided on the diaphragms, and preferably also a bracket support for the diaphragms and floor sheets is provided, associated with the center girder.

The essential features are the bolster diaphragms arranged on each side of the center girder, and being extended upwardly to the floor, and provided with a tension member at their upper edges and tied together over the center girder by a member which is also preferably secured to the center girder. Fewer pieces are needed in a construction of this kind, and a thoroughly practical and efficient bolster and floor support are provided.

In the drawings which are hereto attached and hereby made a part of this specification, Figure 1 is a vertical transverse section through the car at the rear of the bolster; Fig. 2 is a vertical longitudinal section through a portion of one end of a car showing my improvements thereon; Fig. 3 is a perspective showing the manner of connecting the diaphragms to the center girder and of reinforcing them.

Referring to the drawings, 1 is the center girder construction formed, in this instance, of parallel channels having their flanges inwardly directed, and connected by the center brace 2, which is provided with the flanges 3 and 4 through which rivets 5 are inserted and pass through the channels; 6 is an opening in the center brace whereby the king pin or bolt may be positioned.

On each side of the center girder, I pro-

vide bolster diaphragms 7 and 8 which extend vertically upward above the upper face of the center girder into proximity with the floor; flanges 9 and 10 are formed on the bolster diaphragms and applied to the vertical web of the center girder and the center brace, thereby securely uniting these three members. The bolster diaphragms are provided at their lower edges with flanges 11 and 12, and on the opposite side of the diaphragms are positioned angle members 13 and 14; the rivets 15 and 16 secure said angle members to the diaphragms. A compression member 17 underlies the center girder and the bolster diaphragms, extends from side to side of the car, and is riveted to the lower flanges on the bolster diaphragms and to the angle members 13 and 14.

Sub side sills are shown at 18 and 19, and angle members 20 and 21 secure together the bolster diaphragms and the sub side sills.

A tie member 22, in this instance of angular formation, is applied to the bolster diaphragms and the upper flanges of the center girder, and thereby ties together the diaphragms and also secures them to the center girder flanges, as appears at 23 and 24.

Secured to the under face of the floor sheets is a transverse member 25 which has an inclined flange 26 thereon and a depending flange 27; to the latter flange are applied the upper edges of the bolster diaphragms 7 and 8, and they are firmly secured thereto by means of the rivets 28 and 29. The depending flange 27 of the member 25 performs the office of a tension member for the bolster diaphragms and at the same time connects the said diaphragms to the floor whereby the latter is supported. It will be noted that in this construction I do not employ an independent tension member, the parts being so connected together that I dispense with the use of separate angles or plates as tension members.

At their outer ends, the bolster diaphragms 7 and 8 are connected with the sides of the car by means of the angle members 30 and 31, the angle members being connected by means of their lower flanges 32 and 33 with the upper flanges of the sub side sills 18 and 19 resting thereon and being riveted thereto as shown at 34 and 35.



The members 30 and 31 are also riveted at 36 and 37 to the depending flange 27 of the transverse member 25.

A bracket member 38, provided with the flanges 39 and 40, is interposed between the diaphragms and floor sheets, and referring to Fig. 2 it is seen that the flange 39 is applied to the diaphragm 8 and secured thereto by rivets 41; the flange 40 is applied to the under face of the floor sheets 42 and is riveted thereto at 43.

At 44 the flange 39 is secured to the depending flange 27 of the transverse member 25. The flange 39 is also secured through the diaphragm 8 to the tie member 22 at 45.

The lower portion of the bracket member 38 overlaps the center girder 1 and bears laterally against the vertical web thereof, and is secured thereto as appears at 46. It is seen that the bracket member 38 is therefore secured to the tension member 27, the diaphragm 8, the tie member 22, the center girder 1, and has quite an extensive lateral bearing against the center girder. Referring to Fig. 1, a similar bracket member is seen at 47, secured to the various members in the same manner described above for the bracket 38. It is further seen that the bracket member 38 is so positioned that it reinforces the inner edge 48 of the diaphragm 8.

Between the inner and outer ends of the bolster diaphragms I provide reinforcing members 49 and 50, which, in this instance, are plates applied to the face of the diaphragm, substantially vertically thereof, and in Fig. 3, I have shown these plates applied in pairs, on the opposite sides of the diaphragm, a plate on the opposite side of the plate designated as 50 being shown in Fig. 3. Although I have shown this reinforcing construction formed of plates, yet, instead thereof I may utilize a bracket member similar to 38, applying the vertical flange thereof to the diaphragm, the inclined flange

thereof to the floor sheets, and securing the bracket through these flanges to the said members. This construction is readily understood and is not therefore illustrated, consisting in the application of an illustrated member at a different point.

I desire to have the advantage of any variations or modifications of construction lying within the scope of the appended claims, and do not therefore confine myself to the specific construction illustrated and described.

What I claim is:

1. In a hopper car having a center girder and floor, a bolster diaphragm on each side of the center girder secured thereto and extending upwardly above the center girder, a tension member applied to the upper edge of said diaphragm and connecting the same with the floor, and a bracket member interposed between said diaphragm and floor and secured thereto and to said tension member and bearing laterally against the center girder and being secured thereto.

2. In a hopper car, a center girder and floor, a member applied to said floor transversely having a depending flange, bolster web plates on each side of the center girder secured thereto and extending upwardly and being secured along their upper edges to said depending flange, whereby said floor is supported, said depending flange serving as a tension member, and a bracket member applied to said bolster web plate and floor and secured thereto and to said tension member, and bearing laterally against the vertical web of the center girder and being secured thereto.

In testimony whereof I affix my signature in the presence of two witnesses.

ANTON BECKER.

Witnesses:

E. S. CULVER,  
C. H. WEBER.