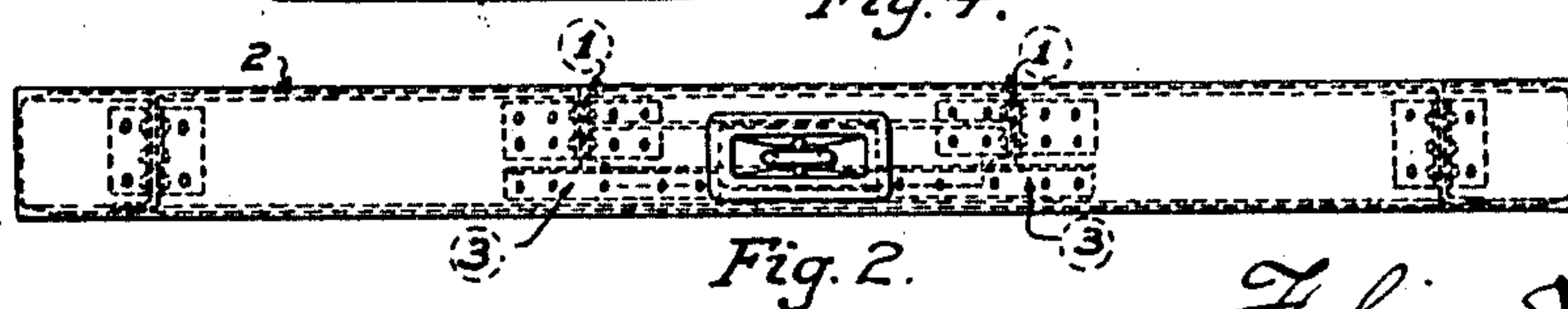
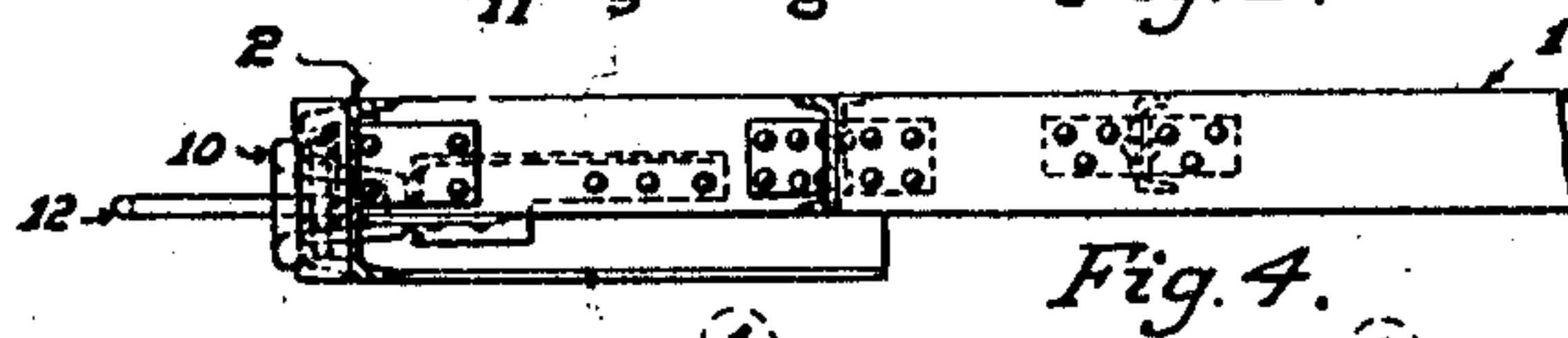
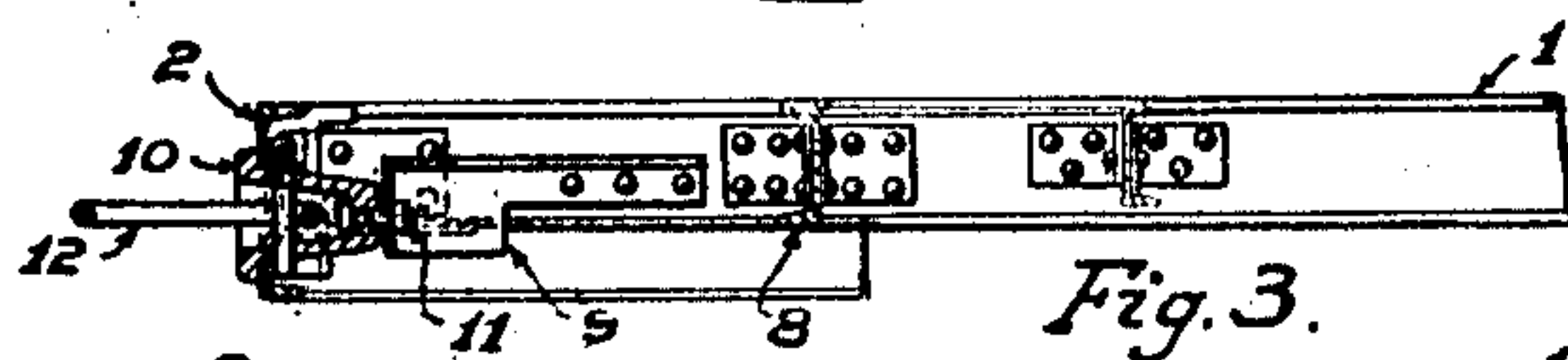
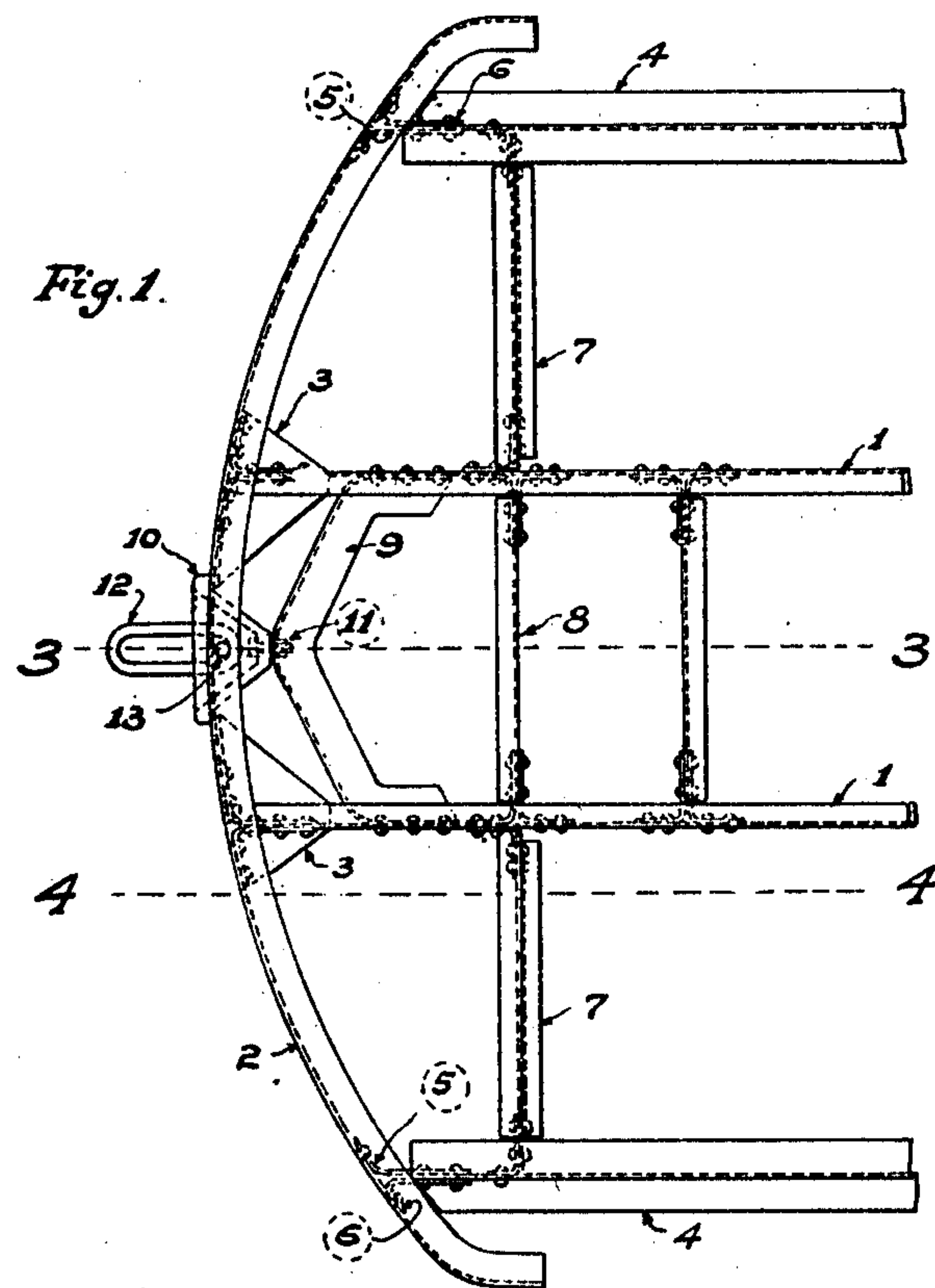


F. KOCH.  
 CAR UNDERFRAME END CONSTRUCTION.  
 APPLICATION FILED APR. 19, 1909.

947,339.

Patented Jan. 25, 1910.



Witnesses  
 Harry R. Kohlweyer  
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# UNITED STATES PATENT OFFICE.

FELIX KOCH, OF BELLEVUE, PENNSYLVANIA, ASSIGNOR TO PRESSED STEEL CAR COMPANY, OF PITTSBURG, PENNSYLVANIA, A CORPORATION OF NEW JERSEY.

## CAR-UNDERFRAME END CONSTRUCTION.

947,339.

Specification of Letters Patent.

Patented Jan. 25, 1910.

Original application filed May 19, 1908, Serial No. 433,664. Divided and this application filed April 19, 1909. Serial No. 490,698.

*To all whom it may concern:*

Be it known that I, FELIX KOCH, a subject of the Emperor of Germany, residing at Bellevue, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Car-Underframe End Construction, of which the following is a specification.

This application is a division of my application entitled "Improvements in passenger cars" filed May 19th, 1908, Serial No. 433,664.

The present application relates to improvements in the end construction of the underframe of cars, such structure being especially adapted for use in passenger cars, but is adapted for use also in freight car construction.

The invention is clearly shown in the accompanying drawings, in which like reference characters refer to like parts, and in which—

Figure 1 is a plan view of a portion of a car underframe embodying the details of the invention; Fig. 2 is an end elevation of the same; Fig. 3 is a longitudinal section on line 3—3, Fig. 1; and Fig. 4 is a like view on the line 4—4, Fig. 1.

An object of the present invention is to provide an improved shock resisting end construction of the underframe embodying improvements in details of the connection between the center sills and the end sill of the car, and a means for bracing said parts at or near such connection.

Referring now in detail to the drawings: 1 are channel center sills secured through means of horizontal flanged gusset plates 3; 4 are side sills of the car of suitable shape connected by angles 5, 6, to the ends sill 2; 7 are cross braces connected through suitable means to side sills 4 and center sills 1; and 8 is a cross brace interposed between the center sills, connected thereto and in line with cross braces 7; 9 is a modified V-shaped

center sill brace secured by means of its legs to center sills 1 with its apex toward and near the end sill 2; 10 is a bell coupler, or coupler of other suitable shape, secured by means of the bolt 11 to the apex of brace 9; 12 is a coupling link; and 13 the coupling pin located in a perforation in the coupler 10 holding the link 12 therein. The gussets 3 may be flanged downwardly, if desired, for the purpose of securing them to the end sill 2 as shown in the drawing. The brace 9 is deepest vertically at its forward or apex portion, at which point it is suitably designed to take care of any buffing shocks which might come upon the coupler 10, and at the same time look after the pulling strains to which it is subjected and which it transfers directly to the center sill construction of the car or sills 1. The cross braces 7 and 8 guard against any tendency of the center sills 1 to buckle due to any buffing shocks which they might sustain.

An advantage of the present construction is that it constitutes a light, strong and inexpensive construction.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

In a car, an end sill, a bell coupler having a flange bearing against the outer face of said end sill and a tapered portion extending through said end sill, in combination with center sills secured to said end sill and a coupler brace, angular in shape, having its apex in close proximity to the apex of said bell coupler, secured between and to the inner faces of said center sills and means securing said bell coupler and said braces to each other at their apices.

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

FELIX KOCH.

Witnesses:

FRANK E. MILLER,  
WM. P. SLIFER.