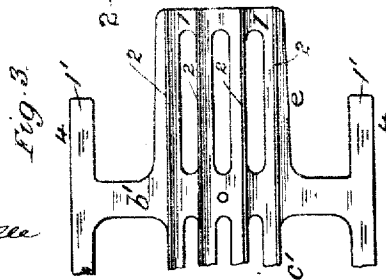
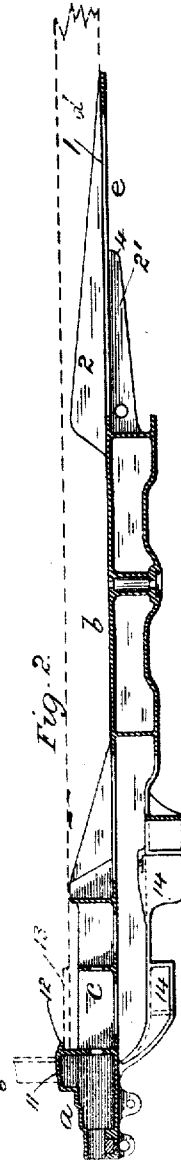
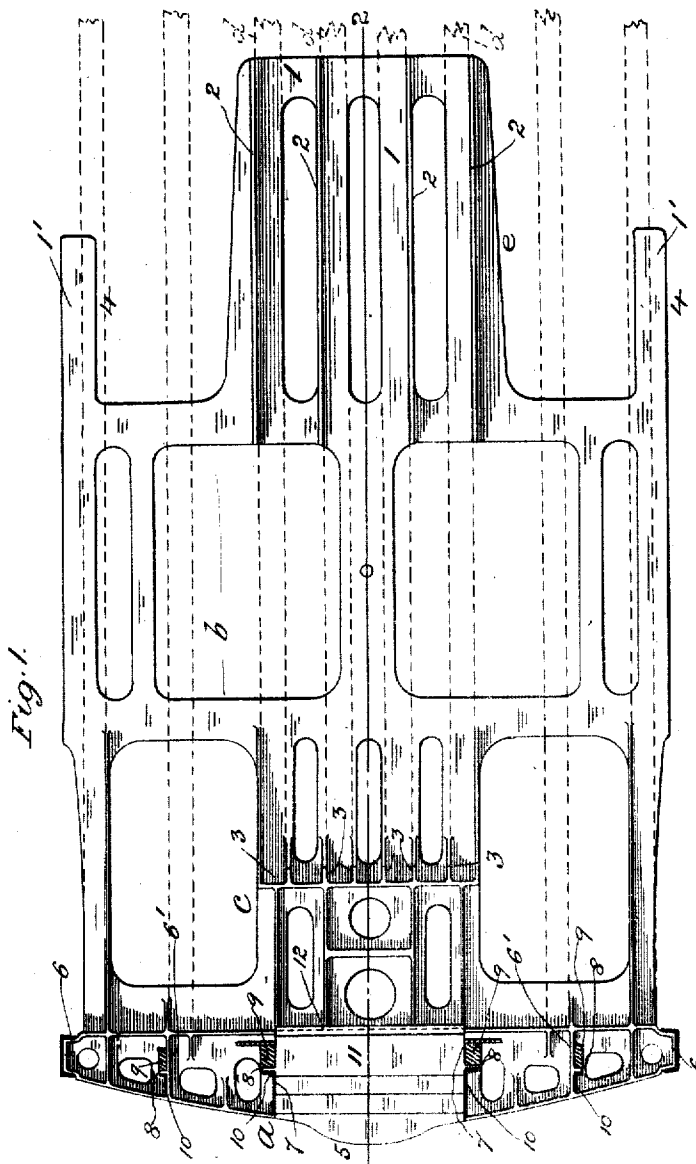


C. H. HOWARD.
CAR UNDERFRAME.
APPLICATION FILED DEC. 4, 1909.

1,009,751.

Patented Nov. 28, 1911.



WITNESSES
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CAR-UNDERFRAME.

1,009,751.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CLARENCE H. HOWARD, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented a new and useful Improvement in Car-Underframes, of which the following is a specification.

My invention relates particularly to the end sill, body-bolster, and intermediate connecting member, forming collectively the end part (preferably metallic) of a car underframe, and has for its object to simplify the construction and insure the stability of the threshold plate to the car door, to strengthen the body-bolster at its connection to the body of the underframe, to increase the rigidity and resistance of the underframe to end shock, and to facilitate access from above to the lower portions of the end posts of the car.

The invention consists in features of novelty as hereinafter described and claimed, reference being had to the accompanying drawing forming part of this specification, whereon,

Figure 1, is a top plan view of a metallic end sill, a double body-bolster, and intermediate connecting member or platform of a car underframe constructed according to my invention; Fig. 2, a vertical longitudinal section thereof on line 2, 2, in Fig. 1, and Fig. 3, a reduced scale view corresponding to Fig. 1, showing my improvement applied to a single body-bolster.

Like letters and numerals of reference denote like parts in all the figures.

Referring particularly to Figs. 1 and 2, *a* represents the end sill, *b* the double body-bolster, and *c* the frame or member connecting the end sill *a* and bolster *b* together, and forming therewith the end part of a car underframe, having in the present case, the ordinary wood longitudinal sills *d* (indicated by dotted lines) to which the said part, composed preferably of cast steel integral throughout, is attached in any suitable manner. Or the sill *a*, bolster *b*, and frame *c* may be formed integral with, or attached to the longitudinal sills of a metallic car underframe, according to the type of underframe required.

The end sill *a*, bolster *b*, and frame *c*, may be of any suitable arrangement, configuration, and disposition of their component members as found most suitable for obtain-

ing the maximum of strength and rigidity with a minimum of material, and either integral throughout as shown, or separately constructed and attached to each other, the said parts being otherwise, except as improved by my invention, similar to ordinary metallic structures of this class.

Projecting rearwardly for a suitable distance from the body-bolster *b* at its middle and adjacent portion is a bracket (or series of brackets) *e* comprising in the present case, a plate 1 which is preferably integral with, and in the plane of the top of the bolster *b*, and adapted to bear against the underside of the middle and adjacent wood longitudinal sills *d* of the underframe, while projecting preferably upward from the plate 1 are upright webs 2 which are adapted to bear respectively against the sides of the sills *d* to, which the plate 1 or webs 2, (or both) are firmly fixed in any suitable manner (not shown), the plate 1 and webs 2 forming a series of supports for the sills *d* rearward of the bolster *b*, and on the connecting frame *c* intermediate to the end sill *a* and bolster *b*, are formed pockets 3 which are closed at their front ends and adapted to receive the corresponding end portions of the sills *d* which butt against the said ends, whereby the strength of the body-bolster *b* and rigidity of the underframe thereat are greatly increased, and the overhanging stress of the end sill *a* and connecting frame *c* counterbalanced by the brackets *e*.

Fig. 3, shows the bracket *e* applied to a single body-bolster *b'* having the connecting frame *c'* (broken away) and an end sill similar to the corresponding parts in Figs. 1 and 2. Moreover, each side member of the bolster *b* (and *b'*) is formed with a rearwardly extended bracket 4, consisting preferably of a plate 1' adapted to bear against the underside of the side longitudinal sill *d'* and having a strengthening rib 2' on its underside uniting with the web of the bolster.

The end sill *a* in the present case is preferably box-shaped at its middle portion 5 and thence channel-shaped in cross section, the web of each channel-shaped portion being horizontal and its flanges upwardly directed and united together by an end, and intermediate upright cross webs 6 and 6' respectively, each side wall 7 of the middle portion, and the adjacent intermediate cross

web 6', having an upright web 8 projecting at right angles therefrom within the corresponding channel portion of the sill *a*, and to the web 8 on its rear side is fixed the corresponding auxiliary end wood post 9 of the car body frame, and on its front side in the present case, is fixed the metallic end post 10, the bottom portions of the posts 9 and 10 being inclosed by the channel-shaped portions of the sill *a* so as to be easily accessible from above, and the wood posts 9 protected thereat from end shock.

Ordinarily, the threshold plate of the car door at the middle portion of the end sill is fixed on a wood block secured to the top of the sill, but in lieu of the said block and plate, I preferably form the middle portion of the end sill *a* thereat with an elevated portion 11 which is integral with the body of the sill *a* and constitutes the threshold plate, the said portion 11 having a rearwardly projecting bead 12 which is adapted to overlap the flooring 13 (indicated by dotted lines in Fig. 2). Furthermore, the connecting frame *c* is preferably formed on its underside with two opposite dependent brackets 14 which are integral with the body of the combined parts *a*, *b*, *c*, and adapted to form the draw-bar spring follower plate pocket of the car.

What I claim as my invention and desire to secure by Letters Patent is:—

1. In a car underframe, a metallic end sill having a projection integral therewith adapted to form the threshold plate of the car door.

2. In a car underframe, a metallic end sill having a projection integral therewith adapted to form the threshold plate of the car door and to overlap the car flooring thereat.

3. In a car underframe, a cast metal end sill comprising a box shaped central portion and channel shaped end portions, the vertical legs of which channel shaped end portions are vertically disposed.

4. In a car underframe, a cast metal end sill having a box shaped central portion, channel shaped end portions integral with the box shaped central portion, the legs of which channel shaped end portions are vertically disposed and transversely disposed integral strengthening webs in the channel shaped end portions.

5. In a car underframe, a cast metal end sill comprising a box shaped central portion, channel shaped end portions integral with the central portion and upright webs integral with said end sills for the attachment of the end posts of the car body.

6. In a car underframe of the class described, a cast metal end sill comprising a box shaped central portion, channel shaped end portions integral therewith, and a flange

integral with the inner top edge of the box shaped central portion of the sill, which flange is adapted to overlie the flooring of the car body.

7. In a car under-frame, a body bolster, a plate extending rearwardly therefrom and adapted to engage beneath the center sills of the car body, vertically disposed webs on said plate for engaging the sides of the center sills, an end sill, a skeleton member connecting the end sill with the bolster which skeleton member is provided with pockets to receive the ends of the center sills, all of which parts are cast integral.

8. In a car under frame, a cast metal end sill comprising a channel shaped member, the legs of which channel shaped member are vertically disposed, and a plate integral with the central portion of said end sill to form the threshold of the car door.

9. In a car under frame, a cast metal end sill comprising a channel shaped member, the legs of which channel shaped member are vertically disposed, a plate integral with the central portion of said end sill to form the threshold of the car door, and webs integral with the end portions of the sill for the adjustment of the lower ends of the car body end posts.

10. In a car under frame, a cast metal end sill, a plate integral with the central portion of said sill to form the threshold of the car door, and the tops of the end portions of which end sill are open and adapted to receive the lower ends of the end posts of the car body.

11. In a car under frame, a body bolster, an end sill, a frame uniting the bolster and sill, in which frame is formed brackets adapted to receive the ends of the under sills of the car body and a bracket extending rearwardly from the bolster adapted to engage the sills of the car body, all of which parts are formed integral.

12. An integral cast member for the under frames of car bodies, comprising an end sill, a threshold plate, a body bolster, a frame between the end sill and the body bolster, and a bracket extending rearwardly from the body bolster.

13. An integral cast member for the under frames of car bodies, comprising an end sill, a threshold plate, a body bolster, a frame between the end sill and the body bolster, which frame is provided with pockets adapted to receive the ends of the under sills of the car body, and a bracket extending rearwardly from the body bolster.

14. In a car under frame, a body bolster, a frame integral therewith, means on said frame for engaging the ends of the sills of the car body, a channel shaped end sill integral with said frame and a car door threshold plate integral with the end sill.

15. In a car under frame, a body bolster, a frame integral therewith, means on said frame for engaging the ends of the sills of the car body, a channel shaped end sill integral with said frame, a car door threshold plate integral with the end sill, and flanges within the end portions of the channel shaped end sill adapted to receive the lower ends of the end posts of the car body.

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