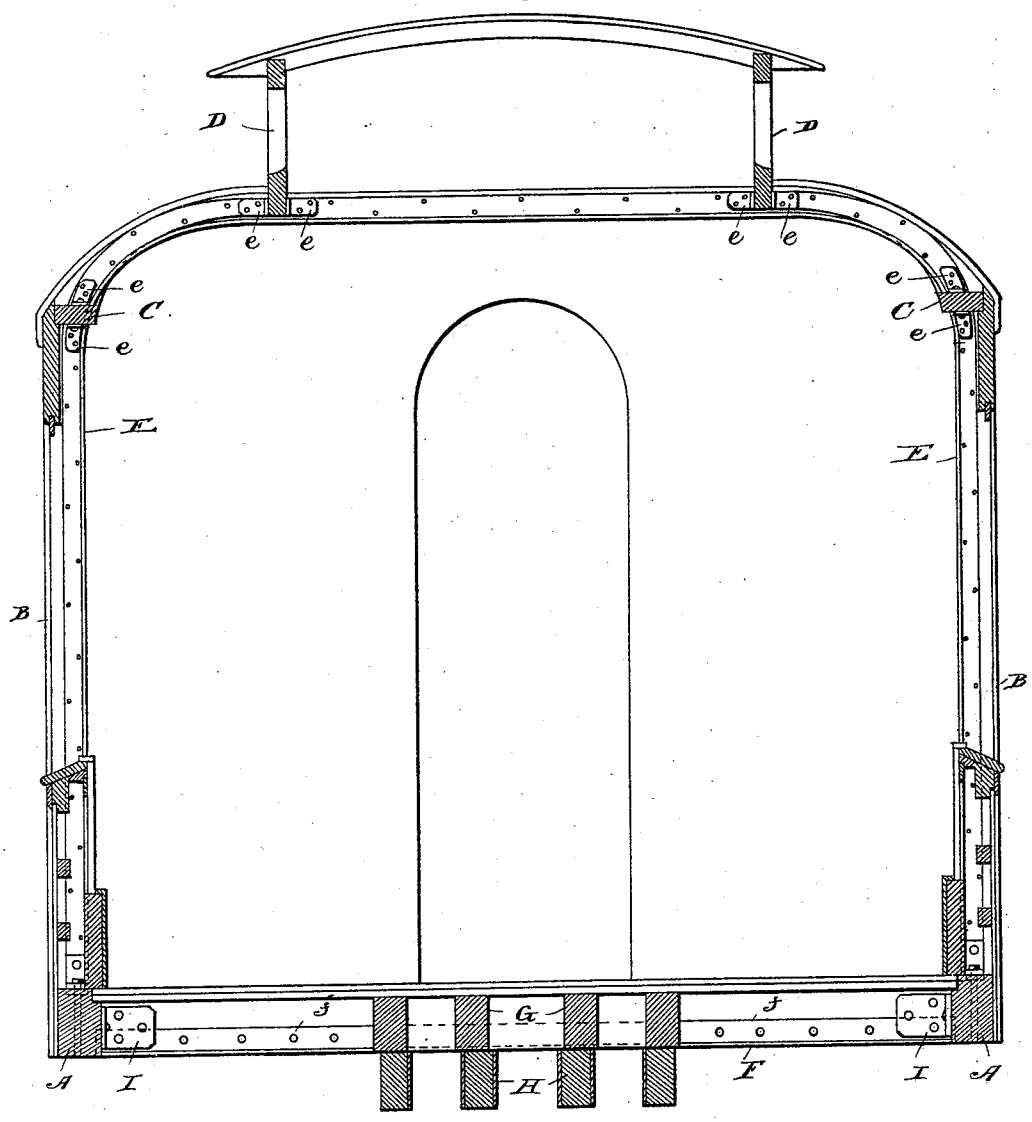
(No Model.) 3 Sheets—Sheet 1.

H. H. SESSIONS.

CAR CONSTRUCTION.

No. 456,291. Patented July 21, 1891.

Fig. 1.



Witnesses,
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(No Model.) 3 Sheets—Sheet 2.

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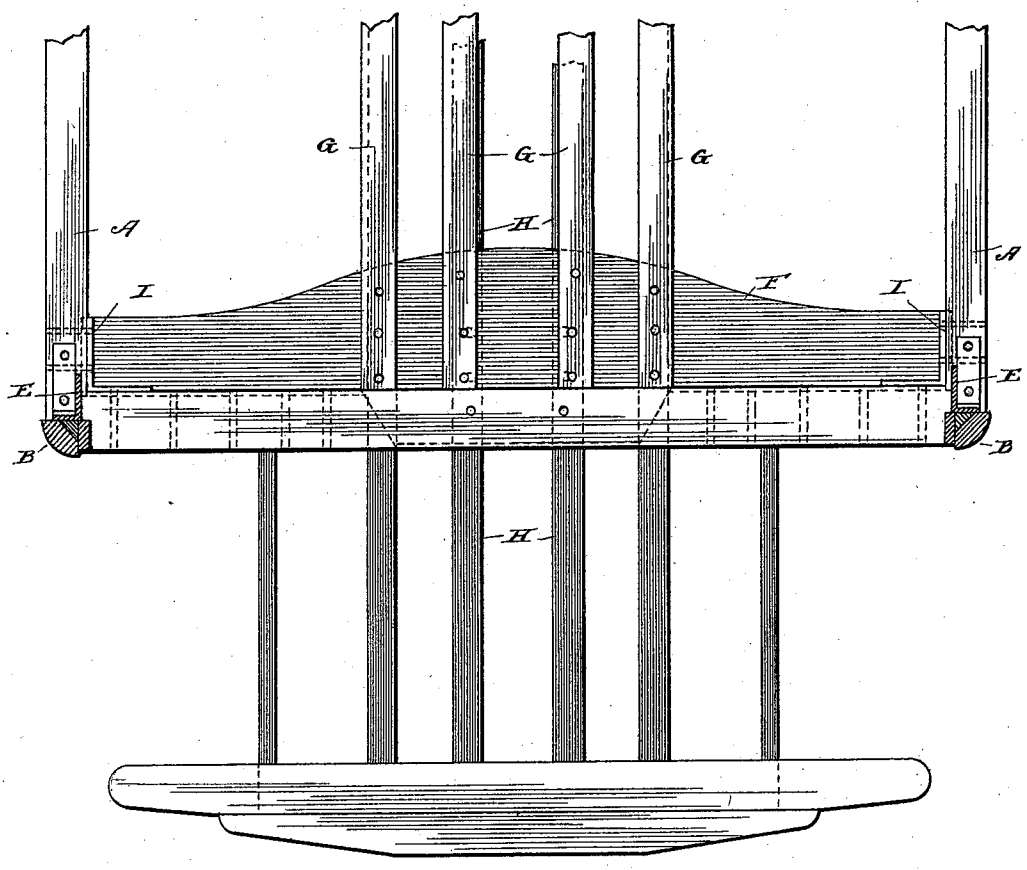
Fig. 2.



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(No Model.) 3 Sheets—Sheet 3.

H. H. SESSIONS.

CAR CONSTRUCTION.

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Fig. 3.

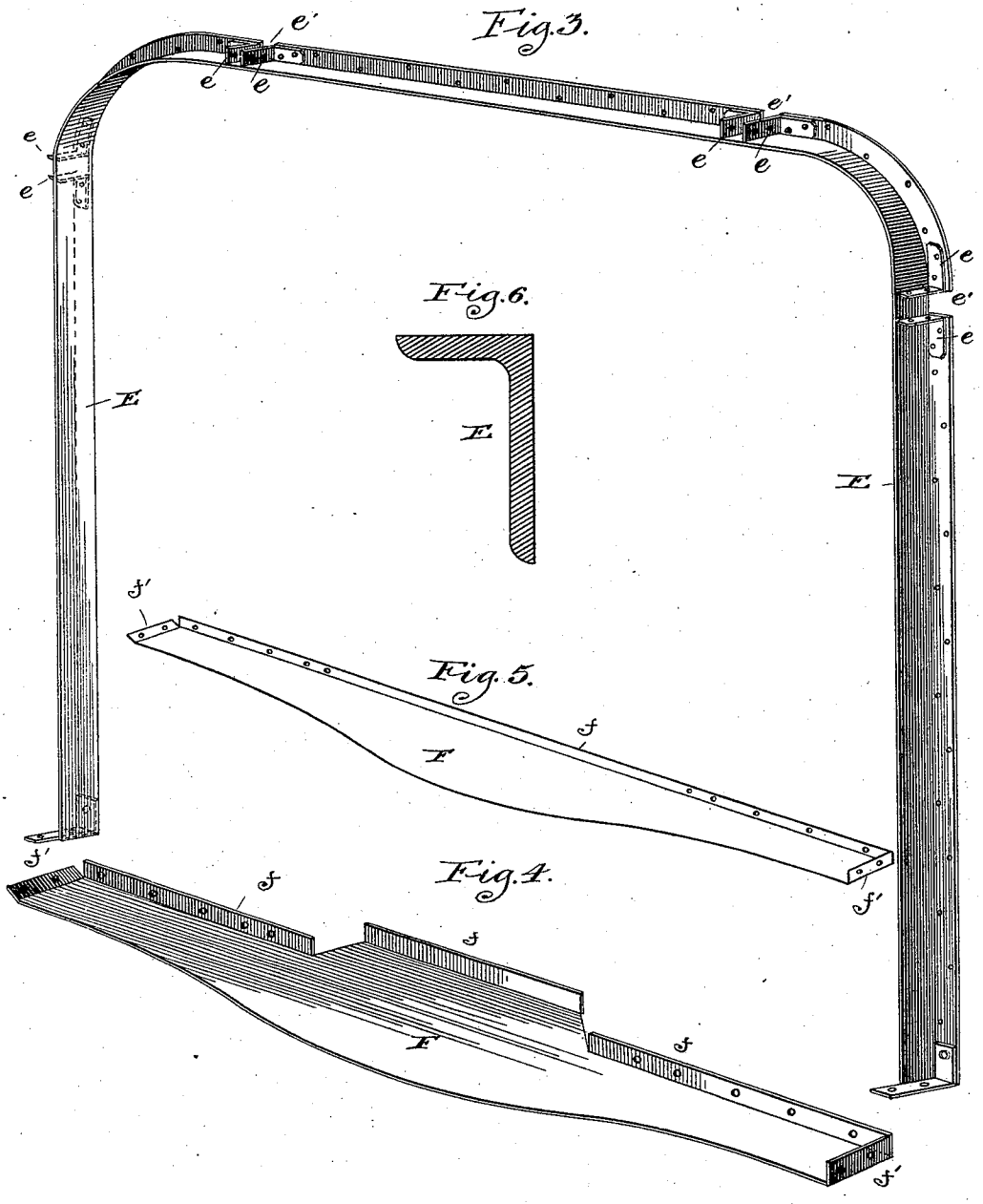

Fig. 6.

Fig. 5.

Fig. 4.

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UNITED STATES PATENT OFFICE.

HENRY HOWARD SESSIONS, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE PULLMAN'S PALACE CAR COMPANY, OF SAME PLACE.

CAR CONSTRUCTION.

SPECIFICATION forming part of Letters Patent No. 456,291, dated July 21, 1891.

Application filed October 10, 1889. Serial No. 326,625. (No model.)

To all whom it may concern:

Be it known that I, HENRY HOWARD SESSIONS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Car Constructions, of which the following is a specification.

My invention has for its object to improve the construction of railway-cars, whereby to better adapt them to withstand shock and prevent telescoping in the event of collision, and also to prevent the damage to cars resulting from violent shock; and my invention consists in improved means to that end, as hereinafter described, and particularly pointed out in the claims.

In carrying out my invention I provide a strong iron frame for the end of each car, which frame consists, preferably, of metallic plates, one of which is adapted to protect the ends of the side and roof timbers of the car and the other of which protects the floor-timbers. The former is preferably constructed from angle-plate in the form of an arch, and one of the members whereof is bolted to the upright frame-work at the end of the car, and the other member lies alongside the frame-timber, so as to impart strength and rigidity to the structure. I also employ a bottom plate, which is secured to the floor-timbers of the car at their ends, and on which plate the sills lie, their ends abutting against a turned-up edge of the plate.

In the accompanying drawings, Figure 1 is a transverse vertical section looking from the interior of the car toward its end and showing the arch-plate and floor-plate in side elevation secured in position. Fig. 2 is a horizontal section of a car end, showing the arch-plate in transverse section and the floor-plate in plan. Fig. 3 is a perspective view of the arch-plate; Fig. 4, a similar view of the floor-plate; Fig. 5, the preferred form of construction for said plate; and Fig. 6 is an enlarged sectional view of the arch-plate.

Referring to the drawings, A represents the outer sills of the car, and B the corner-posts thereof.

C represents the top plates, and D the usual deck structure.

In order to strengthen the frame, I employ metallic plates, of which the preferred form is the arch-plate E and the floor-plate F, before mentioned. The arch-plate is preferably made of angle-bar, and one member thereof will have bolt-apertures to adapt it to be secured to the end timbers B. This angle-plate will also have provision—such as the bolt-flanges *e*—for securing it to the frame-timbers, and it will be cut away at *e'*, or other suitable provision will be made to provide for the passage of the horizontal timbers of the frame. If preferred, this arch-plate may be constructed of a plurality of sections; but the construction shown is superior in strength and is cheaply and conveniently made.

The floor-plate F will be adapted to the sills and end timbers of the car, as shown. Said plate consists of a body portion and upturned bolt-flanges along one side and the ends thereof. The body portion will be adapted to receive upon it at its middle the central sills G, whose ends abut the bolt-flanges *f* along the side of the plate, and the bolt-flanges *f'* at the ends adapt the plate for securement to the side sills A. I prefer to make the body of the plate of greater strength at the point where it supports the central sills, as the principal shock, not only in coupling cars, but in collision, is received near the middle of the ends of the car. This plate will rest on top of the platform-timbers H. If desired, an additional strengthening-plate I, in the form of an end brace, may be bolted in the angle of the side sill and end timber on the inner side thereof. It will be observed that the floor-plate is so disposed as to receive the strain on its edge, and as the initial strain in coupling or collision is transmitted by the platform to the middle portion of the end of the car this provision is of great utility. Another feature of utility is that the floor-plate ties or anchors the side timbers of the car together, and thus the danger of telescoping is very greatly lessened.

Experience has shown that where cars telescope each other the fracture of the timbers occurs first at or about the middle of the end of the car, the shock being transferred through the coupling connections, and the timbers giv-

ing away at this point there is nothing to prevent the end of the car being forced into another, thus spreading the side walls and making the wreck complete. The floor-plate above described will greatly lessen this tendency of the side walls to separate under shock, and this being done the damage by collision will be confined to the end of the car, and thus great saving of life and property result.

I do not limit my invention to the precise details of construction, as it is apparent that there is room for the exercise of skill and judgment in the selection of the form of the plates, and that changes in the arrangement and construction of parts may be made necessary by peculiarities of the construction of the car, and for other reasons.

I claim—

1. In car construction, the combination, with the wooden end posts or timbers, of an arch-plate having its legs secured to and re-enforcing said posts, and a floor-plate secured between the sills and platform-timbers transversely of the car end, substantially as described.

2. In car construction, the combination, with the wooden end posts or timbers of the car-frame, of an arch-plate having its legs secured to and re-enforcing said posts, and a floor-plate secured transversely of the car between the sills and platform-timbers and having an upturned edge against which said end sills abut, substantially as described.

3. In car construction, the combination, with the wooden end posts or timbers, of an arch-plate having its legs secured thereto and re-enforcing said posts, and a floor-plate secured between the floor-sills and platform-timbers and to the side sills and having its greatest width at approximately the middle of its length, substantially as described.

HENRY HOWARD SESSIONS.

Witnesses:
FREDERICK C. GOODWIN,
N. M. BOND.