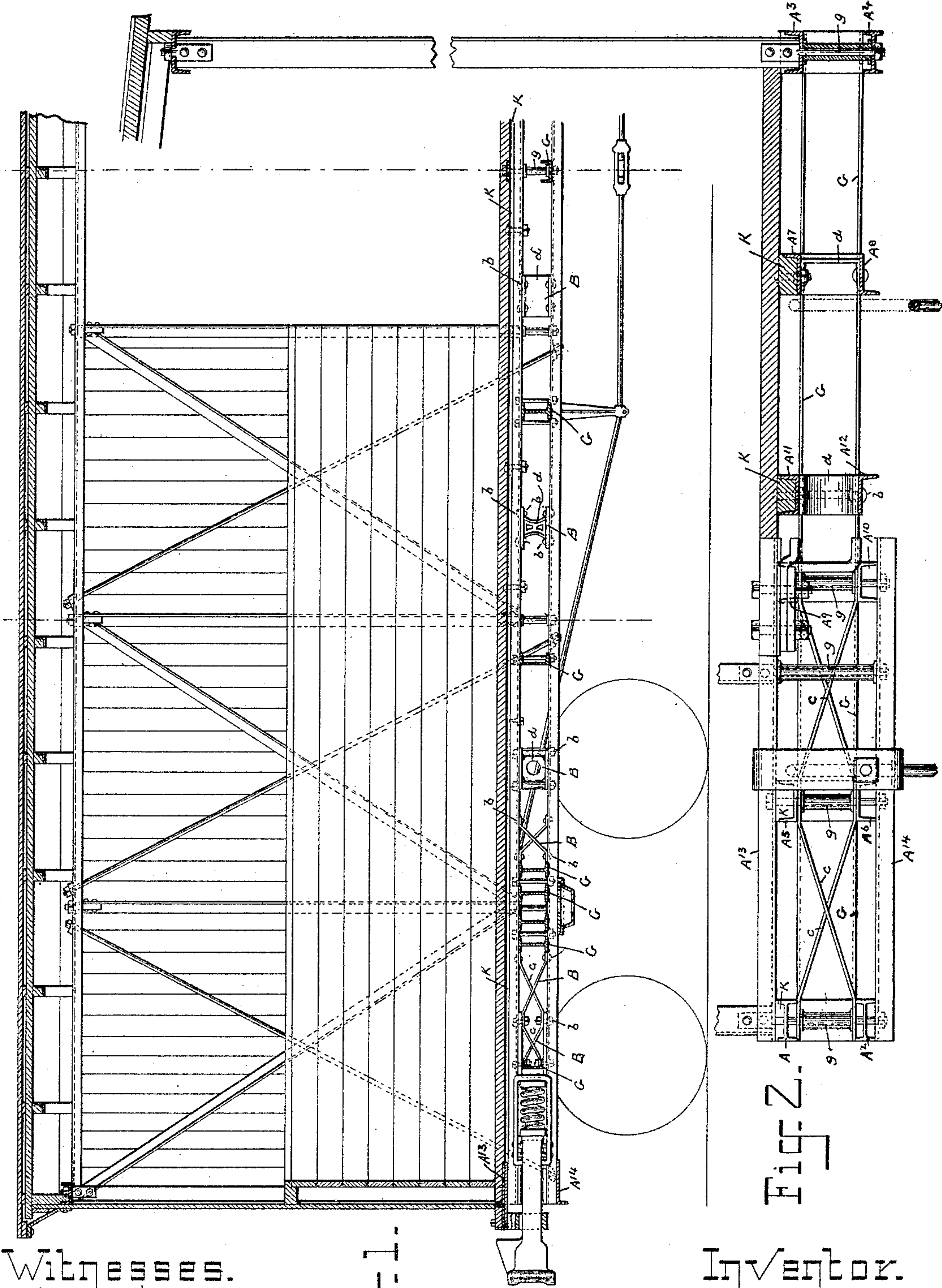


(No Model.)

F. E. ELLIS.  
FLOOR FRAME FOR CARS.

No. 497,776.

Patented May 23, 1893.



Witnesses.  
*John F. Nelson.*  
*Mary A. Storey.*

Fig. 1.

Inventor.  
*Fred E. Ellis*  
by his Attorneys  
*Brown Bros*



# UNITED STATES PATENT OFFICE.

FRED E. ELLIS, OF MELROSE, MASSACHUSETTS.

## FLOOR-FRAME FOR CARS.

SPECIFICATION forming part of Letters Patent No. 497,776, dated May 23, 1893.

Application filed December 21, 1891. Serial No. 415,788. (No model.)

*To all whom it may concern:*

Be it known that I, FRED E. ELLIS, a citizen of the United States of America, and a resident of the town of Melrose, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Floor-Frames of Railroad-Cars, of which the following is a full, clear, and exact description.

This invention relates to improvements in metal floor-frames of railroad cars, the object being and which is successfully attained thereby to secure a most perfect, rigid, inflexible and strong and, comparatively considered, a most light and inexpensive metal floor-frame.

The metal floor-frame of this invention for railroad cars is composed of side, center and intermediate longitudinal sills severally in upper and lower separated sections or members, each made of metal bars of channel, **I**, **L** or **T** or other such like shape in cross section, and also of struts located at various points of the length and extending between the opposite sides, or in other words between the parts of the two members of each sill which are toward each other, and severally suitably attached to said parts, in combination with a series of parallel and horizontal tie-beams or bars, such as before mentioned, crossing between and suitably attached to the bars making the upper and lower members of the respective longitudinal sills, and of a number, sufficient at least, to embrace among them the transom, needle-beam and such like bars usually required in floor-frames of car-bodies, all substantially as hereinafter described.

This invention further consists of a floor-frame, constructed of longitudinal sills, struts and tie-beams all as above described, and of end-sills each composed of metal bars, substantially such as before described for the longitudinal sills, which cross and are attached to the upper and lower members of said longitudinal sills, all substantially as hereinafter described.

In the drawings, forming part of this specification, Figure 1 is a longitudinal vertical section of a car-body at one end-portion. This figure shows in elevation a center sill of the improved floor-frame and in transverse ver-

tical section the metal tie-beams or bars which connect and are attached to the several longitudinal sills of the floor-frame. Fig. 2 is in one part an end-elevation and in the remaining part a transverse vertical section of the several sills from side to side of the floor-frame showing the transverse tie-beams in elevation.

In the drawings the several longitudinal sills of the floor-frame are the side-sills each  $A$ ,  $A^2$  and  $A^3$ ,  $A^4$ ; the two intermediate sills each  $A^5$ ,  $A^6$  and  $A^7$ ,  $A^8$ ; the two center-sills each  $A^9$ ,  $A^{10}$  and  $A^{11}$ ,  $A^{12}$ ; end-sills one only shown  $A^{13}$ ,  $A^{14}$ , and the longitudinal sills and each end-sill have struts **B**, and the several longitudinal sills have transverse tie-beams or bars **G** crossing between and joining them together.

Each longitudinal sill and each end-sill is composed of upper and lower sections or members represented by the letters before given and each member is made of a metal bar, in transverse section of channel, **I**, **L**, **T**, or other such like form, and several of said forms are shown, more particularly in Fig. 2 of the drawings. The struts before mentioned extend between the under side of the upper member and the upper side of the lower member of each sill and if, of some of the forms shown, they are attached to both said members at the said sides thereof by rivets or by headed screw-bolts *a* and nuts *b* or other such like or suitable fasteners.

The struts **B** of the several sills may be of various forms, as for instance, crossing rods *c* or castings or plates *d* ribbed for strength and of various outlines and either solid or skeleton or headed screw-bolts and nuts *g* and so on, but it is to be understood that whatever may be the form of the struts, in every instance they extend between and are adapted or capable of ready attachment by suitable fastenings to the upper and lower members of the sills.

The transverse tie-beams **G** of the longitudinal sills of the floor-frame are each of a metal bar, in transverse section of channel, **I**, **L**, **T**, or other such like form, and several are shown, more particularly in Fig. 1 of the drawings. Each tie-beam extends across and between the upper and lower members of all the longitudinal sills and they are severally



attached thereto by headed screw-bolts and nuts *h* or other suitable fasteners. The tie-beams are at least sufficient in number for the transom and needle-beams but their number may be increased.

The floor-frame of the construction explained is in every respect comparatively considered most light and inexpensive, while at the same time it is most perfect, rigid, inflexible and strong substantially in each and every direction to sustain and support all weight and strains which, in the use of a car having a floor of said construction, may come thereupon. Furthermore than as stated a floor-frame constructed as described is most efficient for receiving the draw-bar, its springs and followers and stops and guides for the followers of the draw-gear of a railroad car, all as more fully appears in another application by me for Letters Patent on draw-gear of railroad cars, Serial No. 415,789. Again the upper members of the longitudinal sills made of bars as stated enable floor-strips *K* to be readily placed and secured thereon.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

A metal floor-frame for railroad-cars having its center, side and intermediate sills in upper and lower members and severally separated from each other and each member made of an angle iron-bar, struts located at intermediate points of and extending between the upper and lower members of each sill, and means securing said struts to said sill members which pass through said members and grip and bind together said struts and members in the direction of the height of the sills, in combination with beams made of angle iron-bars and extending transversely of and between the upper and lower members of said several sills and means securing said beams to said sill members which enter through said beams and said sill-members in the direction of the height of the sills, substantially as described, for the purpose specified.

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

FRED E. ELLIS.

Witnesses:

ALBERT W. BROWN,  
JOHN F. NELSON.