G. W. LILLIE.

PASSENGER CAR CONSTRUCTION.

APPLICATION FILED JAN. 29, 1908.

920,594. Patented May 4, 1909.

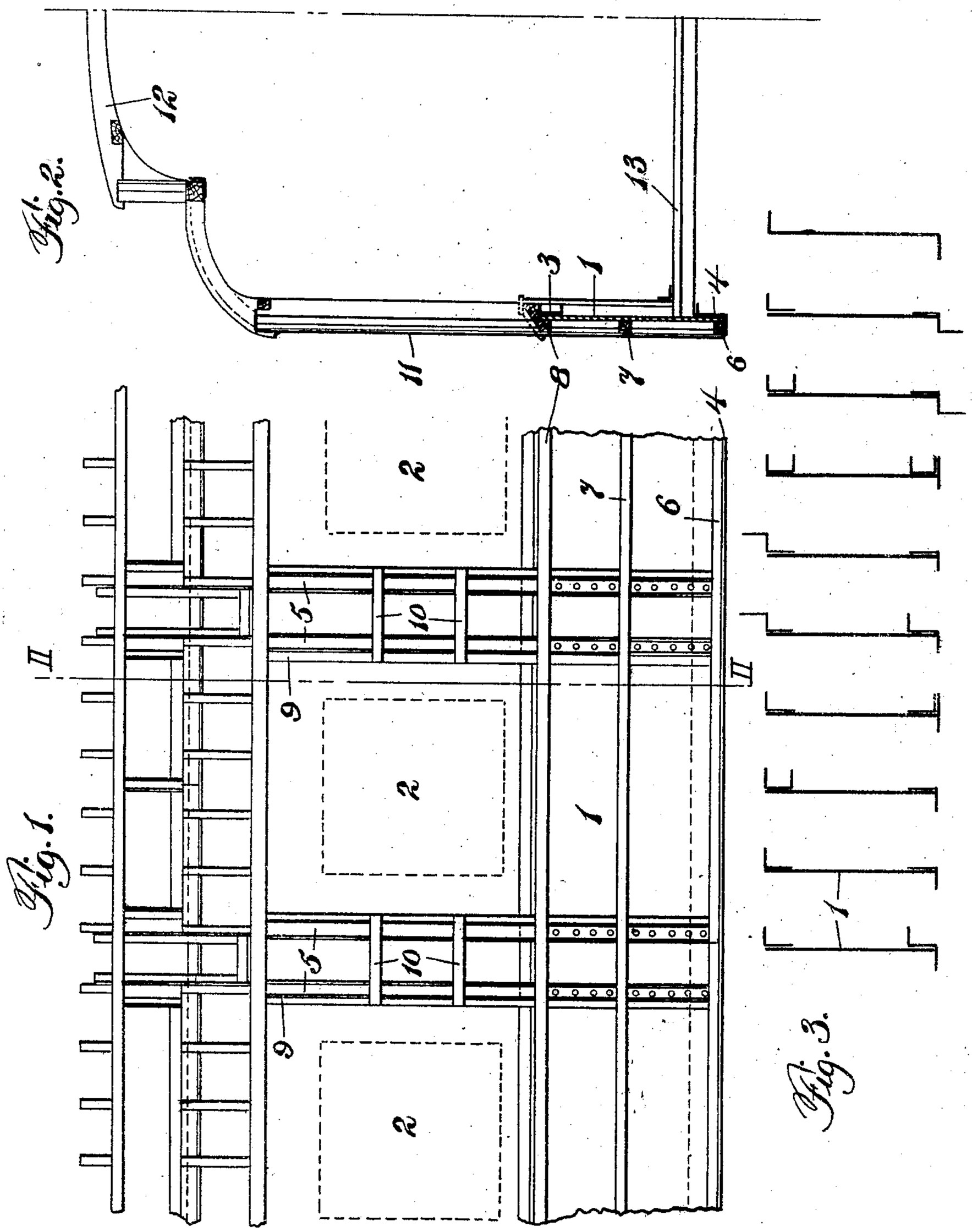

Fig. 1.

Fig. 3.

WITNESSES

Harvey L. Lechner

Archworth Martin

INVENTOR

Grant W. Lillie

by atty Paul Synnestvedt

UNITED STATES PATENT OFFICE.

GRANT W. LILLIE, OF ST. LOUIS, MISSOURI.

PASSENGER-CAR CONSTRUCTION.

No. 920,594. Specification of Letters Patent. Patented May 4, 1909.

Application filed January 29, 1908. Serial No. 413,187.

To all whom it may concern:

Be it known that I, GRANT W. LILLIE, a citizen of the United States, residing at St. Louis, State of Missouri, have invented certain new and useful Improvements in Passenger-Car Constructions, of which the following is a specification.

The invention relates to steel passenger car construction, and has for its principal objects; the provision of an improved car construction permitting the use of continuous uncut side trusses or girders beneath the windows, and continuous uncut body posts; and the provision of a passenger car of the construction above specified wherein the girders are protected and concealed from view, and wherein any desired type of sheathing may be used as the outside finish of the car.

Certain embodiments of the invention are illustrated in the accompanying drawings, wherein:—

Figure 1 is a side elevation of a portion of the side of the car with the sheathing removed,

Figure 2 is a transverse section on the line II—II of Figure 1, the sheathing being in place, and

Figure 3 is diagrammatic showing of a number of different types of girder sections which may be used.

Heretofore continuous side girders beneath the car windows have been used but in such cases the arrangement was such that the flange of the girders or the body posts had to be cut, thereby weakening the structure, or else the plates or webs of the girders have been placed so as to constitute a part of the outside sheathing or finish of the car with the vertical body posts inside the girders. This latter construction has been found unsatisfactory, as in case of sideswiping or any considerable injury to a girder, it is practically impossible to remove the dents or bends from the heavy girder plate in such manner as to render the exterior surface again presentable, and the straightening operation requires the removing of the girder from the car. Furthermore this outside girder construction is objectionable because of the exposed riveting giving the car a crude and unfinished appearance when the rivet heads are left full, and when countersunk, weakening their holding effect. When riveted up and varnished, a plate of this construction ordinarily has a wavy appearance, detracting from its looks. My construction is designed to overcome all these objections and at the same time to preserve any and all structural advantages incident to the exposed girder type of construction. To this end the continuous girder is provided with an inturned flange section at its upper edge, thus permitting the use of outside body posts extending uncut and continuous from the floor to the side plate of the car, which body posts serve to stiffen the girder plate against buckling, and carry at their outer sides the sheathing. With this construction the girders are protected by the body posts and sheathing, and in case of accident to the side of the car, any desired section of the sheathing can be easily replaced by removing the nails or screws by which it is secured to the stringers, entirely restoring the appearance of the car, and if the girder is buckled so as to require straightening, any marking or marring thereof when restored to shape is inconsequential, as the girder is entirely concealed from view beneath the sheathing.

Referring to Figures 1 and 2 of the drawing, 1 is the girder plate which extends throughout the length of the car beneath the windows 2 indicated in dotted lines in Figure 1. 3 and 4 are the flange members of the girder plate, both of which extend continuous and uncut throughout the length of the car, 3 being a channel bar and 4 a Z bar, 5 are channel bars constituting the body posts which are riveted along their lower ends to the girder plate 1 and constitute stiffeners thereof, 6, 7, 8, 9 and 10 are wooden stringers secured to the girder plate and body posts, 11 (Figure 2) is the sheathing which may be of any desired kind, but is preferably of the interlocking sheet steel type well known in the art, which is secured to the stringers by means of nails, screws or other suitable fastening means, 12 is the roof of the car, and 13 is the floor thereof.

The principal advantages of the foregoing structure may be summed up as follows. (1) A maximum strength of the girder and body posts is secured due to the fact that both of such parts are continuous and uncut. (2) Due to the concealed position of the girders, flanges of any desired weight and contour may be used. Similarly full head rivets may be used throughout, instead of rivets with the weaker counter sunk heads commonly employed in the exposed girder

construction in order to improve the appearance. (3) The sheathing and body posts protect the girders from injury, and in case of injury to the side of the car, those sections of sheathing injured may be easily replaced. In case the injury is sufficient to buckle the girders, these may be restored to shape and used, as their appearance is immaterial because of their location. Other advantages incident to the construction will occur to those skilled in the art.

Figure 3 shows diagrammatically a number of sections of girders all coming within the scope of the invention. These girders differ only in the type of sections used for the flanges of the girder. Still other modifications will occur to those skilled in the art, the invention comprehending broadly all girders wherein the upper flange projects inwardly thereby permitting the use on the outside of the girder plate of continuous uncut body posts.

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

1. A passenger car wall comprising in combination, a plurality of continuous uncut body posts extending from the lower side of the wall to the upper side thereof, a girder plate extending the length of the car beneath the windows and rigidly secured to the inner sides of the body posts, a continuous channel bar secured along the upper inner edge of the girder plate, and a Z bar having its web secured along the lower inner edge of the girder plate.

2. In passenger car construction, the combination of a pair of continuous girder plates at opposite sides of the car beneath the windows, continuous inturned reinforcing portions at the upper edges of the plates, reinforcing portions along the lower edges of the plates, continuous body posts secured along the outer sides of the girder plates, and extending to the upper portions of the sides of the car, and removable sheathing mounted outside the body posts but not secured thereto.

3. In passenger car construction, the combination of a pair of continuous girder plates at opposite sides of the car beneath the windows, continuous inturned reinforcing portions at the upper edges of the plates, reinforcing portions along the lower edges of the plates, continuous body posts secured along the outer sides of the girder plates, and extending to the upper portions of the sides of the car, stringers extending transversely of the body posts, and sheathing mounted upon the stringers.

4. In passenger car construction, the combination of a pair of continuous girder plates at opposite sides of the car beneath the windows, continuous inturned reinforcing portions at the upper edges of the plates, reinforcing portions along the lower edges of the plates, continuous body posts secured along the outer sides of the girder plates, and extending to the upper portions of the sides of the car, and sheathing mounted outside the body posts but separate and independent therefrom.

In testimony whereof I have hereunto signed my name in the presence of the two subscribed witnesses.

G. W. LILLIE.

Witnesses:
W. A. PRIMM,
H. H. JACOBS.