J. K. HOFFMAN.

WALL CONSTRUCTION.

APPLICATION FILED MAY 25, 1909.

973,659. Patented Oct. 25, 1910.

Fig. 1.

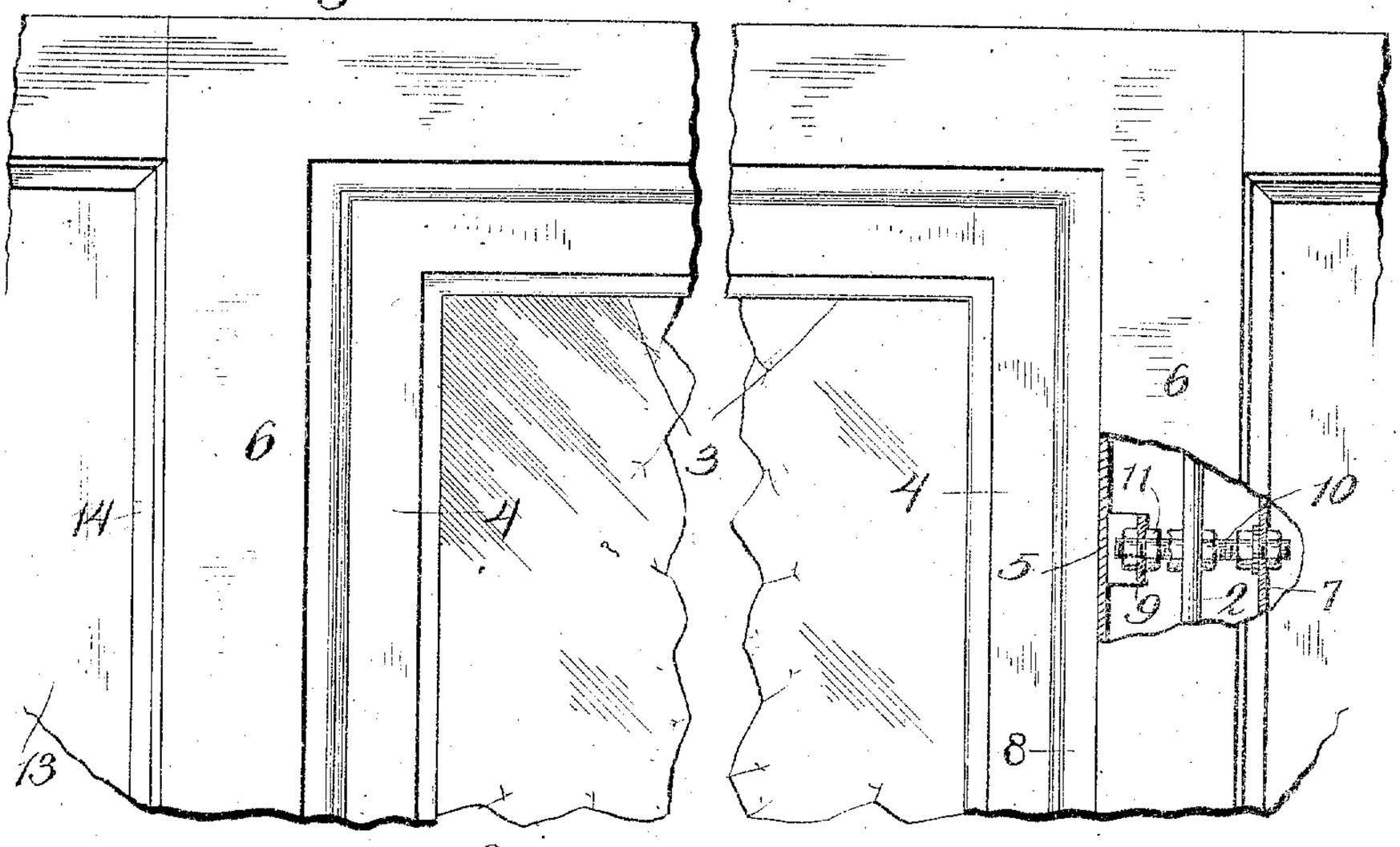


Fig. 2

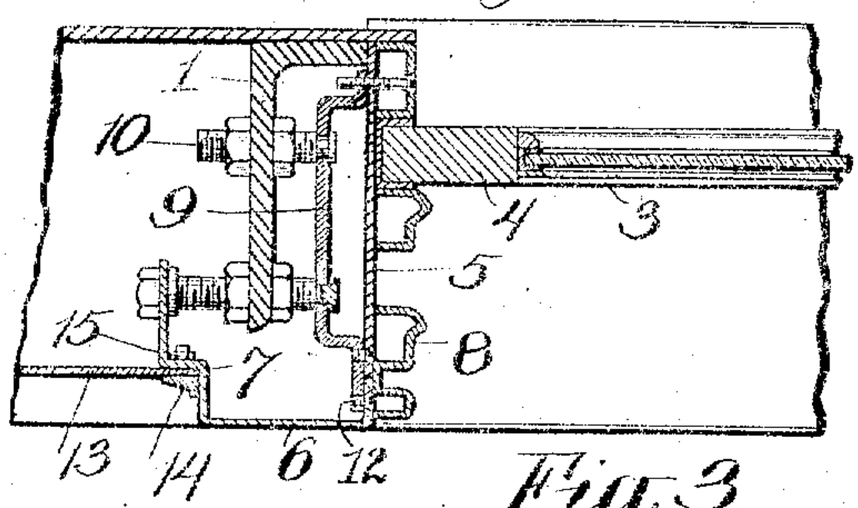


Fig. 3.

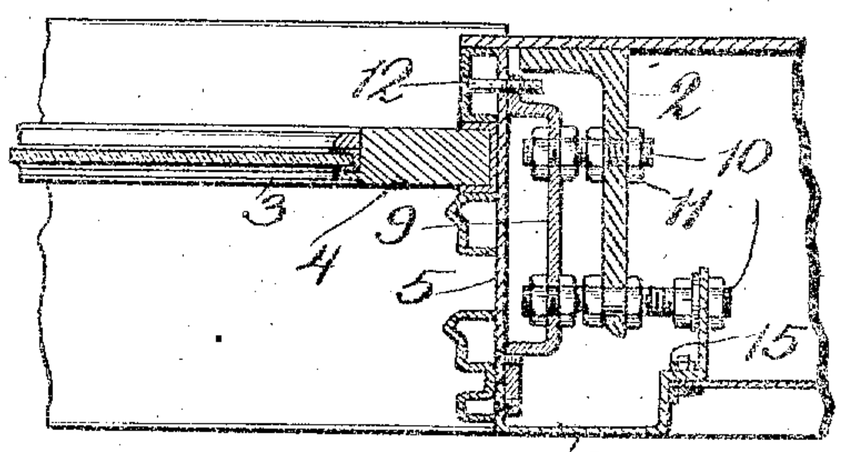
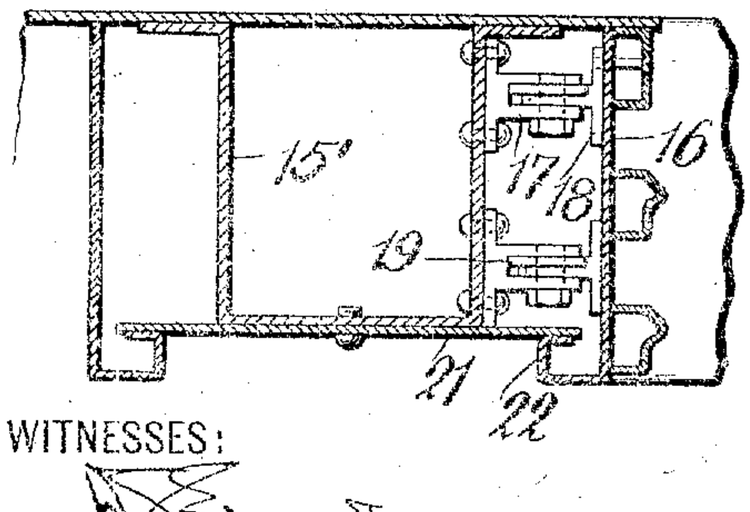
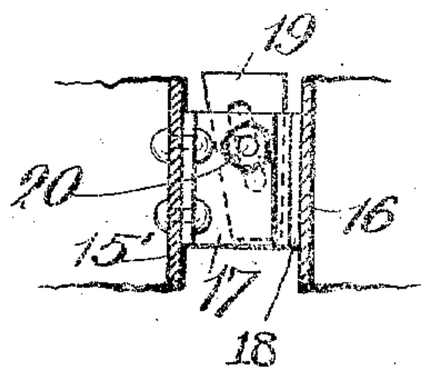


Fig. 4.





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WALL CONSTRUCTION.

973,659. Specification of Letters Patent. Patented Oct. 25, 1910.

Application filed May 25, 1909. Serial No. 498,193.

To all whom it may concern:

Be it known that I, JACOB K. HOFFMAN, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Wall Construction, of which the following is a specification.

This invention is directed to the provision of an improved form of wall construction susceptible of use in various ways but of special utility in the construction of railway cars made largely of metal.

In the construction of a railway car, posts are employed at intervals along the side walls of the car extending vertically and supporting the roof of the car, and the windows in the side walls of the car are located in the spaces between adjacent posts.

In accordance with the present invention, the structure consists largely or entirely of metallic parts, these including vertically disposed metallic posts and sheet-metal window-frames secured thereto between adjacent posts. If desired, all of the spaces between the posts may have windows therein, but in the preferred construction the windows occur in alternate spaces and the other spaces are closed by panels. In building a car in this way, there is always some little variation in the size and shape of the spaces between adjacent posts; but the openings in the window-frames which are to be placed between these posts must be uniform, that is, must be independent of this variation, in order that the windows shall operate smoothly therein. I have therefore provided means for securing these window-frames to the vertically disposed metallic posts on either side thereof such as will compensate or allow for the variation in the size and shape of the spaces between the posts, which variation I have found always to be present to some extent even though considerable care be exercised in building the car. Adjustable securing devices are provided for coacting with the window-frame and the posts for supporting the side wall of the car such that even though the post is out of position a considerable amount, the frame may still be secured to the post, and this without distorting the frame in such a way as would make the window fit imperfectly therein. This method of manufacture offers a further and very important advantage; namely, it permits of making the parts for the side wall of a car in quantities and assembling them to form the complete car without fitting each part in position individually, and a material reduction in the cost of building cars is thus effected.

I have illustrated the preferred embodiment of my invention in the accompanying drawings in which—

Figure 1 is an elevation of a portion of the side wall of a car broken away in part, Fig. 2 is a horizontal section of the same, Fig. 3 is a horizontal section illustrating a modified form of my invention and Fig. 4 is a detail view illustrating certain of the parts shown in Fig. 3.

Referring to these drawings, 1 and 2 indicate two of the posts lying within the side wall of the car and supporting the roof thereof. A number of these posts are employed in each side wall and they are disposed at intervals along the length of the car. A window is shown at 3, the sash 4 of which is adapted to move vertically within a frame which is secured to the posts 1 and 2. In the construction of railway cars, it is found that the size and shape of the spaces between adjacent posts 1 and 2 vary to some extent, even though considerable care is exercised in positioning these posts. However, the space between opposite sides of the frame for a window must be accurate as to size and shape in order that the movement of the sash 4 therein may be readily effected and that the sash will not rattle in the frame.

In order to insure the opening in the window-frame being accurate as to size and shape, I make the frame with the side members thereof rigidly connected, as by forming at least three of the sides of this frame integral; if desired, however, all four of the sides of the frame may be formed integral, or the frame may consist of frame-members which are secured together at their ends as by welding in order to form a unitary structure. I have shown the window-frame in Figs. 1 and 2 as having three sides thereof formed integral, each of these sides including a portion 5 which extends transversely to the plane of the wall of the car, a portion 6 lying in the plane of the wall and forming a part of the outer surface thereof and a portion 7 at the edge of the portion 6 extending inwardly of the wall.

The portion 5 of the frame has a plurality of sheet-metal parts 8 formed thereon or secured thereto and forming grooves within which the windows 3 move. The portion 5 of the window frame may or may not be integral with the portion 6 thereof as described, the practice in this respect being dependent upon convenience in manufacturing these parts and the desirability of having the portion 5 removable independent of the portion 6. In the drawings I have shown the portion 6 of the frame as provided with a narrow integral portion lying in the plane of the wall 5, the latter being formed as a separate cheek-piece.

Since the window-frame is accurately made with respect to the size and shape of the window thereof and since variation occurs in the distance between adjacent posts 1 and 2 which form the supports for the window-frame, I have provided means for securing the frame to the posts 1 and 2, this being adjustable to allow for such variation as may occur in the relative positions of these parts. Thus, at the right of Fig. 2 I have shown brackets 9 adjustably secured to the posts 2 and having the frame secured thereto. Threaded rods 10 are employed passing through openings in the post 2 and the brackets 9, and nuts 11 are provided on these rods one on either side of the post 2 and one on either side of each of the brackets 9. By means of this construction whatever the relative positions of the posts 1 and 2, the brackets 9 may be secured to the posts and then adjusted toward and away from them by properly positioning the nuts 11 upon the rods 10 so that the distance between the brackets 9 on opposite sides of the panel for the window shall be such that the frame will exactly fit within this space. The nuts 11 may then be tightened to lock the brackets 9 rigidly in position and the frame may then be positioned between the opposite brackets and secured thereto by means of the screws 12.

At the left of Fig. 2 a slight modification of the construction shown at the right of that figure is illustrated, this modification consisting of securing the rods 10 rigidly to the brackets 9 instead of adjustably. With this construction the adjustment of the positions of the brackets 9 is effected solely by moving rods 10 relatively to the posts 1. As shown in Fig. 2, one of the rods 10 of each pair may be extended and employed to secure the portions 7 of the frame and thus making the structure more rigid. I have shown certain of the rods 10 as passing through openings in the portions 7 of the frame and having nuts thereon one on either side of the portion 7 which may be tightened up to hold the latter rigidly.

If desired, a window may be provided between each pair of adjacent posts 1 and 2 but in the preferred construction the windows are provided in alternate spaces only and the other spaces are closed by sheet-metal panels. I have shown such panels at 13 in Figs. 1 and 2, these being pieces of sheet-metal cut to the proper size and if desired ornamented in any suitable manner. For supporting the panels, the portions 7 of the window-frame are preferably pressed to form shoulders therein upon which the edges of the panels 13 may rest. The panels are then secured to the posts of the window-frame by molding strips 14 having studs thereon which pass through openings in the edges of the panels 13 and in the shoulders or ledges of the portions 7, these studs having nuts 15 upon their inner ends which may be tightened up to secure the panels 13 rigidly in position. By this method of securing the panels in position the latter may be made in completed form at the fatcory ready for installation in the car, these panels being made of such dimensions that if the openings in which they were to be fitted were perfect, the panels would be a little small but the molding strips 14 would overlie and conceal any spaces between the edges of the panels 13 and the walls of the window posts; if then the size of the opening for a panel is reduced by moving the window-frames at opposite sides thereof toward each other slightly in adjusting them relatively to the posts 1 and 2, panel 13 may still be employed within this opening without cutting away the metal at its edges.

In Figs. 3 and 4 I have illustrated a modification of my invention somewhat different from the construction illustrated in Figs. 1 and 2, but like that in that adjustable securing devices are provided for securing the window-frame to the posts of the side wall of the car. The post in this case consists of a sheet-metal strip 15′ bent to a rectangular configuration. The window-frame is shown at 16 secured to the post 15′ by a plurality of brackets 17 having two wings extending outwardly therefrom parallel to each other. Secured to the window-frame 16 are a corresponding number of brackets 18 each having a single outwardly extending wing lying between the two wings of the corresponding bracket 17. A wedge-plate 19 having an inclined edge, as shown, also fits between the two wings of each bracket 17. A bolt 20 passes through openings in the wings of each bracket 17, a horizontal slot in the wing of the corresponding bracket 18 and an inclined slot in the wedge-plate 19. It will be seen that by loosening the bolt 20 somewhat the wedge-plates 19 may be moved downwardly and the frame 16 thereby moved away from the post 15′ and when the desired position of the window-frame has been found, the bolts 20 may be

tightened up to hold these parts rigidly in the proper relative positions. In the construction illustrated in these figures the windows are provided between adjacent pairs of posts 15′ instead of in alternate spaces, and the sheet-metal panel 21 is provided secured to the outer face of the post 15′ and having its edges extending under inwardly turned edge portions 22 upon the window-frame 16.

It will be seen that in accordance with the construction above described, a side wall for a car is provided consisting of parts all of which may be manufactured in large quantities as factory products and therefore at low cost, and these may be used as required in assembling the parts of a car. These parts may be secured to the posts forming the supports for the side wall and roof of the car notwithstanding the fact that the spaces between these posts vary in size and shape, and this securing means is such that the window-frames will not be thereby subjected to distortion which would occasion poor operation of the windows therein. The spaces between adjacent windows are filled by the sheet-metal panels which may be readily removed, when desired, in order to make any necessary repairs and to paint the interior walls of the metallic parts to prevent corrosion thereof.

Having described my invention what I claim as new therein and desire to secure by Letters Patent of the United States is:

1. In a wall, the combination of two vertically-disposed posts, a window-frame formed of sheet-metal lying between said posts and having the side-members and a member connecting them rigidly connected together to form a unitary structure, securing devices for securing the side-members of the frame to the posts adjacent thereto, means for effecting an adjustment of said securing devices to compensate for variations in the distance between said side-members and the adjacent posts, an integral extension on one of said side-members, a panel, and means for securing the panel to said extension independently of said posts, substantially as set forth.

2. In a wall, the combination of a plurality of vertically disposed, stationarily mounted posts, brackets secured to the adjacent sides of said posts, means for adjusting the positions of said brackets toward and away from said posts, a window-frame lying between adjacent posts and having grooves therein to receive the sashes, and means for securing said frame to said brackets, substantially as set forth.

3. In a wall, the combination of a plurality of vertically disposed posts, brackets secured to the adjacent sides of said posts, means for adjusting the positions of said brackets toward and away from said posts, a window-frame lying between adjacent posts and having the opposite side-members thereof and a member connecting them rigidly connected together so as to form a unitary structure, and means for securing the side-members of said frame to said brackets, substantially as set forth.

4. In a wall, the combination of a plurality of vertically disposed, stationarily mounted posts arranged in line, a window-frame between two adjacent posts having grooves formed therein to receive the sashes, a panel between one of said two posts and the next adjacent post, brackets secured to said two adjacent posts, means for adjusting said brackets toward and away from the posts to which they are secured, means for securing said frame to said brackets, securing devices lying within said frame for securing the panel to the frame, and a molding overlying the joint between the panel and frame, substantially as set forth.

5. In a wall, the combination of two vertically disposed posts, a plurality of brackets, adjustable means for securing said brackets to the adjacent sides of said posts, said means including threaded rods coacting with said posts and said brackets and nuts on said rods, and a window-frame secured to said brackets, substantially as set forth.

6. In a wall, the combination of two vertically disposed, stationarily mounted posts, a window-frame formed of sheet-metal lying between said posts, having grooves formed therein to receive the sashes, securing devices for securing the side-members of said frame to the posts adjacent thereto, means for effecting an adjustment of said securing devices, integral portions on the side-members of said frame extending to the non-adjacent sides of said posts, and means for securing said portions to said posts, substantially as set forth.

7. In a wall, the combination of two vertically disposed posts, a window-frame formed of sheet-metal lying between said posts, securing devices for securing the side-members of said frame to the posts adjacent thereto, means for effecting an adjustment of said securing devices, integral portions on the side-members of said frame extending to the non-adjacent sides of said posts, a sheet-metal panel, and means for securing the edge of said panel to said integral portion of one of the side-members of the frame, substantially as set forth.

8. In a wall, the combination of a plurality of vertically disposed posts arranged in line, a window frame made of sheet-metal lying between two adjacent posts, brackets between said two posts and the side-members of said frame, means for adjusting said brackets in accordance with the space between said posts and side-members, an integral portion on one of said side-members

extending to the opposite side of the adjacent post, a panel lying between said last-named post and the next adjacent post, and means for securing said panel to said integral portion of the window-frame, substantially as set forth.

9. In a wall, the combination of a plurality of vertically disposed posts arranged in line, a window-frame made of sheet-metal lying between two adjacent posts, brackets between said two posts and the side-members of said frame, means for adjusting said brackets in accordance with the space between said posts and side-members, an integral portion on one of said side-members extending to the opposite side of the adjacent post, a panel lying between said last-named post and the next adjacent post, securing devices lying within the side-member of the window-frame having said extension thereon for securing said panel to said side-member, and a molding overlying the joint between said panel and side-member, substantially as set forth.

This specification signed and witnessed this 29th day of April, 1909.

JACOB K. HOFFMAN.

Witnesses:
H. T. BIGELOW,
EDWARD G. BUDD.