(No Model.) 3 Sheets—Sheet 1.

T. A. BISSELL.

CAR FRAMING.

No. 457,486. Patented Aug. 11, 1891.

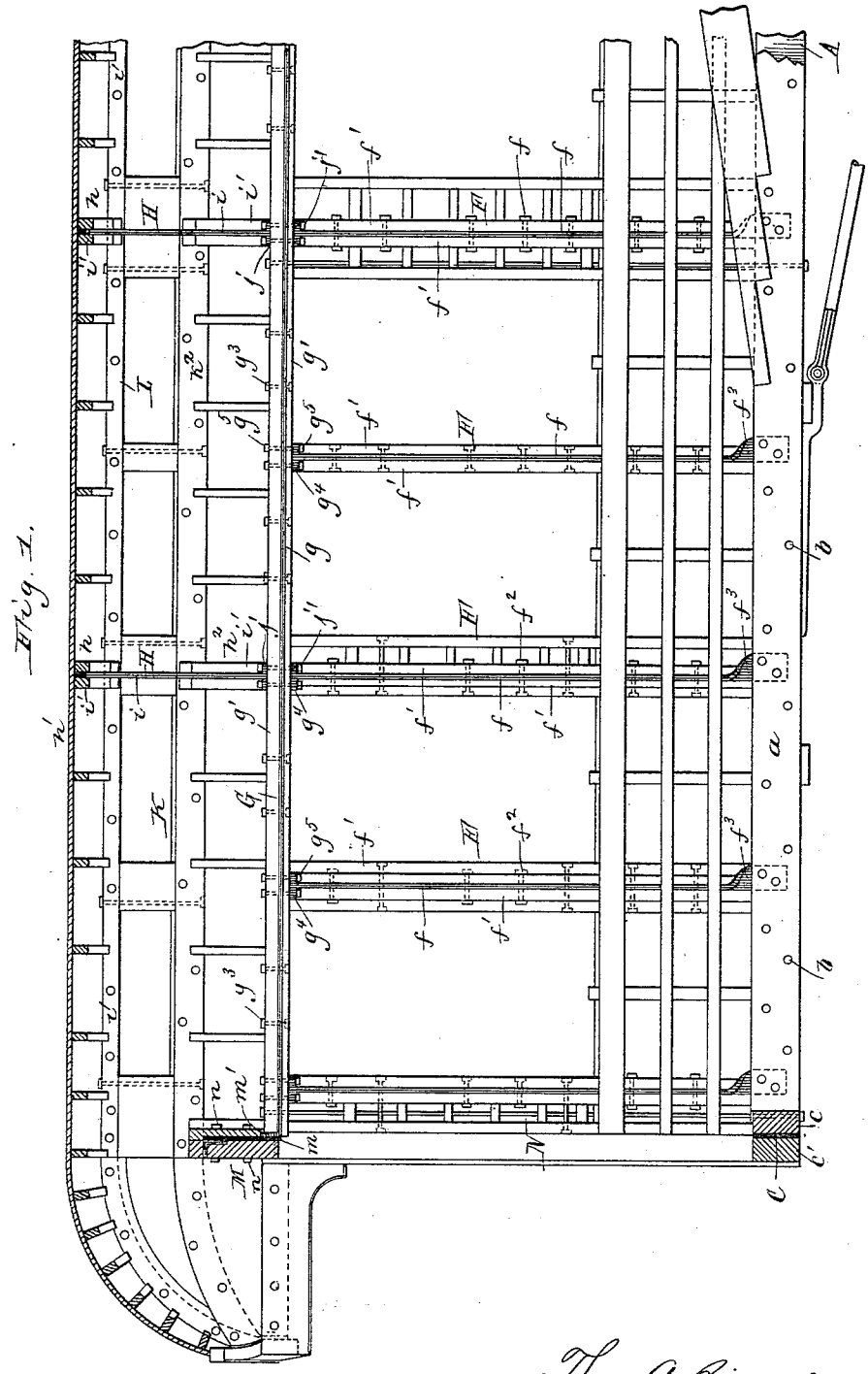


Fig. 1.

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Fig. 2.

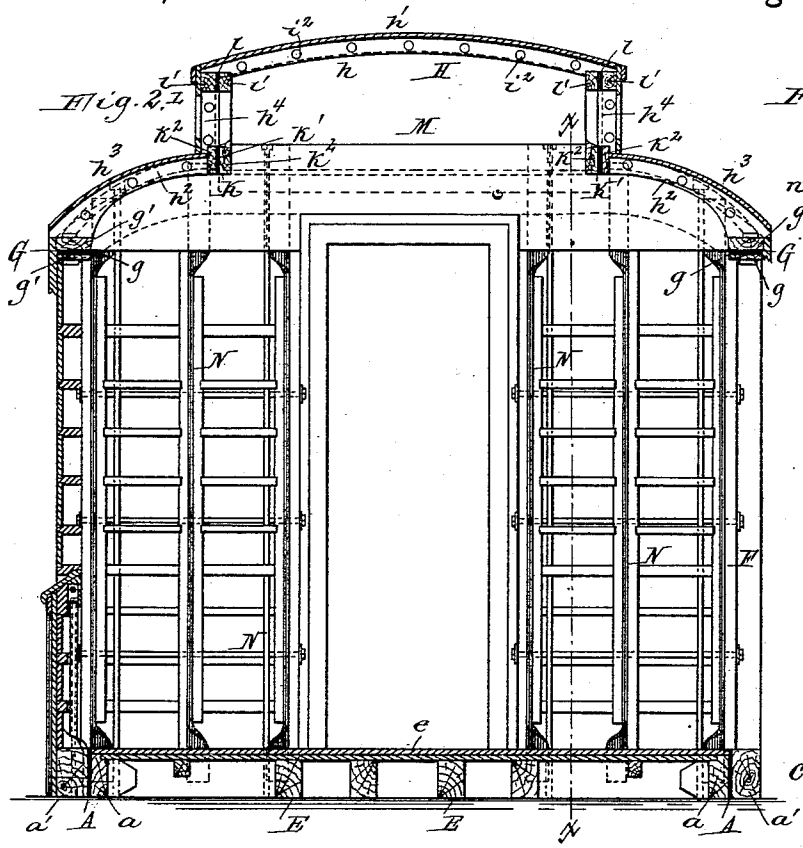


Fig. 3.

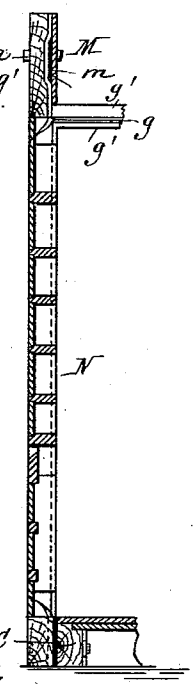


Fig. 4.

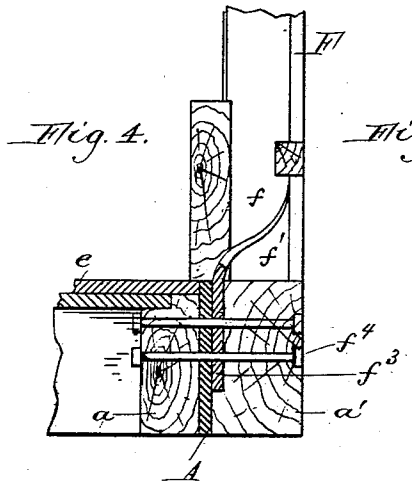


Fig. 5.

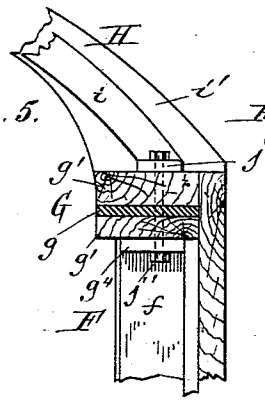
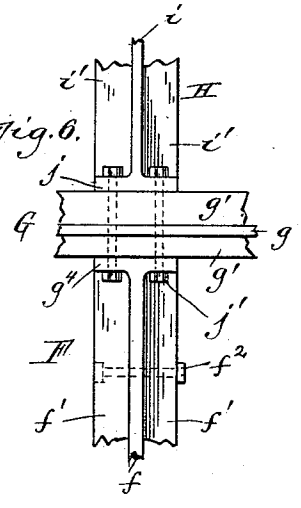


Fig. 6.



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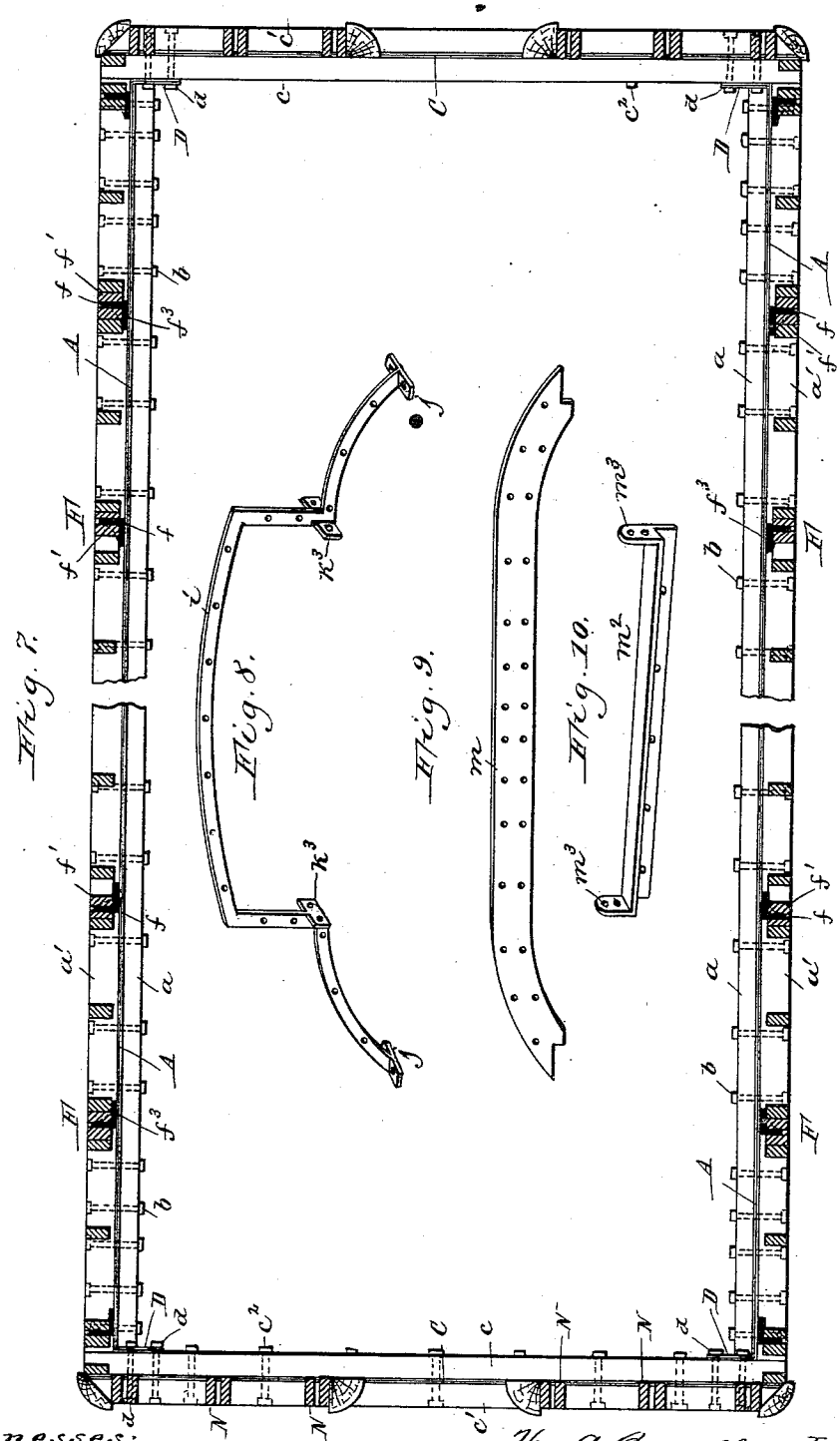
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(No Model.) 3 Sheets—Sheet 3.

T. A. BISSELL.

CAR FRAMING.

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

THOMAS A. BISSELL, OF BUFFALO, NEW YORK.

CAR-FRAMING.

SPECIFICATION forming part of Letters Patent No. 457,486, dated August 11, 1891.

Application filed September 22, 1890. Serial No. 365,730. (No model.)

To all whom it may concern.

Be it known that I, THOMAS A. BISSELL, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Car-Framing, of which the following is a specification.

This invention relates to an improved framing for railway-cars whereby the rigidity of the car-frame is increased.

The novelty in this car-frame consists in securing a metallic plate to the side of each of the members constituting the main framework of the car and in interposing a yielding medium between the connecting portions of the several plates in such manner as to reduce the metallic contact of the plates to a minimum, thereby cushioning the car-body and increasing its strength without materially increasing its weight or cost of manufacture.

In the accompanying drawings, consisting of three sheets, Figure 1 is a longitudinal sectional elevation of one end of a passenger-car constructed in accordance with my improvements. Fig. 2 is a cross-section thereof. Fig. 3 is a vertical section in line $x\,x$, Fig. 2. Fig. 4 is a fragmentary sectional elevation, on an enlarged scale, showing the manner of connecting the window-post with the side sills. Fig. 5 is an enlarged fragmentary sectional elevation showing the manner of connecting the window-post with the roof-plate and the carling. Fig. 6 is a fragmentary inside elevation thereof. Fig. 7 is a horizontal section of the car-frame, showing the manner of connecting the end sills with the side sills. Fig. 8 is a perspective view of the metallic carling which is secured to the wooden carling supporting the deck. Fig. 9 is a perspective view of the metallic end roof-plate which is secured to the end roof-panels. Fig. 10 is a perspective view of the angle-iron secured to the metallic end roof-plate.

Like letters of reference refer to like parts in the several figures.

The longitudinal beams or side sills are each composed of a metallic plate A, arranged vertically between an inner and an outer wooden beam $a\,a'$, respectively. These two wooden beams and the metallic plate are rigidly secured together by means of transverse bolts b. The transverse beams or end sills are constructed similar to the side sills, being each composed of a metallic plate C, arranged vertically between two transverse wooden beams $c\,c'$, secured together by bolts c^2. The metallic plate of each of the side sills is provided at opposite ends with an inwardly-projecting foot or angular portion D, arranged adjacent to the inner wooden beam of the end sills and secured to the latter by bolts d, passing through the foot D and the wooden beams and metallic plate of the end sills. In this manner a rigid connection is formed between the side and end sills without metallic contact between the sills, the parts being cushioned by the inner wooden beam of the end sill interposed between the metallic foot of the side sill and the metal plate of the end sill. The end and side sills are further connected by the usual intermediate sills E E and suitable cross-timbers for supporting the floor e.

F represents the vertical window-posts, which rest with their lower ends on the outer wooden beam of the side sills and support the plate G. Each of the window-posts is composed of a central metallic plate f and wooden studs $f'\,f'$, secured on opposite sides of the plate by bolts f^2, passing through both studs and the plate. The lower ends of the wooden studs of the window-posts rest on the outer wooden beam of the side sills. The metallic plate of each window-post is provided at its lower end with a downward extension f^3, which is twisted a quarter-turn, so as to bear flatly against the outer side of the metallic plate of the side sill, this twisted extension being secured to the sill by bolts f^4, as represented in Fig. 4, thereby firmly securing the side sills and window-posts together.

The roof-plates G, resting on the top of the window-posts, are each composed of a horizontal metallic plate g, having a wooden furring g', secured on its upper and lower sides by bolts g^3. The metallic plate of each window-post is provided at its upper end with a horizontal ear g^4, and the horizontal roof-plates are secured to the upper ends of the window-posts by bolts g^5, passing through these ears and the roof-plates.

H represents the carlings, which rest on the roof-plates and support the roof. Each car-

ling is preferably composed of an upper curved rafter h for supporting the upper deck h' and downwardly-curved end portions h^2 for supporting the lower deck h^3, which end portions are connected with the upper rafters by upright deck-posts h^4. These carlings are each constructed of a metallic central plate i, which is shaped to conform to the design of the roof, and provided with wooden side studs i', secured thereto by means of transverse bolts i^2. The carlings are provided at their outer ends with horizontal lugs j, which rest on the upper side of the roof-plates in line with the upper ears g^4 of the window-posts. The carling-plate and window-post are secured together by bolts j', passing through the ears of the window-posts, the roof-plate, and the lugs of the carling.

K represents the lower deck-sills, which are each composed of a vertical metal plate k', having wooden sills k^2 k^2, secured to opposite sides thereof, substantially like the side sills. The metallic portions of the carlings are provided on their inner sides with lugs k^3, and the lower deck-sills are secured to these lugs by bolts.

L represents the deck-plates, each of which is constructed substantially like the lower deck-sills—*i. e.*, a vertical metallic plate l, having wooden portions l' l' secured to opposite sides thereof. The deck-plates are secured to the carlings by bolts passing through the deck-plates and the carlings. The ends of the deck-sills and deck-plates are curved downwardly and are connected together, so as to form a firm support for the platform-roof, as represented in Fig. 1.

M represents one of the end roof-panels arranged transversely near the end of the car. This panel is constructed on the same principle as the sills, plates, carlings, and window-posts, and consists of a metallic plate m, having wooden plates secured to opposite sides thereof. The metallic portions of the roof-plates are provided at their ends with angular lugs or ears m', which are secured to the ends of the end roof-panels by suitable bolts, whereby these parts are rigidly secured together. The outer side of the metallic end roof panel is preferably stiffened by an angle-iron m^2, attached transversely to the end roof-panel. This angle-iron is provided with the lugs m^3, whereby it is attached to the deck-sills.

The supporting-studding N for the end roof-panels and the door-posts is constructed substantially in the same manner as the window-posts, the lower twisted ends of the metallic portions thereof being secured to the end sills, while their upper ends are secured between the metallic plate m and the wooden plates of the end panel by bolts n.

It will be observed that the entire main frame of the car-body is composed of a metallic core having a wooden furring or studding on each side. These several plates of wood and iron are firmly bound together by bolts and form a composite framing, which combines the strength of the iron and the lightness of the wood in a novel and practical manner, producing a very light and durable car. The studding or framing arranged on each side of the metallic core enables the wooden floors, wainscoting, and roof-boards to be secured in the usual manner. The greatest strain and vibration take place in the sills and roof-plates of the main frame. By interposing the wooden cushion between the connected metallic portions of the end and side sills and between the roof-plates, window-posts, and carlings the metallic portions do not come in contact with each other, and the grinding and wearing action which would otherwise result from the continual vibration of the car is thereby avoided. This method of cushioning the junction of the metallic parts may be carried into effect throughout the entire car-framing, but is most desirable in the connections of the sills and roof-plates.

I claim as my invention—

1. The combination of the side and end sills of a car-frame, each composed of a wooden plate and a metallic plate, the metallic plate of one of the sills being provided at its end with a foot or flange, whereby it is attached to the adjoining sill, and a cushion interposed between the metallic parts of the adjoining sills, substantially as set forth.

2. The combination of an end sill and a side sill, each composed of outer wooden plates and an inner metallic plate, one of the sills abutting with its ends against the adjacent wooden side of the adjoining sill and having its metallic plate provided at its end with a foot or flange which is secured to the inner wooden plate of the adjoining sill, whereby a cushion of wood is formed between the metallic plate of one sill and the metallic flange of the adjoining sill, substantially as set forth.

3. The combination, with the side and end sills and the roof-plate of a car-frame, each composed of parallel plates of wood and metal, of vertical posts secured with opposite ends to the sills and the roof-plate and each composed of an inner plate of metal and outer plates of wood, substantially as set forth.

4. The combination, with the side and end sills of a car-frame, of vertical posts secured with their lower ends to said sills, roof-plates secured to the upper ends of said posts, carlings secured to the upper side of said roof-plate, and deck sills or plates secured to said carlings, each of said sills, plates, posts, and carlings constructed of parallel plates of wood and sheet metal, substantially as set forth.

Witness my hand this 15th day of September, 1890.

THOMAS A. BISSELL.

Witnesses:
CARL F. GEYER,
FRED. C. GEYER.