No. 630,251. Patented Aug. 1, 1899.

G. MASSEY.

RAILWAY CAR WINDOW.

(Application filed Dec. 9, 1898.)

(No Model.) 3 Sheets—Sheet 1.

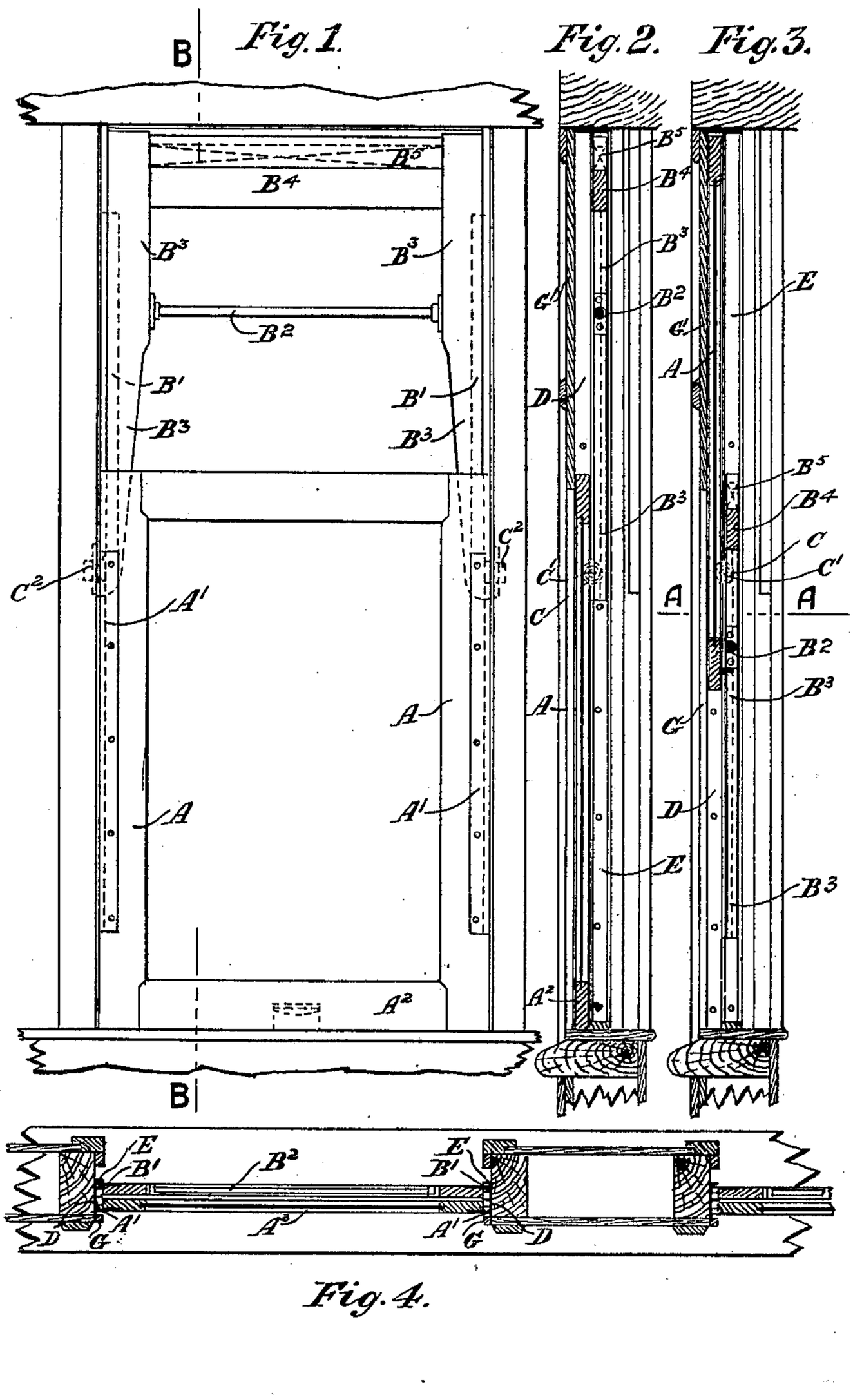

Fig. 1. Fig. 2. Fig. 3.

Fig. 4.

Witnesses
Percy Newell
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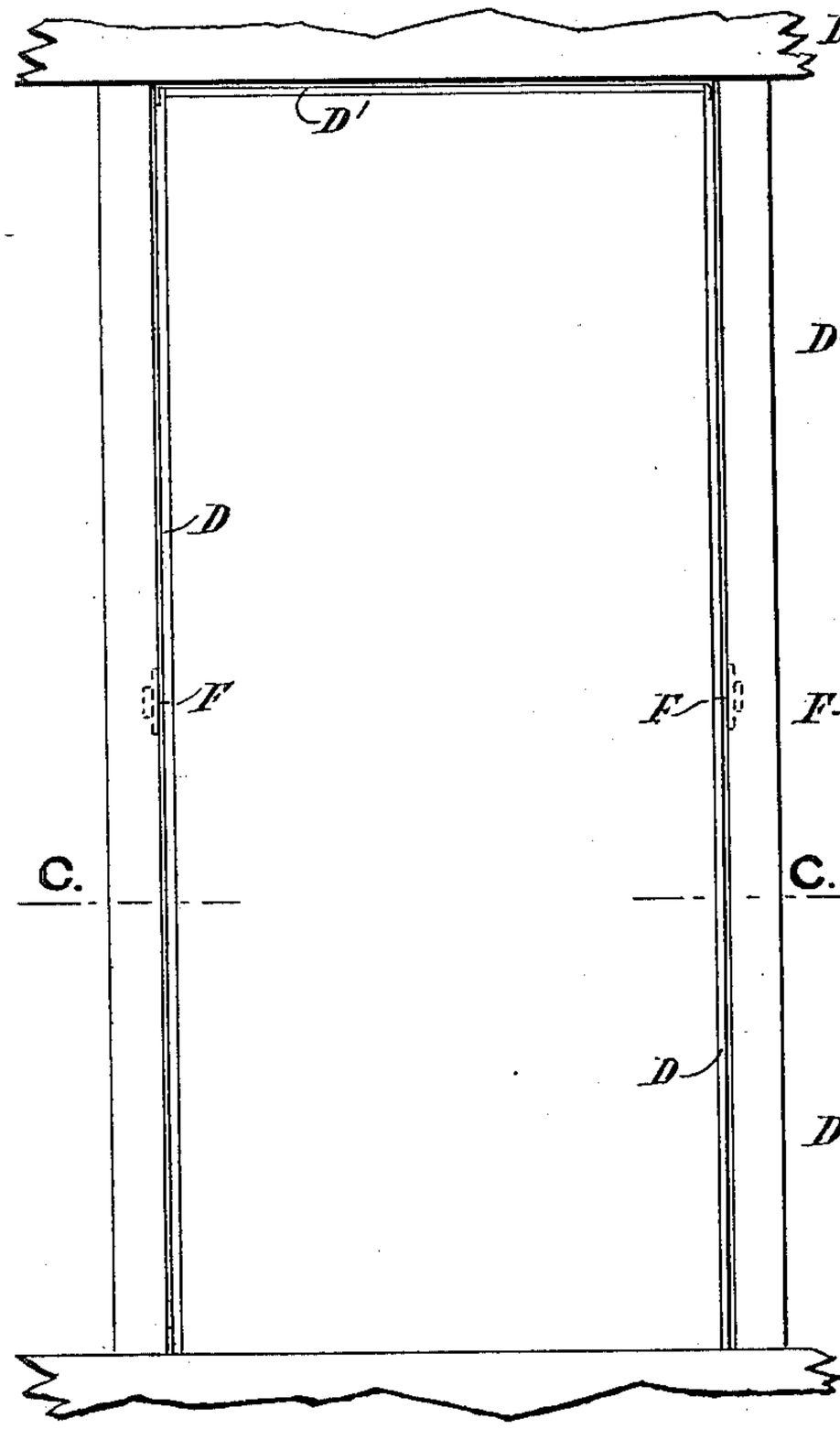
Fig. 5.



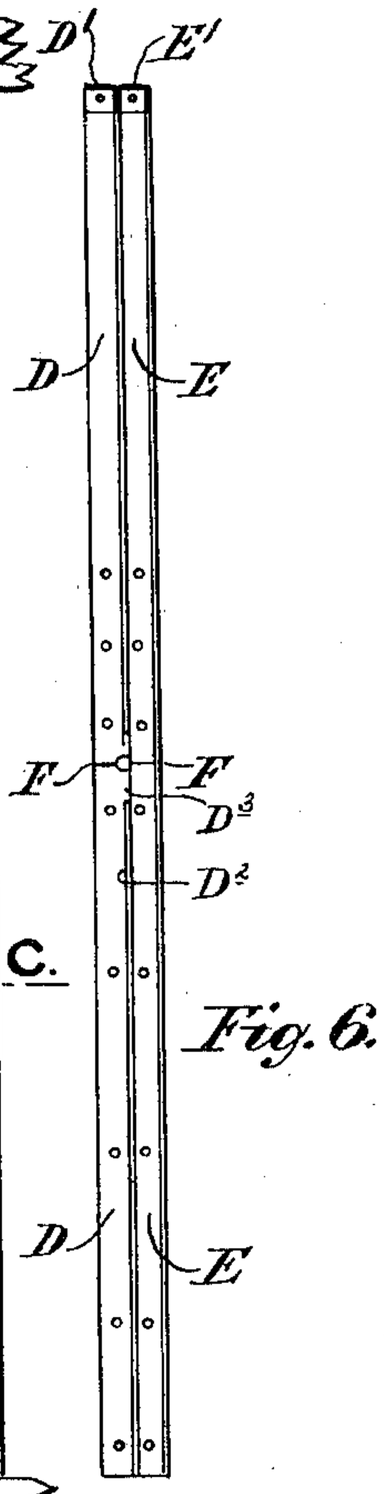


Fig. 6.

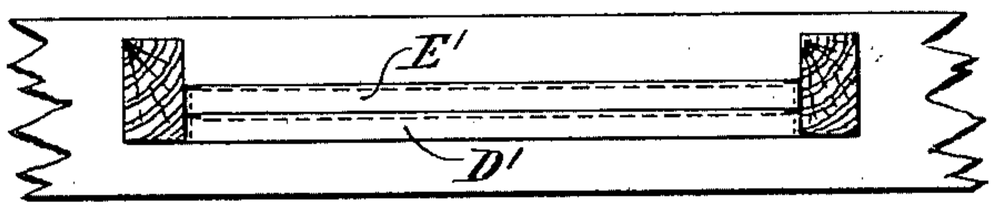


Fig. 7.

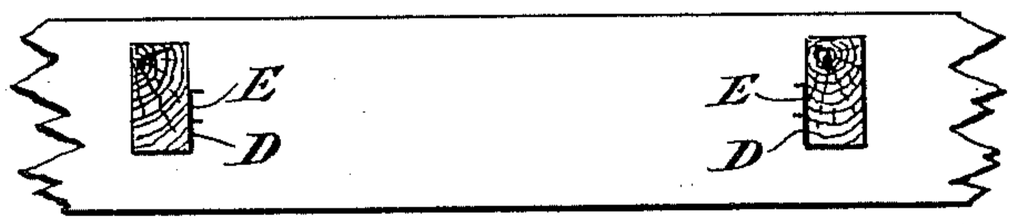


Fig. 8.

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(Application filed Dec. 9, 1898.)

(No Model.) 3 Sheets—Sheet 3.

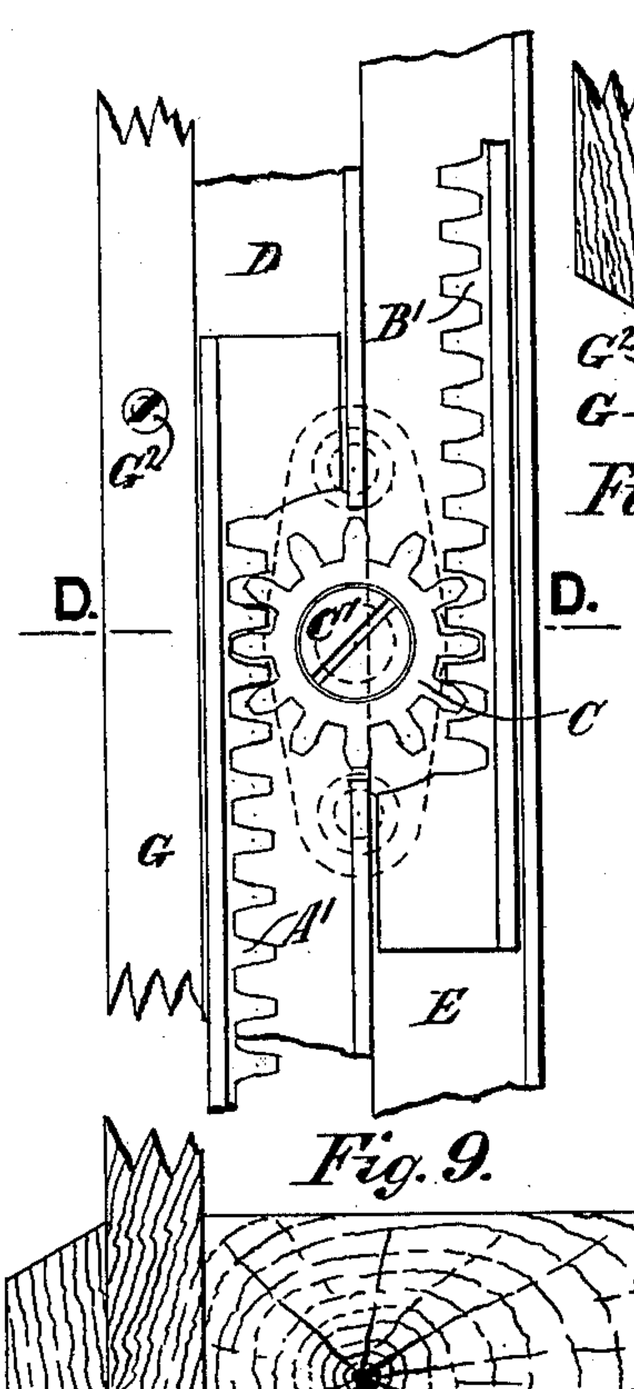

Fig. 9.

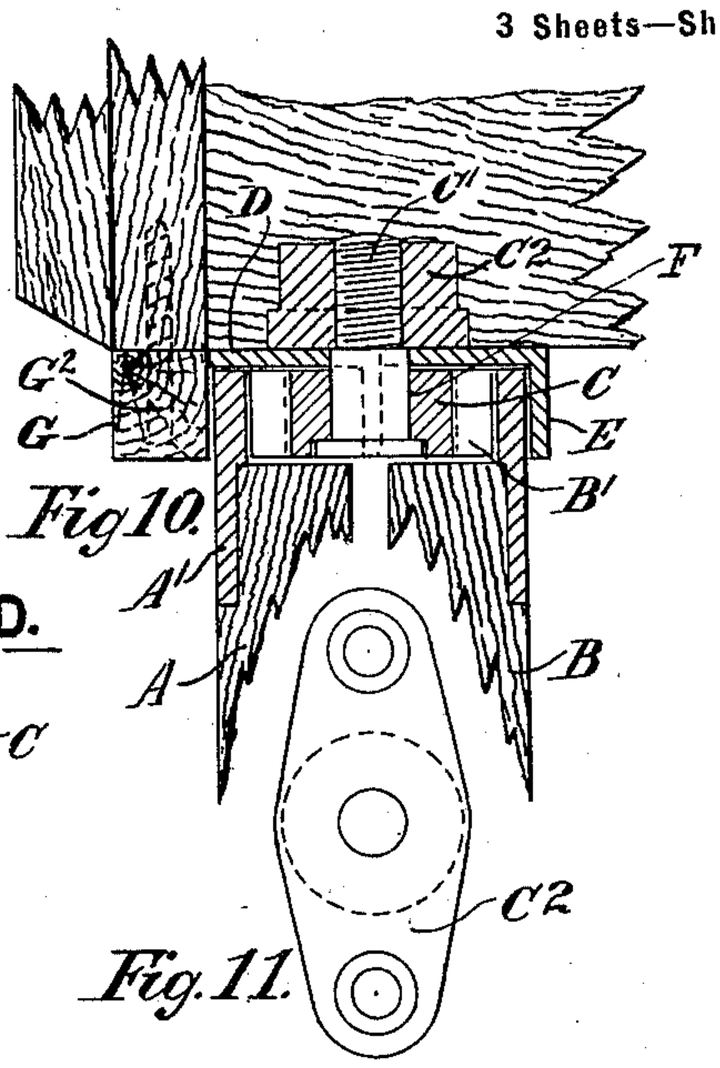

Fig 10.

Fig. 11.

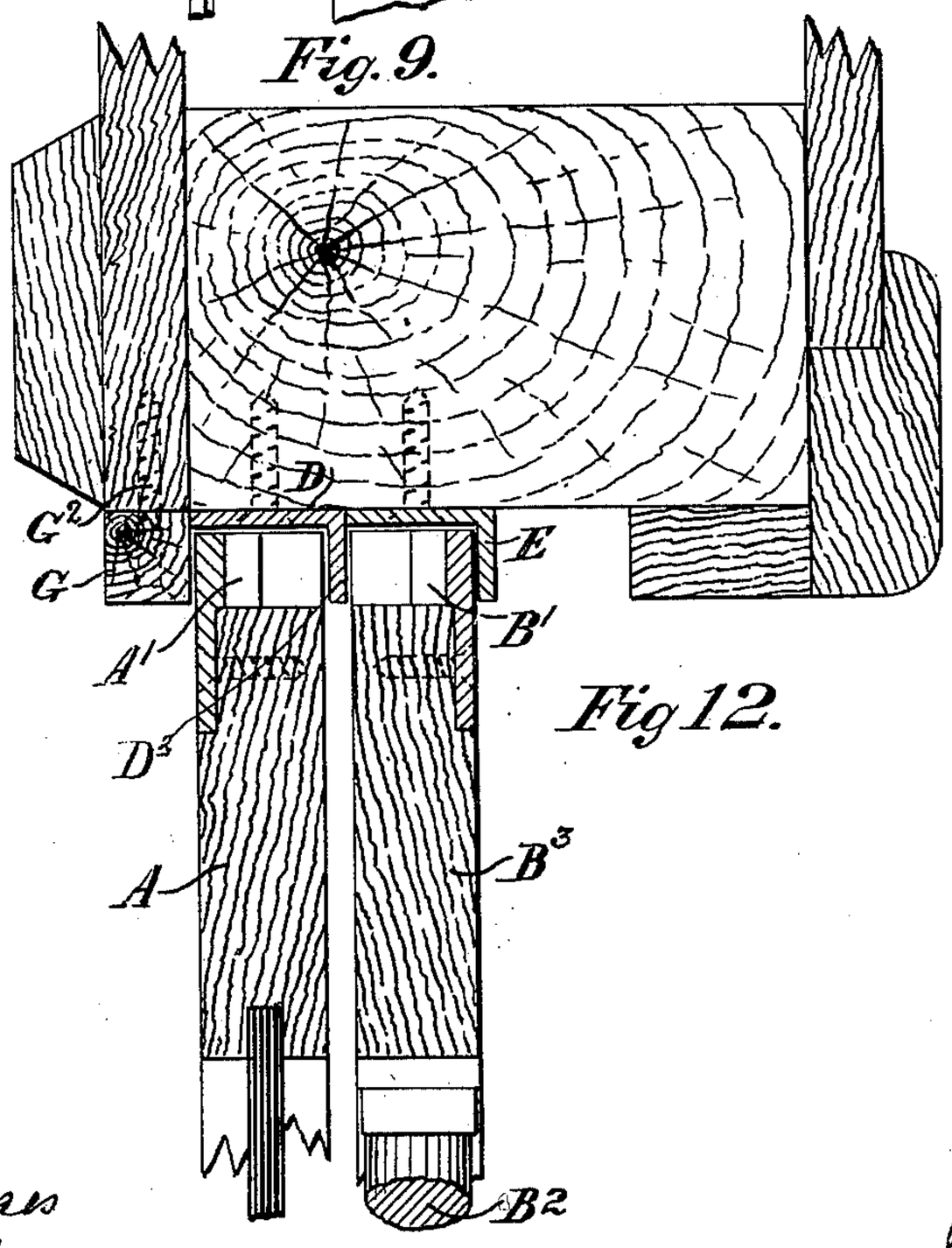

Fig 12.

Witnesses
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Edmund Lamerton

Inventor
George Massey

UNITED STATES PATENT OFFICE.

GEORGE MASSEY, OF SYDNEY, NEW SOUTH WALES.

RAILWAY-CAR WINDOW.

SPECIFICATION forming part of Letters Patent No. 630,251, dated August 1, 1899.

Application filed December 9, 1898. Serial No. 698,801. (No model.)

To all whom it may concern:

Be it known that I, GEORGE MASSEY, consulting engineer, a subject of the Queen of Great Britain, residing at Post-Office Chambers, Pitt street, Sydney, in the British Colony of New South Wales, have invented new and useful Improvements in Railway-Car Windows, of which the following is a specification.

This invention relates to balanced window-sashes having racks engaging pinions journaled on the window-frame.

The invention has for its object to provide new and improved means for guiding such sashes and enabling the lower one to be conveniently removed from its guideway.

To accomplish this object, my invention consists in the features of construction and in the combination or arrangement of parts hereinafter described and claimed.

In order that my invention may be the more easily understood, reference will now be made to the accompanying drawings, in which—

Figure 1 shows a front elevation of my improved sash-balancing device as fitted to a window in a railway-car of the well-known American type as viewed from the outside of the car and in which figure the sheathing or covering-boards of the car have been omitted altogether in order to plainly show the sashes. Fig. 2 is a vertical section at B B, Fig. 1, showing the bottom or outer sash down or closed and the inside or top sash up. Fig. 3 is also a vertical section at B B, Fig. 1; but in this figure the sashes are shown in the reverse way or position to that shown in Fig. 2—that is, the bottom sash up or open and the top sash down. Fig. 4 is a horizontal section at A A, Fig. 3. Fig. 5 shows the sash runner-guides in front elevation. Fig. 6 is a face view of the sash runner-guides when looking toward the car-frame pillar forming one side of the window-opening and is for the purpose of showing how they are attached and supported. Fig. 7 is a plan showing sash runner-guides and top connecting distance-bars. Fig. 8 is a horizontal section at C C, Fig. 5. In Figs. 5, 7, and 8 some portions of the car-framing are shown. Fig. 9 shows top portion of the outer or bottom sash-rack and the lower portion of the inner or top sash-rack, both gearing with their tooth-wheel. Fig. 10 is a horizontal section at D D, Fig. 9. Fig. 11 shows the bracket or plate into which the stud or axle for toothed wheel is secured. Fig. 12 is a horizontal section at line A A, Fig. 3. Figs. 9, 10, 11, and 12 are for the sake of clearness shown approximately full size.

A′ and A′ are two metal toothed racks attached to the stiles or vertical side bars A A of the outer or bottom sash.

B′ and B′ are also two metal toothed racks attached to the stiles or vertical side bars B^3 and B^3 of the inner or top sash.

C and C are two toothed wheels arranged to revolve upon their axles or studs C′ and C′, which studs are screwed into their respective brackets C^2 and C^2, firmly secured to the frame of the car on each side of the window-opening.

D and D are the runner-guides for the outer or bottom sash to slide in, while E and E are the runner-guides for the inner or top sash to slide in.

D′ and E′ are distance or stretcher bars at the upper ends of the runner-guides to keep them the correct distance apart. (See Figs. 5, 6, and 7.)

F and F are holes in the runner-guides to allow of the axles or studs C′ and C′ passing through, and at this place a portion of the offstanding flanges, as at D^2, Figs. 6 and 12, which separate the runner-guides D and E, is cut away, as at D^3, to admit the toothed wheels C and C. (See Fig. 9.)

G and G are wood bars secured by several screws G^2 G^2 to the side of the car, by the removal of which the outer or lower sash may be taken out, if necessary. These wood bars G and G serve as outer flanges to runner-guides D and D.

G′ is the usual sheathing or covering-boards of the car.

The inner or top sash is constructed of two stiles or vertical side bars B^3 and B^3, an upper rail B^4, and a stretcher or distance rod B^2. The upper rail B^4 is some little distance from the top ends of B^3 and B^3 in order that space may be afforded for the weight B^5, which may be a bar, of lead or other material, secured upon the upper side of B^4. This bar B^5 is so adjusted in size that its weight in conjunction with the inner or top sash will be exactly equal to the weight of the bottom sash.

The lower parts of the stiles of the top sash are chamfered in order to restrict the opening as little as possible when the bottom sash is up.

The bottom sash is constructed in the usual and well-known manner—that is, two stiles or vertical bars and top and bottom rails mortised and tenoned together and glazed with glass.

The toothed metal racks are in length a little more than the required travel of the sashes and are secured thereto in such a position that each adjacent pair will be correctly in gear with their respective tooth-wheels both when the sash is full open, closed, and also in all intermediate positions.

Although in my description I have more especially referred to sashes with a double set of racks and toothed wheels—that is, two racks and one tooth-wheel at each side of the window—yet a like effect will be brought about by having one set of racks and one tooth-wheel fitted at the one side of the window only.

It will be easily seen that these improvements can be cheaply and readily applied both to existing cars and also new ones, and it is especially with reference to the former that the shape of the runner-guides, the manner of fixing them, and the stretcher-bars at their top ends have been adopted.

The stretcher-bars D′ and E′ are important and advantageous in that they securely hold the runner-bars and avoid the necessity of stripping off the covering-boards or sheathing when applying my invention to existing cars.

Having thus particularly described the nature of my invention and in what manner the same is to be performed, I claim—

1. The combination with upper and lower sashes, racks and pinions, of pairs of the runner-guides D and E, each pair having the separating offstanding flange D^2 centrally cut away at D^3 and provided with the opening F, to accommodate a pinion and its pivot, the detachable bars G constituting outer flanges for the runner-guides D, and the stretcher-bars D′ and E′ engaged with the ends of the runner-guides, substantially as described.

2. The combination with a window-frame, and upper and lower sashes, of the pairs of runner-guides D and E, each pair having the pivot-opening F, and separating, offstanding flange D^2, centrally cut away as at D^3, the stretcher-bars D′ and E′ engaged with the upper ends of the runner-guides, and the detachable bars G constituting outer flanges for the runner-guides D, substantially as described and shown.

GEORGE MASSEY.

Witnesses:
PERCY NEWELL,
EDMUND LAMERTON.