

J. B. NEWBROUGH.

Sheet 1. 2, Sheets:

Improvement in Cars for Elevated Railway.

No. 121,539.

Patented Dec. 5, 1871.

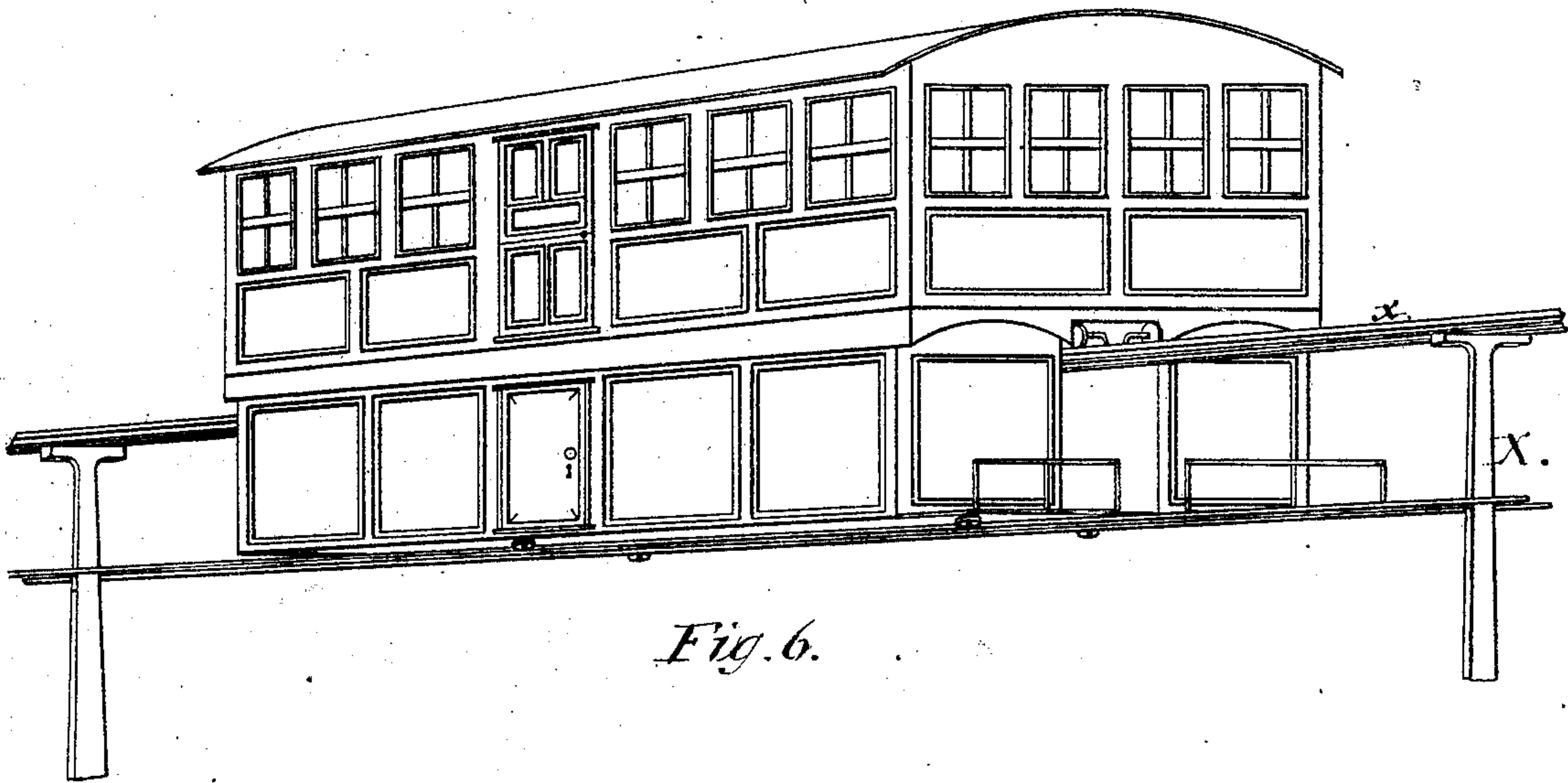


Fig. 6.

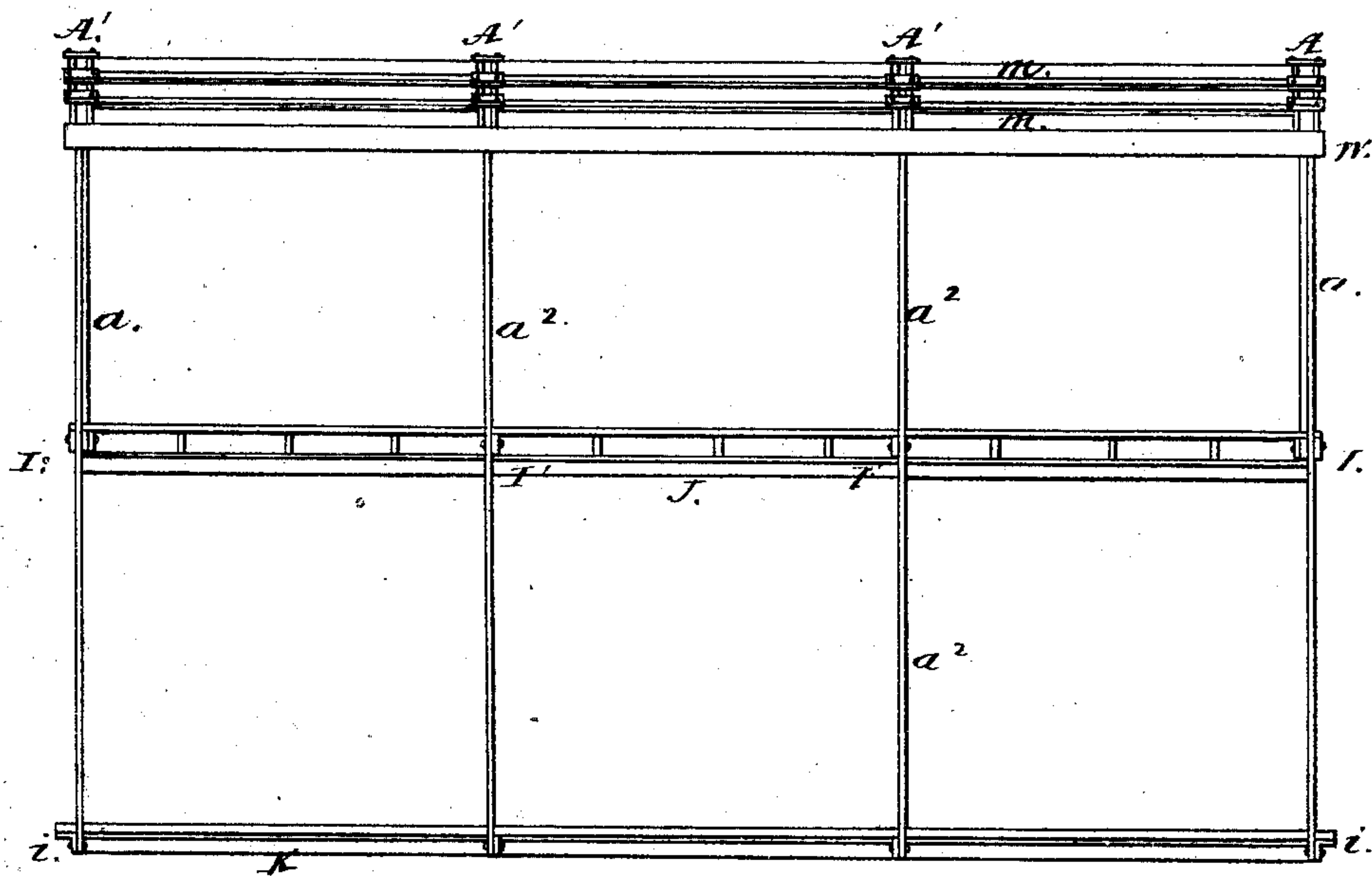


Fig. 5.

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Sheet 2. 2 Sheets.

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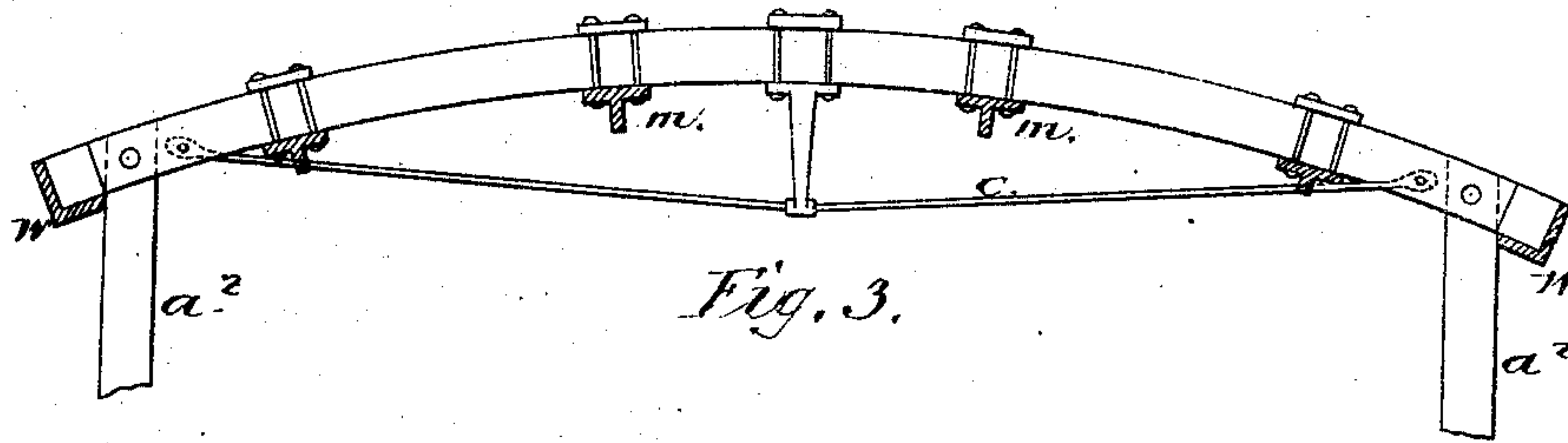


Fig. 3.

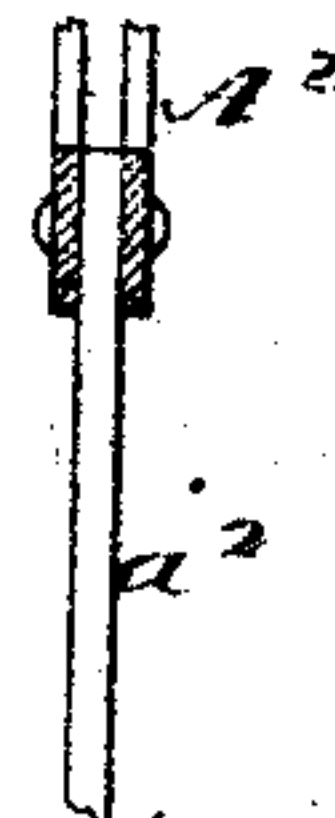


Fig. 4.

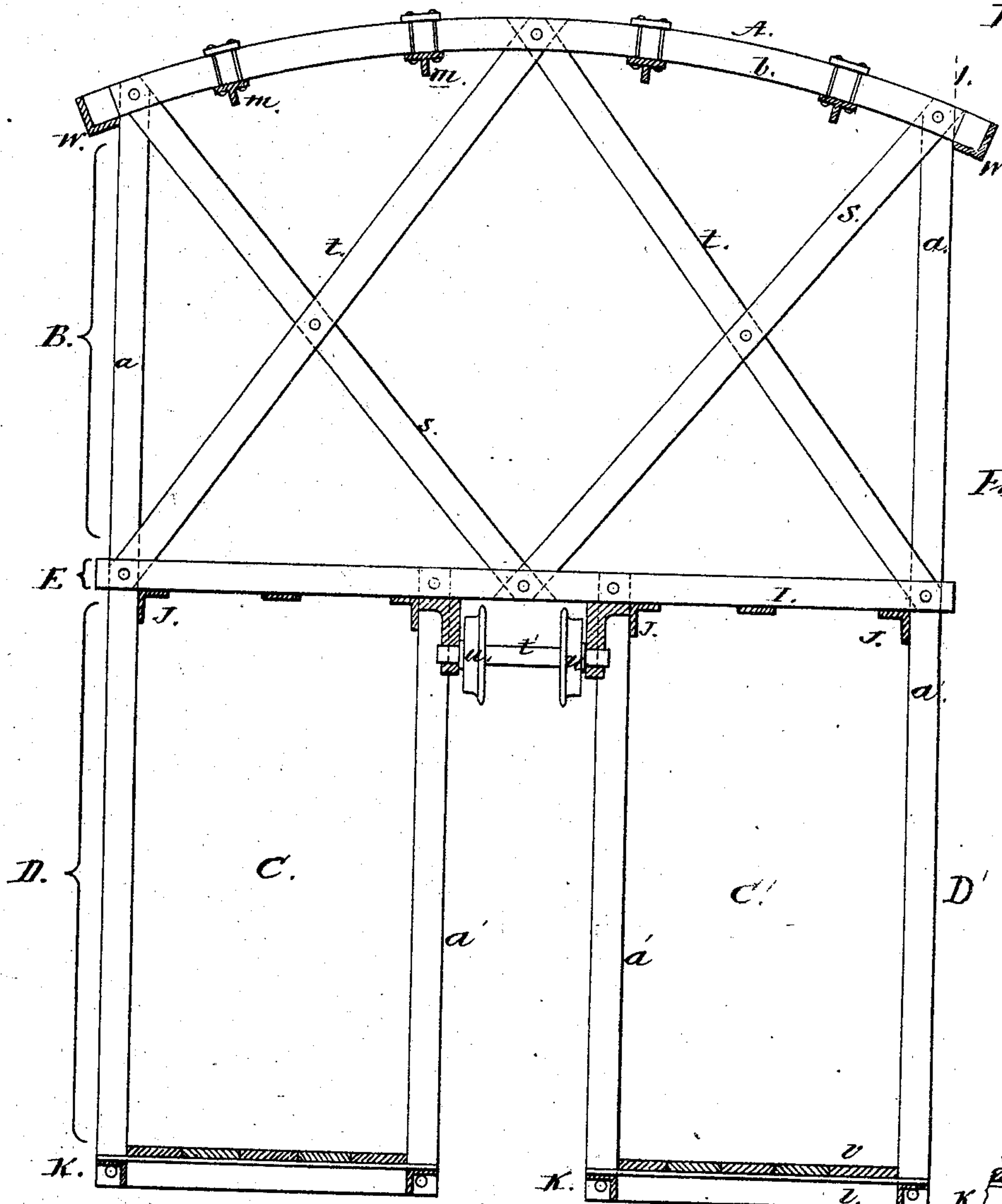


Fig. 1.

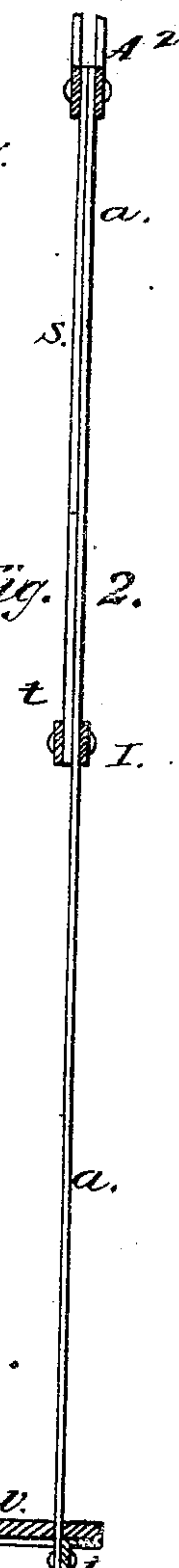


Fig. 2.

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UNITED STATES PATENT OFFICE.

JOHN B. NEWBROUGH, OF NEW YORK, N. Y.

IMPROVEMENT IN CARS FOR ELEVATED RAILWAYS.

Specification forming part of Letters Patent No. 121,539, dated December 5, 1871.

To all whom it may concern:

Be it known that I, JOHN B. NEWBROUGH, of New York, county of New York, State of New York, have invented certain Improvements in Elevated Railways, of which the following is a specification:

My invention relates to improvements in suspended cars for elevated railways; and consists in constructing a car, as fully described hereafter, so as to form an upper compartment, the frame of which serves as a girder to sustain the cages below.

Figure 1, Sheet No. 1, is a sectional elevation, showing part of the frame of my improved car for elevated railways; Fig. 2, a section on the line 1 2, Fig. 1; Figs. 3 and 4, detached sectional views; Fig. 5, Sheet No. 2, a side elevation drawn to a reduced scale; and Fig. 6 an external perspective view.

A rectangular frame, E, forms the tops of two suspended cages, D D', and the bottom of a superstructure, B; the said frame in the present instance consisting of parallel bars or girders I I' I' I and longitudinal beams J J, all bolted together. To the frame E, in the space between the two cages, are secured hangers having bearings for the journals of axes *t'*, to which are attached flanged wheels *u u* adapted to parallel rails *t t*, which are supported by a series of posts, X, as shown in Fig. 6. The cages D D are suspended on opposite sides of the rails, and both the cages and the upper compartment of the car are provided with doors so situated as to be accessible from platforms suitably arranged at the different stations.

In suspended cars for elevated railways the two cages are generally hung to transverse girders I, which are, necessarily, of great strength and of considerable height, rendering it impossible to utilize the upper portion as the center of gravity is elevated so far above the rails that any considerable load on the upper floor or platform must overbalance the weight of the cages.

I overcome this difficulty by so constructing the entire frame of the upper structure as to form of itself a girder, which, with a compara-

tively light and shallow frame, E, placed a short distance above the rails, will sustain the weight of the lower cages and their contents.

Although the entire frame of the car may be of wood, or wood and iron, I prefer to make it of iron in the following manner: Each end frame consists of a curved girder, A, straight girder I, (which is the end piece of the frame E,) vertical bars *a a*, diagonal bars *t t* extending from the center of the girder A to the end of the girder E, and counter-diagonals *s s* extending from the ends of the girder A to the center of the girder E. The diagonals, where they cross and where they overlap each other, or the verticals at their inner ends, are connected together and to the girders by rivets, and the bars *a* extend below the frame E and serve, with parallel bars *a'* secured to the frame E, to support cross-pieces *i*, thus forming the end frames of the cages D. The end girders A A are connected together by longitudinal bars *m m* and W, as shown in the drawing, and to the cross-pieces *i i* are secured the ends of longitudinal bars K. At suitable distances between the girders A may be placed one or more supplementary girders A' A', which are connected to the bars *m* and W and are strengthened by braces *c*, as shown in Fig. 3. Bars or plates *a''*, extending downward from the ends of the girders A, parallel to the bars *a*, are connected to the frame E, and, at their lower ends, to the bars K.

It will be seen that owing to the construction of the frame of the superstructure the frame E may be comparatively shallow and light, while the cages D D' will be effectually supported, and that a compartment is thus formed above the cages available for the reception of passengers, freight, or for any other desired purpose.

When the car carries its own motive power the engine may be arranged either in one of the cages D or in the upper compartment; in the latter case the floor beneath the engine is so constructed as to prevent the noise of the engine from being transmitted to the compartments below.

The frame of the car may be inclosed in any

suitable manner and with any desired material, and may be subdivided to form any number of compartments.

Without confining myself to the precise construction and arrangement shown and described, I claim—

A car for elevated railways in which the ends of the superstructure consist of girders so constructed as to brace the shallow frame E, from

which the lower cages *c c* are suspended, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN B. NEWBROUGH.

Witnesses:

A. B. HINE,
A. MEHRING.

(121)