

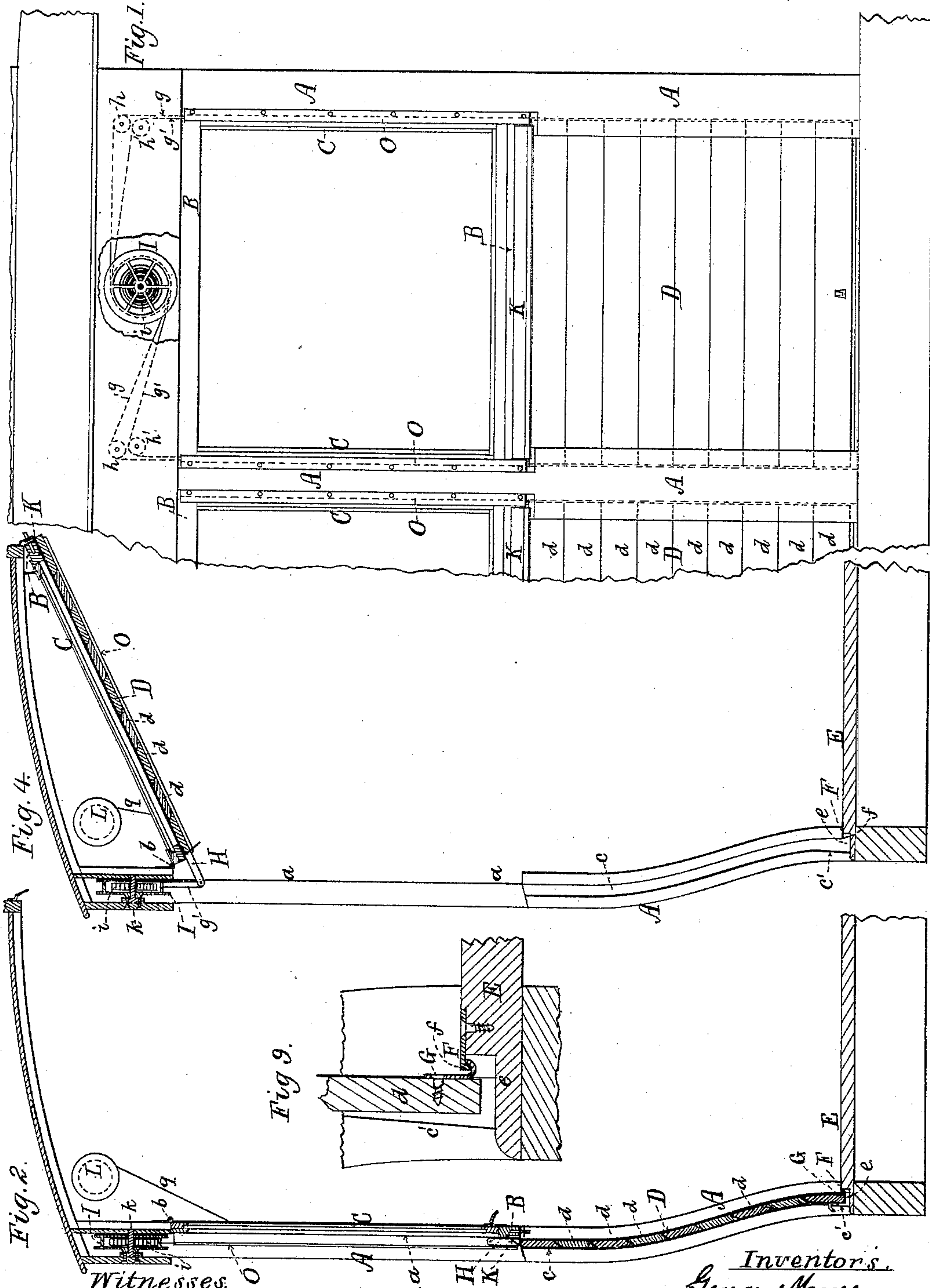
(No Model.)

3 Sheets—Sheet 1.

G. MOORE & J. E. PERFLER.  
STREET CAR.

No. 445,661.

Patented Feb. 3, 1891.



Witnesses:  
A. F. Piper  
W. E. Piper

Inventors:  
George Moore  
Joseph E. Perfler  
by S. N. Piper, atty.

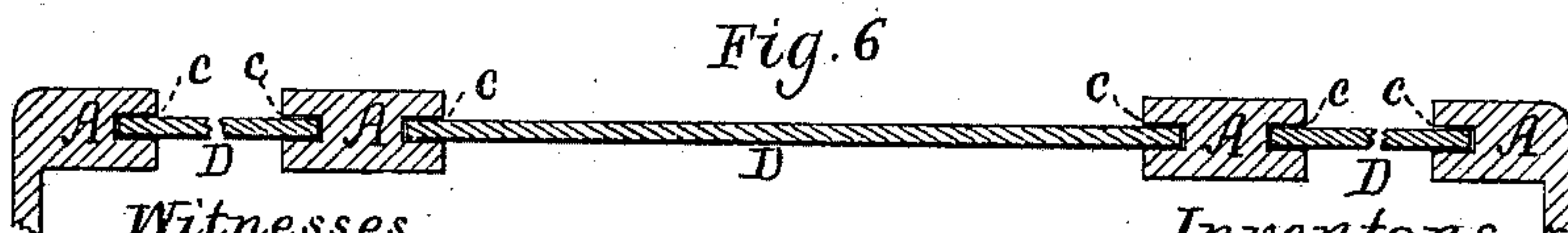
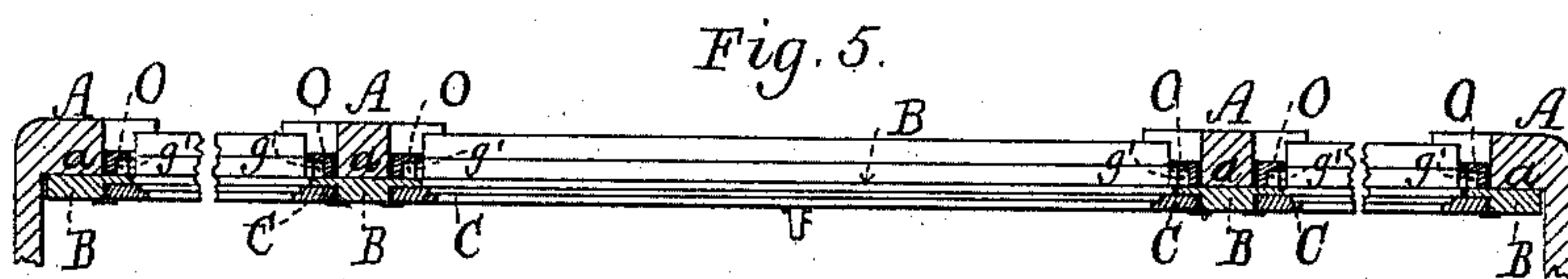
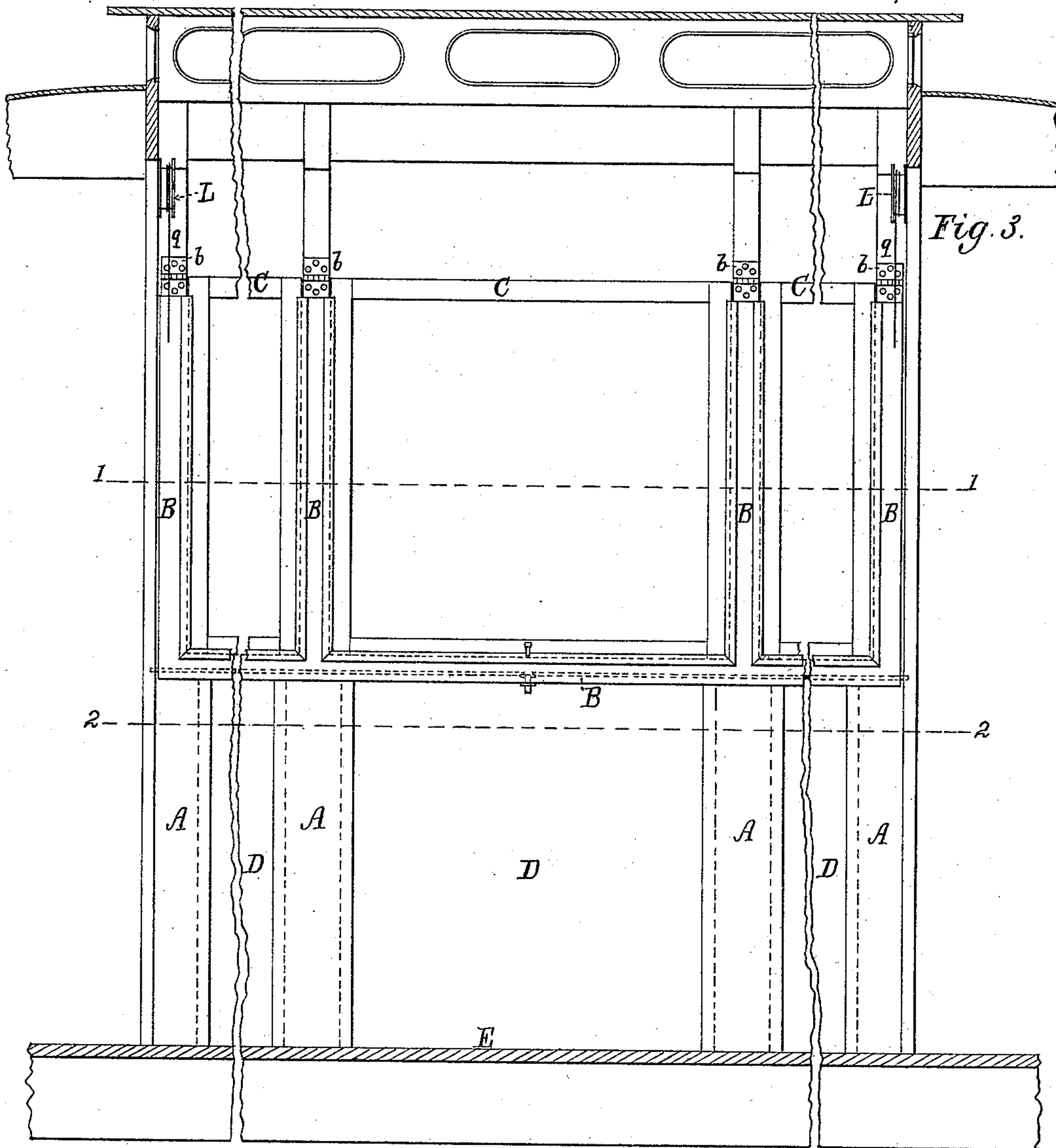
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3 Sheets—Sheet 2.

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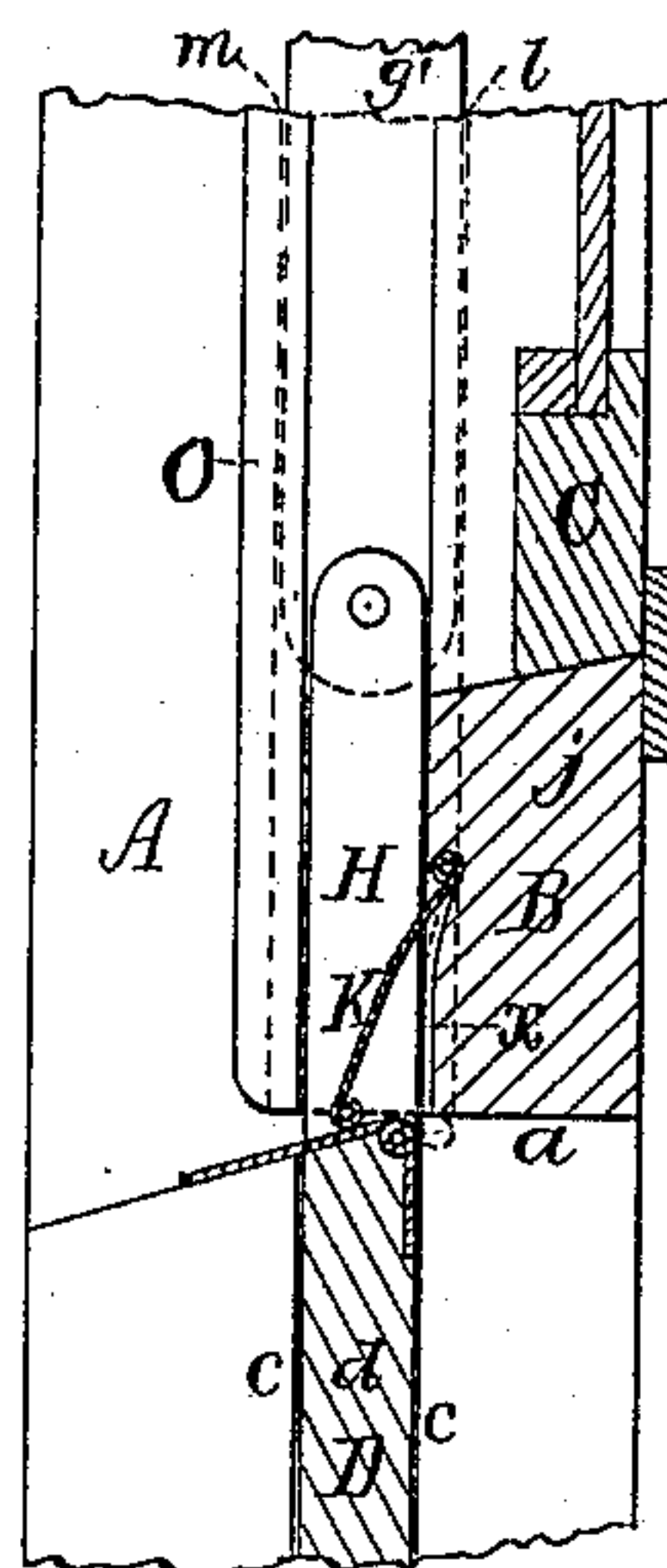
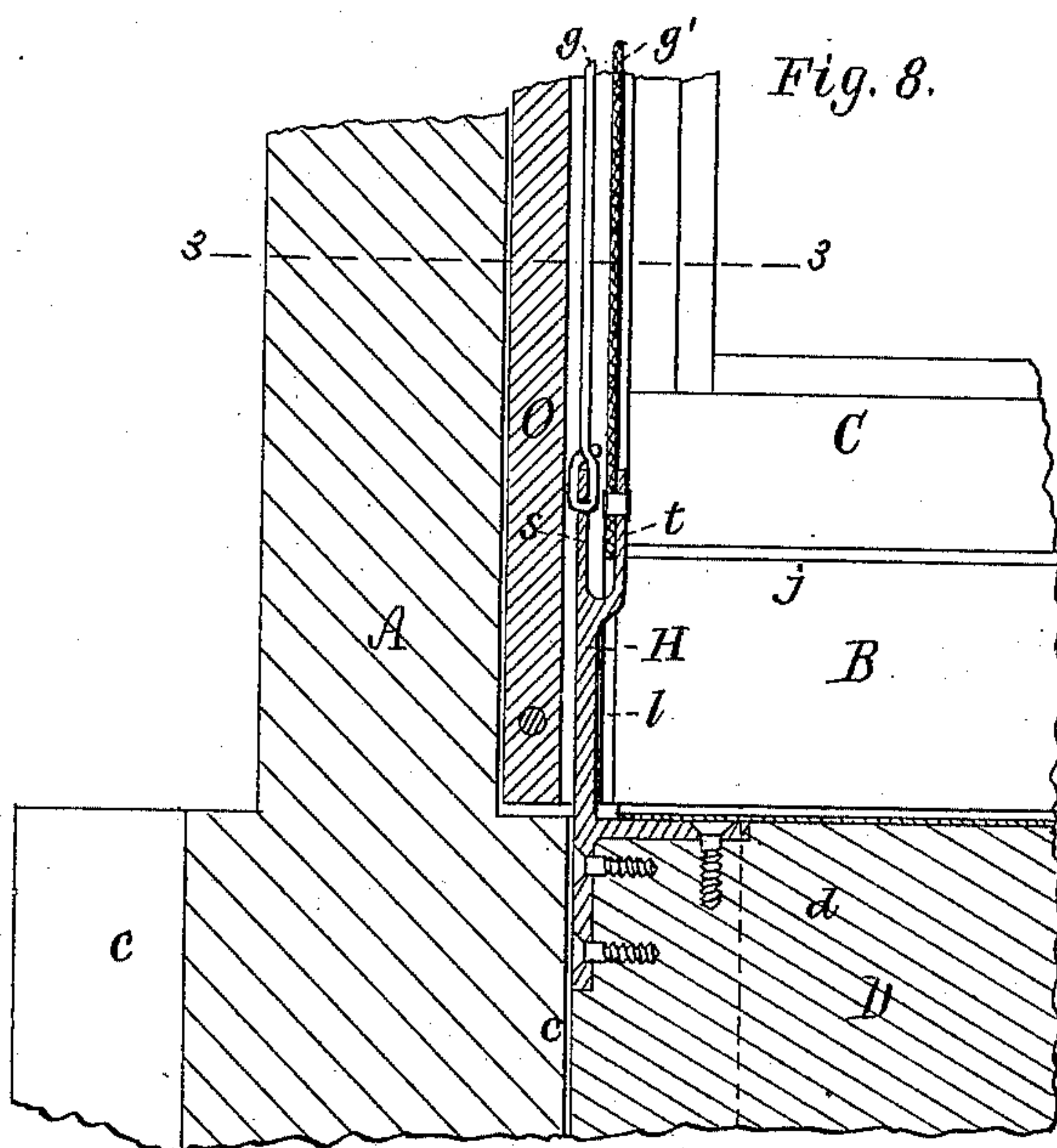
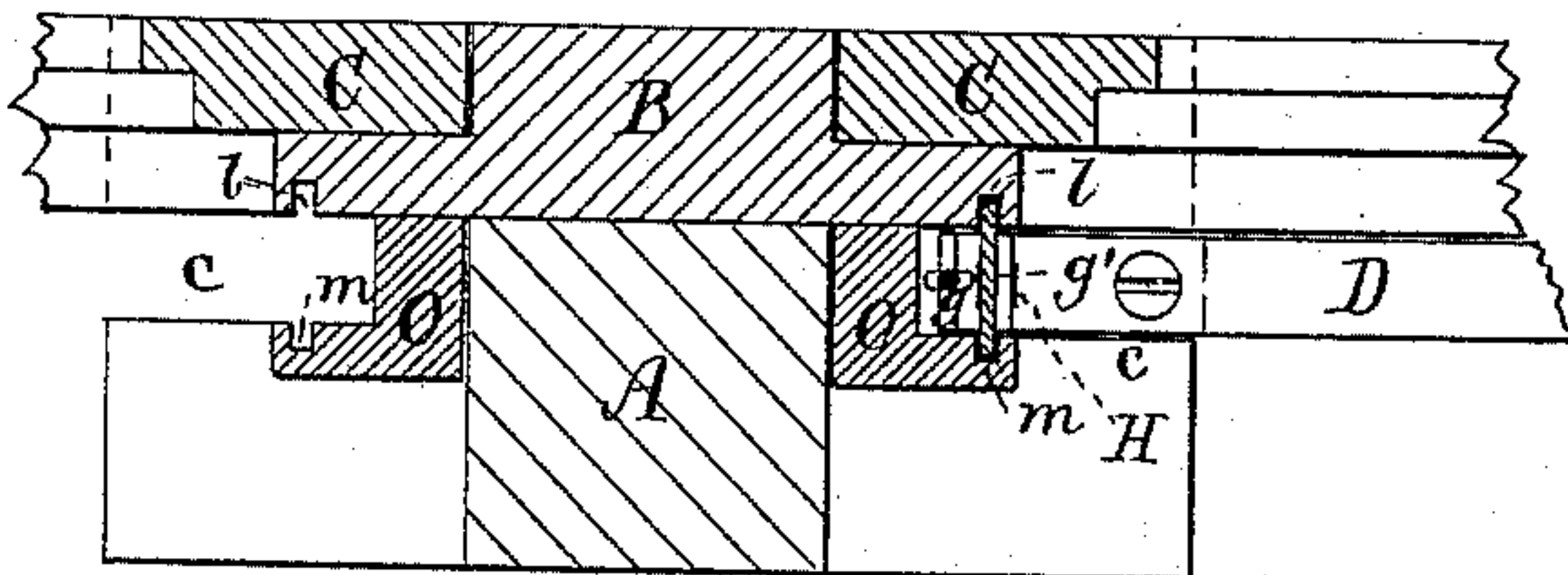
A. J. Piper  
W. E. Piper

Inventors.

George Moore.  
Joseph E. Perfler.  
by S. V. Piper, attorney.

3 Sheets—Sheet 3.

Patented Feb. 3, 1891.



A. F. Piper  
W. E. Piper

George Moose.  
Joseph E. Perfler.  
by S. W. Piper, atty.



# UNITED STATES PATENT OFFICE.

GEORGE MOORE, OF BOSTON, AND JOSEPH E. PERFLER, OF EVERETT,  
MASSACHUSETTS.

## STREET-CAR.

SPECIFICATION forming part of Letters Patent No. 445,661, dated February 3, 1891.

Application filed June 17, 1890. Serial No. 355,744. (No model.)

*To all whom it may concern:*

Be it known that we, GEORGE MOORE and JOSEPH E. PERFLER, the latter a subject of the Emperor of Austria, and the former a citizen of the United States, residing at Boston, county of Suffolk, and the latter residing at Everett, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Street-Railway Cars; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Figure 1 is a side elevation, Fig. 2 a vertical and transverse section, and Fig. 3 a longitudinal and vertical section, of a portion of a street-railway car provided with our invention, the sides of the car being represented in said figures as closed. Fig. 4 is a view similar to Fig. 2 of a portion of a car, the sides being represented as open. Fig. 5 is a horizontal section of a portion of one side of a car on line 1 1 of Fig. 3, and Fig. 6 is a horizontal section of the same on line 2 2 of said Fig. 3. Figs. 7 and 8 are vertical sections in planes at right angles to each other of a portion of one side of the car on an enlarged scale. Fig. 9 is a vertical and transverse section of the lower part of a side section and a portion of the floor, showing the catches for holding the section down. Fig. 10 is a horizontal section on line 3 3 of Fig. 8.

The object of our invention is to provide a car for street-railways that can be readily changed from a car with closed sides to one with open sides or from one with open sides to a car with closed sides, as may be desired, thus providing a car adapted for use at all seasons of the year.

In carrying out our invention the top and ends of the car are constructed in the usual manner, and the sides are each provided with uprights A A, &c., each recessed or sunken in its interior surface at *a* to receive the window-frame B, which extends from end to end of the car and is hinged at its top to the said uprights at *b b*, &c., to admit of its being

swung from the position shown in Fig. 2 to that shown in Fig. 4, said frame provided with means for locking it to the car when in either of the positions shown.

C denotes the window-sashes, supported in the frame B and adapted to slide vertically therein when said frame is against the uprights A, as shown in Fig. 2.

The uprights A, below the recesses *a* therein, are each grooved in opposite sides at *c* to receive the ends of the side sections D, which are each composed of slats *d*, covered on their inner surfaces by and secured to a strong fabric or a flexible sheet material, the abutting edges of the slats being formed so as to allow said slats when raised or lowered to conform to the curve of the grooves *c*. (See Fig. 2.)

E represents the floor of the car, which is rabbeted along the upper side edges between the uprights, as shown at *e*, and secured to the upper surface of the floor and so as to project a short distance over said rabbet is a plate F, provided with a lip *f*, which serves as a catch to operate with a similarly-formed plate G, fixed near to the bottom edge of the lower slat of each of the side sections D. The bottom of each groove *c* is formed at *c'*, as shown, to admit of sufficient movement laterally of the lower slat of each section to engage or disengage the catches F and G when required.

Secured to the outer side of the frame B are recessed strips O, the recesses therein ranging with the grooves *c* in the uprights and are to receive the ends of the side sections D when raised up in front of the sashes and support said sections when elevated into the position shown in Fig. 4. Fixed to the upper slat of each side section D is a connection H, having prongs *s t*, to which are attached, respectively, a cord or wire *g* and a band *g'*. Said wire and band extending upward and over guide-sheaves *h h'*, are secured to the periphery of a drum I, arranged within the upper part of the sides of the car and above each window, (see Figs. 1 and 2,) each drum being provided within with a coiled spring *i*, attached at one end to the inner periphery of the drum and at its other end to the stud *k*, supporting the drum and on which it revolves when the section D is raised or lowered. The



edges of the band  $g'$  are arranged in grooves  $l m$  in the strip  $O$  and in the frame  $B$ , the office of said band being to cover the wire  $g$  and protect it from injury or obstruction. To the bottom bar  $j$  of the frame  $B$  plates or deflectors  $K$  are hinged or pivoted to turn out over the top of the side sections and close the openings between the said bar  $j$  and the top slat of the side sections to keep out the cold and wet when the sides of the car are closed. (See Figs. 2 and 7.) The said deflectors  $K$ , when turned inward to allow the side sections  $D$  to rise, each close into a rabbet  $x$ , formed in the bar  $j$  to receive it, the outer face of the deflector when in the rabbet being flush with that of the said bar  $j$ .

Spring-cases  $L$  are applied to each end of the car, and are connected to the frame  $B$  by cords or chains  $q$  to assist in raising said frame from the position shown in Fig. 2 to that shown in Fig. 4.

When it is desired to change the car from a closed to an open one, depress the side sections  $D$  to disengage the catches  $F$  and  $G$ , and then push the deflectors  $K$  into the rabbets in the bars  $j$  of the frame  $B$ . Next raise the side sections up in front of the windows and hook the catches  $G$  over the edge of the deflectors  $K$ . Next unlock the frame  $B$  and swing it with the side sections up into the position shown in Fig. 4 and lock the frame to the car.

From the foregoing it will be seen that a car constructed as herein before described can be readily converted from a closed to an open one or from an open to a closed one, whereby but one set of cars will be required where two sets are now employed, the result being a saving of one-half.

We are aware of the patent granted to Louis Prince, No. 211,181, dated January 7, 1879, and therefore make no claim to anything shown therein.

What we claim is—

1. In a street-car, the uprights recessed and grooved, as shown, the window-frames hinged to said uprights, extending from end to end of the car, and when closed entering said recesses, said frames having means for locking them when in a vertical or in a raised position, as and for the purpose explained.

2. A street-car provided with the recessed and grooved uprights, the side sections formed

of slats and a fabric and upwardly movable therein, and the frames  $B$ , extending from end to end of the car and provided with the sashes and deflectors and pivoted to the car, as and for the purpose explained.

3. In a street-car, the combination of the recessed and grooved uprights, the side sections formed of slats and a fabric arranged in and upwardly movable in said uprights, the spring-case  $I$ , connected to the sections and to the car, and the window-frames  $B$ , hinged to the car and provided with the deflectors, as and for the purpose explained.

4. A street-railway car having that portion of its sides below the windows and between the supporting-uprights formed in sections adapted to be elevated and connected to the frame supporting the windows, and with said frame swung upward and sustained in the upper portion of the car, as and for the purpose explained, said frame being applied to the car, substantially as represented.

5. In a street-railway car, the window-frame  $B$ , hinged to the car, extending from end to end thereof, and provided with the recessed pieces  $O$ , in combination with the spring-cases  $L$ , secured to each end of the car and connected by a cord or wire to said frame near its ends, as and for the purpose explained.

6. In a street-railway car, the combination of the sections  $D$ , provided with the connection  $H$  and catch  $G$ , the catch-plate  $F$ , the cord or wire  $g$ , the band  $g'$ , the guide-sheaves  $h h'$ , and the spring-case  $I$ , all arranged and to operate essentially as and for the purpose explained.

7. In a street-railway car, the window-frame  $B$ , extending from end to end of the car and provided with the recessed pieces  $O$ , the grooves  $l m$ , and the deflectors  $K$ , said frame being hinged to the car and having means for locking it thereto when in an upright or in an inclined position, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

GEORGE MOORE.  
JOSEPH E. PERFLER.

Witnesses:

S. N. PIPER,  
E. H. BRIGHT.