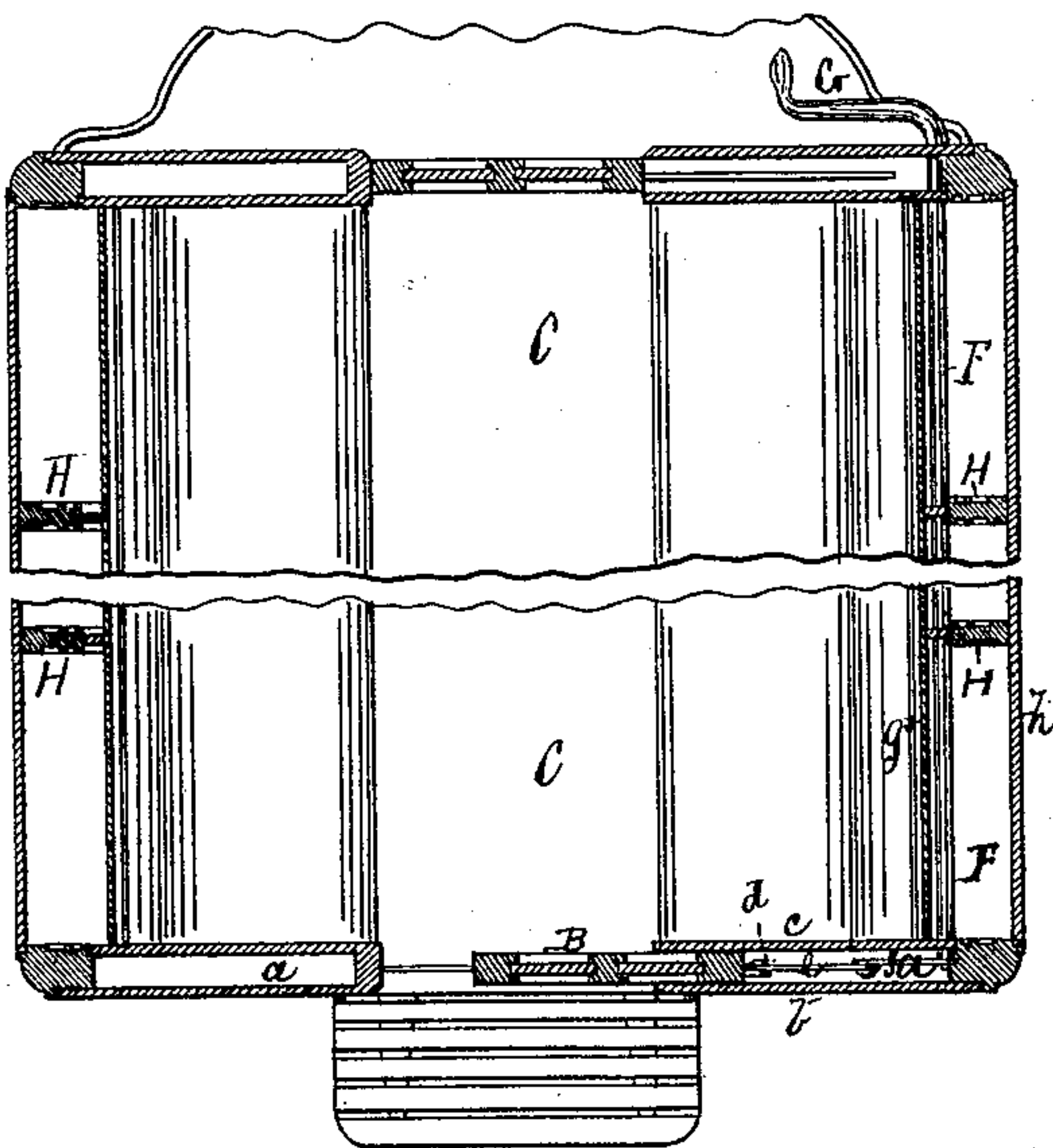


**D. R. HART.**

## Device for Operating Street-Car Doors.

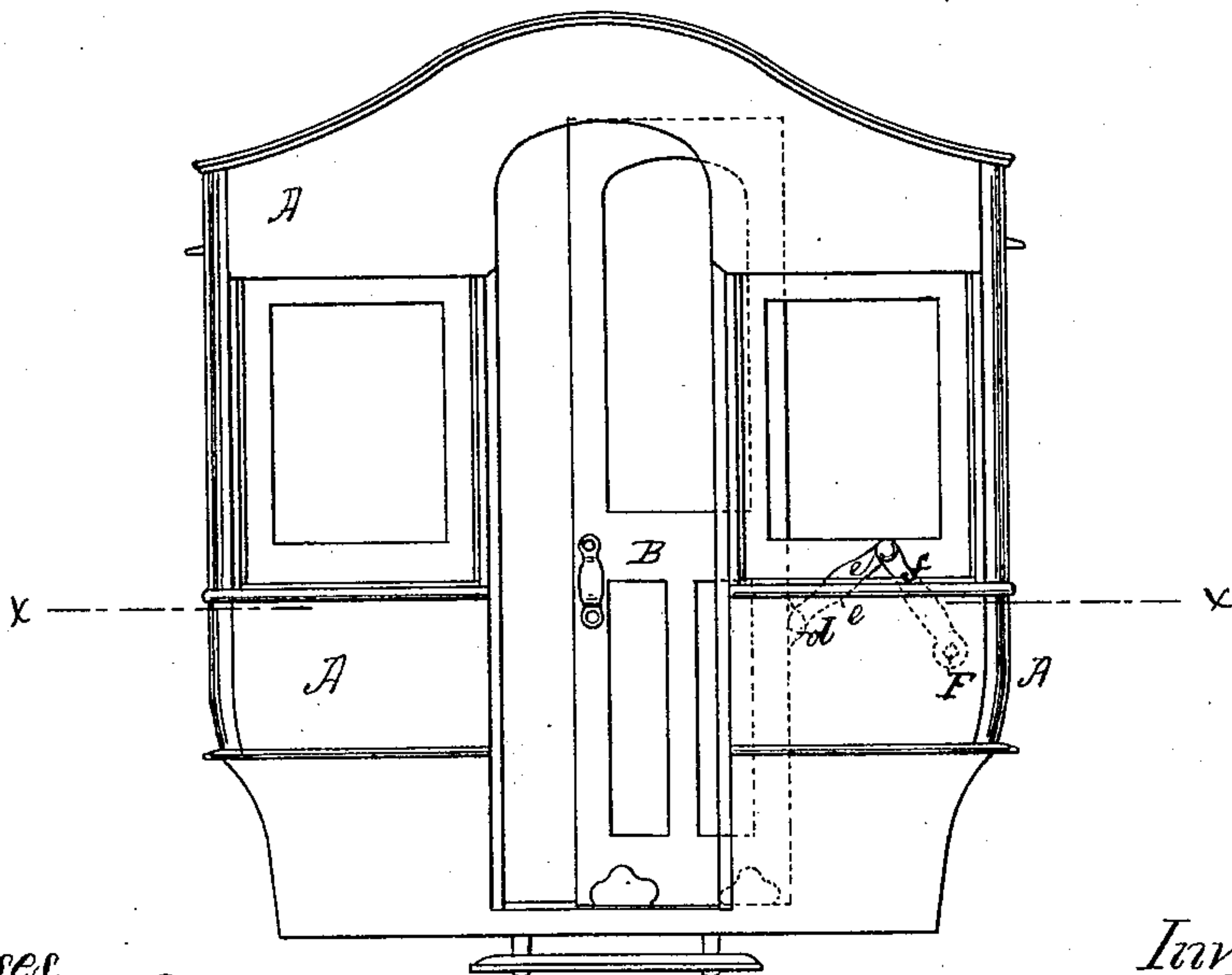
No. 163,770.

Patented May 25, 1875.



*Fig. 2.*

*Fig.1.*



*Witnesses.*

Witnesses.  
D. G. Stuart  
L. Van Rensselaer

*Inventor;*

Daniel R. Hark

pen

*S. Hannay*  
*Attorney*

# UNITED STATES PATENT OFFICE.

DANIEL R. HART, OF ST. LOUIS, MISSOURI.

## IMPROVEMENT IN DEVICES FOR OPERATING STREET-CAR DOORS.

Specification forming part of Letters Patent No. **163,770**, dated May 25, 1875; application filed May 1, 1875.

*To all whom it may concern:*

Be it known that I, DANIEL R. HART, of St. Louis, in the county of St. Louis and State of Missouri, have invented certain new and useful Improvements in the Mode of Operating Street-Car Doors; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains 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, in which—

Figure 1 represents a rear-end view of a car having my improvement applied thereto, the running-gear being removed; and Fig. 2, a horizontal section of the same as taken through the line *xx* of Fig. 1.

My invention relates to a new and improved method of operating the rear entrance-door of street-cars by the driver while at his post in front, by which the devices used are made more simple, less costly and liable to get out of order, and more direct in their action on the door.

The invention consists in combining, with a sliding rear entrance-door and a car-body, a simple toggle-lever and crank-shaft, the handle of which is so arranged as to be within convenient reach of the driver when on his platform in front.

To enable others skilled in the art to make, construct, and use my invention, I will now proceed to describe it in detail, omitting a particular description of such parts of a street-car as are non-essential to a full understanding of my improvement.

The body *A* of the car may be of any suitable construction, so long as its rear end is so made as to provide a supporting-rail and guideways for a sliding door, *B*. For this purpose, however, I prefer that end to be made double, so as to furnish a channel or way within which to slide back and forth. Such channel or way is shown at *a*, Fig. 2, it lying between the outer wall *b* and inner cas-

ing *c*. To the inner edge of the door *B*, at a suitable distance above the floor *C* of the car, is secured a lug, *d*, to which is pivoted a lever, *e*, which forms one arm of the toggle-lever, the other arm of which consists of a crank-lever, *f*, keyed or otherwise secured to the rear end of the rock-shaft *F*, and on the other end of which, on the outside of the front end of the car, is secured the crank-handle or lever *G*, by which the driver operates the rock-shaft *F*, and through it the toggle-levers and the door.

Crank-lever *f* and lever *e*, which form the toggle-lever, are arranged to operate in the channel-way of the door formed by the outer wall *b* and inner casing *c*.

Rock-shaft *F*, like the levers *e* and *f*, is also arranged within the walls of the car-body—that is to say, between the side casing *g* and outside wall *h* of the car-body—it for this purpose being mounted in suitable bearings secured to, or formed in, the pillars *H*, and in the front and rear end walls of the car.

Thus arranged, both the rock-shaft and levers are entirely out of the way of the passengers, and may, if desired, be connected to the door, either at its upper or lower end; but the arrangement shown in the drawing is preferred, as it is far more convenient to the driver to handle, and, besides, imparts a more steady and uniform motion to the door.

In this patent I do not claim the broad combination of a crank, rock-shaft, entrance-door, and connecting device; but

What I do claim is—

The combination of the rock-shaft *F* and its operating lever or handle with the toggle-levers *e* and *f* and the sliding entrance-door of a street-car, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own invention, I affix my signature in presence of two witnesses.

DANIEL R. HART.

Witnesses:

D. G. STUART,  
P. HANNAY.