No. 735,766. PATENTED AUG. 11, 1903.

J. J. HENNESSEY.

SLIDING DOOR.

APPLICATION FILED OCT. 15, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

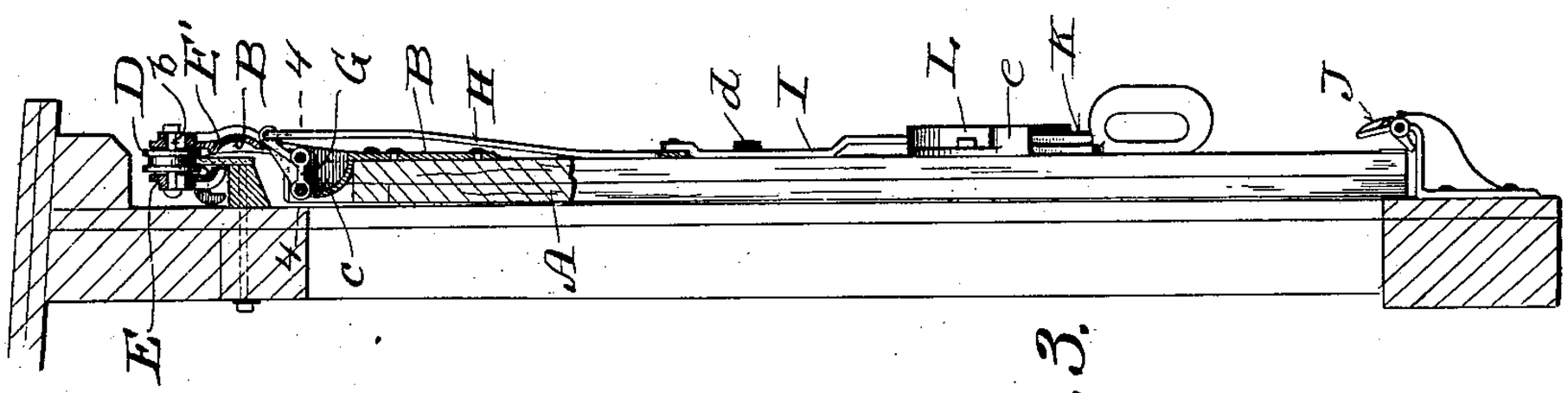

Fig. 3.

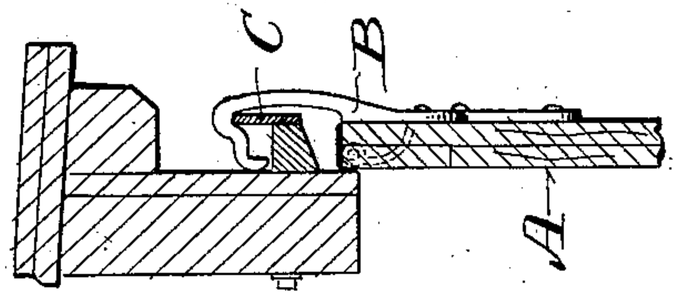

Fig. 2.

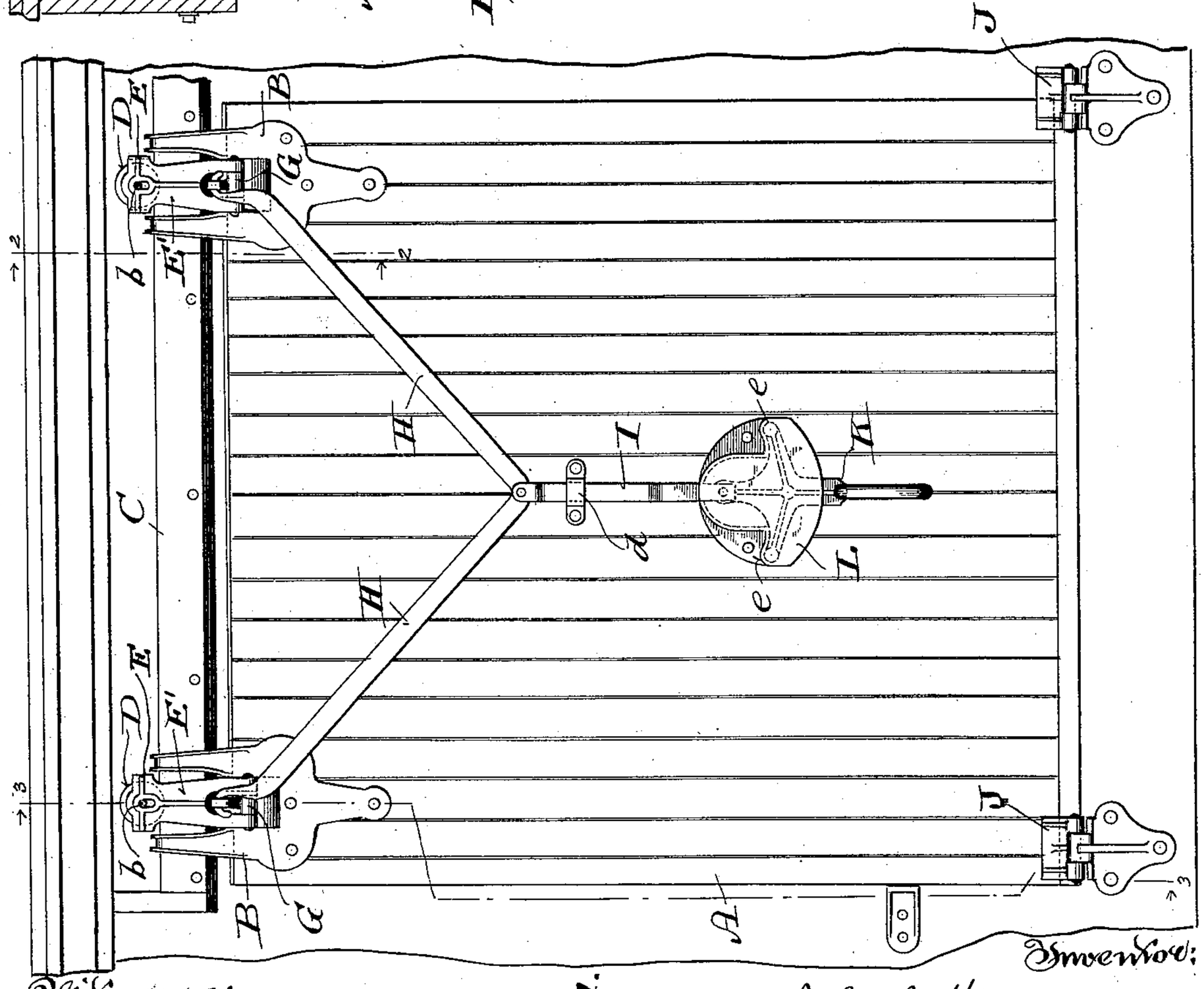

Fig. 1.

Witnesses
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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 3.

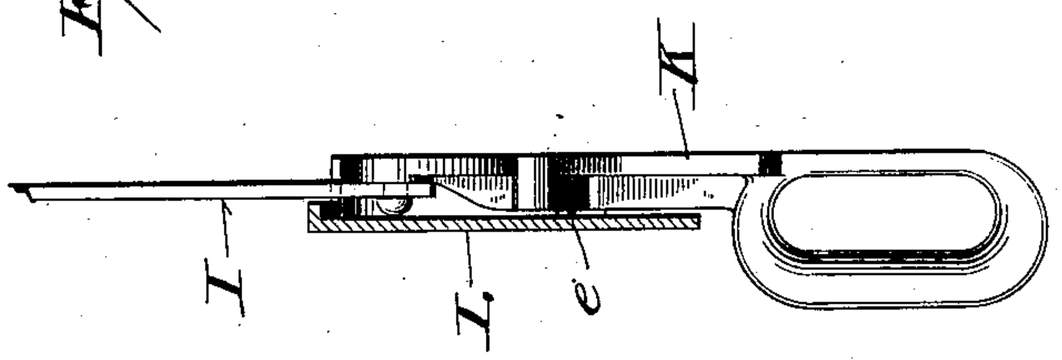


Fig. 5.

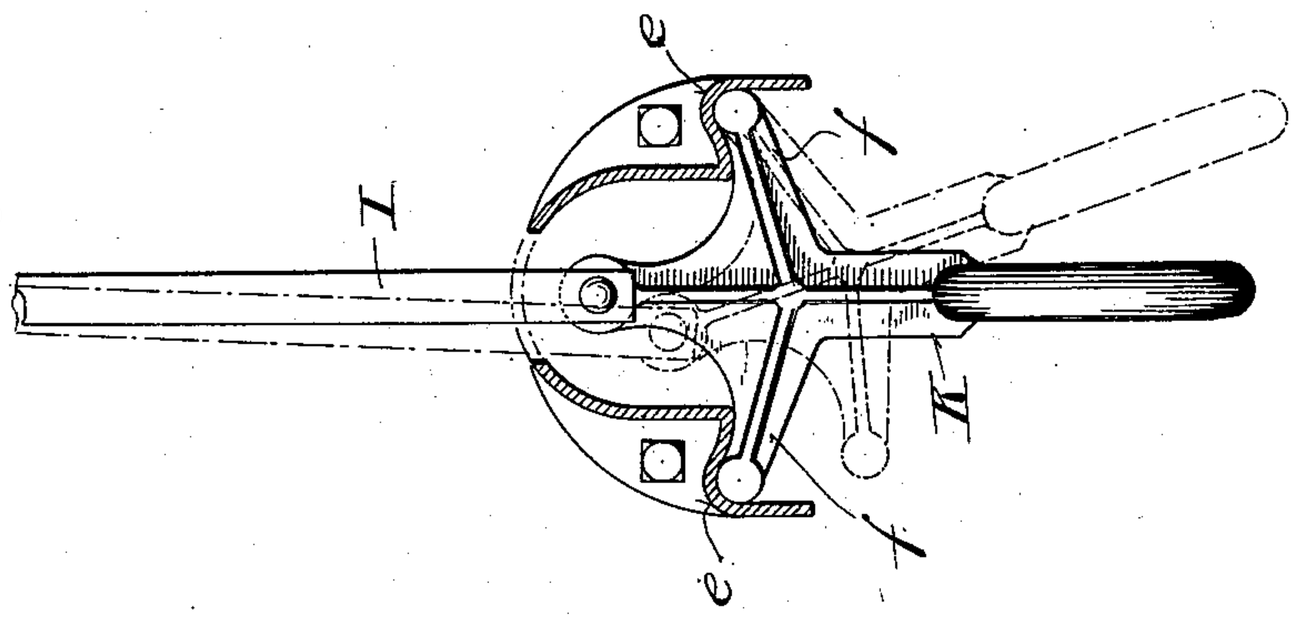
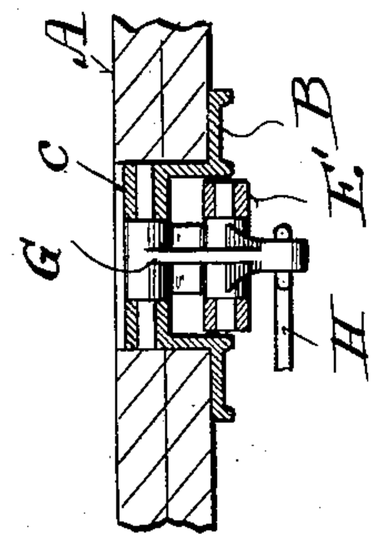


Fig. 4.



Witnesses:
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No. 735,766. Patented August 11, 1903.

UNITED STATES PATENT OFFICE.

JOHN J. HENNESSEY, OF MILWAUKEE, WISCONSIN.

SLIDING DOOR.

SPECIFICATION forming part of Letters Patent No. 735,766, dated August 11, 1903.

Application filed October 15, 1902. Serial No. 127,380. (No model.)

To all whom it may concern:

Be it known that I, JOHN J. HENNESSEY, a citizen of the United States, and a resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Sliding Doors; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention consists in what is hereinafter particularly set forth with reference to the accompanying drawings and subsequently claimed, the object of the invention being to facilitate manipulation of sliding doors that are at least vertically adjustable preliminary to movement into open or closed position and which may have lateral movement simultaneous with the vertical adjustment.

Figure 1 of the drawings represents a side elevation of a portion of a railway-car and illustrates a sliding door thereof provided with a manipulating-lever and fulcrums for the same in accordance with my invention; Figs. 2 and 3, sectional views indicated by lines 2 2 and 3 3 in the first figure; Fig. 4, a detail horizontal sectional view indicated by line 4 4 in the third figure, and Figs. 5 and 6 detail partly-sectional views of the door-lever and its fulcrum.

Referring by letter to the drawings, A indicates a car-door having a pair of hook-hangers B in connection therewith normally at rest on an overhead rail C, attached to the car. Rail-opposing rollers D are herein shown having their axles *b* loose in vertical side slots of heads E, and each head has a depending shank E′, forked to straddle a lifting-lever G, to which it is pivotally connected between the ends of same, said head and its shank being a carrier for a roller. Each lifting-lever is in fulcrum connection with an inwardly-offset portion *c* of a hook-hanger, and a pair of downwardly-converging links H are shown connecting the two lifting-levers herein shown with the upper end of a vertical bar I, for which a guide *d* is provided on the car-door. The door aforesaid being in either open or closed position, it is snug against the car and its weight is on the hook-hangers B, but if the bar I be pulled down said door has a combined upward and outward movement incidental to tilt of the lifting-levers G, the weight of said door being then transferred to the rollers that ride upon the rail C as said door is moved in either direction of its travel. However, slides or some other form of rail-riding devices may be substituted for the rollers.

The general construction and arrangement of parts thus far described are similar to what is set forth in my Patent No. 705,080 of July 22, 1902, and pivotal devices J, herein shown as means for binding the door A against the adjacent side of the car when said door is suspended by its hook-hangers in closed position, have been previously disclosed in my Patent No. 705,081 of the date aforesaid.

A tridented hand-lever K has the middle prong thereof pivotally connected to the lower end of the vertical bar I, the joint being below the bar-guide *d*, and fulcrums *e* are provided on door A in opposition to the other prongs of said lever. All three of the prongs of the hand-lever are of approximately equal radius from a common center, and the centers of the rounded outer extremities of the fulcrum-opposing prongs are at intervals approximating forty-five degrees of a circle from the pivot-joint of the vertical bar I and middle prong of said lever. The fulcrums *e* for the approximately horizontal prongs of the tridented hand-lever are preferably in the contour of a curvilinear flange having an upper central recess and which connects front and rear plates in one casting therewith, the whole being a housing-bracket held on the door A by bolts and nuts, the bolts being run through apertures provided in the rear plate portions of said bracket above the fulcrum-recesses, with which said approximately horizontal prongs of said tridented hand-lever engage. The vertical bar I extends through the upper central recess of the bracket-flange, and the pivot-joint of said bar and the hand-lever is protected in the bracket from detrimental climatic conditions. Movement of the hand-lever in the direction it is desirable to slide the door will result in a rock of said lever on one of the fulcrums *e* to pull down the bar I, thus causing the aforesaid combined adjustment of said door, that then slides in the direction of draft or thrust on the aforesaid lever into open or closed position, this operation being a very easy one because of the lev-

erage obtained by the disposition of the then working fulcrum-prong of the hand-lever at approximately forty-five degrees from the joint of the middle prong of said lever with the lower end of the aforesaid bar, there being direct downward movement of this bar in contradistinction to a lateral swing of same. The door having been opened or closed and the hand-lever released there is automatic return of said door to normal hanging position, due to gravity descent, and while I have shown a sliding door having vertical adjustment simultaneous with lateral movement preliminary to slide into open or closed position it may be one that has vertical adjustment only.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A sliding door provided with rail-opposing hook-hangers, carriers having rail-riding devices therewith, a lifting-lever fulcrumed to each hanger and connected to a carrier, downwardly-converging links each in connection with a lifting-lever, a vertical bar connected at its upper end to the links, a tridented hand-lever having its prongs of approximately equal radius from a common center, the outer extremity of its middle prong being in pivotal connection with the lower end of the bar, and fulcrums on the door opposing the outer extremities of the other prongs of the hand-lever approximately forty-five degrees of a circle from the pivot-joint of said middle prong and bar, whereby rock of said hand-lever in either direction results in a direct downward pull of the aforesaid bar in contradistinction to a lateral swing of same.

2. A sliding door provided with rail-opposing hook-hangers, carriers having rail-riding devices therewith, a lifting-lever fulcrumed to each hanger and connected to a carrier, downwardly-converging links each in connection with a lifting-lever, a vertical bar connected at its upper end to the links, a bar-guide on the door, a tridented hand-lever having its prongs of approximately equal radius from a common center, the outer extremity of its middle prong being in pivotal connection with the lower end of the bar, and fulcrums on said door opposing the outer extremities of the other prongs of the hand-lever approximately forty-five degrees of a circle from the pivot-joint of said middle prong and bar, rock of said hand-lever in either direction resulting in direct downward pull of the aforesaid bar in contradistinction to a lateral swing of same.

3. A sliding door provided with rail-opposing hook-hangers, lifting-levers connected to the hangers, rail-riding devices under control of the lifting-levers, a vertical bar connected at its upper end to said levers, a tridented hand-lever having its prongs of approximately equal radius from a common center, the outer extremity of its middle prong being in pivotal connection with the lower end of the bar, and fulcrums on said door opposing the outer extremities of the other prongs of the hand-lever approximately forty-five degrees of a circle from the pivot-joint of said middle prong and bar, rock of said hand-lever in either direction resulting in direct downward pull of the aforesaid bar in contradistinction to a lateral swing of same.

4. A sliding door, a housing-bracket fast on the door and consisting of a casting comprising front and rear plates connected by a curvilinear flange that is provided with an upper central recess, parts of the contour of the flange being fulcrums, a tridented hand-lever having its outer prongs in opposition to said fulcrums, and means in connection with the middle prong of said lever for vertically adjusting said door preliminary to a slide of same.

In testimony that I claim the foregoing I have hereunto set my hand, at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

JOHN J. HENNESSEY.

Witnesses:
JAMES E. MEHAN,
AUGUST HESS.