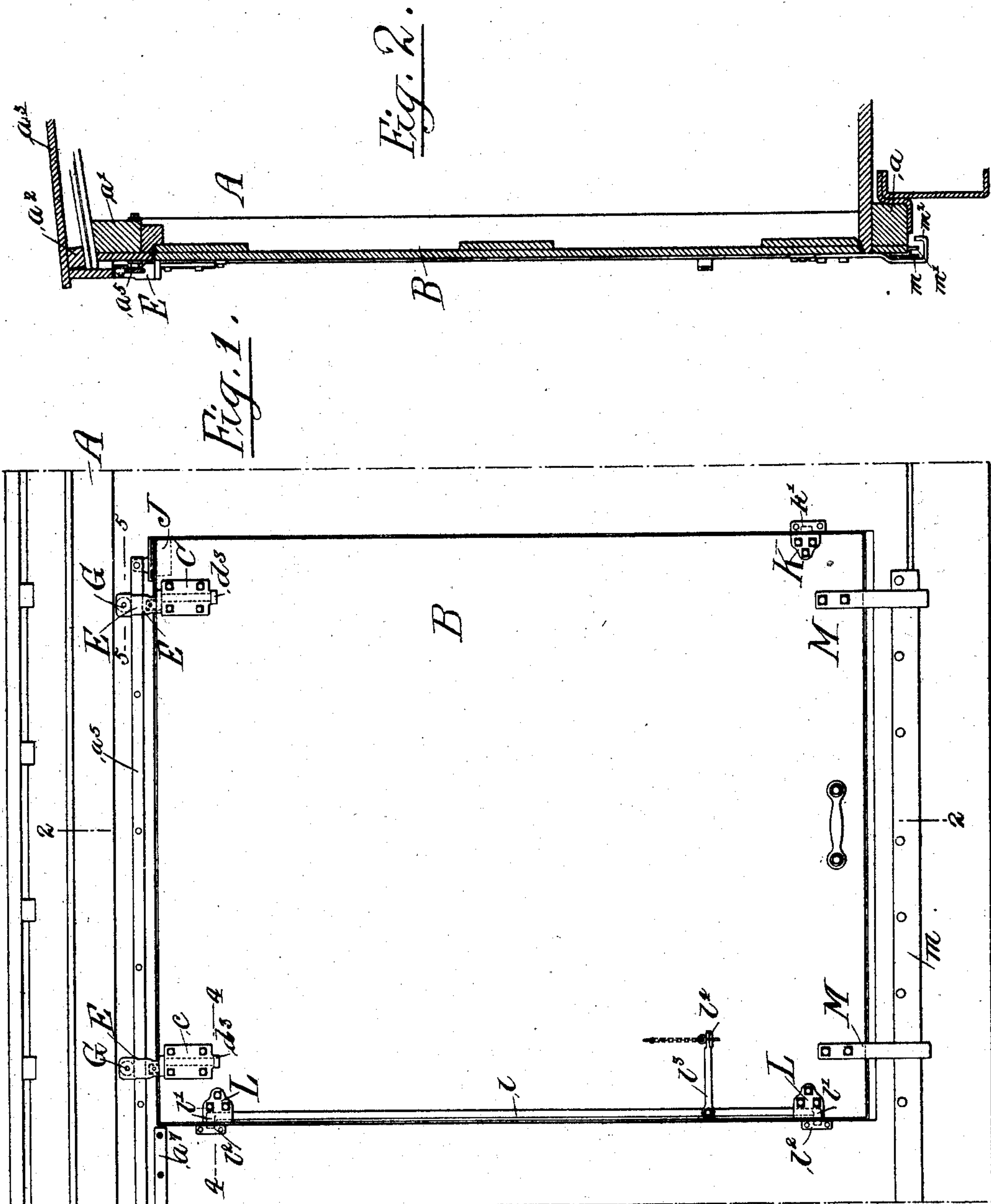


No. 864,203.

PATENTED AUG. 27, 1907.

J. SIMONTON.  
DOOR FOR BOX CARS.  
APPLICATION FILED SEPT. 4, 1903.

3 SHEETS--SHEET 1.



Witnesses:-

Frank L. A. Graham.  
Norman E. Metcalf

Inventor:-

Jackson, Simon, Jr.

by His Attorneys;

Howson & Howson

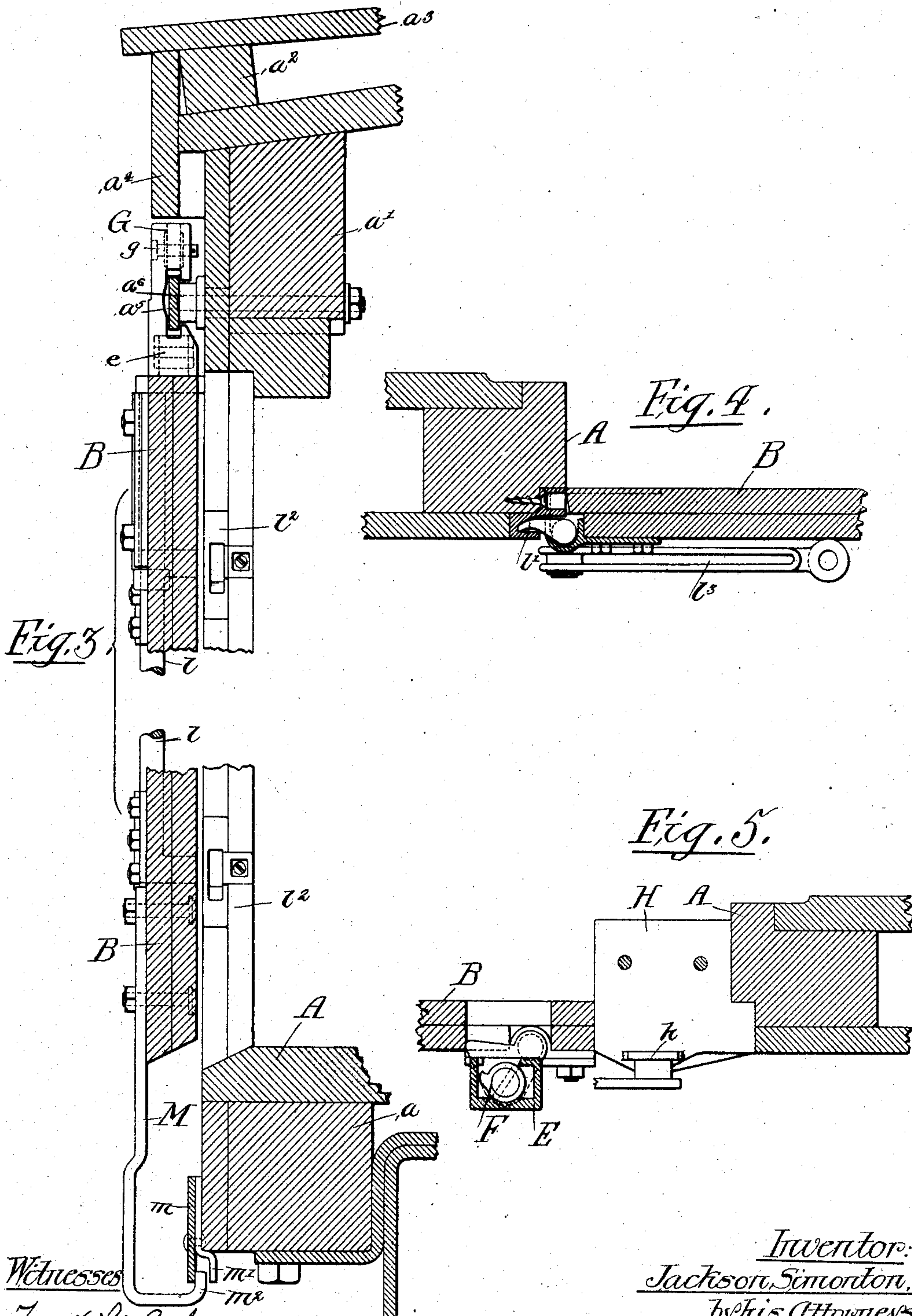
No. 864,203.

PATENTED AUG. 27, 1907.

J. SIMONTON.  
DOOR FOR BOX CARS.

APPLICATION FILED SEPT. 4, 1903.

3 SHEETS—SHEET 2.



Witnesses

Frank L. Graham  
Norman C. Metrus

Inventor:  
Jackson Simonton,  
by his Attorneys

Howson & Howson



No. 864,203.

PATENTED AUG. 27, 1907.

J. SIMONTON.  
DOOR FOR BOX CARS.  
APPLICATION FILED SEPT. 4, 1903.

3 SHEETS—SHEET 3.

FIG. 6

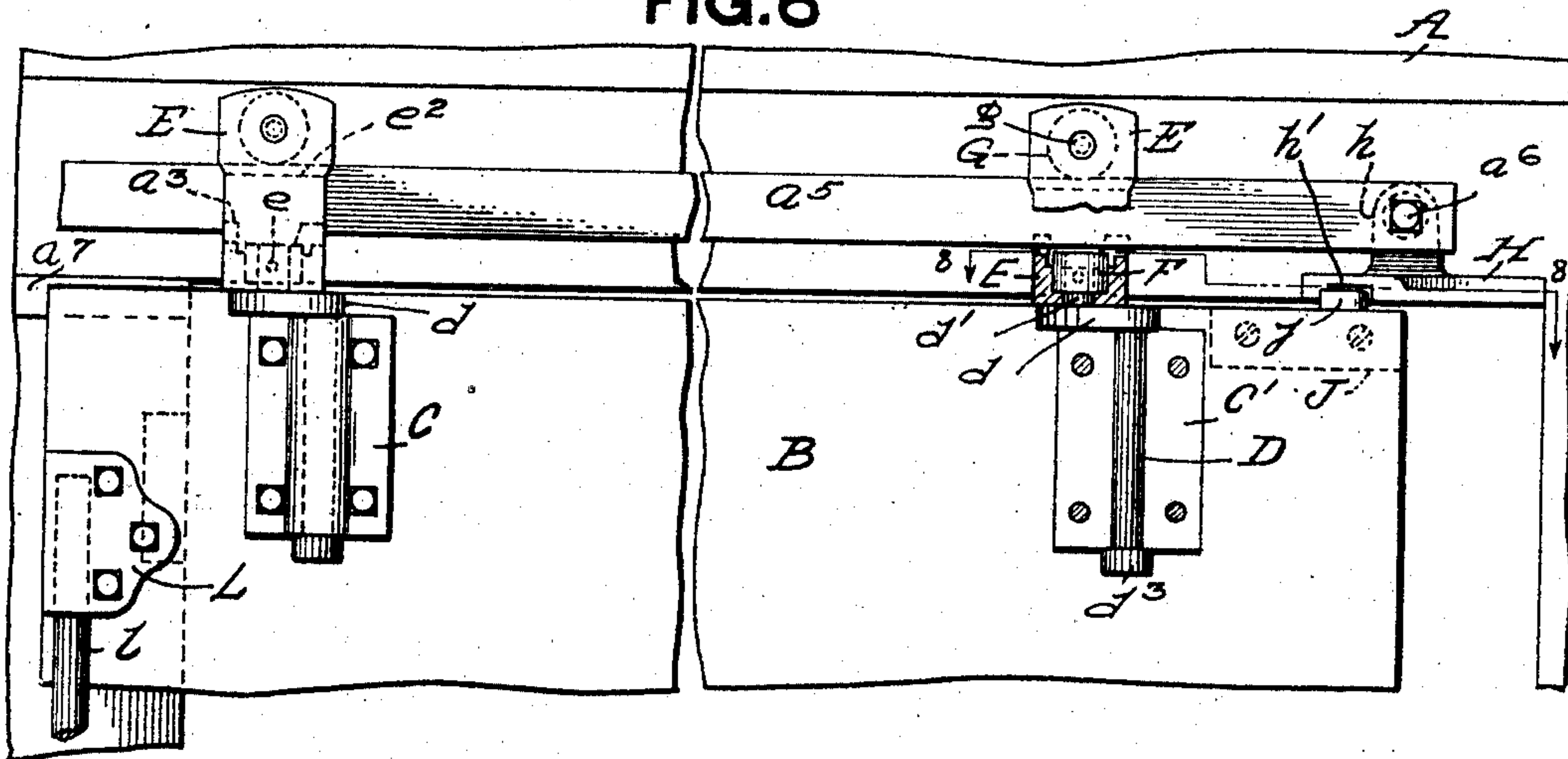


FIG. 7

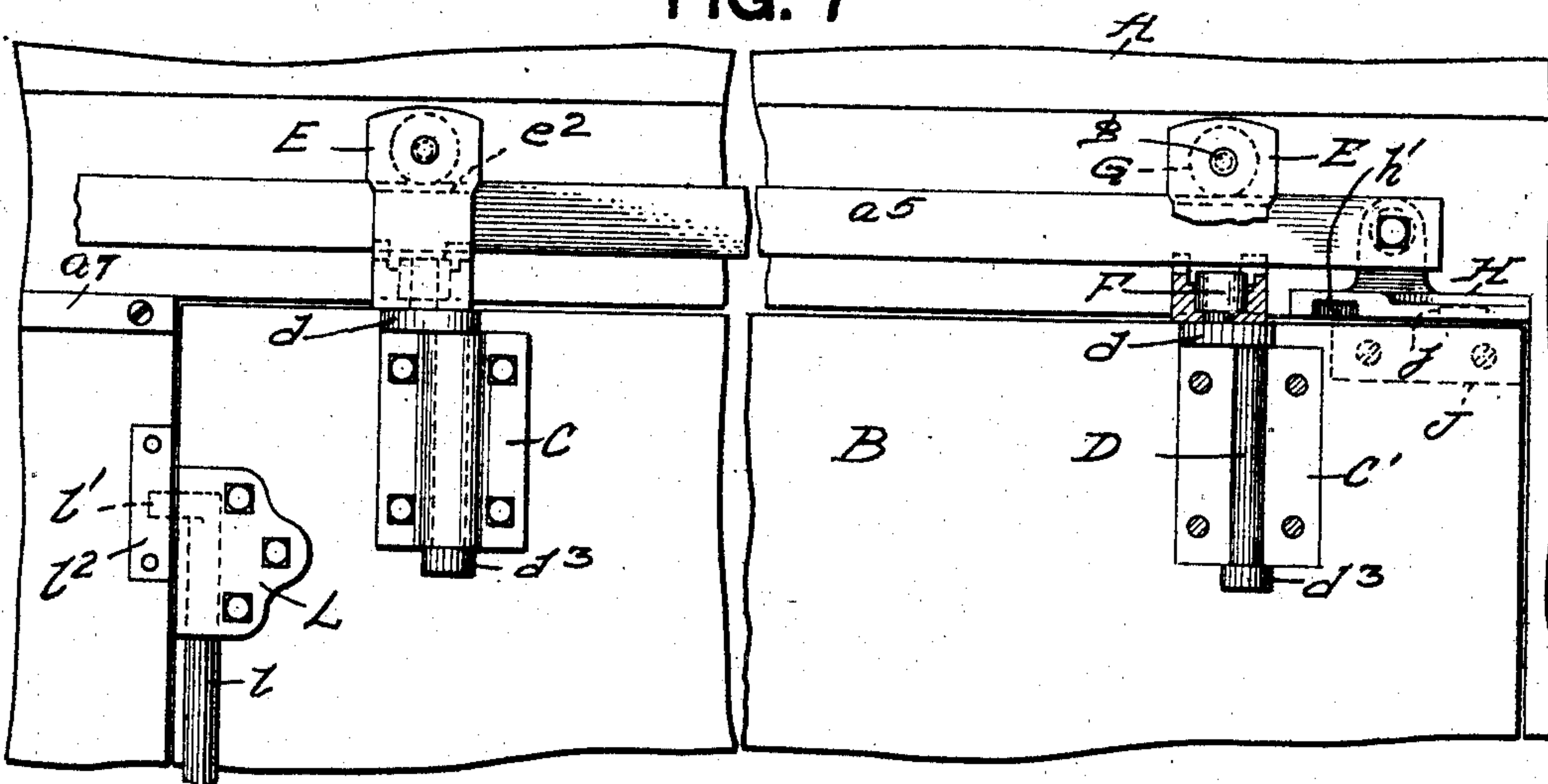
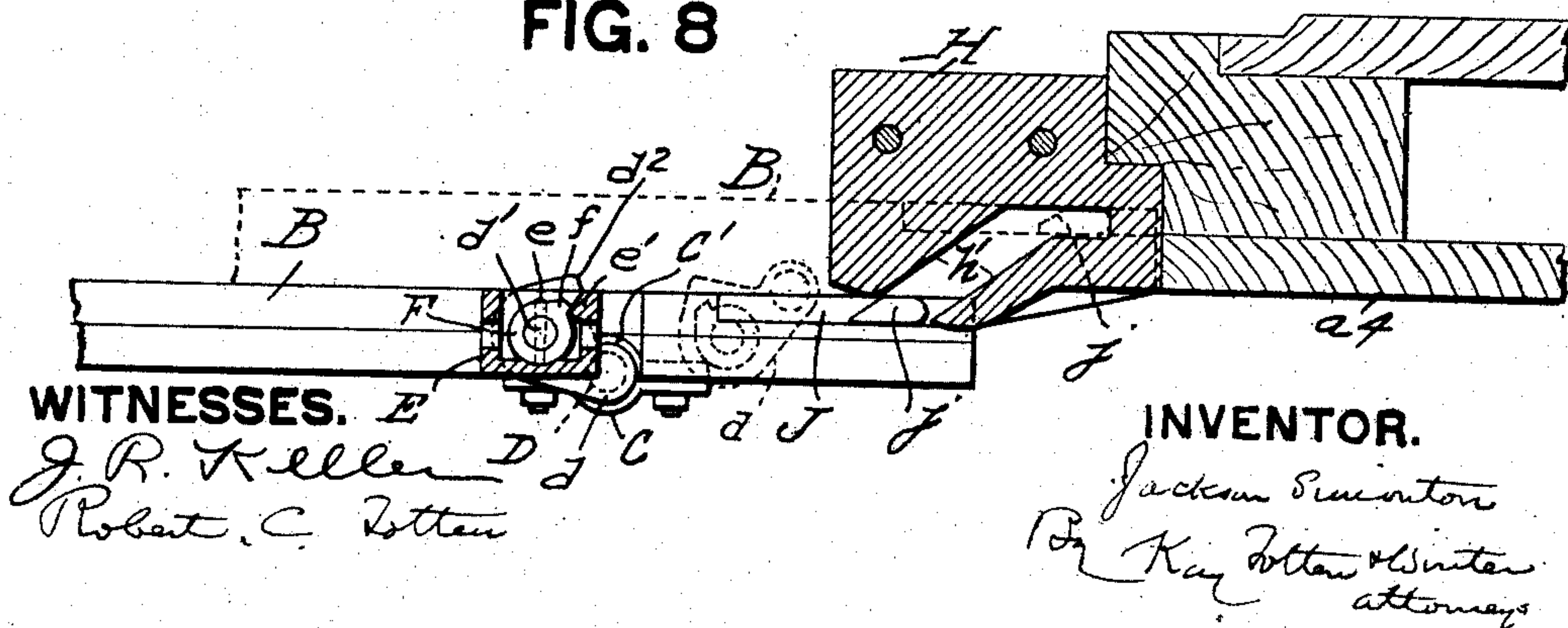


FIG. 8





# UNITED STATES PATENT OFFICE.

JACKSON SIMONTON, OF ALTOONA, PENNSYLVANIA, ASSIGNOR TO STANDARD STEEL CAR COMPANY, OF PITTSBURG, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

## DOOR FOR BOX-CARS.

No. 864,203.

Specification of Letters Patent.

Patented Aug. 27, 1907.

Application filed September 4, 1903. Serial No. 171,895.

*To all whom it may concern:*

Be it known that I, JACKSON SIMONTON, a citizen of the United States, and a resident of Altoona, Pennsylvania, have invented certain Improvements in Doors for Box-Cars, of which the following is a specification.

My invention relates to certain improvements in the detail construction of the supporting and operating parts of doors for box cars and more particularly for doors which, when closed are designed to be flush with the outside surface of the car.

The object of the invention is to provide a construction by which a door of the character above noted shall be positively held in a closed position at a number of points, there being also provided means by which the door may be forced open or shut in case it should fail to operate properly. It is further desired that a door of the character above described shall be so constructed and hung as to be reliable in operation and possess parts so designed as to efficiently perform the various functions for which they are employed.

To these ends my invention comprises the novel features herein set forth and claimed.

In the drawing, Figure 1 is a side elevation of a portion of a box car showing my improved door and its supporting and operating device applied thereto; Fig. 2 is a sectional elevation on the line 2—2, Fig. 1; Fig. 3 is a sectional elevation similar to that shown in Fig. 2 but on an enlarged scale, the door being illustrated, however, in its open position. Fig. 4 is a sectional plan view on the line 4—4, Fig. 1; Fig. 5 is a sectional plan view taken on the line 5—5, Fig. 1; Fig. 6 is an enlarged face view of the upper portion of the door and the car frame showing the door open. Fig. 7 is a like view showing the door closed. Fig. 8 is a section on the line 8—8, Fig. 6.

In the above drawings, A represents a portion of the side of a box car of the well-known construction, this having a framework, upon which the roof  $a^3$  and side sections  $a^4$  are carried in any desired manner, portions of said framework being shown at  $a$ ,  $a'$  and  $a^2$ . There is an opening formed in the side of the car, and a door B is designed to fit into the same, this being carried upon a rail  $a^5$  supported on projecting studs  $a^6$  of which one is shown in Fig. 3.

Held to the upper portion of the outside surface of the door are two plates C and C' secured in position by bolts as shown and formed as bearing pieces for a bar or shaft D, upon whose upper end is fixed a crank  $d$ , having a pin  $d'$ , and provided with a horizontally projecting, cam shaped portion  $d^2$ . Said shaft D has a head  $d^3$  at its lower end and is confined between the two plates C and C' so as to be free to rotate, while held so that it cannot move longitudinally. The crank pin  $d'$  is designed to enter an opening in the bottom

of a sheave hanger E, being confined therein by means of a pin  $e$  (shown in dotted lines in Fig. 3) and a collar F, preferably of the form shown, said collar being held in place by the pin and resting upon a suitably formed surface in the bottom of the sheave hanger E. The collar F has a projection or stop  $f$ , placed to engage a portion, as  $e'$ , of the hanger E, so as to limit the motion of the said collar and consequently, the motion of crank and the shaft D. The sheave or roller G is revolvably held by means of a pin  $g$  in the upper portion of the hanger E and it will be noted that the said hanger is formed with a portion  $e^2$ , which projects downwardly behind the rail  $a^5$ , there being also on the hanger upwardly projecting portions  $e^3$  similarly extending behind the rail.

A guide block H is set in the upper surface of the doorway at one end thereof, and this has an upwardly projecting lug  $h$  for the reception of one of the studs by which the rail  $a^5$  is retained in position. The front edge of this guide block is substantially flush with the outside surface of the car, and it has formed in its under surface a guide way indicated at  $h'$ , for the reception of a projection  $j$  formed on a striking iron J fastened to the inside surface of the door B.

A flat plate or piece  $a^7$  is bolted to the outside surface of the car, so as to be engaged by the horizontally projecting cam portion  $d^2$  on the crank  $d$ , the object of these projections being to hold the door, when in its open position, away from the side of the car, it being understood that they bear upon the plate  $a^7$ . A piece K is set into the door at its lower edge, and this has projecting from it a pin or bolt  $k$ , for which there is provided a recessed keeper  $k'$ , suitably set in the edge of the doorway. Bearing plates L placed along one edge of the door, serve to support a bar  $l$ , upon whose ends are formed projecting arms  $l'$ , there being set in the sides of the doorway adjacent to the said arms when the door is in its closed position, keeper plates  $l^2$ . Pivotaly attached to the bar  $l$ , is an operating arm  $l^3$ , whose end is formed, if desired, so as to be pinned to a staple  $l^4$  fastened in the door as shown in Fig. 1. A plurality of hooked arms M are bolted to the lower edge of the door and project under a guide-plate  $m$  bolted to the framework of the car, as shown in Fig. 3, there being, at one portion of said plate, an auxiliary plate  $m'$ , between which and the main plate  $m$  the hooked portion  $m^2$  of the arm M is confined. In order to shut the door, it is moved on the rail  $a^5$  until it stands substantially opposite to the doorway, when it is pushed inwardly. Such action causes the door to swing on its supporting crank-pins  $d'$  and shafts D. The arm  $l^3$ , which normally hangs down so as to be parallel to the bar  $l$ , is now swung on its pivot so as to be substantially perpendicular to the surface of the



door, and then is moved towards the right so as to turn the bar  $l$  and cause the projecting arms  $l'$  to engage their keepers  $l^2$ , thereby forcing the door into a position flush with the outside surface of the car. At the beginning of these operations, the projection  $j$  of the plate  $J$  is caused to enter the guideway  $h'$  of the guide block  $H$ , and as the door swings to its fully closed position, this projection slides in the guideway so that the end of the door to which it is attached is also closely confined in place. As the door is closed, the pin or bolt  $k$  of the piece  $K$  enters its recessed keeper  $k'$ , so that it will be seen that when the arm  $l^3$  is finally brought to the position shown in Fig. 1, the door is positively held shut at four points.

When it is desired to open the door, the above cycle of operation is reversed and it will be noted that the arms  $l'$  on the bar  $l$  act to positively force the door to its open position, which action is particularly desirable in case the door is frozen shut. The hooked arms  $M$  serve to keep the bottom edge of the door from swinging outward, while the auxiliary plate  $m'$  keeps the door from returning to its closed position after it has been moved therefrom, by reason of the hooked portions  $m^2$  being confined between the plates  $m$  and  $m'$ , as indicated in Fig. 3. A stop  $f$  on the collar  $F$  prevents undue motion of the shaft  $D$ , so that the door cannot be moved so as to turn its cranks beyond a point at which they are furthest out from the side of the car, except in one direction.

I claim as my invention:

1. The combination of a car, with a door constructed to be flush with the outside surface thereof when in a closed position, bearings on the door, shafts carried in said bearings, cranks on the shafts, sheave hangers having sheaves movably connected to the cranks, and a rail carried by the car, for said sheaves, with a cam shaped projection on said crank placed to coact with a plate on the car, substantially as described. 30 35
2. The combination with a car and a door therefor of a rail on the car, a sheave having a supporting hanger and constructed to operate on said rail, a rod having bearings on the door and provided with a crank, a pin on said crank entering an opening in the lower portion of the sheave hanger, and a collar fixed to said pin, said collar having a portion placed to co-act with the said sheave hanger to limit the movement of the crank, substantially as described. 40 45
3. The combination with the frame of a car, of a door having means whereby it is hung so as to fit a doorway in the side of said car, a guide block set in the edge of the doorway and having in it an inclined guideway extending inwardly, there being an outwardly extending projection on said block, a rail on the car partially supported on said projection, a roller on the door co-acting with the rail, a striking iron on the door placed to enter said guideway, and means co-acting with the block and striking iron for retaining the door in a closed position, substantially as described. 50 55

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses. 60

JACKSON SIMONTON.

Witnesses:

N. P. MERVINE,  
GEORGE FOX.