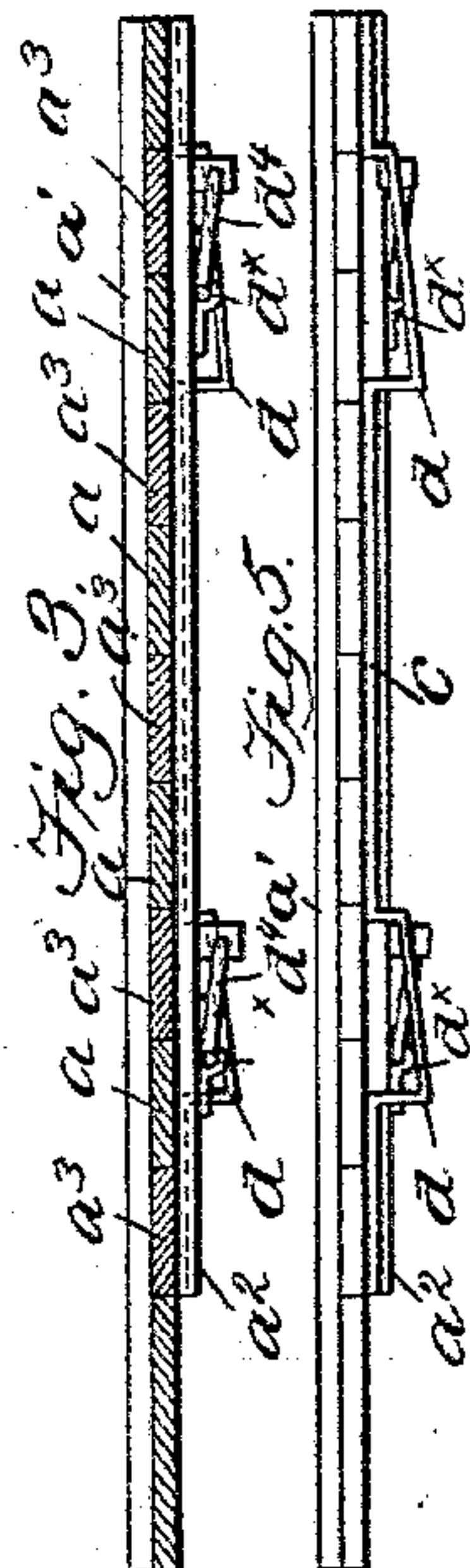
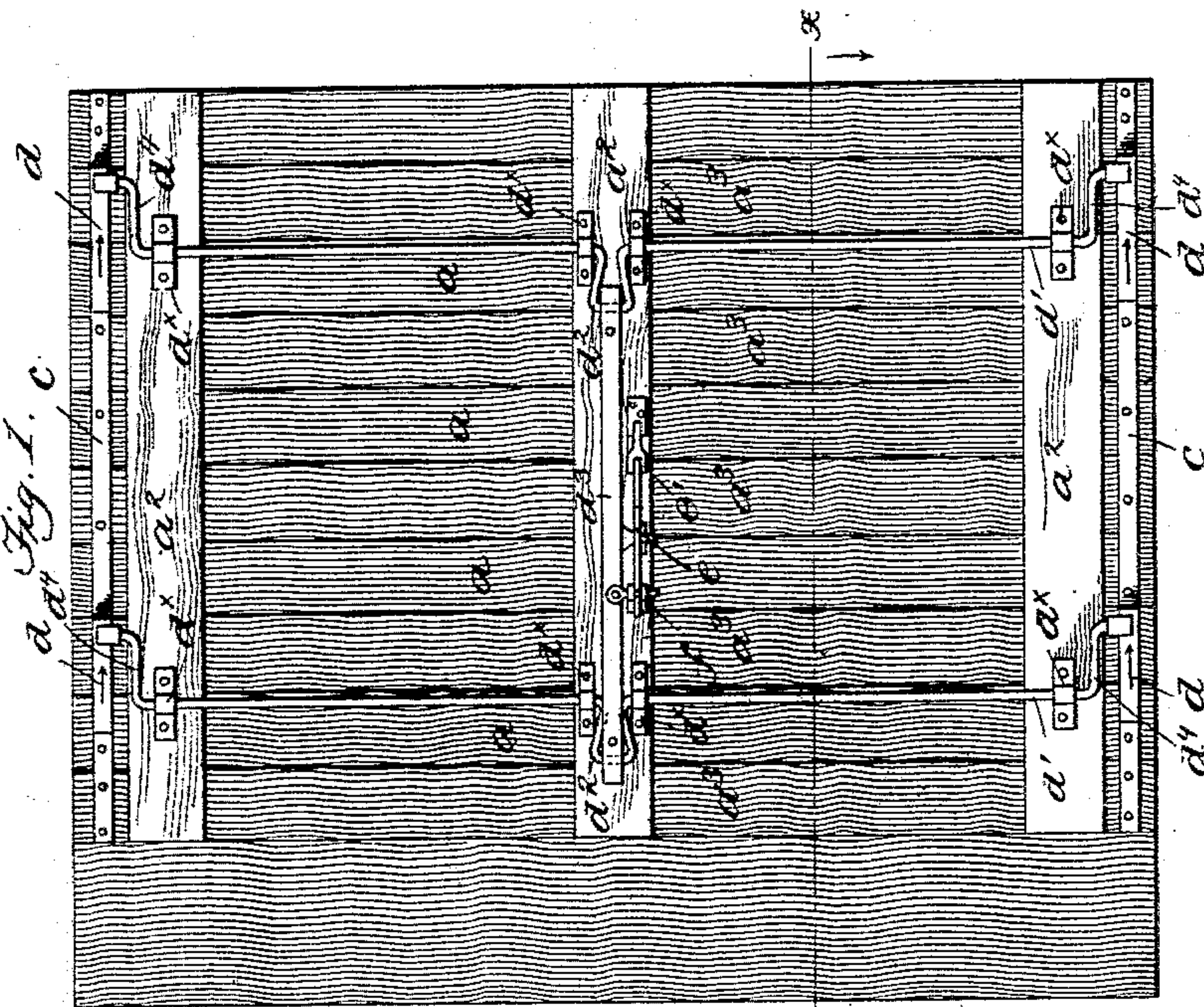
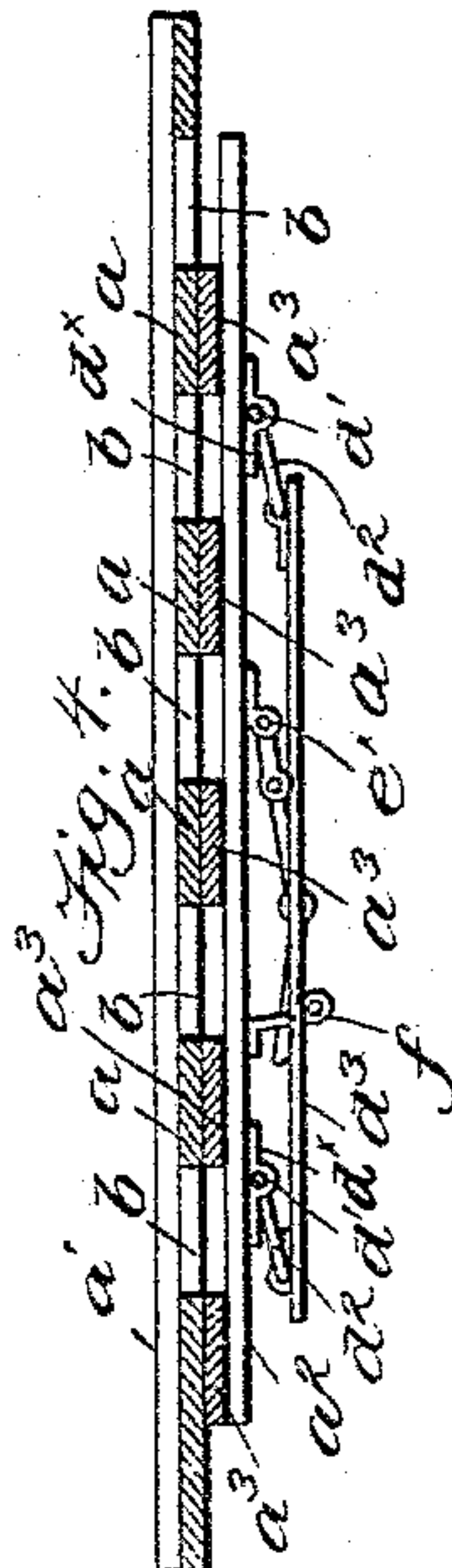
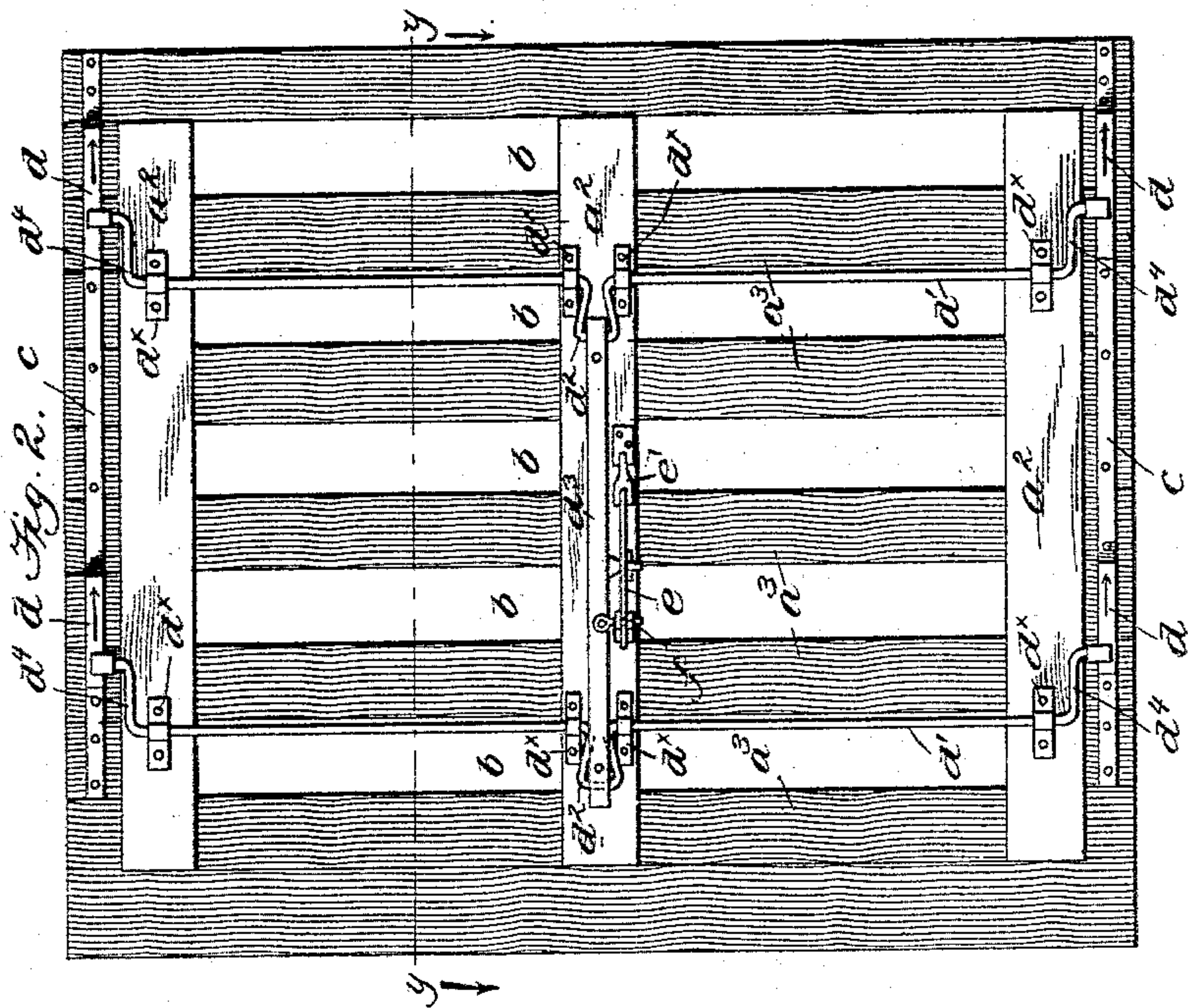


(No Model.)

A. BRILL.  
CAR DOOR.

No. 533,784.

Patented Feb. 5, 1895.



WITNESSES:

Edwin L. Bradford  
Sam'l W. Jacobson

INVENTOR

Abram Brill  
BY  
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ATTORNEY.



# UNITED STATES PATENT OFFICE.

ABRAM BRILL, OF COLUMBIA, SOUTH CAROLINA, ASSIGNOR OF ONE-FOURTH TO BENJAMIN DAVID, OF SAME PLACE.

## CAR-DOOR.

SPECIFICATION forming part of Letters Patent No. 533,784, dated February 5, 1895.

Application filed November 9, 1894. Serial No. 528,287. (No model.)

*To all whom it may concern:*

Be it known that I, ABRAM BRILL, a citizen of the United States, residing at Columbia, in the county of Richland and State of South Carolina, have invented certain new and useful Improvements in Car-Doors; and I do hereby 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.

My invention relates to car doors and consists in a novel construction of doors for freight or box cars, especially adapted for such as are used for transporting fruit, vegetables, and perishable materials, that require ventilation to prevent decay thereof.

My invention consists of a door having a series of vertical slats within its frame, with intermediate open spaces, and mechanism for opening and closing the openings, and thus provide a practically solid door that may be opened or closed to admit or exclude air as may be desired.

In carrying out my invention I provide a door that may be adjusted to the car to be entirely opened by sliding on ways, for loading and unloading in the ordinary manner, but that when closed has slats of its main panel adapted to be slid to and fro and thereby make a series of openings between said slats as hereinafter described and illustrated.

Referring to the accompanying drawings wherein like letters of reference point out similar parts on each view,—Figure 1. is an elevation of a car door constructed according to my invention, with slats closed. Fig. 2. is a like view with the slats opened. Fig. 3. is a cross section on line,  $x, x$ , of Fig. 1. Fig. 4. is a cross section on line,  $y, y$ , of Fig. 2. Fig. 5. is a detail view of the upper end of the door looking downward.

In the drawings,  $a, a$ , represent slats permanently connected to the upper and lower stiles,  $a', a'$ , of the main frame of the door. The fixed vertical slats or bars,  $a$ , are connected to the top and bottom stiles, in any suitable manner, leaving intermediate aligning openings,  $b$ , for a purpose presently explained.

On the exterior surface of the cross stiles and the slats  $a$ , at the top and bottom, are

secured horizontal irons or bars,  $c, c$ , which are provided with two outwardly projecting loops,  $d, d$ , said loops being each slightly inclined, all in the same direction, forming oblique bearings for the crank rods or levers by which the front is pivoted to the main door which consists of the vertical and cross stiles and the fixed slats, as plainly illustrated in the drawings.

The bearings may be formed as a part of the elevated loops or be made separate therefrom and be movable on the loops without departing from the scope and purview of my invention.

The front of the frame consists of horizontal cross slats or stiles,  $a^2$ , there being shown in the drawings, but their number may be increased if necessary, having secured to the inner surfaces thereof vertical slats,  $a^3$ , corresponding in width and number to the openings,  $b$ , between the fixed slats,  $a$ , extending vertically on the main door, their opposite ends being fastened to upper and lower stiles,  $a'$ .

Suitable hasps or bearings,  $d^x$ , are provided on each of the horizontal front stiles,  $a^2$ , to hold in place the rods,  $d'$ , one of which extends vertically at or near each side of the front frame. These rods,  $d'$ , are each provided with a central loop,  $d^2$ , extending over the central bar or stile,  $a^2$ , and these loops are connected together by a transverse bar,  $d^3$ , the opposite ends of which are pivoted to said loops,  $d^2$ , as plainly illustrated in the drawings.

A bell crank lever,  $e$ , has one of its arms pivoted to a suitable bracket or bearing,  $e'$ , on the central cross stile,  $a^2$ , and its opposite end is pivotally connected to the transverse metal bar,  $d^3$ , and has an operating handle extending outwardly therefrom.

The upper and lower ends of the rods,  $d'$ , are bent over to compose angular or crank terminals,  $d^4$ , and are arranged to move to and fro along loops,  $d$ , of bars,  $c$ , which are all obliquely inclined toward one side of the door as indicated by arrows in Figs. 1, and 2.

A bifurcated hasp or lug,  $f$ , projects outwardly from the central cross stile of the front frame and the end of the operating lever when the door is closed tight shuts down between



the two arms of this lug or hasp. The arms of the lug, *f*, are apertured through which openings the hasp of a lock may be passed to lock the door closed by securing the handle  
5 when turned down.

From the foregoing description, in connection with the drawings, the nature and object of my invention and its practical operation will be readily understood by all familiar  
10 with analogous devices.

The door consists essentially of two parts, the main door with vertical apertures between fixed slats, and a front movable frame pivotally connected thereto.

15 When the operating lever is closed down between arms of the lug, *f*, the slats of the front frame fill the spaces or openings between the fixed slats on the main door and thereby compose practically a solid door excluding air  
20 and stopping passage of heat or cold within the car.

When it is desired to ventilate the car the lock or toggle is removed and by turning the lever, *e*, the vertical rods are caused to move  
25 horizontally and by means of the inclined upper and lower bearings on which their bent ends are slid, the front of the frame is slightly elevated and moved transversely whereby the front frame is thrown in such position  
30 that its slats are brought over and into alignment with those fixed on the main door and thus expose intermediate vertical slots through which air will readily pass.

Having thus fully described my invention  
35 and the manner of its operation, what I claim, and desire to secure by Letters Patent of the United States of America, is—

1. A door for freight or box cars, having a main door comprised of top, bottom and side  
40 stiles or rails and vertical slats or bars with openings between them, a front frame having transverse bars or stiles, and a series of vertical slats corresponding in number and size to the openings in the main door and looped  
45 crank rods connected to the front frame and having bearings on the main door frame by means of which the front frame is pivoted to the main door and adapted to open or close said openings, substantially as described.

2. A door for freight or box cars having a main door composed of top, bottom and side rails or stiles and vertical slats or bars with openings between them, a frame having transverse bars or stiles and a series of vertical slats corresponding in number and size to the  
55 openings in the main door and looped crank rods connected to the front frame and having bearings on the main door frame, by means of which the front frame is pivoted to the main door and adapted to open and close said  
60 openings and locking mechanism for securing the same in a closed position, substantially as described.

3. A door for freight or box cars, having a main door with vertical openings therein at intervals, elevated metal bars provided with bearings secured to the exterior surface thereof at the top and bottom, and a front frame having transverse bars or stiles, and vertical slats corresponding in number and  
70 size to the openings in the main door; crank rods with central loops mounted in the bearings and connected to the front frame and to each other by a bar or rod pivoted to said loops, and an operating lever, substantially  
75 as described.

4. A door for freight or box cars, comprising a main door, with vertical openings therein at intervals, elevated metal bars provided with bearings, secured to the exterior surface  
80 thereof at the top and bottom, and a front frame having transverse bars or stiles and vertical slats corresponding in number and size to the openings in the main door, crank rods with central loops mounted in the bear-  
85 ings and connected to the front frame and to each other by a bar or rod pivoted to said loops, a bell crank lever for operating the same and means for locking the lever closed,  
90 substantially as described.

In testimony that I claim the invention above set forth I affix my signature in the presence of two witnesses.

ABRAM BRILL.

Witnesses:

W. F. FICKLING,  
H. A. N. CHURCH.