

No. 644,535.

Patented Feb. 27, 1900.

S. W. NEALL.
GRAIN CAR DOOR.

(Application filed Apr. 14, 1899.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

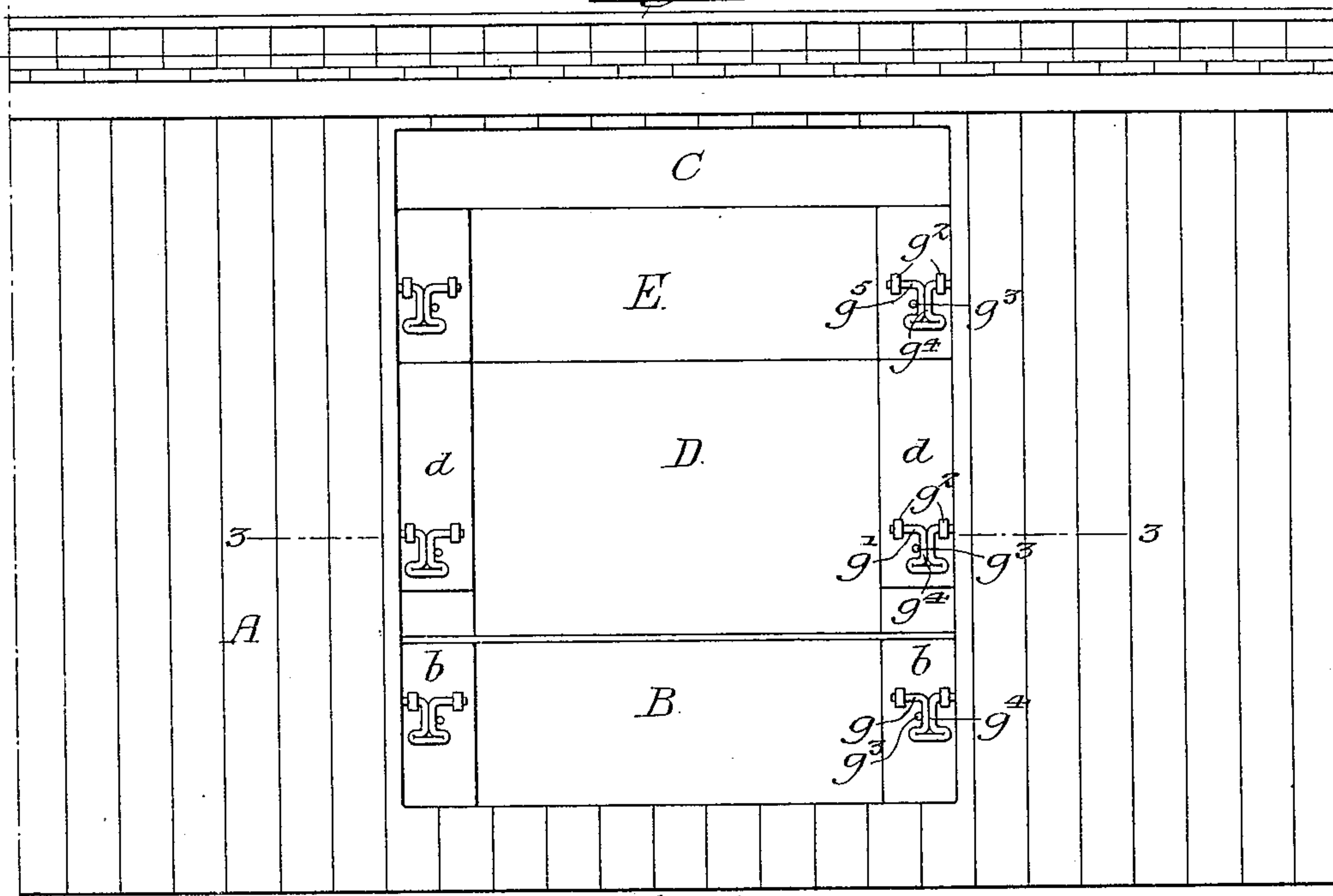


Fig. 3.

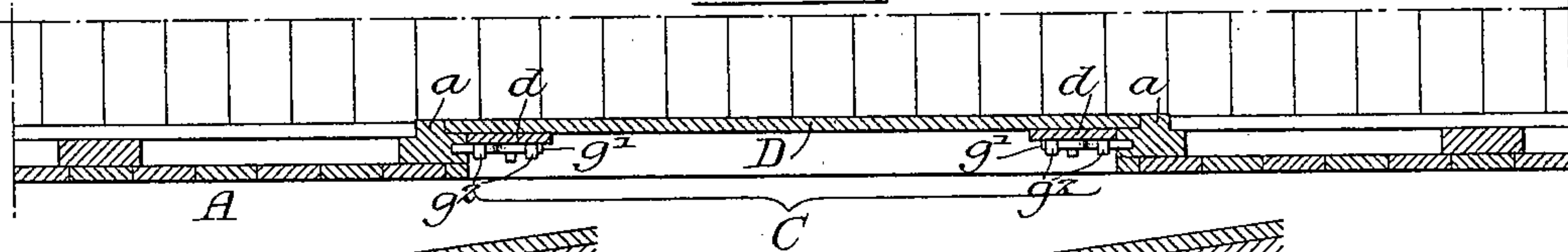
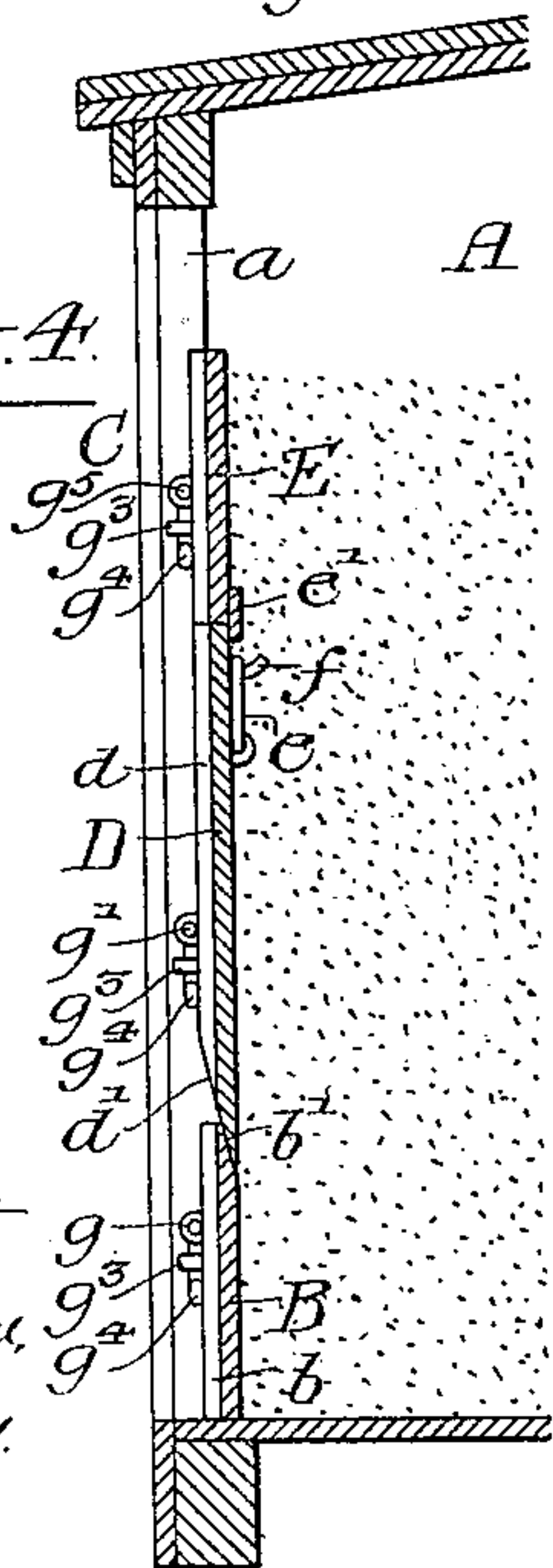


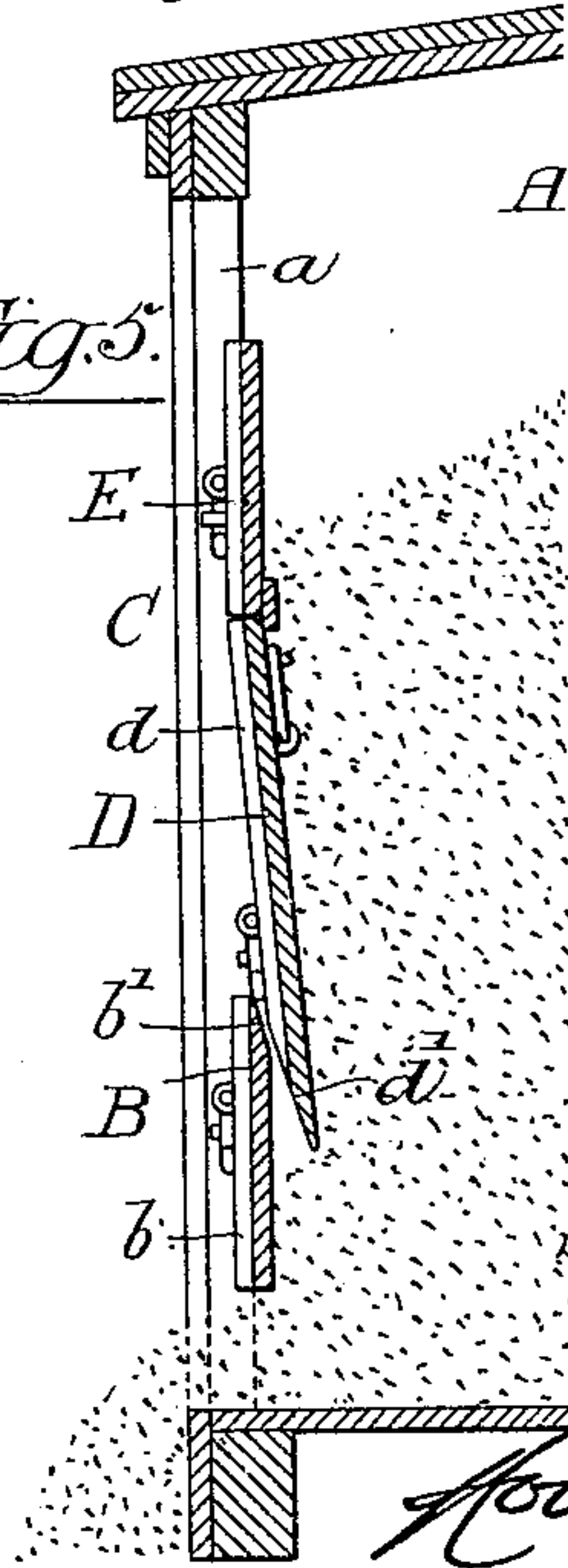
Fig. 4.



Witnesses:-

Charles DeCau,
Louis H. Whithead.

Fig. 5.



Inventor:

Samuel W Neall

- by -

His Attorneys

Housner & Brown

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2 Sheets—Sheet 2.

Fig. 2.

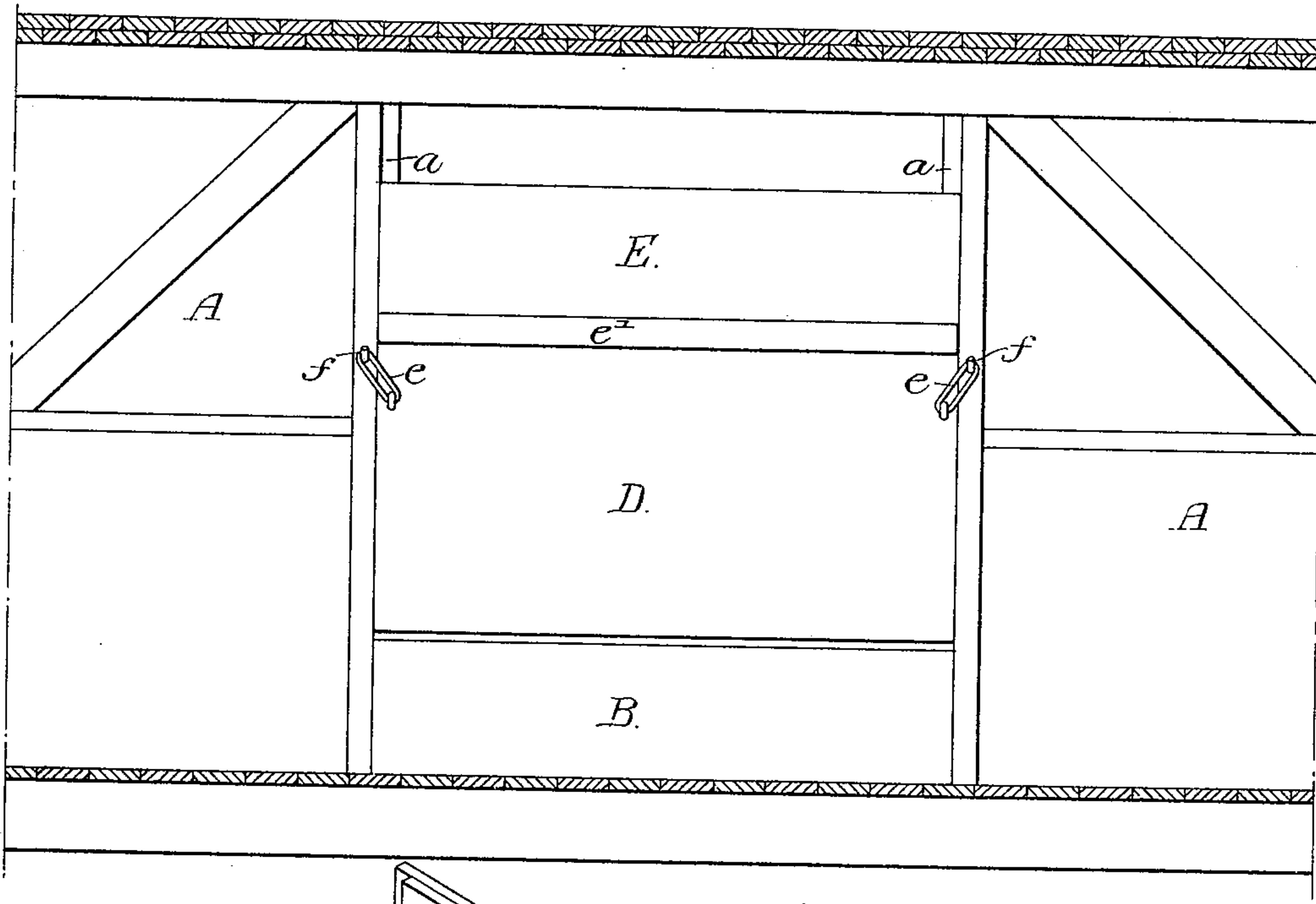


Fig. 8.

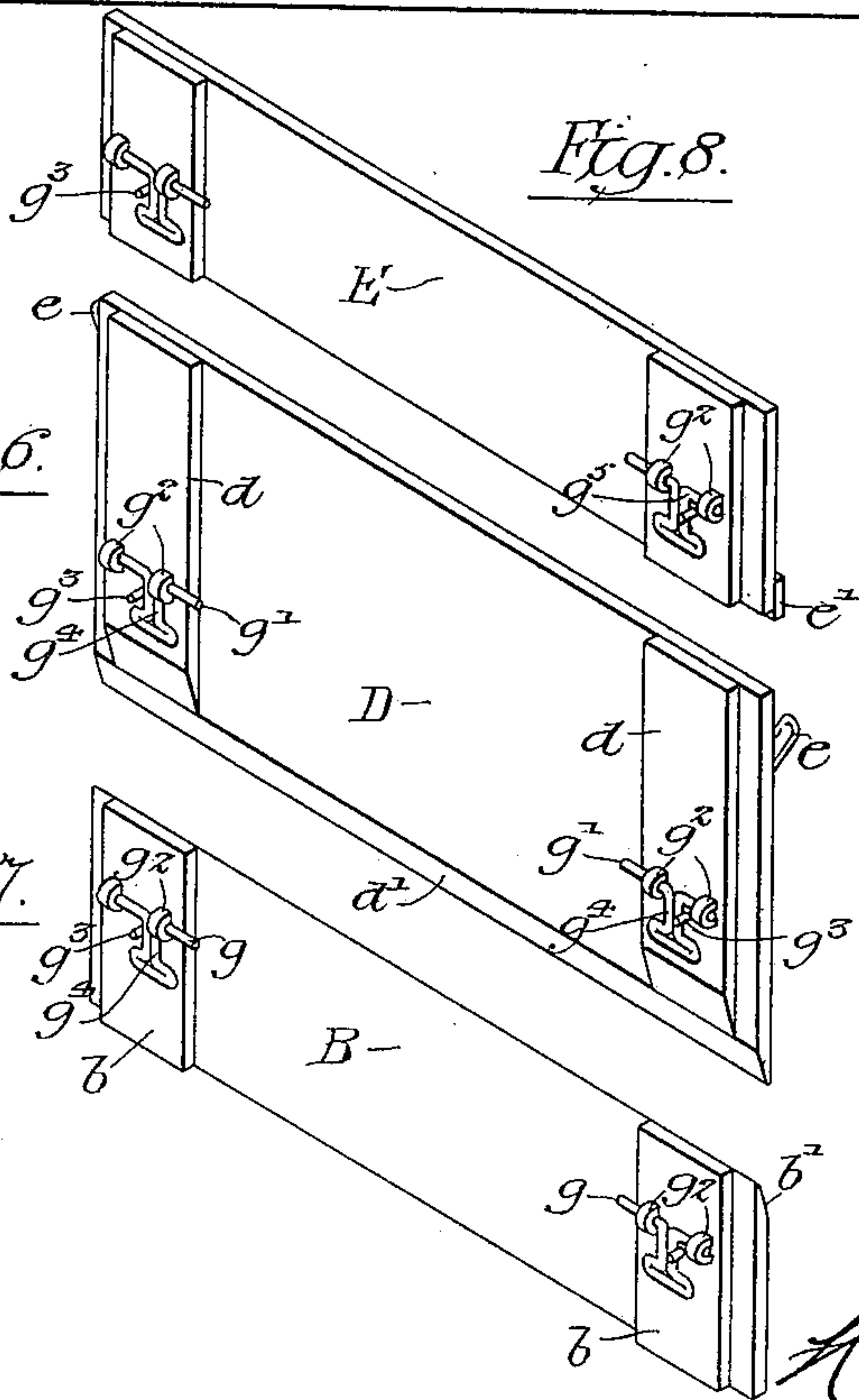


Fig. 6.

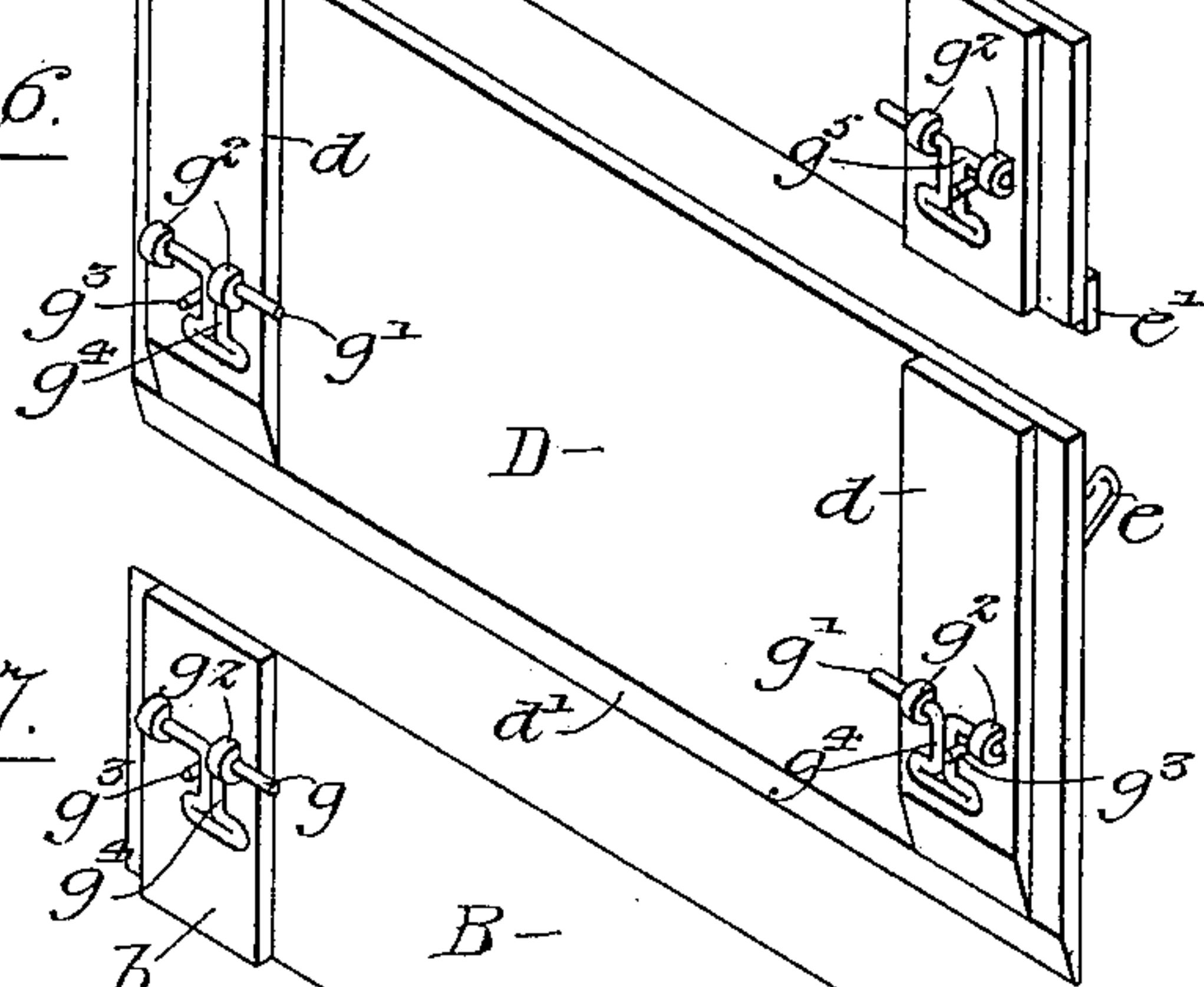
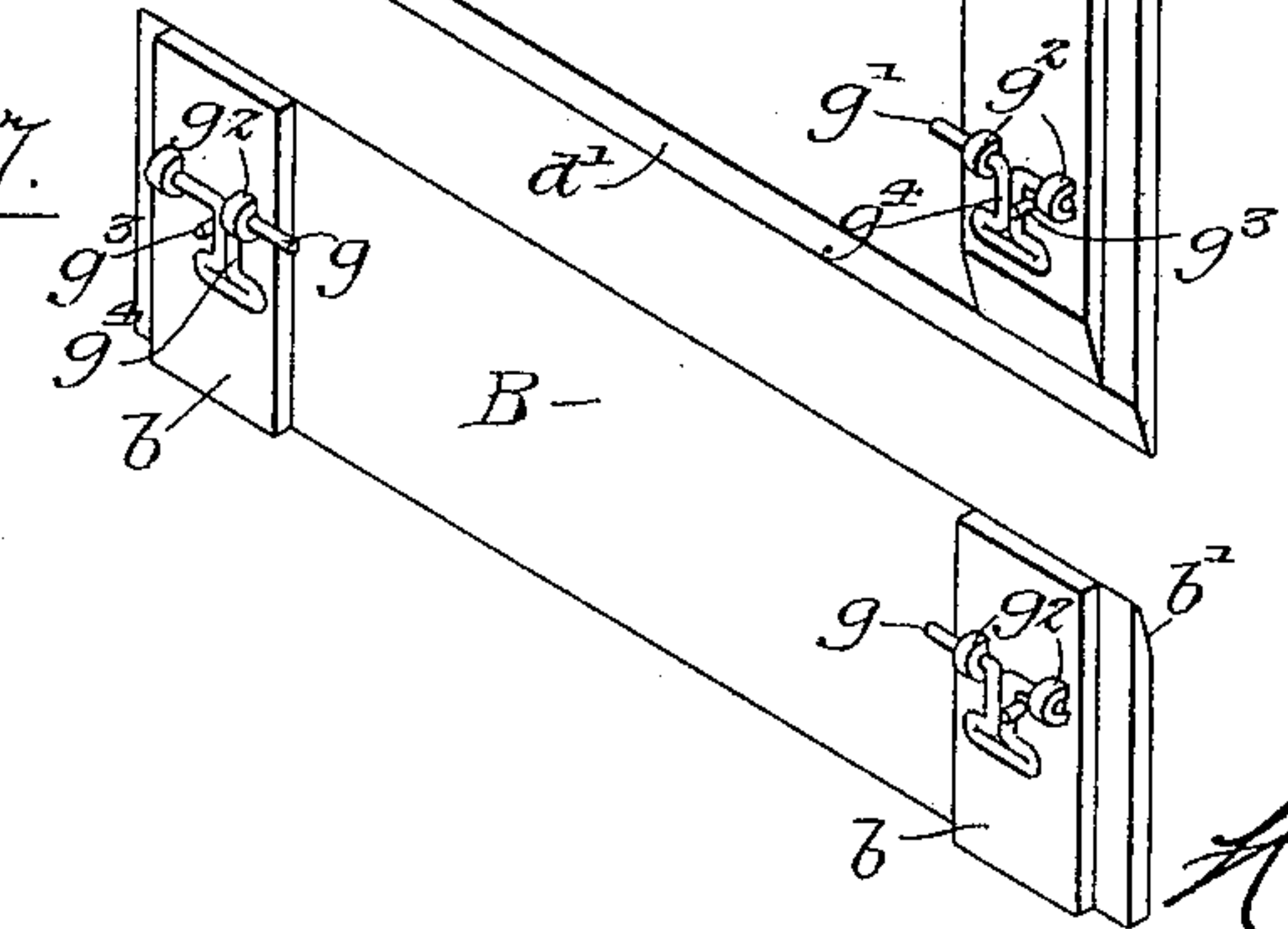


Fig. 7.



Witnesses:

Charles DeCort,
Louis M. T. Whitehead

Inventor:

Samuel W. Neall.
by his Attorneys

Howson & Howson

UNITED STATES PATENT OFFICE.

SAMUEL W. NEALL, OF PHILADELPHIA, PENNSYLVANIA.

GRAIN-CAR DOOR.

SPECIFICATION forming part of Letters Patent No. 644,535, dated February 27, 1900.

Application filed April 14, 1899. Serial No. 713,000. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL W. NEALL, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Grain-Car Doors, of which the following is a specification.

The object of my invention is to so construct a grain-car door that it will be simple in construction and readily placed in position or adjusted so as to allow for the free flow of grain from the car when it is desired to empty the same.

In the accompanying drawings, Figure 1 is a side view of sufficient of a grain-car to illustrate my invention. Fig. 2 is a longitudinal sectional view of portions of a car, showing the rear of the door. Fig. 3 is a section on the line 3 3, Fig. 1. Fig. 4 is a vertical sectional view showing the doors closed. Fig. 5 is a view showing the lower door raised and the grain flowing from the car. Fig. 6 is a perspective view of the upper section of the door. Fig. 7 is a perspective view of the lower section of the door. Fig. 8 is a perspective view of a filling-piece which may be used when it is desired to load the car to its full capacity.

A is the body of the car, made in the ordinary manner, having standards *a a* at each side of the doorway C.

B is the lower section of the door, and D is the upper section. (Clearly shown in Figs. 5 and 6.) These doors are simple in construction and may be made of boards with vertical battings *b b* and *d d* to give them strength to stand the pressure within the car.

The upper edge *b'* of the door B is beveled, and the lower edge *d'* of the door D is also beveled, so that the beveled edge of the door D will rest back of the edge of the door B, as shown clearly in Fig. 3, in order to make a tight joint at this point and prevent accidental lifting of the door B. At the same time the door B will support, to a certain extent, the lower portion of the door D.

Secured at each corner to the upper edge of the door D, as shown in Fig. 2, are links *e e*, adapted to hooks *f f* on the car-body. The door B is provided with bolts *g g* at each side, while the door D is provided with similar bolts *g'* at each side of the doorway. The bolt shown in the drawings is the one I prefer to

use, being simply a piece of metal bent as shown and adapted to be secured to the door by staples *g²*, and on each door is a pin *g³*, so that the shank *g⁴* of the bolt can be raised by its handle and placed on either side of the pin, as shown in Fig. 1. If the shank of the bolt is on the side of the pin, as shown in Fig. 1, the bolt is locked in its projected position, while if the shank is on the opposite side of the pin the bolt is held in the withdrawn position.

It will be noticed by referring to Fig. 2 that the doors rest against the inner side of the standard *a*, so that the pressure of grain within the car will tend to force the doors outward, and thus make a tight joint between the standards *a* and the doors.

In loading a car with grain, for instance, all that is necessary is to first put in position the lower door B and push out the bolts, so that the door will be locked to the door-frame, then hang the upper door on its hooks *f f* and secure it in position by the bolts *g'*, after which the car can be loaded through the opening between the upper door and the roof.

When it is wished to discharge the car, all that is necessary is to withdraw the four bolts and take a bar or other implement and gradually force the lower door up to the position shown in Fig. 5, which will allow the grain to escape under the door. The escaping grain will relieve the pressure against the upper door to a certain extent, so that it can be pushed backward, as indicated in Fig. 5, and allow for the continued upward movement of the lower door until the position shown in the drawings is reached. This will allow the greater portion of the grain in the car to escape. After sufficient grain has been discharged, all that is necessary is to push the door B back and to one side, allowing the other side of the door to pass the door-jamb. The door can then be readily removed. After this the operators can enter the car under the door D and shovel the remaining grain out, or, if it is desired, the upper door D can be unhooked and placed to one side. After the car is emptied the doors can either be placed in position again or simply placed within the car.

If it is necessary to fill the car to its full capacity, I use a third door E, having a lip *e'*,

extending back of the door D and also having suitable bolts g^5 at each side. This door may have eye-plates adapted to suitable hooks on the door-frame. This door may extend to
 5 the point shown in the drawings or may close the doorway.

The door D may in some instances extend to the top of the door-frame when a car is built to fill from the roof and when it is wished
 10 to close the entire doorway with two doors. By this simple arrangement of adjustable and removable grain-car doors I dispense entirely with the loose boards which are usually secured to the door-jamb by nails.

15 I am aware that special grain-car doors have been used; but they have generally been so complicated that the railroad companies discarded them and prefer to use loose boards, as described above.

20 I claim as my invention—

1. The combination in a car-body having an opening, of two horizontally-disposed vertically-movable doors adapted to rest back of the side jambs of the opening, the meeting
 25 edges of said doors being beveled, each of said jaws being capable of vertical movement irrespective of the vertical movement of the other door, substantially as described.

2. The combination in a car-body having a
 30 doorway, of two independent vertically-movable doors resting back of the door-jambs, one of said doors being mounted above the other, with means for suspending the upper door and means for locking the upper and
 35 lower doors in position, the said lower door being capable of vertical movement irrespective of the vertical movement of the upper door, substantially as described.

3. The combination of a car-body having a
 40 doorway, two independent vertically-movable doors adapted to rest back of the door-jambs, one of said doors being mounted above the other and having a beveled portion extending down behind the lower door, and
 45 means for suspending the upper door, substantially as described.

4. The combination of a car-body having a doorway, vertically-movable upper and lower

doors, said doors being wider than the doorway and adapted to rest back of the door- 50 jambs, and means for suspending the upper door, the meeting edges of both doors being beveled and the lower edges of the upper door resting back of the upper edges of the lower door, substantially as described. 55

5. The combination of a car-body having a doorway, vertically-movable upper and lower doors wider than the doorway and adapted to rest back of the door-jambs, the lower edges of the upper door being beveled and 60 resting back of the beveled upper edge of the lower door, means for securing the doors in position independently of each other, and means located inside the car for suspending the upper door, said means limiting the up- 65 ward movement of said door, substantially as described.

6. The combination of a car-body, upper and lower doors wider than the car-body and adapted to rest back of the door-jambs, the 70 upper edge of the lower door being on a bevel and the lower edge of the upper door being on a bevel and resting back of the edge of the lower door, and means for locking the doors in position, the bevel of the doors be- 75 ing such that the upper door will be pushed back as the lower door is raised, substantially as described.

7. The combination of a car-body having a doorway, a series of doors wider than the 80 doorway and adapted to rest back of the door-jambs, means located inside the car-body for suspending one of the said doors, and means carried on the outside of the doors for locking them in the doorway, the lowermost door 85 being capable of upward movement irrespective of similar movement of the other doors, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of 90 two subscribing witnesses.

SAMUEL W. NEALL.

Witnesses:

MURRAY C. BOYER,
 JOS. H. KLEIN.

It is hereby certified that in Letters Patent No. 644,535, granted February 27, 1900, upon the application of Samuel W. Neall, of Philadelphia, Pennsylvania, for an improvement in "Grain-Car Doors," an error appears in the printed specification requiring correction, as follows: In line 26, page 2, the word "jaws" should read *doors*; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 13th day of March, A. D., 1900.

[SEAL.]

THOMAS RYAN,
First Assistant Secretary of the Interior.

Countersigned:

C. H. DUELL,
Commissioner of Patents.