

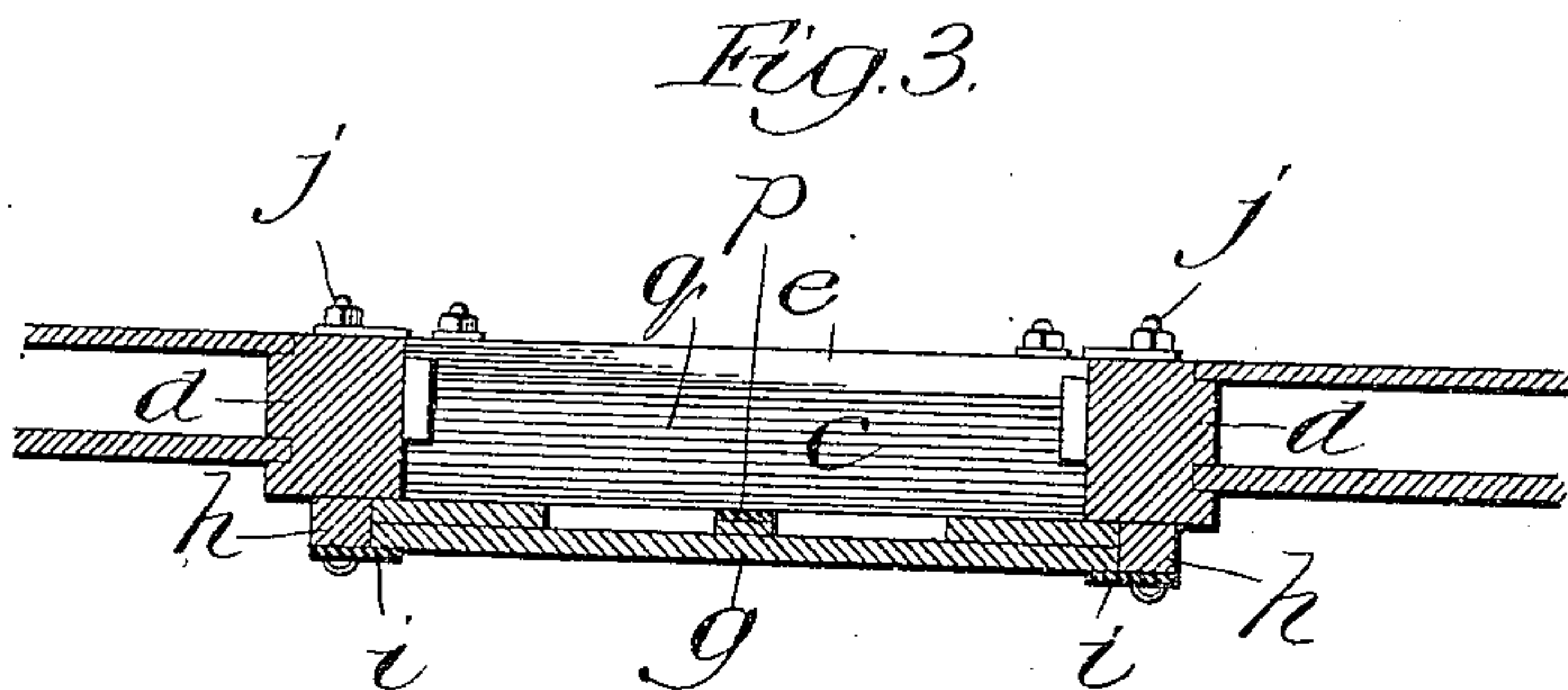
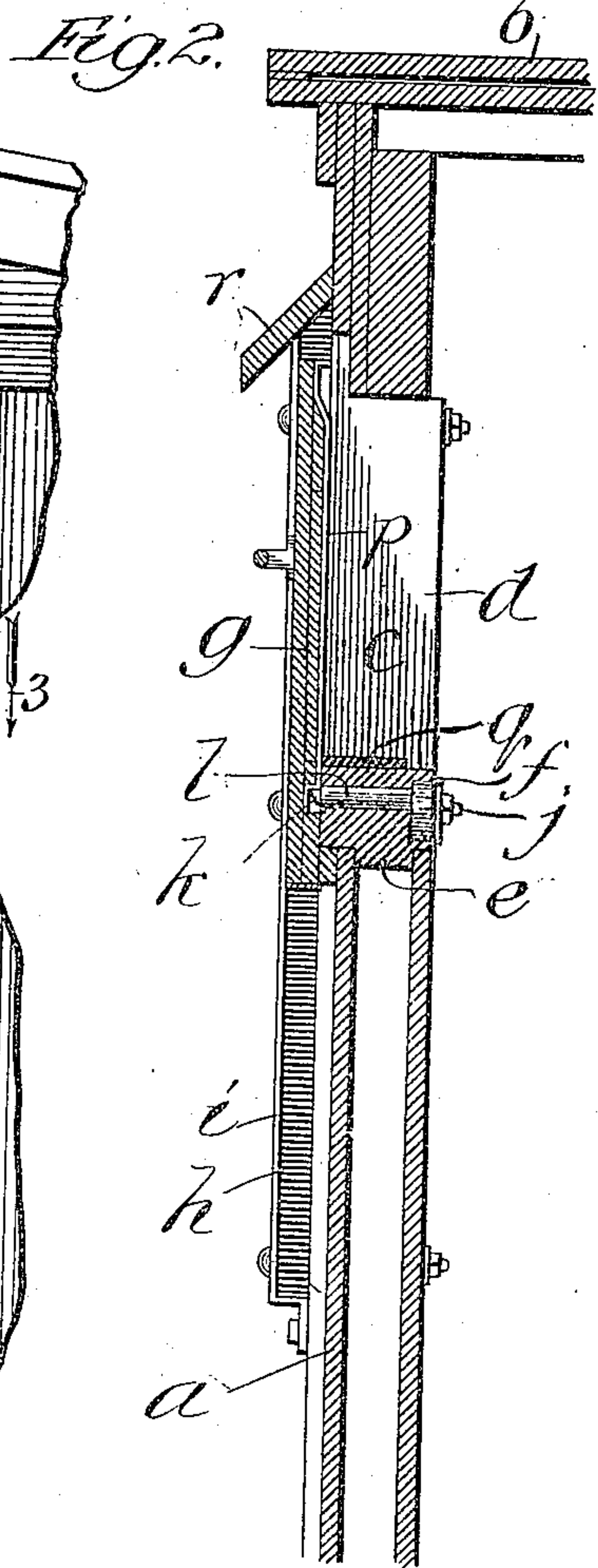
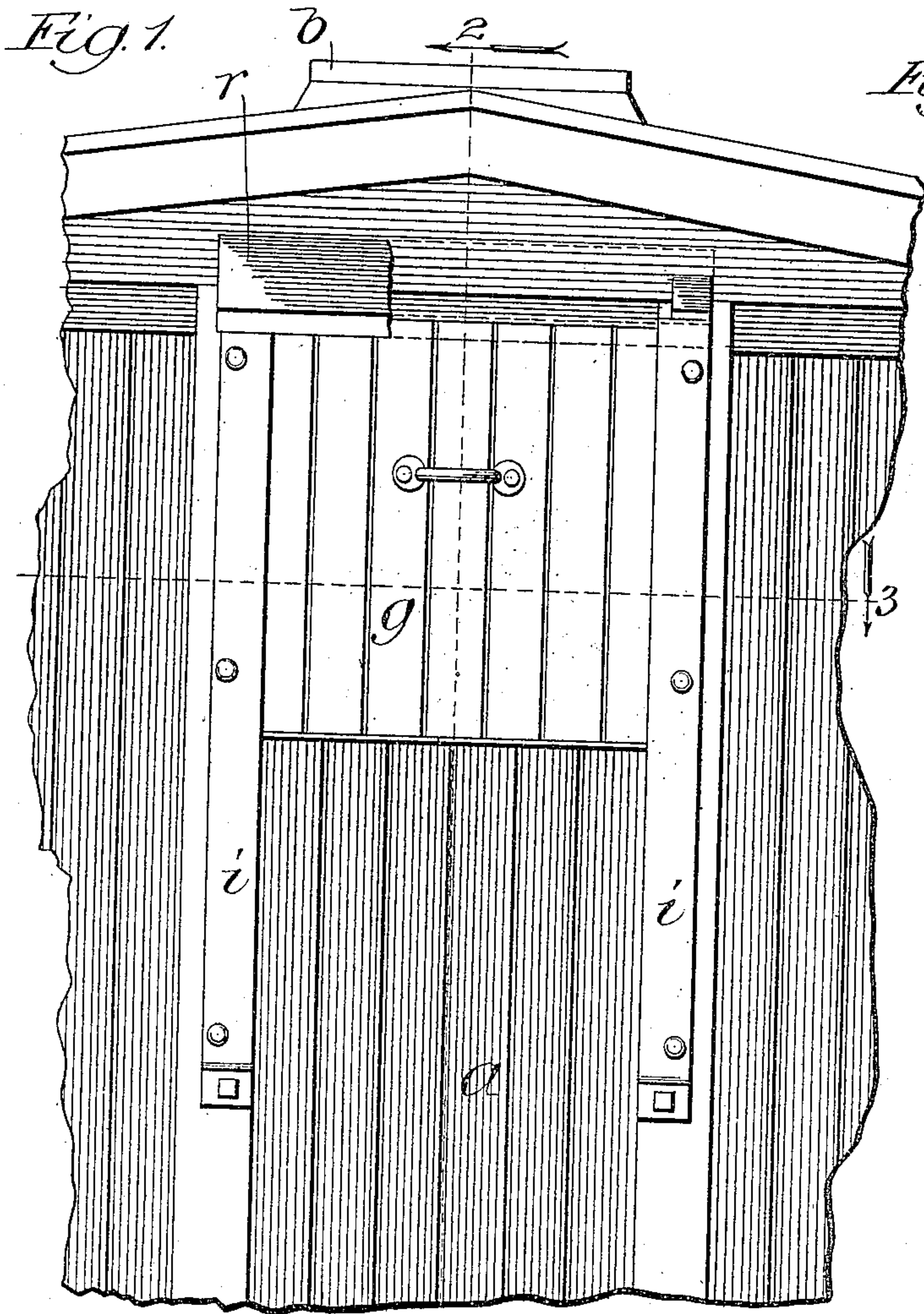
No. 816,651.

PATENTED APR. 3, 1906.

F. A. DELANO.  
BOX CAR DOOR.

APPLICATION FILED JULY 25, 1904.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 4.

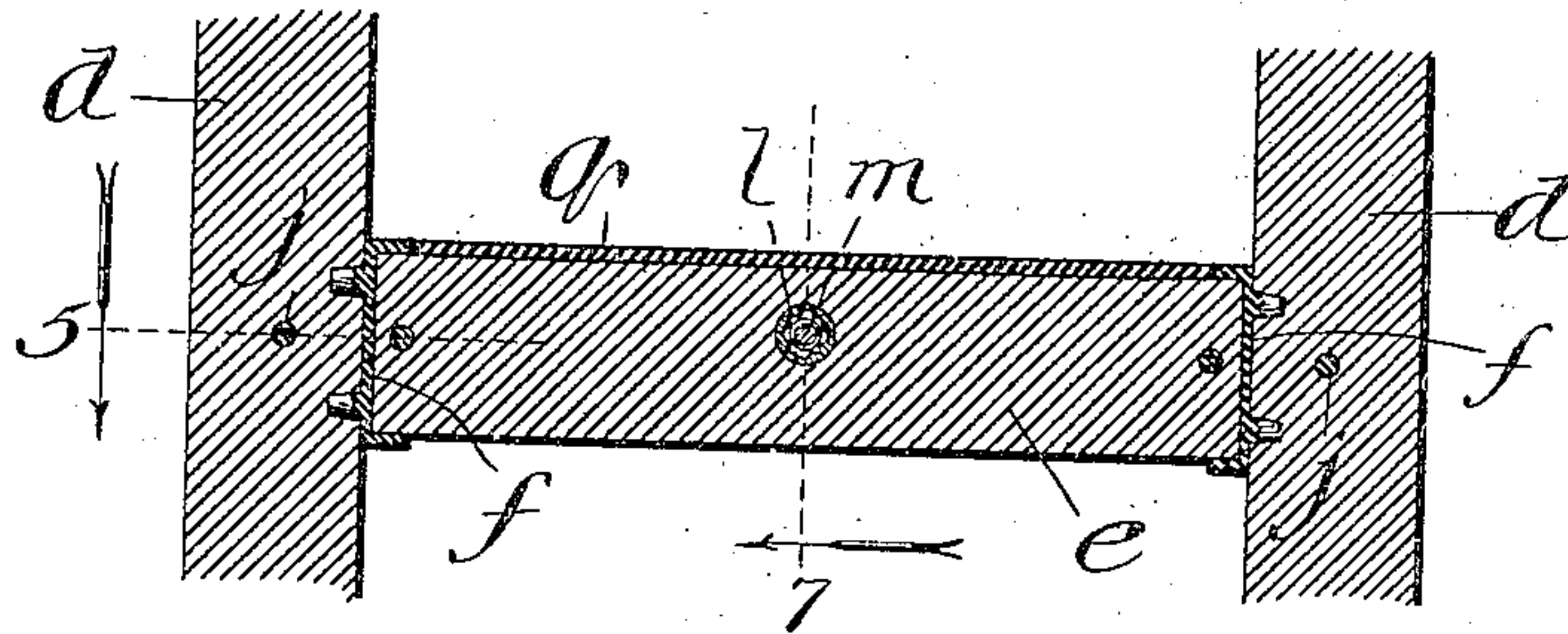


Fig. 5.

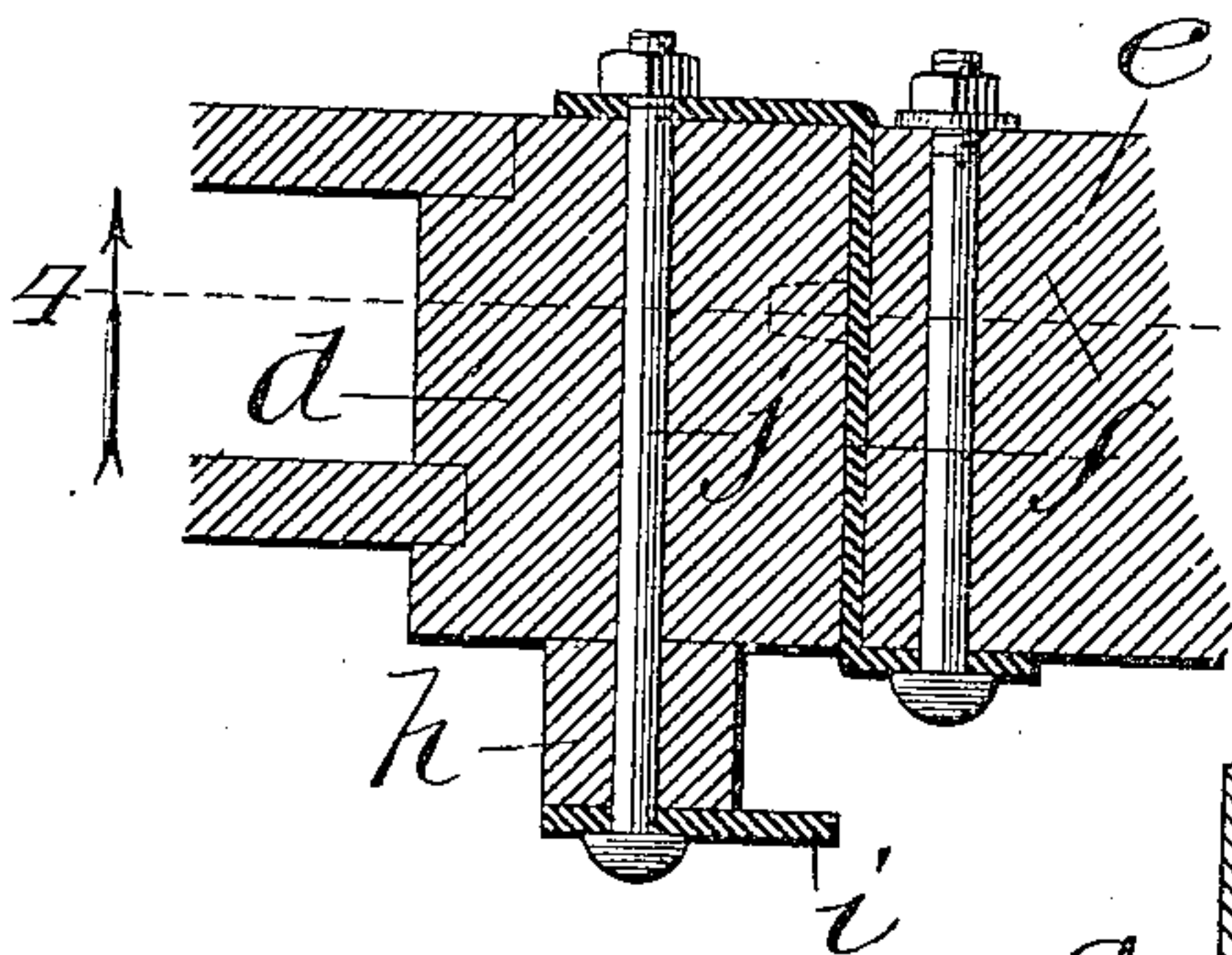


Fig. 6.

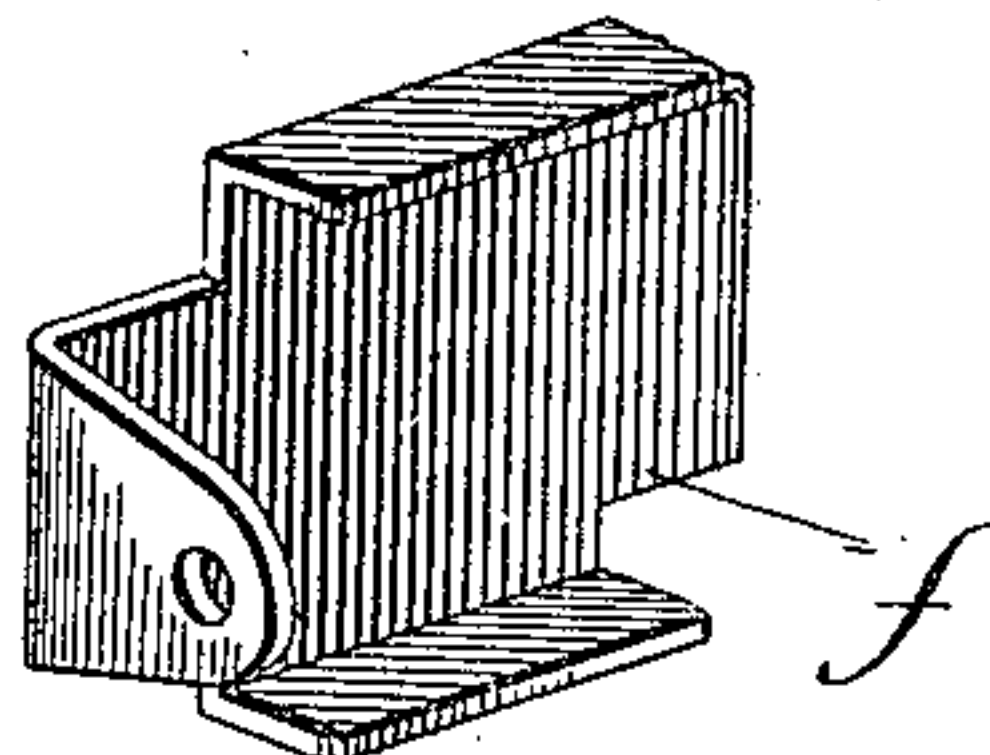
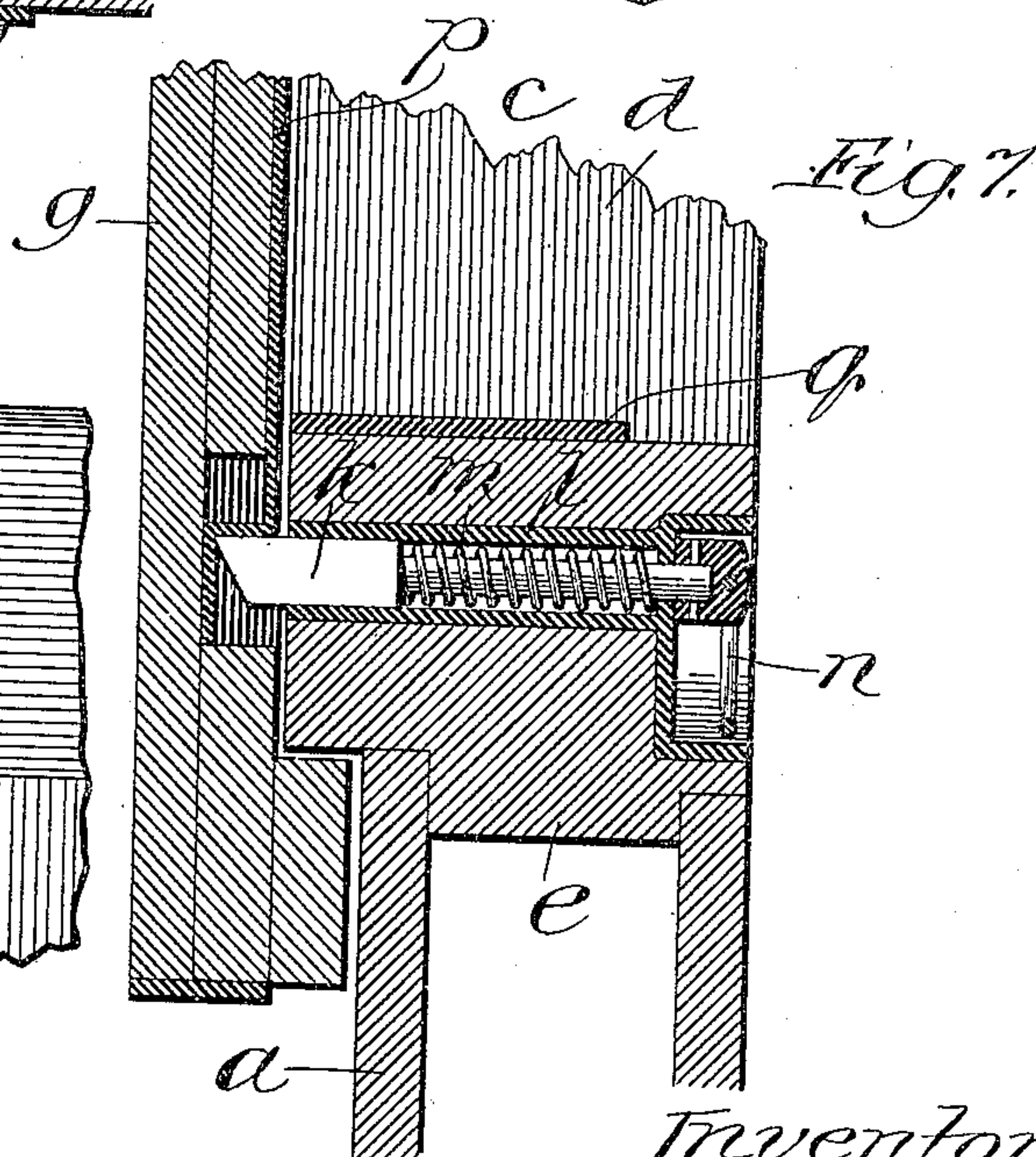
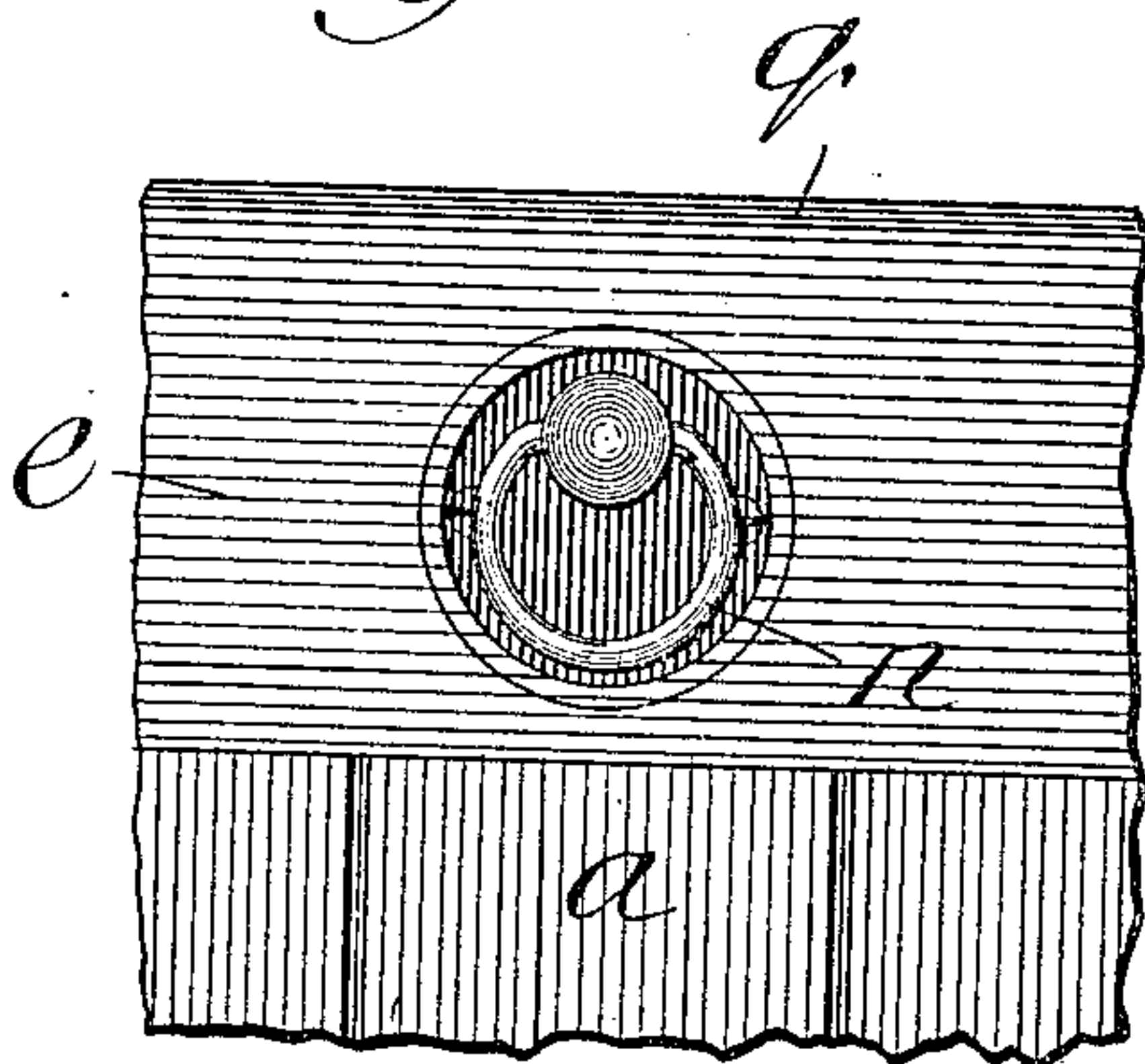


Fig. 8.



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# UNITED STATES PATENT OFFICE.

FREDERIC A. DELANO, OF CHICAGO, ILLINOIS.

## BOX-CAR DOOR.

No. 816,651.

Specification of Letters Patent.

Patented April 3, 1906.

Application filed July 25, 1904. Serial No. 218,008.

*To all whom it may concern:*

Be it known that I, FREDERIC A. DELANO, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Box-Car Doors, of which the following is a specification.

The invention relates to slidable end doors for box-cars, and particularly to the construction and arrangement by which the same may be automatically locked and held in closed position, so as to prevent tampering with or opening of the door from the outside, all of which will more fully hereinafter appear.

The principal object of the invention is to provide a sliding end door for box-cars with simple, economical, and efficient mechanism for locking and holding the same in closed position.

Other and further objects of the invention will appear from an examination of the drawings and the following description and claim.

The invention consists principally in the combination of a box-car provided with an opening or openings in the end and near the upper part thereof, a door slidably mounted on the exterior surface of the ends of the box-car to open and close said opening, guides in which said door is slidingly mounted, and locking mechanism in engagement with said door on the inside and adapted to automatically lock it when the door is pushed into its up and closed position.

The invention consists, further and finally, in the features, combinations, and details of construction hereinafter described and claimed.

In the accompanying drawings, Figure 1 is an end elevation of a portion of a car as it appears when constructed in accordance with these improvements; Fig. 2, a vertical sectional elevation taken on line 2 of Fig. 1 looking in the direction of the arrow; Fig. 3, a cross-sectional view taken on line 3 of Fig. 1 looking in the direction of the arrow; Fig. 4, a cross-sectional view taken on line 4 of Fig. 5; Fig. 5, an enlarged cross-sectional detail taken on line 5 of Fig. 4 looking in the direction of the arrow; Fig. 6, a perspective view of one of the sill-pocket plates in which each end of the cross-sill, hereinafter described, is inserted and by which it is held in position; Fig. 7, an enlarged sectional detail taken on line 7 of Fig. 4 looking in the direction of the arrow, and Fig. 8 an end

elevation of the mechanism shown in Fig. 7 looking at it from the right-hand side.

In the art to which this invention relates it is well known that it is very desirable to provide box-cars with openings in the end portions thereof for the purpose of loading and unloading long-pieces of freight, as well as for purposes of ventilation. It is also well known that it is desirable to have some door mechanism which can be closed from the outside and automatically locked on the inside, so that said door cannot be opened again from the outside. To accomplish this result, the invention is primarily designed.

In illustrating and describing these improvements I have only illustrated and will herein describe that which I consider to be new, taken in connection with so much of a car as is old as will properly disclose the invention to others and enable those skilled in the art to practice the same, leaving out of consideration other and well-known elements which, if set forth herein, would only tend to confusion, prolixity, and ambiguity.

In constructing a car in accordance with these improvements a box-car is provided having two end portions *a*, formed and arranged in the usual manner, and a roof portion *b*. Either one or both ends of the car may be provided with loading-openings *c*, the framework of which is preferably formed in part by end posts *d d* and the lower part by a cross-sill *e*. This cross-sill is secured to the end posts and held in position by means of metallic pocket-plates *f* (shown particularly in Figs. 4, 5, and 6) and is bolted thereto, as shown in Fig. 5, thus making a structure or door-frame which is very serviceable and efficient in operation.

A sliding door *g* is provided and slidingly mounted upon the exterior surface of the end portion of the car, as shown particularly in Figs. 1 and 2, so that it may be operated whenever desired on the outside of the car. This door is slidingly mounted, as above suggested, in the guideways formed by guide-blocks *h* and guide-plates *i*, bolted or otherwise secured to the end posts of the car. The means I prefer to use are carriage-bolts, the heads of which are on the outside of the car and the threaded ends provided with nuts *j* on the inside, thereby minimizing the danger of tampering with the same and preventing the opening of the door from the outside. To automatically lock the door and hold it locked after it reaches its up-closed position, a



squared locking-bolt *k* is provided, as shown particularly in Figs. 4 and 7. This locking-bolt is movably mounted in a metallic socket-piece *l*, passed through the cross-sill *e*, and a  
5 helically-coiled spring *m* is provided and inserted between the squared locking-bolt and its socket-piece, so as to normally press said bolt against the inner surface of the sliding door. The inner or exposed end of the lock-  
10 ing-bolt is provided with a ringed head *n*, arranged in an enlargement of the socket-piece, so as to be normally flush with or below the inner or exposed surface of the cross-sill, thereby minimizing the danger of injuring  
15 the said locking-bolt or any portion thereof. The inner surface of the sliding door is provided with a vertically-arranged metallic wearing-strip *p*, so that during the upward and downward movements of the door the  
20 locking-bolt may contact the same, and thereby minimize any destructive wearing which might otherwise ensue. This wearing-strip is let into the inner surface of the sliding door, as shown in Figs. 2 and 7 of the  
25 drawings, so as to have one or more locking-recesses, into which the locking end of the locking-bolt may pass to automatically lock and hold said door in its closed and open positions. It will be observed that the sliding  
30 door is provided with upper and lower recesses, into which the ends of the locking-strip are turned, as shown in Fig. 2. The upper recess is provided with an inclined or beveled lower face, while the lower recess is provided with a squared or horizontal upper  
35 face. It will be observed also that the bolt *k* is provided with a horizontal upper face and a beveled end face. It will thus be seen that when the door is in its lowered position and

the bolt in engagement with the upper recess 40 the beveled end of the bolt will come in contact with the beveled face of the recess as the door is raised, and the bolt will thus be automatically forced back, so as to permit the raising of the door. When, however, the  
45 door is in its uppermost or closed position, the squared face of the lower recess will be in contact with the horizontal face of the bolt, and it will be impossible to move the door without retracting the bolt from the inside of  
50 the car. The upper part of the cross-sill is also preferably provided with a metallic wearing-plate *q*, so as to minimize the danger of wear during the loading or unloading of freight through this opening. An inclined  
55 hood *r* is also provided and secured to the ends of the car above the opening *c*, so as to shed water and moisture and minimize what otherwise might be the deleterious action  
60 thereof.

I claim—

A car provided with an opening, guides at the sides of the opening, a door movable vertically in the guides and having upper and lower recesses on its inner face, the upper recess having a beveled lower face and the  
65 lower recess having a horizontal upper face a wearing-strip secured to the inner face of the door and bent so as to enter the recesses, and a spring-pressed bolt mounted in the car adjacent the opening and adapted to enter  
70 either recess, said bolt having a beveled end face and a horizontal upper face.

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