

(No Model.)

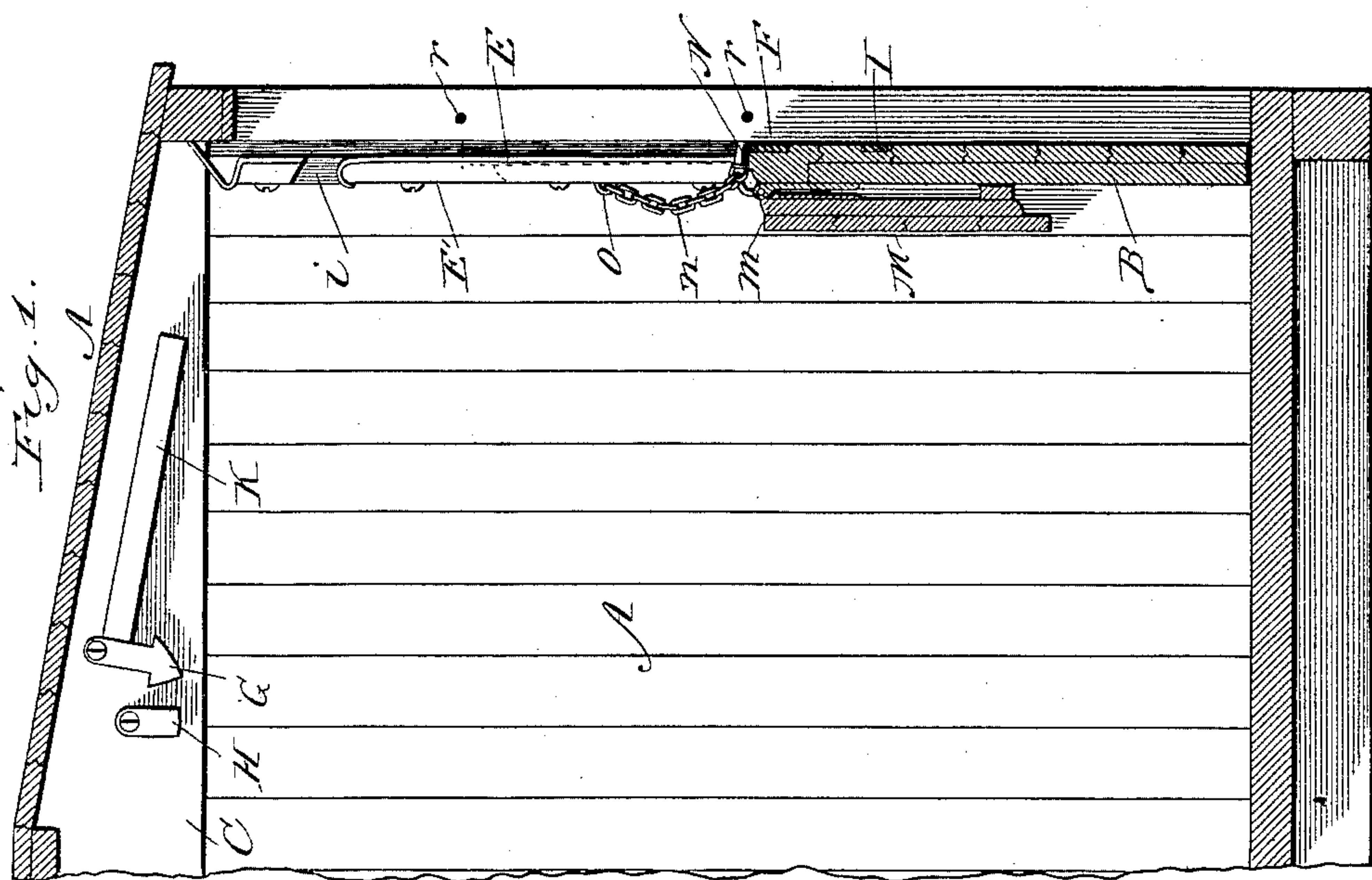
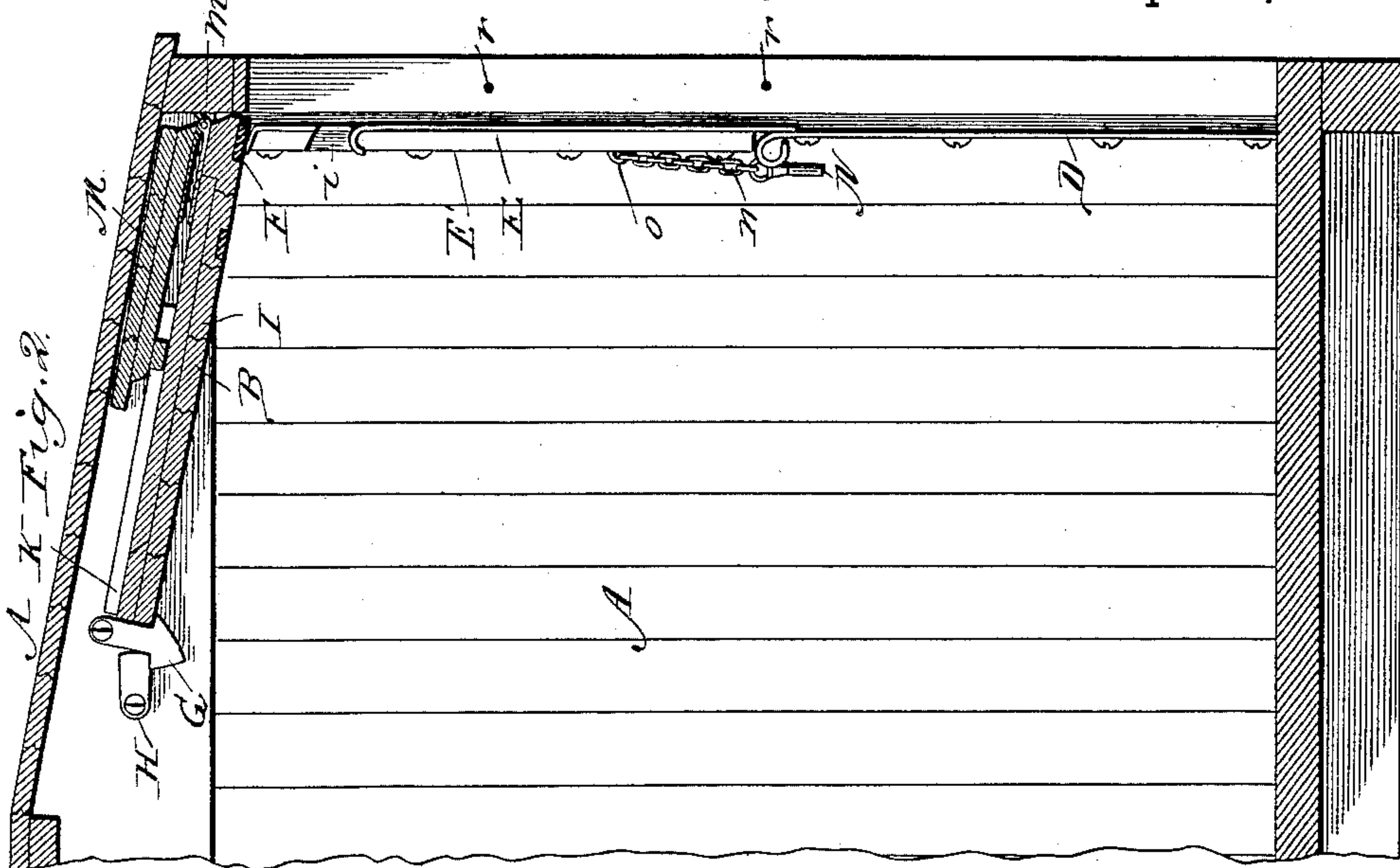
2 Sheets—Sheet 1.

N. P. ROGERS.

CAR DOOR.

No. 348,694.

Patented Sept. 7, 1886.



Witnesses.

Anton Schöninger.
Farris W. Huchl.

Inventor.

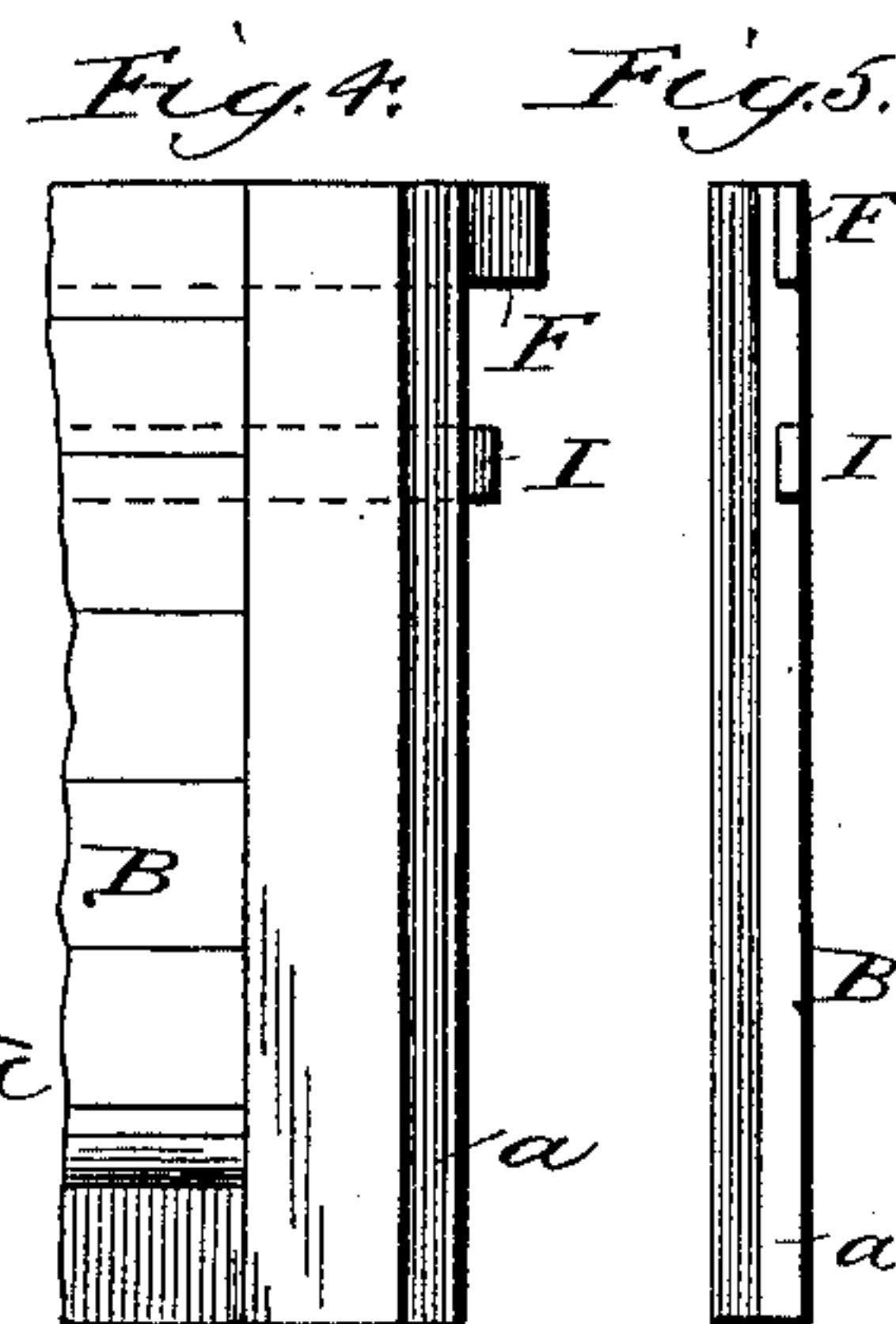
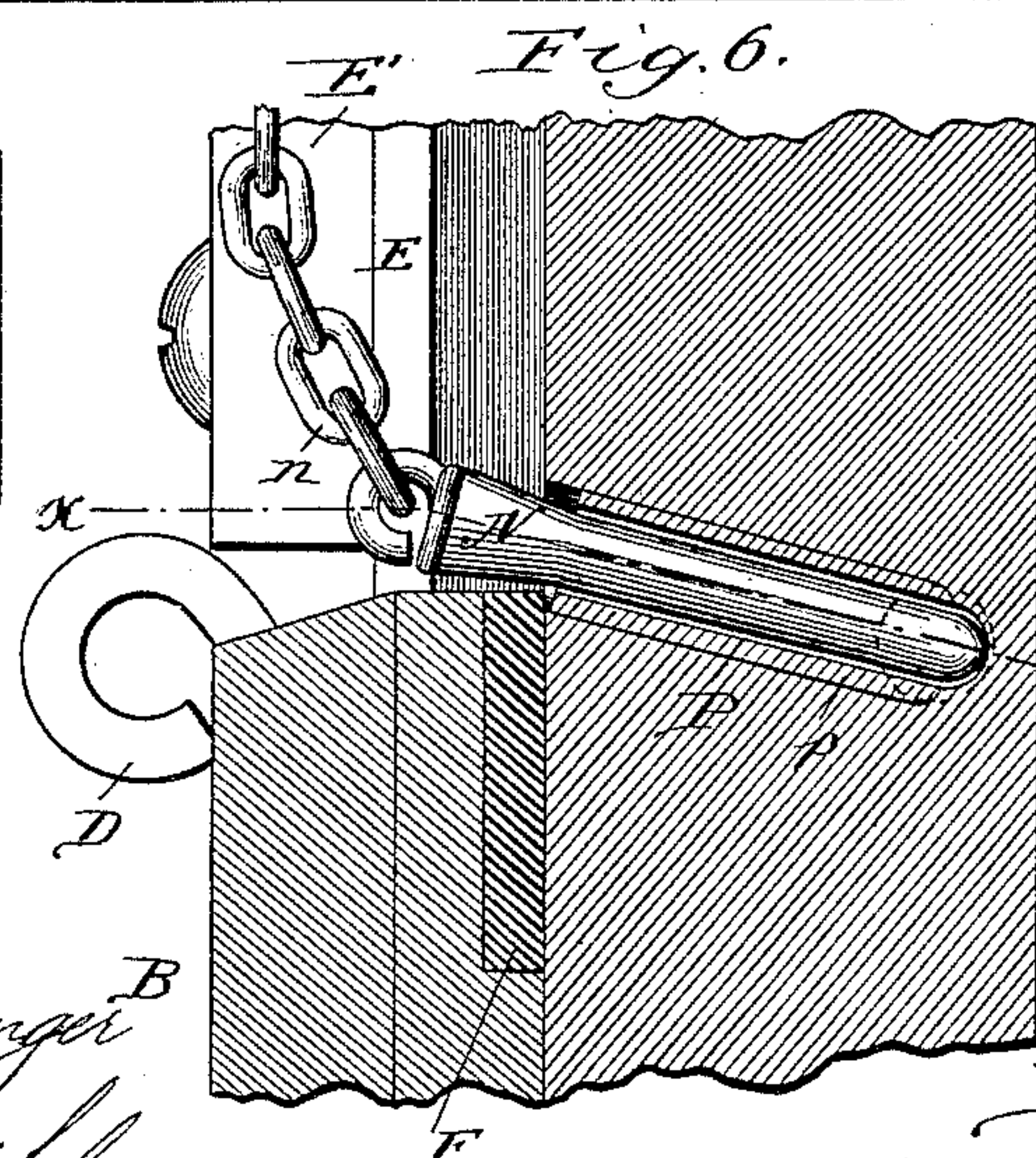
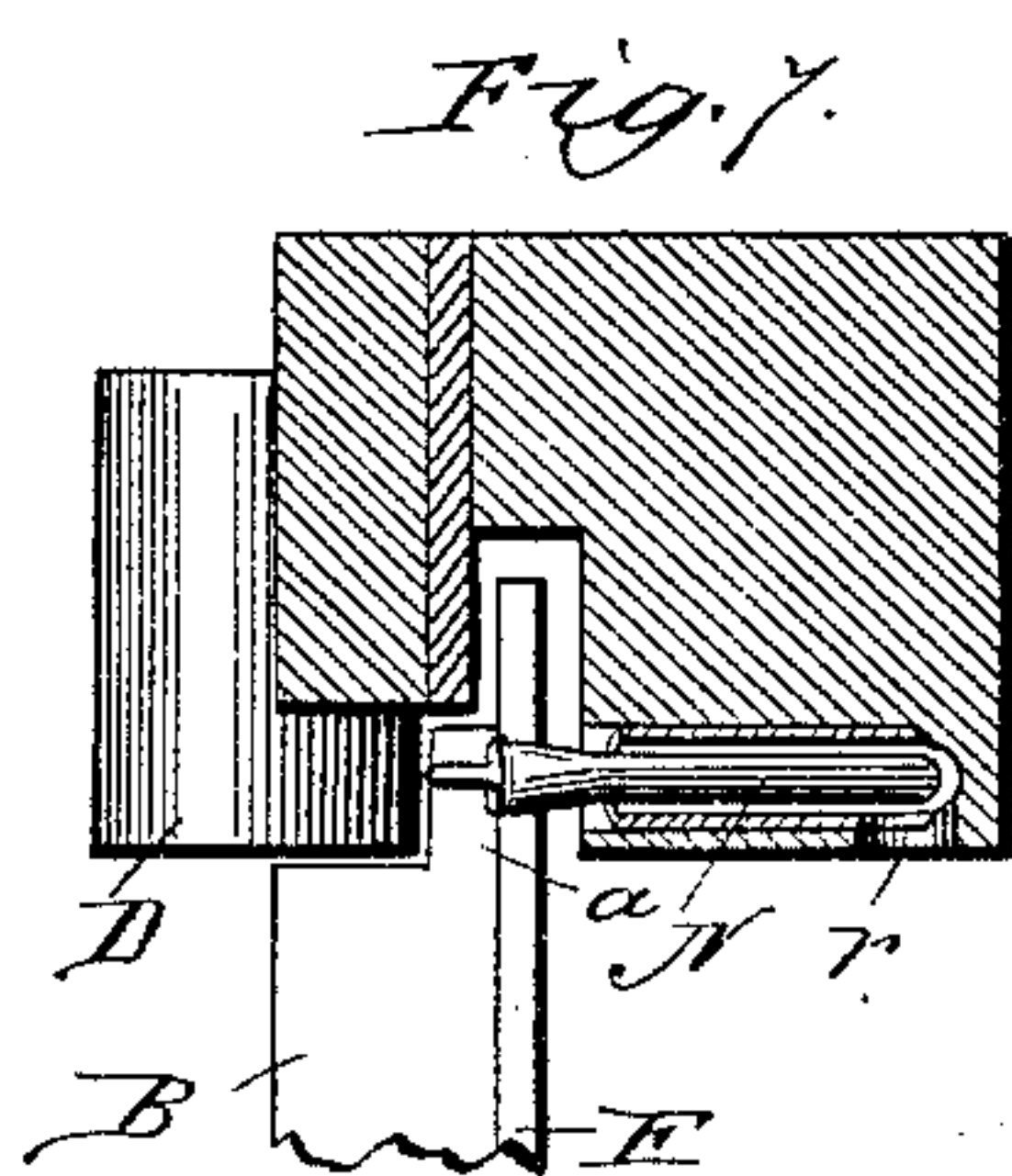
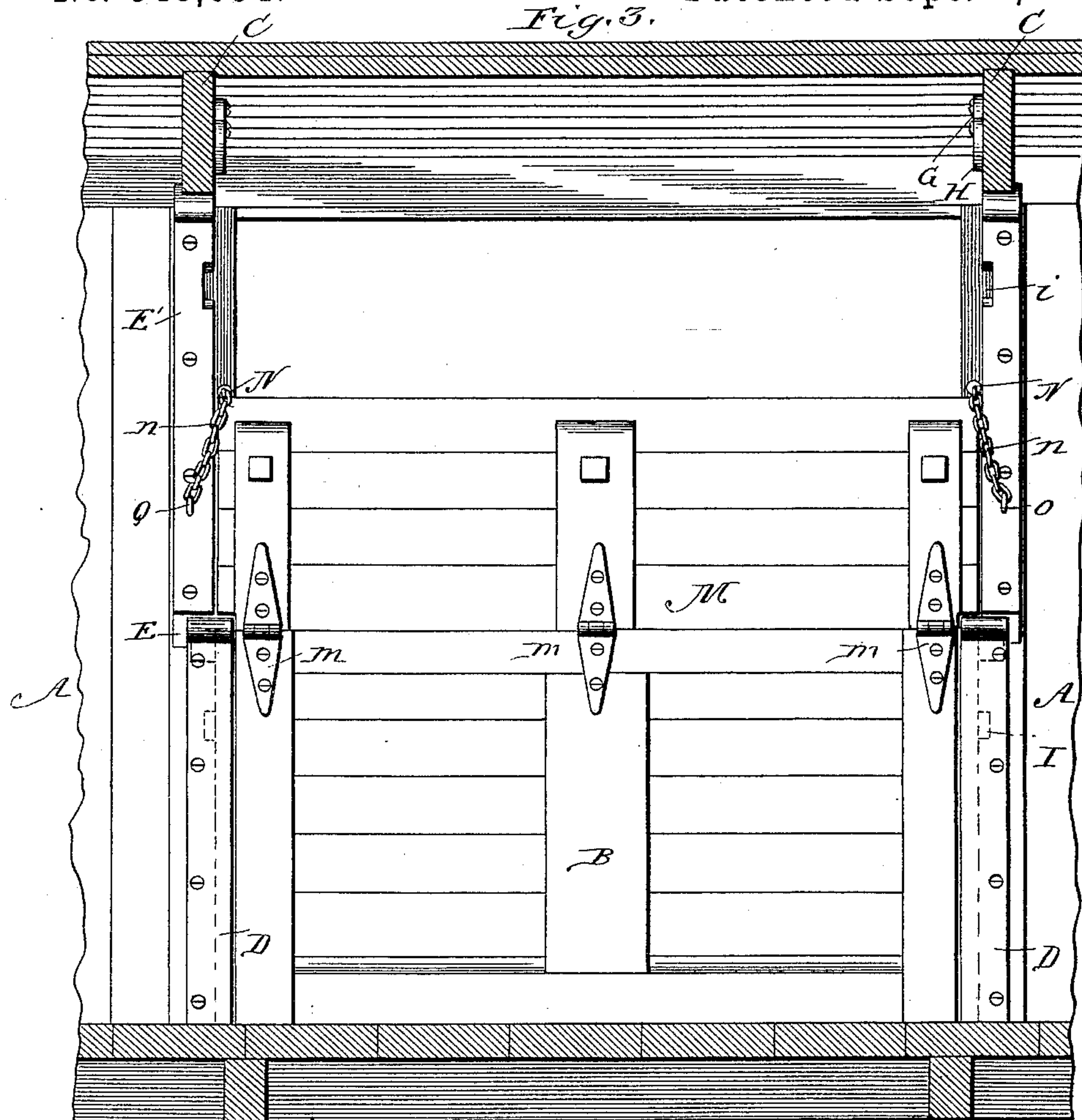
Nathaniel P. Rogers
By Wm C Lotz
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UNITED STATES PATENT OFFICE.

NATHANIEL P. ROGERS, OF MICHIGAN CITY, INDIANA, ASSIGNOR TO THE
EXCELSIOR GRAIN DOOR COMPANY.

CAR-DOOR.

SPECIFICATION forming part of Letters Patent No. 348,694, dated September 7, 1886.

Application filed March 4, 1886. Serial No. 193,937. (No model.)

To all whom it may concern:

Be it known that I, NATHANIEL P. ROGERS, a citizen of the United States of America, residing at Michigan City, in the county of La Porte and State of Indiana, have invented certain new and useful Improvements in Car-Doors, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention is primarily designed to be used in cars for the transportation of grain, and more particularly it relates to certain improvements on the car-door described in Letters Patent of the United States No. 335,169, issued to H. C. Williamson and F. Pries on February 2, 1886, it consisting of the novel devices and combinations of devices hereinafter described and specifically claimed.

In the accompanying drawings, Figure 1 represents a transverse vertical section of a car, showing the door down; Fig. 2, a similar section showing the door suspended under the roof of the car; Fig. 3, a sectional rear elevation of the car-door as applied; Figs. 4 and 5, side and edge views of the same; and Figs. 6 and 7, transverse vertical section and sectional plan of the door and post, showing my improved locking device.

Corresponding letters in the several figures of the drawings designate like parts.

A denotes the car-body; C, the roof-supporting cross-beams; D, the lower guide-bars bent rounding on their upper ends to insure the downwardly-sliding door or gate entering the space formed by said guide-strips; E, the upper guide-bars bent outwardly and then inwardly at their upper ends for forming pivot-loops; E', wooden strips for protecting and reinforcing the guide-bars E; B, the door, having guide projection *a* to engage between the posts and guide-bars D, and also having cross-bar F, the protruding ends of which entering between the posts and guide-bars E and forming the pivots in the upper bent ends of these guide-bars.

G are the catches and H the locks for suspending the door under the roof.

All the parts so far pointed out are similarly constructed and operate in the same manner as described in the Williamson and Pries patent, heretofore referred to. By prac-

tice, however, it was found that when the door B was released from its catches G to swing by its gravity toward and against the door-posts, and then to follow its vertical course, its dash- ing against such door-posts caused it to recoil, while at the same time dropping, the door assumed an angular position sufficient to prevent its lower end from entering the guideways between bars D and the door-posts, but to cause its striking the curved heads of bars D exteriorly, in consequence of which the bar F was exposed to a torsional strain destructive to it as well as to guide-bars E. For overcoming these difficulties heretofore experienced, I secure against the exterior face of the door B, on line and parallel with and a short distance below, cross-bar F and auxiliary bar I, the ends of which protrude beyond the edges of door B about one-half the distance of the protruding ends of bar F, and at a corresponding distance below the upper outward-bent loop portion of bar, E, I cut a notch, *i*, into the edge of each strip E', and also cut guide-bar E in a manner to form a corresponding notch with the piece thus cut bent over the lower rounded shoulder of the notch in strip E'. These notches *i* are to provide only sufficient room for the protruding ends of bar I to pass and enter the guideway behind bar E, and will form supporting-shoulders for the door as long as it has not assumed a vertical position, and while thus supported by the ends of bar I resting in notches *i* a slight pressure from the operator's hand will suffice to set the door straight and cause it to slide downward in its guideways. The distance between the under edges of bars F and I should be a trifle more than between the shouldering-faces of the pivot-loops of bars E and notches *i*, for the purpose of obviating all possibilities of bar F being exposed to torsional strains, because then such bar can enter the guideway only while in a vertical position, and while bar I is also in such guideway and assists to hold this door in line with its guide-bars while moving.

My second improvement consists in supplemental door M, secured by hinges *m* to the upper edge of door B in a manner that such door M will fold inwardly against such door B, and when turned up its side ends will butt against

the door-posts between bars E, and will thereby increase the height of the door, as is desirable for light grain requiring more space with the same weight. For opening door B the door M is first folded down, when with elevating such door and suspending it under the roof of the car the door M will occupy the space between door B and the roof, where it is entirely out of sight and requires no extra holding devices. I have shown in the drawings a fastening for locking the grain-door in its down position, which consists of a pin, N, having a conical head, and an eye to its head for suspending it by a chain, n, to a staple, o, driven into the door-post of the car. This pin N is inserted into a socket, P, bored in each door-post, one just above the door B when down and another just above the door M when upwardly extended. Each such socket is bored to be on a downward inclination for the purpose that pin N, after being inserted therein, will be held by its gravity from working out. The socket P is bushed by driving therein a piece of gas-pipe, p, which the pin will enter, and which will obviate the wearing of such socket. A hole, r, bored in each post rectangular to socket P, and communicating with the inward lower end thereof, will provide an outlet for grain and other substance that may drop into it, and without such outlet would be liable to fill up such socket.

I am aware that door-guides notched near the top and near the bottom have been used.

What I claim is—

1. The combination, with a vertically sliding and swinging door provided with a flat pivot rod or bar, of a notched guide-strip provided with an inward extension forming a shoulder and an auxiliary bar secured to the door, as set forth. 35 40

2. The combination, with door B, provided with cross-bars F and I, having protruding ends, of guide-bars E, having pivot-loops, notches i, and shoulders at the lower edges of said notches, as and for the purpose set forth. 45

3. The combination, with door B and cross-bars F and I, of guide-strips D E, the latter provided with notches i, and shoulders at the lower edges of said notches, as and for the purpose set forth. 50

4. The combination, with a vertically-moving car-door, of inclined sockets in the door-posts, of openings rectangular to and communicating with such sockets, and of pins adapted to be inserted into such sockets for locking the door in its down position, substantially as and for the purpose set forth. 55

In testimony whereof I affix my signature in presence of two witnesses.

NATHANIEL P. ROGERS.

Witnesses:

H. J. WILLITS,
CHAS. PORTER.