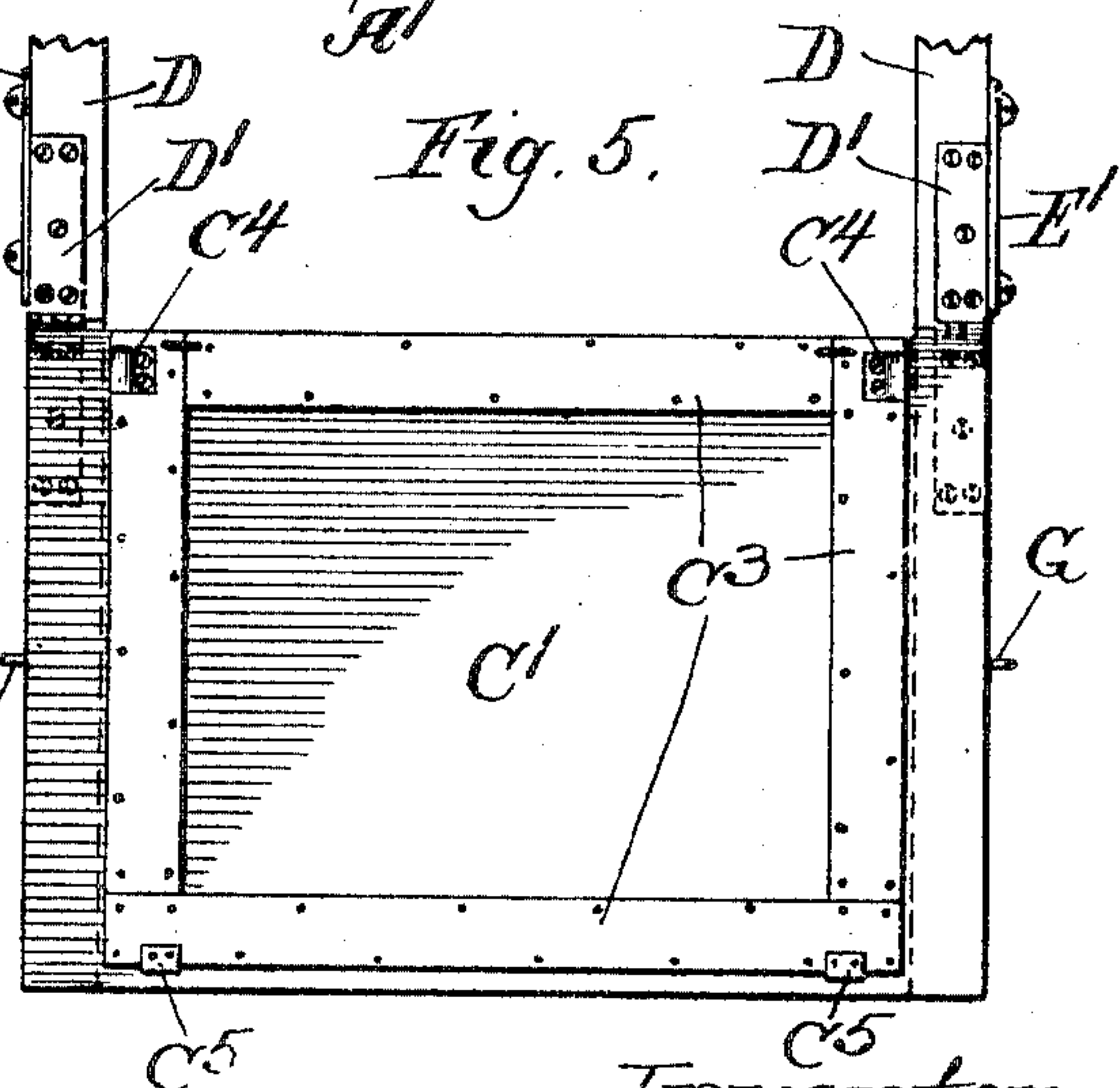
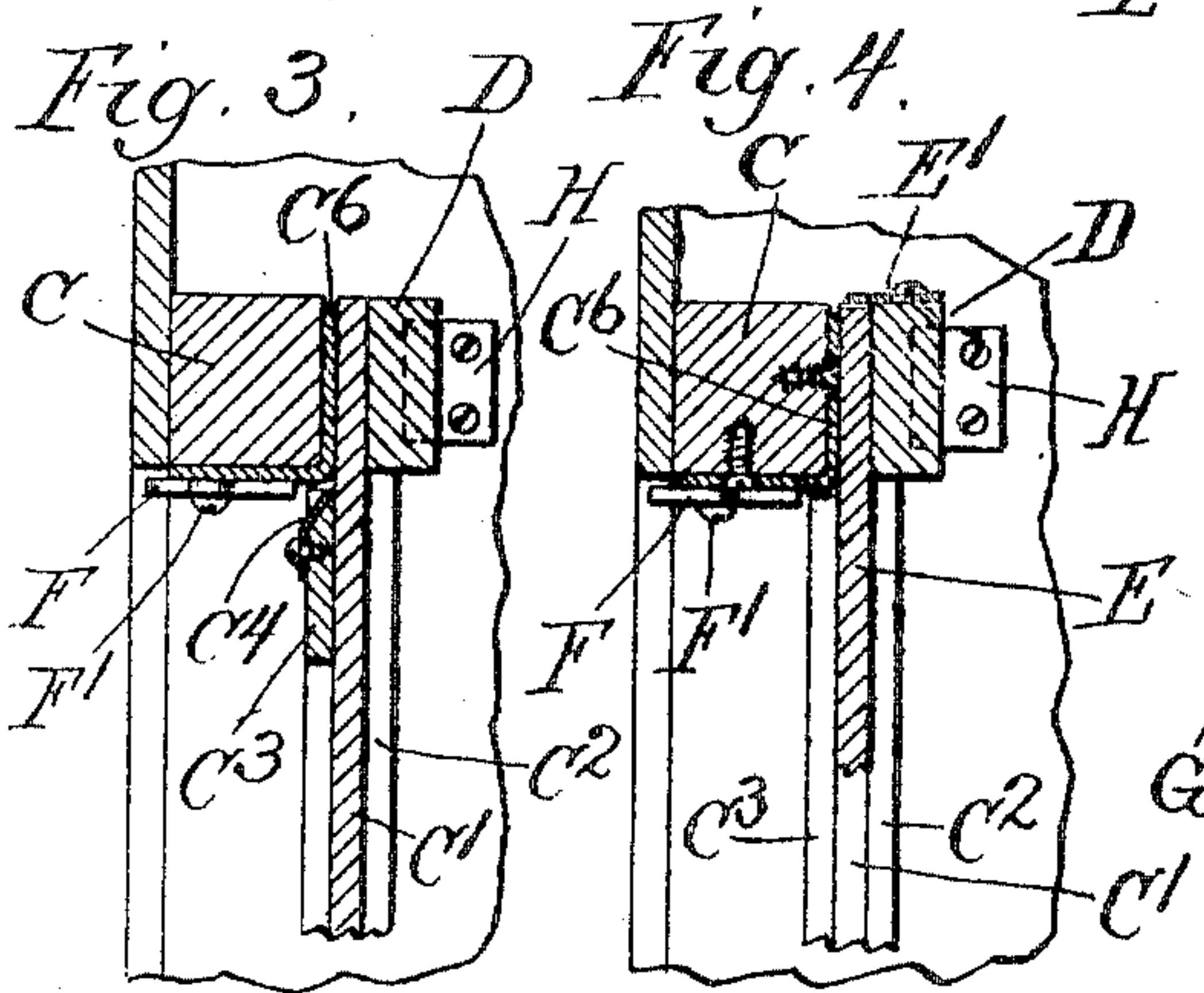
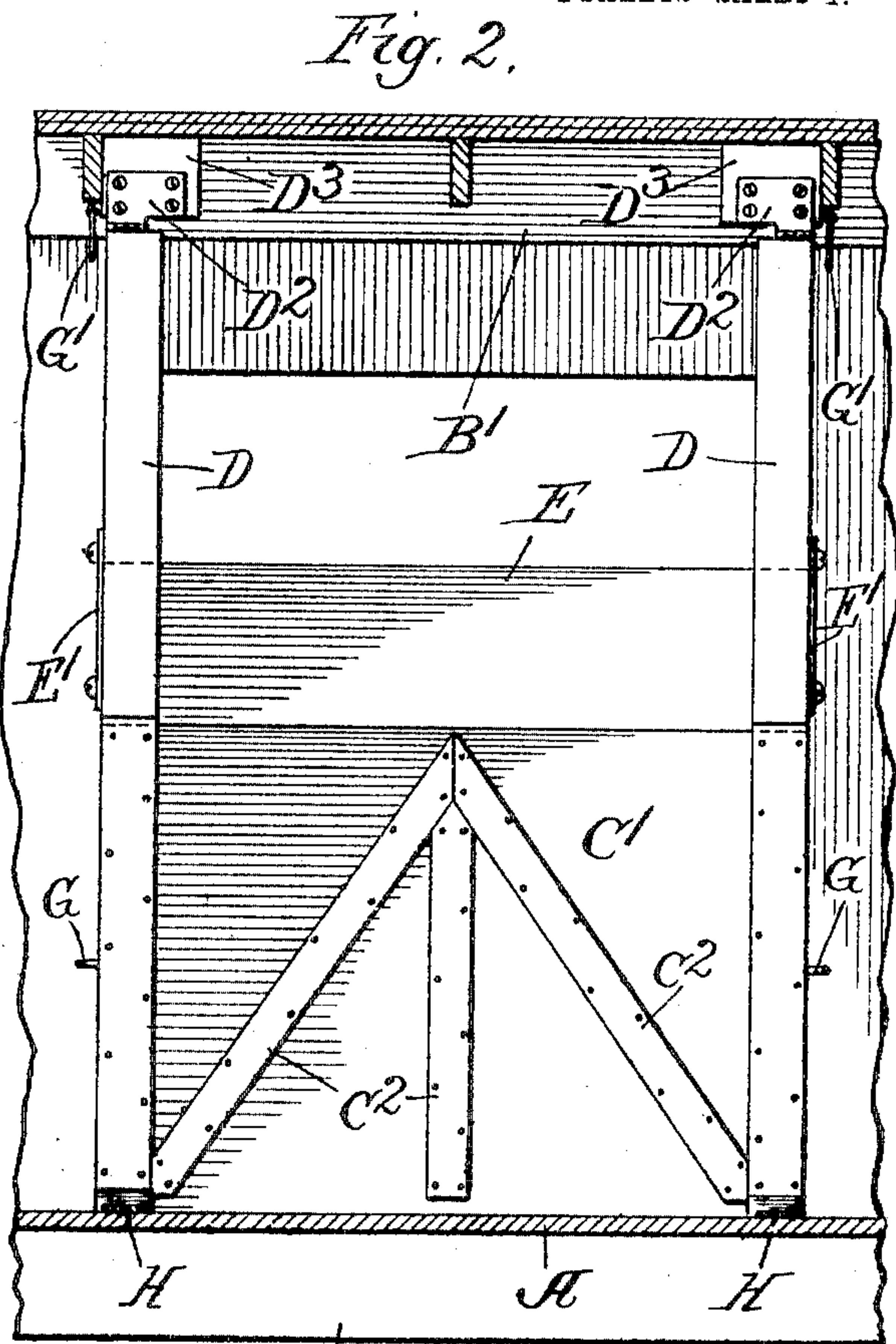
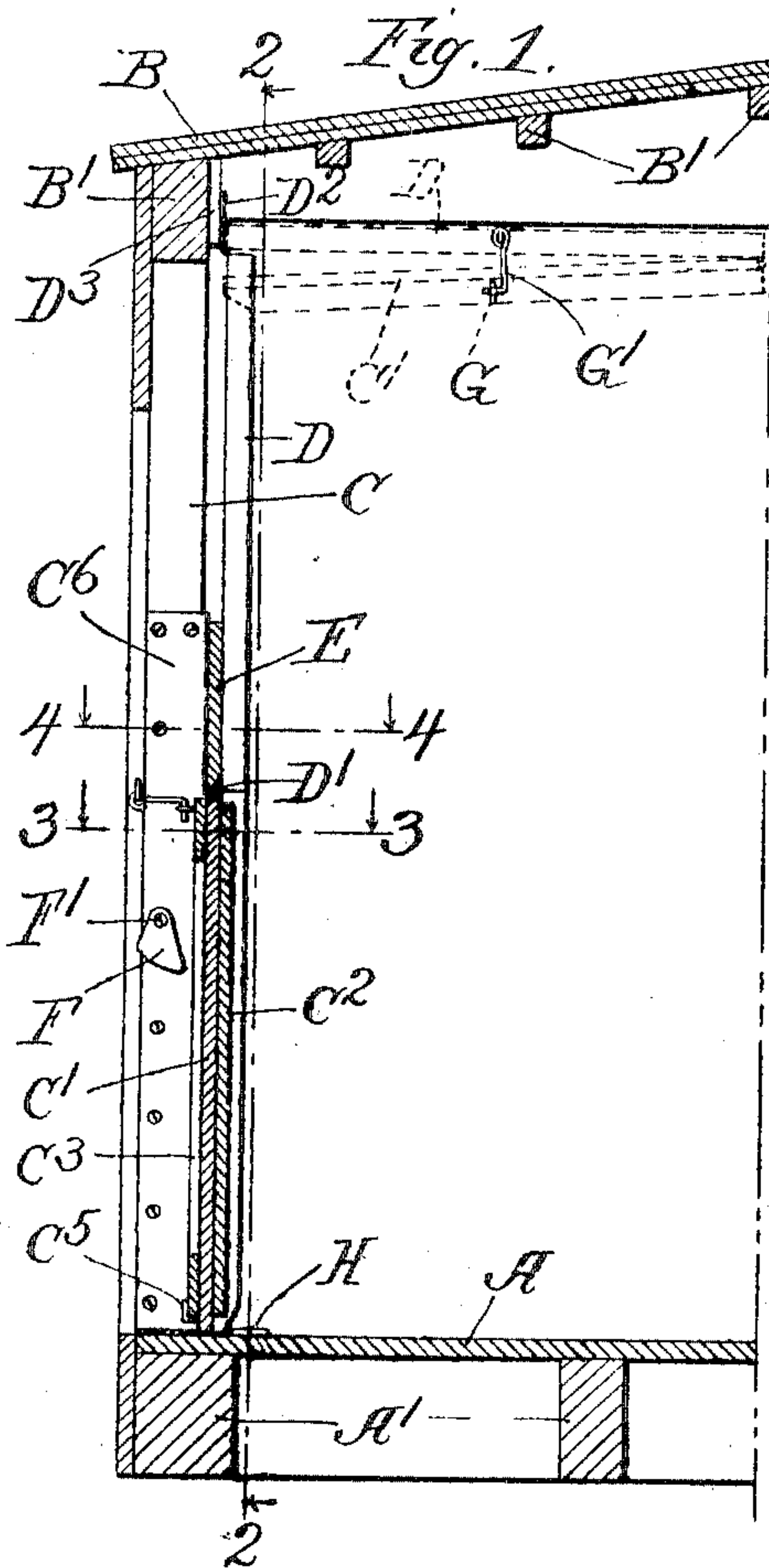


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DOOR.

APPLICATION FILED JAN. 23, 1905.

2 SHEETS—SHEET 1.



Witnesses.
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DOOR.

APPLICATION FILED JAN. 23, 1905.

2 SHEETS—SHEET 2.

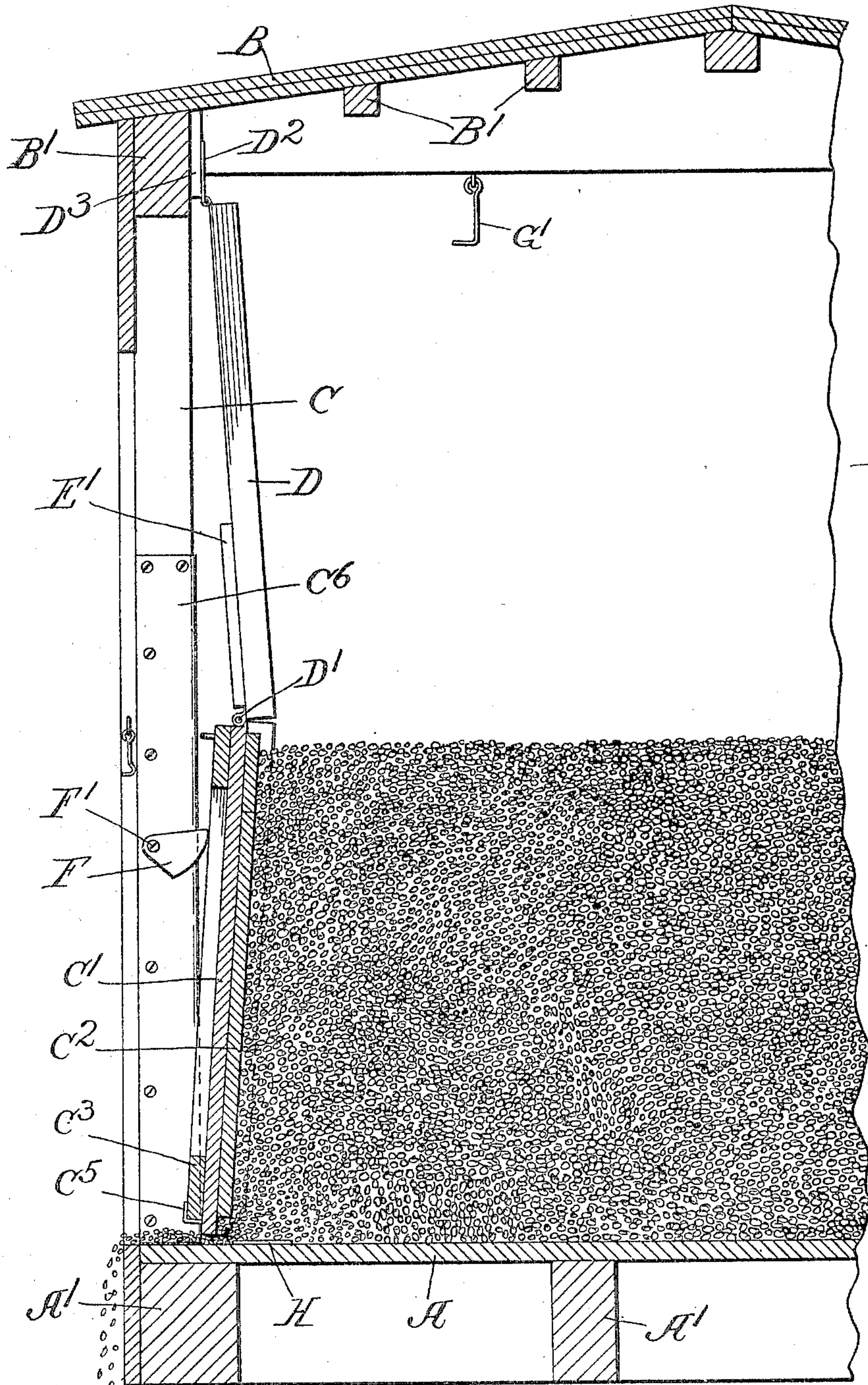


Fig. 6.

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UNITED STATES PATENT OFFICE.

JOHN F. GRAY, OF CHICAGO HEIGHTS, ILLINOIS.

DOOR.

No. 797,574.

Specification of Letters Patent.

Patented Aug. 22, 1905.

Application filed January 23, 1905. Serial No. 242,270.

To all whom it may concern:

Be it known that I, JOHN F. GRAY, a citizen of the United States, residing at Chicago Heights, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Doors, of which the following is a specification.

My invention relates to doors, and has for its object to provide new and improved constructions for devices of that class. The invention is shown and described as applied to freight-cars for carrying grain. It will be clear, however, that the device is equally well adapted for use in other connections, and therefore I do not limit myself to the use above mentioned.

The invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a vertical section through a portion of an ordinary box-car with my invention applied thereto; Fig. 2, a sectional view on line 2 2, Fig. 1; Fig. 3, a detail section on line 3 3, Fig. 1; Fig. 4, a like view on line 4 4, Fig. 1; Fig. 5, a detail of the door in elevation removed from its position, and Fig. 6 a vertical section showing the door partly opened.

Like letters of reference indicate like parts in all the drawings.

In the drawings, A represents the deck of a freight-car, resting upon the joists A' A'; B, the roof, resting upon the framework B', and C C the posts which form the uprights of the doorway. The car is of course provided with the usual sliding door, which, however, is not shown in the drawings.

When the car is used for carrying grain or such like material, it is necessary to have an inner door of some sort, and it has been common to use an ordinary slide movable in grooves in the door-frame. This is objectionable, inasmuch as it is hard to move in unloading for one cause or another and is often broken by careless handling. In my invention the door is composed of a lower solid part, which may be made of one thickness of wood C' and reinforced on the inside by the strips C² C² and on the outside by the rectangular framework C³. The upper part of the framework has the bent plates C⁴ C⁴, against which the instrument may rest when prying the door in. The lower edge of the latter is provided with the pieces of angle-iron C⁵ C⁵ to protect the woodwork of the door when it is pried up by a crow or the like. When my invention is used upon grain-cars, the solid

part of the door will extend up as high as the grain-line. The solid part C of the door is connected with two swinging supports D D, preferably of wood, by means of the hinges D' D', and these supports are hinged to the upper framework B' by means of the hinges D² D². Blocks D³ D³ must of course be interposed between the framework and the hinge, so as to compensate for the thickness of the door. In applying my invention to freight-cars I prefer to make my upper hinges L-shaped, as shown, and abut them against the rafter adjacent to each door-post.

In loading grain into the car it is advisable to have the doorway closed to a line somewhat above the grain-line. This may be done by placing a loose board E above the door C, and to this end I provide supports D D with the side plates E' E'. The door-posts C C are preferably protected by the angle-iron C⁶, which makes a firm seat for the door and also prevents nailing up the door or the loose parts from within. In order to hold the door open, I provide the cams F F, pivoted to the door-post at F' F'. The door is provided with the staples G G and by means of the hooks G' G' may be drawn up close to the roof when not in use. In order to keep the door in position when closed, I provide the decking A with the cleats H H.

I have thus described one form of device embodying my invention and have alluded to a particular use to which it may be put. It will be clear, however, that the door may be used in other connections than that mentioned—in fact, wherever like conditions are met with. The particular form and materials of my device are also susceptible of wide variation without departing from the spirit of my invention. I therefore do not wish to limit myself to the particular forms, devices, and construction above described, but desire that the drawings be taken as in a sense diagrammatic and illustrative of one form of construction of my device and one of its applications to use.

The use and operation of my invention are as follows: When the door is closed, the hinges D' D' stand at dead-centers and the door is held firmly in position against the posts by the weight of the material within. To open it, a crow or some such instrument is inserted between one of the bent iron plates C⁶ and the door-post and the door sprung in against the pressure of the grain. The cam-latch F will hold it in its position. The same

operation is then performed on the other side of the door, and by this means the door is raised somewhat from the decking of the car and the material therein will begin to run out. The weight of the material itself will continue to raise the door, or it may be pried up by a crowbar or otherwise. When not in use, the door may be hooked up, as is shown in the dotted lines in Fig. 1. In this way I get a very strong simple door, which is very easily opened from without and which cannot easily be nailed up or tampered with from within.

I claim—

1. A door adapted to be held closed by pressure of material within, comprising two sections hinged together so that the joint between them folds inwardly, in combination with a door-frame comprising a part against which the door-sections lie when closed and means at the outer face of one of such sections for flexing such hinged joint inwardly so as to allow the material to discharge.

2. In a door adapted to be held closed by material from within, the combination of a frame with a door lying along and against such frame on the inside thereof, such door comprising an upper hinged section, a lower section hinged to the upper section so that said door is adapted to be forced against the framework by the weight of the material and to be folded inwardly.

3. In a door adapted to be held closed by material from within, the combination of a frame with a door lying along and against such frame on the inside thereof, such door comprising an upper hinged section, a lower section hinged to the upper section so that said door is adapted to be forced against the framework by the weight of the material and to be folded inwardly, the hinges for the lower section being located on the part of the door lying against the framework.

4. In a door for freight-cars and the like, the combination of a frame with an upper section hinged thereto, a lower section hinged

to the upper section, such hinged parts standing at dead-centers and against the inside of such frame when the door is closed and adapted to be sprung inwardly by pressure from the outside, means located at the outer edge of such lower section for springing the door open and a device comprising a cam which follows the door and holds it in its open position against the pressure of material from within.

5. A grain-door for cars and the like comprising a framework, an upper door-section comprising two inwardly-swinging arms, a lower door-section hinged to the upper section so that the joint thereof folds inwardly, the hinges of such joint being in proximity to the outer edges of such section, and bearings for a crowbar or the like on such lower section in proximity to the door-frame.

6. A grain-door for cars and the like comprising a framework comprising two upright members, with an upper door-section composed of two inwardly-swinging arms, a lower door-section hinged to the upper section so that the joint thereof folds inwardly, such lower door-section overlapping the uprights of the door-frame, and the hinges of the joint thereof being on the overlapping part, and bearings for a crowbar or the like on the lower door-section, composed of plates of metal placed in proximity to the uprights of the framework.

7. A door adapted to be held closed by pressure of material within, comprising two sections hinged together so that the joint between them folds inwardly, in combination with a door-frame having a part against which the door-sections are held when closed, such door-sections adapted to fold inwardly to allow the material to discharge.

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