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PATENTED MAY 1, 1906.

G. WILLSON & A. E. & E. OSTBERG.

GRAIN CAR DOOR.

APPLICATION FILED FEB. 24, 1905.

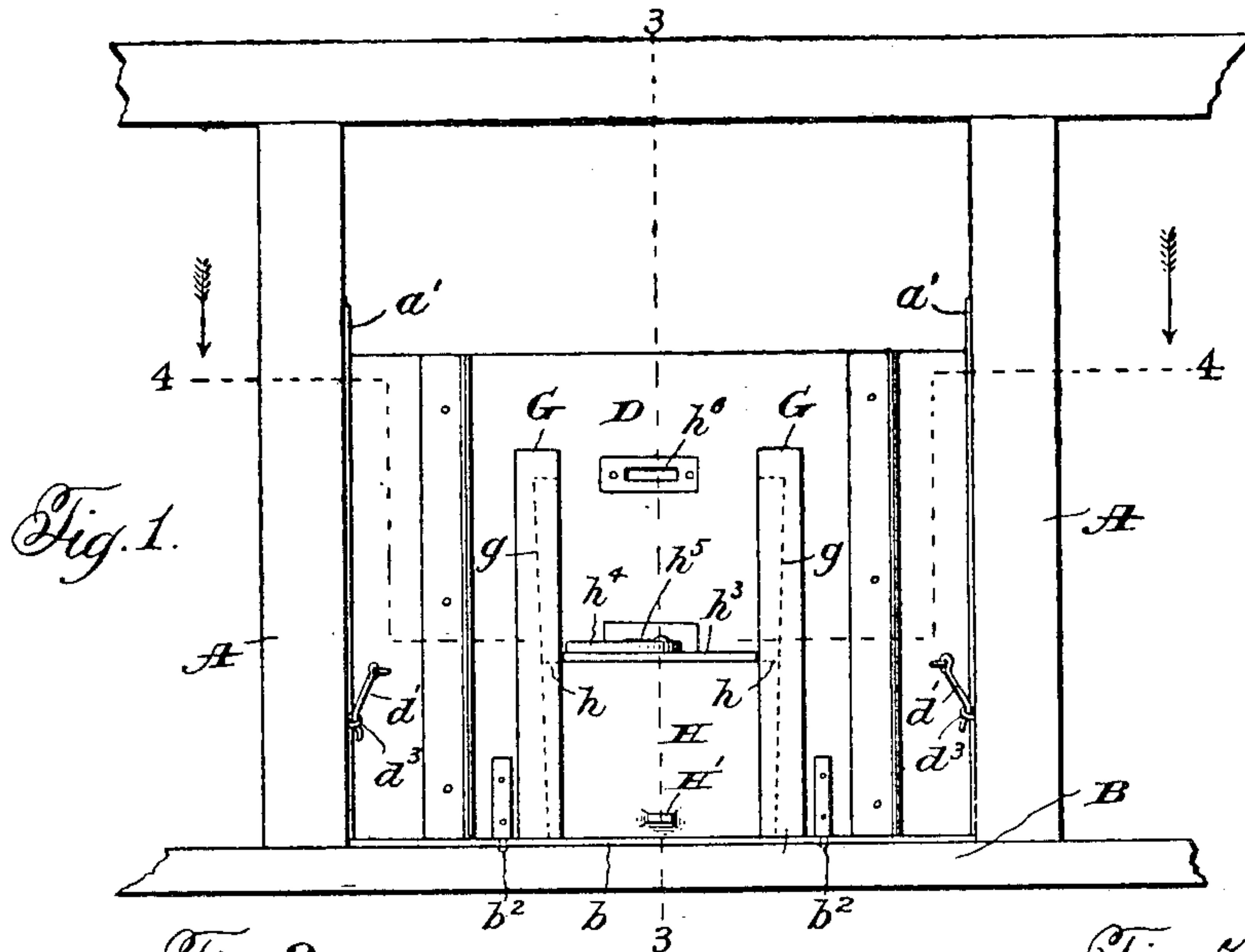


Fig. 1.

Fig. 2.

Fig. 3.

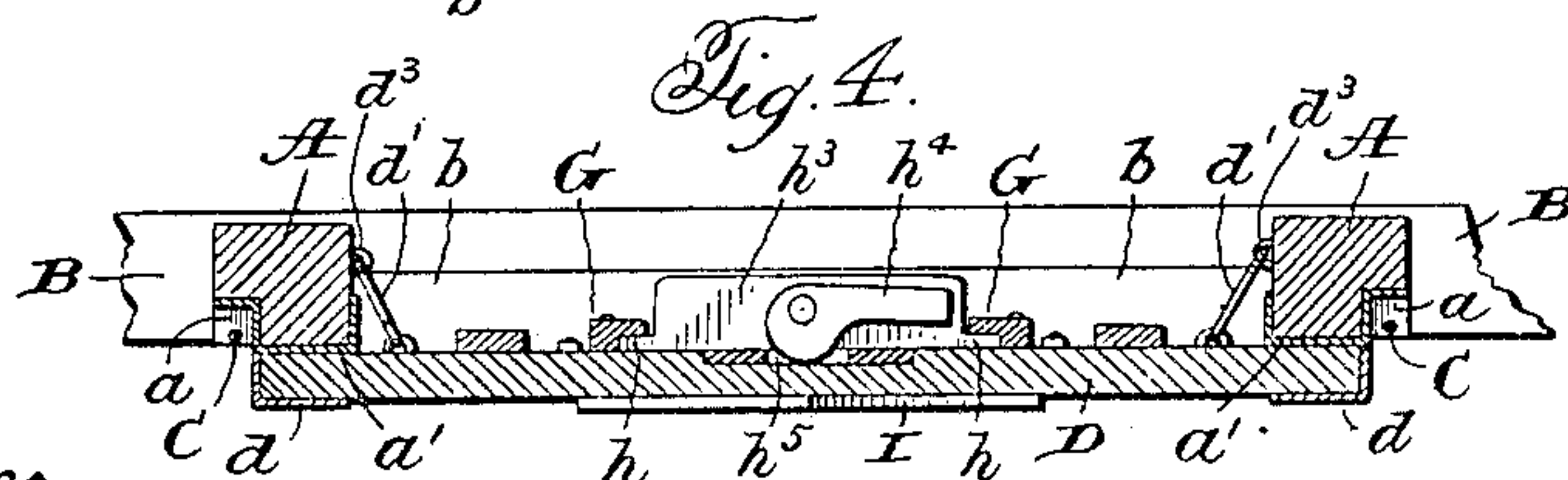
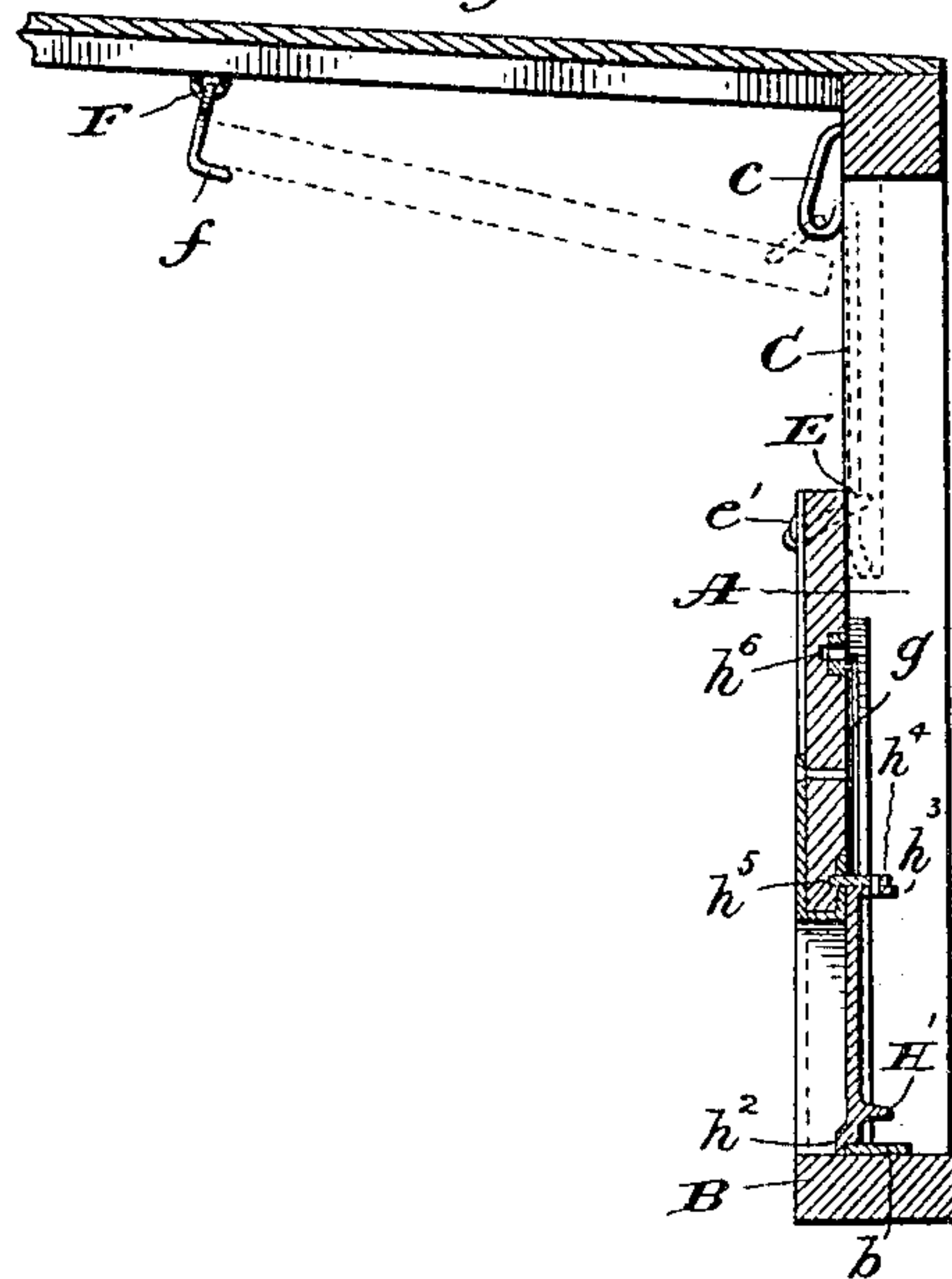
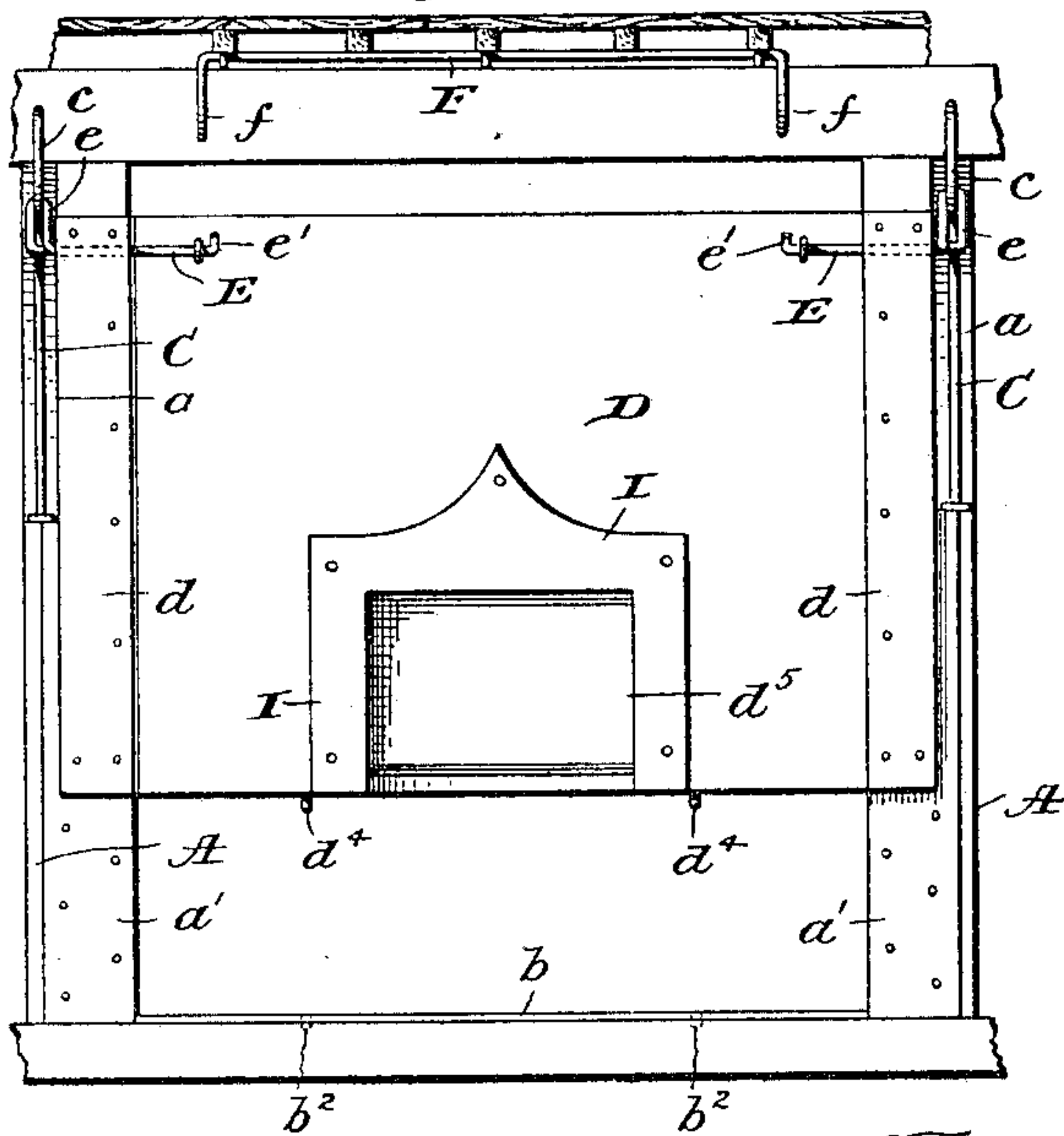


Fig. 4.

Witnesses
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UNITED STATES PATENT OFFICE.

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GRAIN-CAR DOOR.

No. 819,108.

Specification of Letters Patent.

Patented May 1, 1906.

Application filed February 24, 1905. Serial No. 247,082.

To all whom it may concern:

Be it known that we, GUSTAVE WILLSON, ALFRED E. OSTBERG, and ERICK OSTBERG, citizens of the United States, residing at 5 Genoa, in the county of Nance and State of Nebraska, have invented certain new and useful Improvements in Grain-Car Doors, of which the following is a specification, reference being had therein to the accompanying 10 drawings.

This invention relates to an improvement in grain-car doors, and more particularly to that type of grain-doors in which the door is first slid upwardly to a point adjacent the 15 car-roof and then swung inwardly and supported at its lower edge from the roof; and the object of the invention is the provision of a door of this type which can be quickly and easily raised and which when lowered can be 20 securely fastened between the door-posts of the car, so as to prevent any movement thereof.

A further object of the invention is the provision of a grain-door provided with a sliding 25 gate therein which will fit snugly and tightly when in its lower position and which can be readily raised and locked in an open position.

Other objects of the invention will be apparent from the detailed description herein 30 given and the claims appended hereto.

In the drawings, wherein a preferable embodiment of our invention is shown, and wherein like letters of reference refer to similar parts in the several views, Figure 1 is 35 a front elevation showing my improved car-door in its closed position between the door-posts of a car. Fig. 2 is a rear elevation showing the door in its raised position between the door-posts. Fig. 3 is a longitudinal 40 section on line 3 3 of Fig. 1, and Fig. 4 is a transverse section on line 4 4 of Fig. 1.

Referring now more particularly to the drawings, A designates the door-posts of a freight-car, and B the door-sill. The door- 45 posts are provided on their rear side adjacent their upper edges with grooved portions *a*, in which are secured the vertically-disposed guide-rods C, which are provided at their upper ends with the outwardly and downwardly 50 extending hook portions *c*. The door-posts A are provided on their rear faces and sides with protecting-plates *a'*. The door-sill B is also provided with a protecting-plate *b*. D

designates the car-door, which is provided at its ends with wear-plates *d*. Journaled to 55 the rear side of the door, adjacent the upper edge thereof, are a pair of rods E, the outer ends of which project beyond the edges of the door and terminate in eyes *e*, adapted to engage the guide-rods C and the inner ends of 60 which terminate in cranked portions *e'*, which serve to limit the pivotal movement of said rods. The door D is held in its lowermost position by means of hooks *d'*, secured on the front adjacent the edges thereof, which en- 65 gage eyes *d''*, secured to the inner sides of the door-posts A. The eyes *d''* are secured to the door-posts somewhat below the pivotal connection of the hooks, with which they cooperate, so that when said hooks are secured there- 70 in they extend downwardly. The hooks are provided with inwardly-curved points, so that when they are forced into engagement with the eyes *d''* the door D will be drawn tightly against the rear sides of the door- 75 posts A. Any tendency for the door to work upwardly will be resisted, owing to the downward inclination of the securing-hooks. The door D is prevented from moving laterally when in its lowered position by pins *d'''*, secured 80 adjacent the lower edge thereof, which are adapted to engage apertures *b''* in the door-sill B. Pivotaly secured to the roof of the car in rear of the door is a longitudinally-dis- 85 posed rod F, the ends of which are bent downwardly and terminate in hooks *f*, which are adapted to engage the lower edge of the door D adjacent the ends thereof when the same is moved to its raised position. By 90 providing two hooks, which engage the door adjacent the ends thereof, the door is prevented from warping or sagging, as is so often the case when a single hook is used to support the same in its elevated position.

The door D is provided adjacent its lower 95 edge with a gate-opening *d''*, through which the grain can be removed. Secured to the front of the door D adjacent the sides of the opening *d''* and extending for some distance above the top thereof are a pair of metal 100 strips G, which are provided along their adjacent edges with grooves *g*, which gradually decrease in depth from the top to the bottom of the strips.

H designates a metal gate provided at its 105 edges with flanges *h*, which are adapted to en-

gage the grooves in the strips G. The flanges h decrease gradually in width from the top to the bottom of the gate, and the gate is of such a width that when in its lowered position the inclined flanges thereof will tightly engage the grooves g , thereby preventing the escape of any grain through the opening d^5 . It will be apparent that owing to the inclination of the grooves g and the flanges h that the gate can be easily raised by the handle H' , which is secured thereto. The gate H is provided adjacent its lower edge with a flange h^2 , which is adapted when the gate is in its lowered position to lie behind the rear edge of the wear-plate b , secured to the door-sill B and form a tight joint. The upper edge of the gate H is provided with a laterally-extending flange h^3 , upon which is pivotally mounted a cam-lever h^4 , the cam portion of which is adapted to engage recesses h^5 and h^6 , formed in the front of the door D, accordingly as it is desired to lock the gate H in its raised or lowered position. The flange h^3 is of such a width that no part of the cam-lever h^4 will project beyond the edge thereof when in its locked position. There is therefore no danger of said lever becoming accidentally struck and unlocked.

The door D is provided on its rear side adjacent the gate-opening d^5 with a reinforce-plate I. The reinforce-plate I is formed with flanges which cover the edges of the gate-opening d^5 . This plate therefore not only serves as a brace for the door, but also prevents the door from becoming worn or broken by the insertion of shovels through the gate-opening.

To raise the door D to its elevated position, the hooks d' are first released from engagement with the eyes d^3 , and the gate is then raised upwardly until the eyes e engage the hooked portions c of the guide-rods C. The gate can then be swung about the rods E, and the lower edge of the same can be brought into engagement with the hooks f , secured to the roof of the car.

We do not desire to limit ourselves to the precise form and construction shown in the drawings, as it is obvious that many minor

changes might be made thereto without departing from the spirit of the invention.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. A sliding and swinging grain-door provided with an auxiliary gate-opening therein and with a plurality of recessed portions above said gate-opening, downwardly and inwardly tapering guides secured to said door adjacent the gate-opening and extending thereabove, a metallic gate provided with tapering edges adapted to engage said guides, the rear ends of said gate being arranged to snugly engage the door, said gate being provided with a laterally-extending flange formed integral therewith and extending transversely thereacross, and a cam-lever pivotally secured to said flange and adapted to engage with either of the recessed portions in the door to hold the gate in various positions of adjustment within the guides, the flange of the gate being of sufficient width so that no part of the lever will project beyond the edge thereof when in its closed position.

2. A grain-door provided with an auxiliary gate-opening therein, and with a plurality of recessed portions above said gate-opening, guides secured to said door adjacent the gate-opening and extending thereabove, a gate slidably secured in said guides, said gate being provided with a laterally-projecting flange extending transversely thereof, a cam-lever pivotally secured to said flange and adapted to engage with either of the recessed portions in the door to hold the gate in various positions of adjustment within the guides, the flange of said gate being of sufficient width so that no part of the lever will project beyond the edge thereof when in its closed position.

In testimony whereof we affix our signatures in presence of two witnesses.

GUSTAVE WILLSON.
ALFRED E. OSTBERG.
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Witnesses:

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