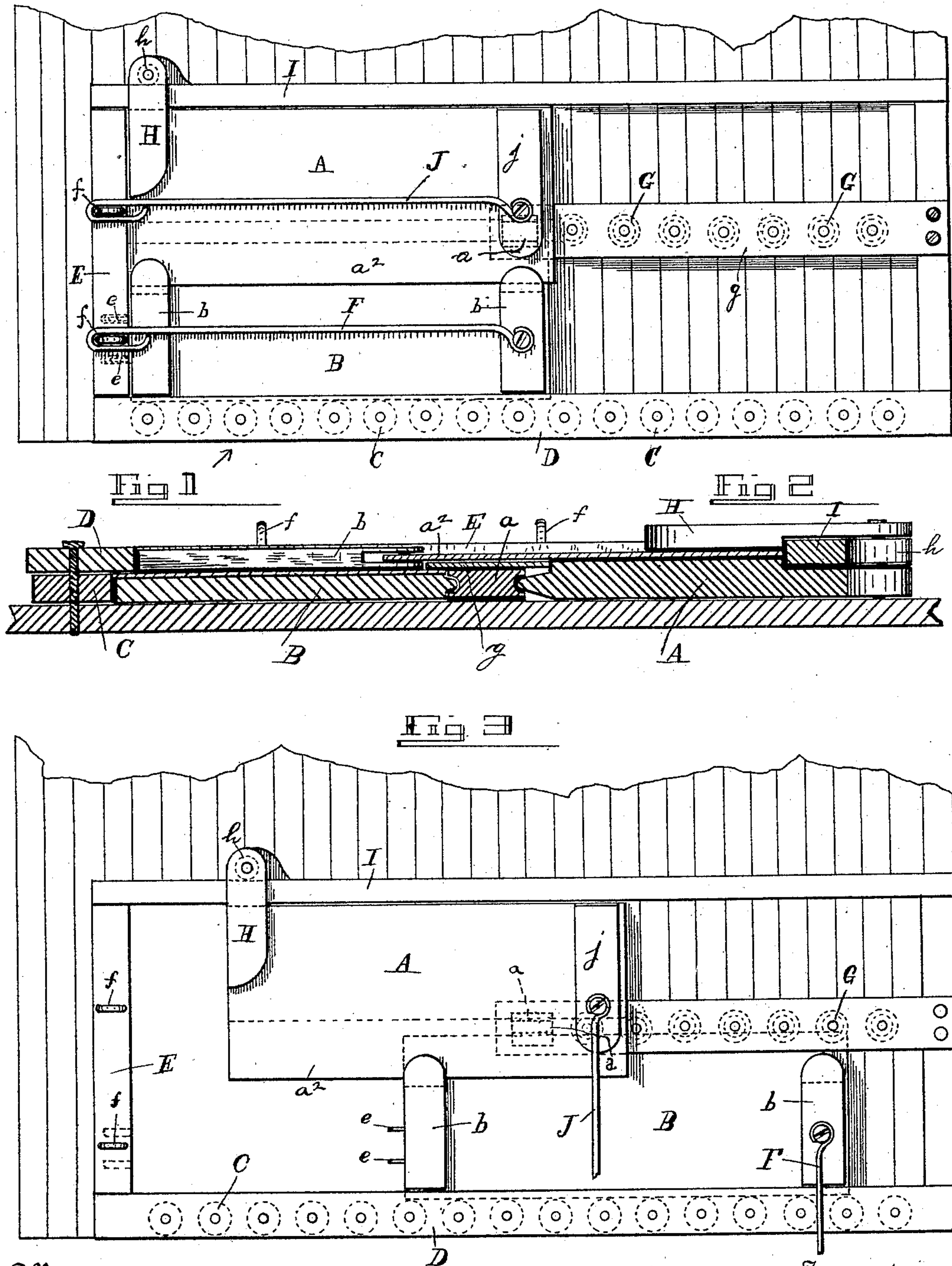


(No Model.)

D. W. HOWARD.
DOOR.

No. 412,921.

Patented Oct. 15, 1889.



Witnesses

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UNITED STATES PATENT OFFICE.

DANIEL W. HOWARD, OF CAIN, KANSAS.

DOOR.

SPECIFICATION forming part of Letters Patent No. 412,921, dated October 15, 1889.

Application filed December 10, 1888. Serial No. 293,085. (No model.)

To all whom it may concern:

Be it known that I, DANIEL W. HOWARD, of Cain, in the county of Rice and State of Kansas, have invented certain new and useful
5 Improvements in Car-Doors, Barn-Doors, &c., wherever doors are used; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the let-
10 ters of reference marked thereon, which form part of this specification, in which—

Figure 1 is a side elevation of my improved door for all purposes where doors are used. Fig. 2 is an enlarged vertical sectional view
15 through the door. Fig. 3 is a view showing the door partially opened.

This invention is an improvement in doors, and is designed especially for grain-cars; and to this end it consists in the construction and
20 arrangement of parts hereinafter set forth.

Referring to the drawings by letters, A and B represent the upper and lower portions of the door. Part B is lowermost and rests upon a horizontal series of rollers C C, and is
25 guided thereon by a horizontal track-rail D, which projects above the rollers. The opposite ends of door B are re-enforced by vertical pieces *b b*, and the front edge of the door is preferably provided with studs or dow-
30 els *e*, which enter corresponding sockets in the door-jamb rail E when part B is closed.

F is a rod pivotally connected to the rear upright of part B, and having its front end looped or slotted to engage a hasp *f* when the
35 door is closed and form the door-fastening. This rod is also useful in opening the door, as it is sufficiently long to enable a man to pull back the part B thereby, and, being connected to the rear end of part B, the latter is not
40 crowded or jammed, and consequently opens easier than if it were pushed back.

G G designate a series of rollers secured to the car horizontally above rollers C C, and which are preferably grooved peripherally.
45 These rollers are in position to receive the upper edge of part B as the latter is drawn back or opened and guide the same aright, and *g* is a plate or guide track-rail outside the rollers G G and projecting both above
50 and below the same to serve as a guide-rail

for the upper edge of part B and for the lower edge of part A.

a designates a doubly-grooved block secured in the line of rollers G next the door-opening, which block prevents binding of the doors. 55

Part A is constructed like part B, but preferably has its lower edge beveled or rounded to engage the rollers G G, upon which it is supported when opened and guided by rail *g*. The rollers C C extend below the door-open-
60 ing, but rollers G G extend only to this opening, and consequently I provide the front upper corner of part A with a hanger H, which embraces an ordinary guide track-rail I, and has a roller *h* running thereon. By means of hanger
65 H and rollers G G, which are intermediate between track-rail I and rollers C, part A is suspended entirely independent of part B and does not rest upon the latter at all. The
70 lower edge of part A is provided with a depending plate or flange *a*², which overlaps the upper edge of part B and causes a complete closing of the opening when both parts are closed. The vertical pieces on part B are slot-
75 ted to permit the passage of said flange and prevent accidental or forcible turning out-ward of the flange.

J is a rod connected to the rear piece *j* of part A and having its front end looped or slotted to engage a staple on the door-jamb
80 for fastening the door.

Both parts of the door are thus entirely independent of each other. Either may be opened without disturbing the other, or they can both be opened, if desired. The friction-rollers fa-
85 cilitate the opening of the parts.

Having described my invention, what I claim is—

1. The combination, in a car, of the lower and upper guide-rails and the intermediate short
90 guide-rail with a door composed of two independent parts, the lower part being supported and guided by the lower guide-rail and intermediate rail, and the upper part having a hanger engaging the upper guide-rail and
95 supported on the intermediate rail, and the securing devices for said parts, all constructed substantially as specified.

2. The combination of a car having a bot-
100 tom guide-rail and friction-rollers, and an in-

intermediate short guide-rail and friction-rollers, with the door composed of independent parts A and B, part B being supported on the lower friction-rollers and guided by the intermediate rollers, and part A being supported and guided on the intermediate rollers and by a hanger on its upper front end, all substantially as and for the purpose specified.

3. The combination of the lower horizontal series of rollers C C, the intermediate horizontal series of rollers G G, the grooved block *a*, and the upper guide track-rail with a door composed of two parts A and B, part A being

supported by the rollers G G and by a hanger engaging the guide track-rail, and part B being supported on rollers C and guided by rollers G, and the fastening devices for the door, all substantially as set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

DANIEL W. HOWARD.

Witnesses:

JOHN J. SHORT,

WILLIAM MCHUGH.