

J. H. WICKES.
Grain-Car Doors.

No. 224,314.

Patented Feb. 10, 1880.

Fig. 1.

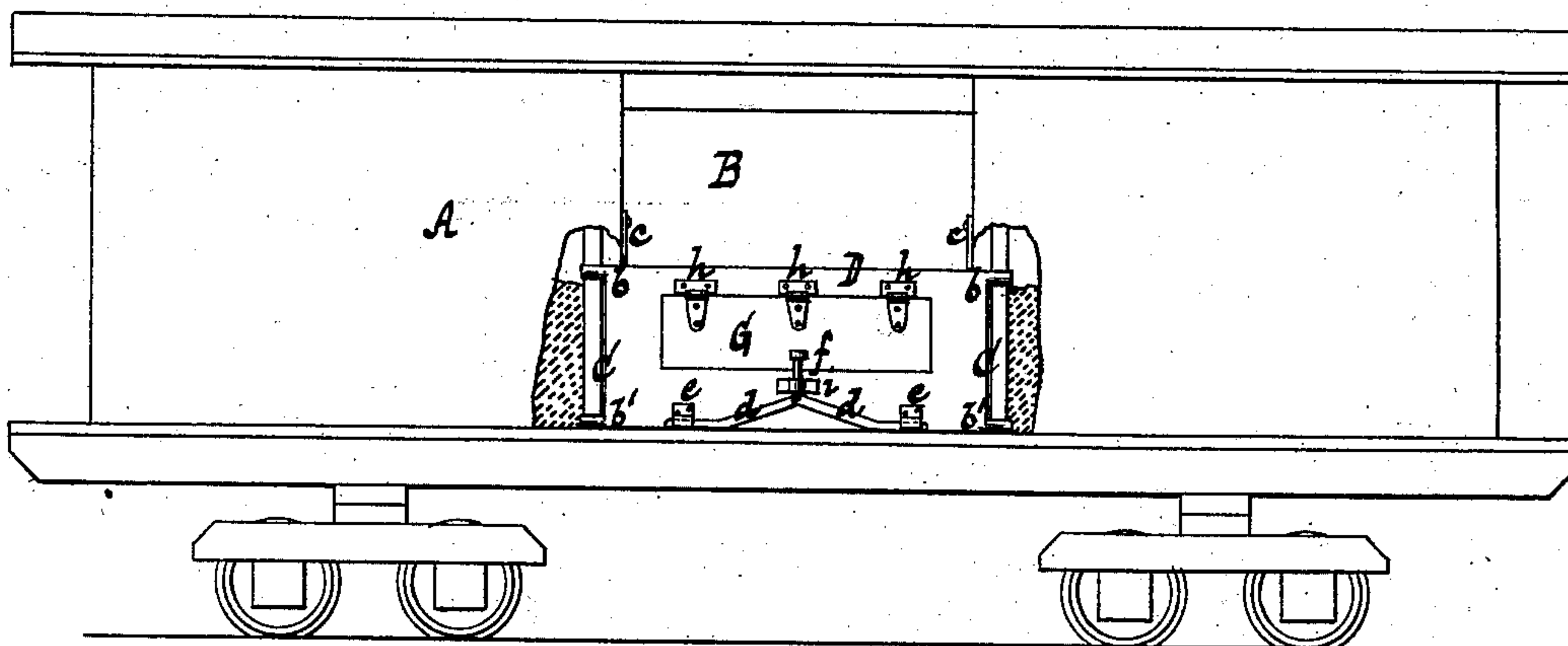


Fig. 2.

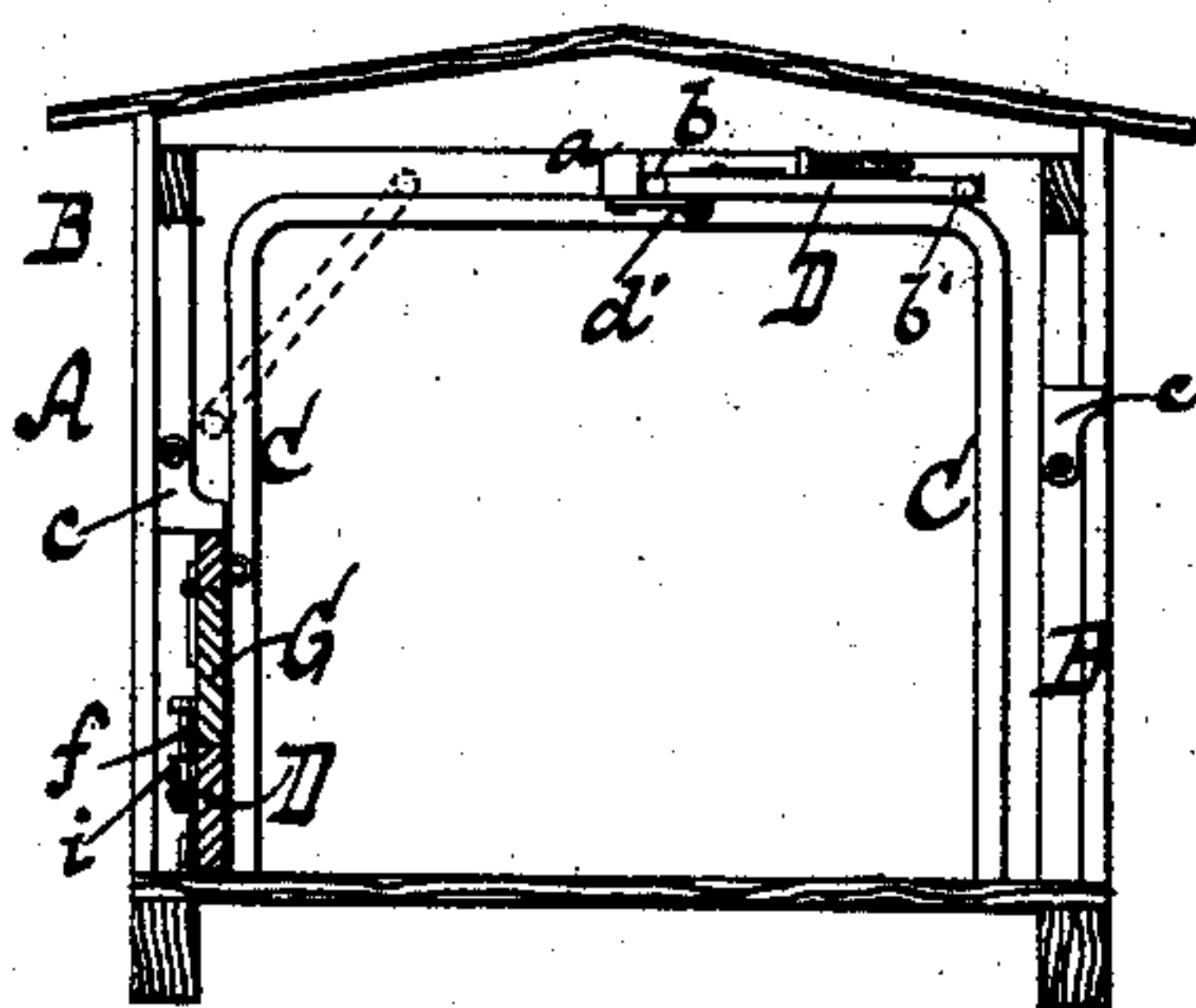


Fig. 3.



Witnesses.
Otto Stufeland
William Miller

Inventor.
James H. Wickes.
by Van Santvoord & Hauff
his attys

UNITED STATES PATENT OFFICE.

JAMES H. WICKES, OF NEW YORK, N. Y.

GRAIN-CAR DOOR.

SPECIFICATION forming part of Letters Patent No. 224,314, dated February 10, 1880.

Application filed December 10, 1879.

To all whom it may concern:

Be it known that I, JAMES H. WICKES, of the city, county, and State of New York, have invented a new and useful Improvement in Cars for Carrying Grain and other Articles, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 shows my car partly in side view and partly in section. Fig. 2 is a cross-section thereof. Fig. 3 is a horizontal section of one of the doors and concomitants.

Similar letters indicate corresponding parts.

My invention relates to cars for transporting grain and the like; and it consists in the combination, with a car, of guide-bars running in vertical and horizontal directions, a grain-door engaging such bars, and levers mounted upon the face of the door and arranged to bear upon the floor of the car for starting the door in an upward direction when it is to be opened, whereby the door may be readily opened without the use of a crow-bar or other similar instrument.

A hinged wicket, opening outward, is arranged in the grain-door, and the door-lifting mechanism forms also a mechanism for locking this wicket, the same being so organized that the wicket is set free when the door is started to be opened, the result of which is, that the grain escapes from the wicket-opening before the door is opened to its full extent.

In the drawings, the letter A designates the body of a railroad-car, having a doorway, B, in either or both of its sides, and C are bars situated on opposite sides of the doorway. These bars C rise from the floor of the car a short distance within its side or sides, and are bent near the top of the car in the direction of the central roof-timber, *a*, to which they are fastened, so that the bars run both in vertical and horizontal directions. Said bars C constitute guides for a grain-door, D, from the ends of which project two pairs of trunnions or gudgeons, *b b'*, one pair at the top and the other at the bottom of the door, bearing on the bars, so that the body of the door is between the bars. This grain-door D is rigid or solid, in contradistinction to being

made in jointed sections, to render the same flexible.

When the grain-door D is in a lower or closed position the trunnions *b b'* are between the vertical portions of the guide-bar C and the side of the car, while when the door is in an upper position the trunnions rest on the horizontal portions of such bars, and for the purpose of holding the door in its positions I make use of suitable fastenings, as a latch, *c*, and a hook and staple, *d'*.

When it is desired to move the door D to an upper position it is lifted till the top trunnions, *b*, are brought above the horizontal portions of the guide-bars C. The upper edge or part of the door is then thrown inward or toward the middle of the car, so as to bring the upper trunnions, *b*, on the horizontal portions of the guide-bars, as indicated in dotted outline in Fig. 2, when the door obtains a compound inward and upward motion till it reaches a horizontal or upper position.

The letter F designates stops, whereby the grain-door D is held against longitudinal movement or displacement. These stops consist in this example of lips, which are attached to the vertical or end edges of the door D, and are within the guide-bars C, as shown in Fig. 3, so that the bars co-operate with the stops.

When it is desired to open the grain-door in a grain-car it is customary to start or partially lift the door by means of a crow-bar forced under the same.

By this operation the door is obviously liable to be injured; and to overcome this disadvantage I make use of a mechanism adapted to start or lift the door when it is desired to open the same. This lifting mechanism consists of toggle-levers *d*, which are bent, and slide in guides *e*, attached to the grain-door at their outer ends, and which are arranged to rest on the floor of the car when the door is in a lower or closed position, so that if the toggle-levers are depressed at their inner ends, where they are pivotally connected, their outer ends swing upward, and, acting on the door, lift the same from the floor of the car.

To the inner ends of the toggle-levers *d* is connected a vertical rod, *f*, which slides in a guide, *i*, attached to the grain-door, so that by

forcing this rod downward, as by a hammer, the levers are depressed to lift or start the door.

The letter G designates a wicket, which is
 5 hung in a suitable opening in the grain-door D on hinges *h*, so arranged that the wicket opens in an outer direction. This wicket G is so arranged relatively to the rod *f*, connected to the toggle-levers *d*, that when this rod is
 10 forced upward, as by the descent and closing of the grain-door D, the same catches over the free edge of the wicket and acts as a bolt to keep the wicket shut. On the other hand, when the rod *f* is forced downward to start
 15 or lift the grain-door D, the wicket G is released, whereupon, by the outward pressure of the grain, the wicket is opened, so that the grain is permitted to escape before the door is opened completely, and a rapid discharge of
 20 the grain takes place. The toggle-levers *d* and slide-rod *f* thus form a compound door-lifting and wicket-locking mechanism.

I am aware that a car has been provided with guide-bars running in a vertical and
 25 horizontal direction and a grain-door having upper and lower trunnions moving against said bars, and I do not claim such construction, broadly.

I am also aware that it is old to use a flexi-

ble grain-door in connection with guide-rods 30 in grain-cars, and I do not claim such as my invention; but

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a car, of guide-bars 35 running in vertical and horizontal directions, a grain-door engaging such bars, and levers mounted upon the face of the door and arranged to bear upon the floor of the car, for starting the door in an upward direction when 40 it is to be opened, all adapted to operate substantially as described.

2. The combination, with a car, of guide-bars running in vertical and horizontal directions, a grain-door engaging such bars and embody- 45 ing a hinged wicket opening outward, and a compound door-lifting and wicket-locking mechanism, so organized that the wicket is set free when the door is started in an upward direction, the whole being adapted to operate 50 substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 8th day of December, 1879.

JAMES H. WICKES. [L. S.]

Witnesses:

W. HAUFF,

E. F. KASTENHUBER.