(No Model.)

J. H. WICKES.

Freight-Car Door.

No. 227,338. Patented May 4, 1880.

Fig. 1

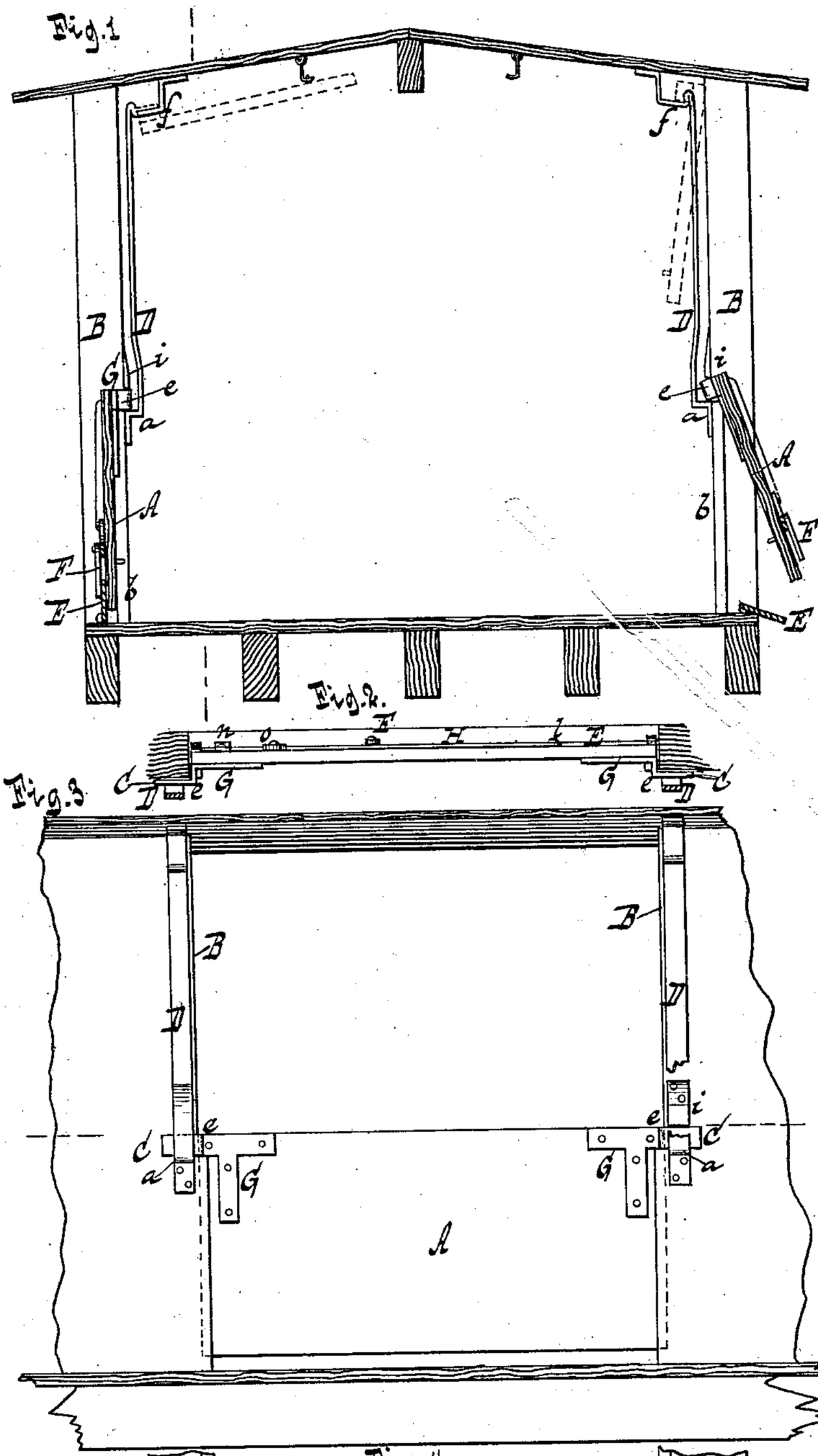


Fig. 2.

Fig. 3

Fig. 4.

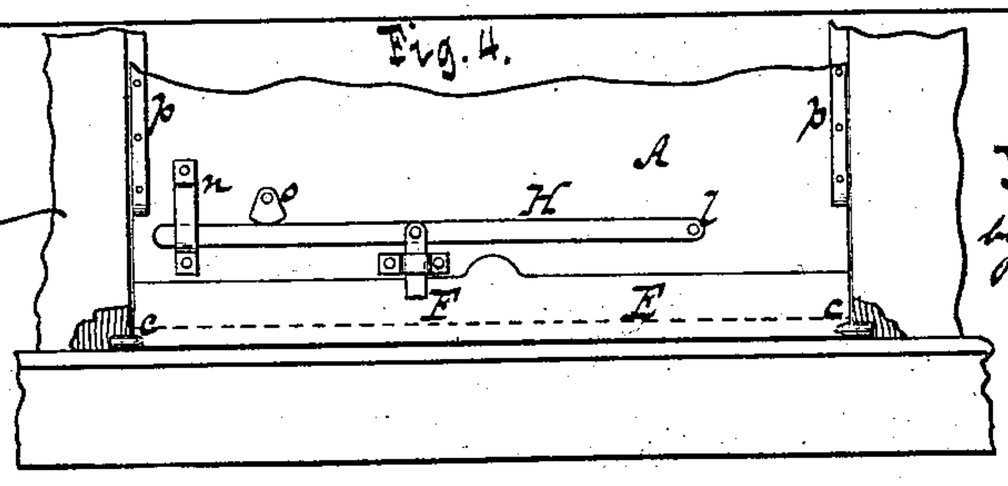
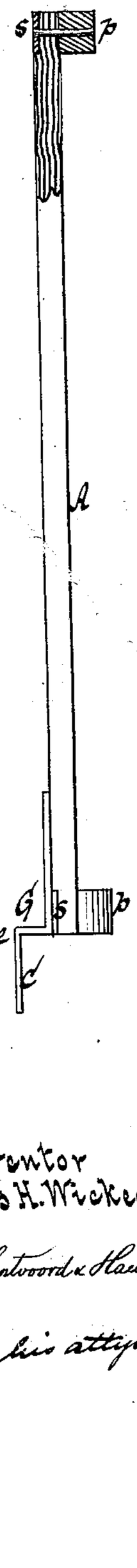


Fig. 5.



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UNITED STATES PATENT OFFICE.

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

FREIGHT-CAR DOOR.

SPECIFICATION forming part of Letters Patent No. 227,338, dated May 4, 1880.

Application filed March 24, 1880. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. WICKES, a citizen of the United States, residing at New York, in the county and State of New York, have invented new and useful Improvements in Freight-Car Doors, of which the following is a specification.

This invention is especially adapted to cars for transporting grain or other freight; and it consists in certain novel combinations of parts, hereinafter fully described, and pointed out in the claims.

This invention is illustrated in the accompanying drawings, in which Figure 1 represents a vertical cross-section of a car embodying the invention. Fig. 2 is a horizontal section thereof. Fig. 3 is a longitudinal vertical section, looking at the inside of the door. Fig. 4 shows the exterior of the door. Fig. 5 shows the door partly in top view and partly in section.

Similar letters indicate corresponding parts.

The letter A designates the door, and B the door-posts, between which the door is fitted. The door A is of the class which are to be lifted for the purpose of bringing the same to its open position, and, as hitherto arranged, considerable force is required to lift the door in case the car is loaded with grain or with other freight close up to the inside of the door, because the pressure thus brought to bear thereon has a tendency to retard its ascent.

One feature of my invention is to so arrange the door A that it is not only capable of being lifted, but also adapted to swing outward on gudgeons secured thereto at or near its upper edge, so that when the door is released it yields to the pressure of the grain or other freight and may be readily brought to an open position, another advantage thereby gained being that when the car is loaded with grain this material is permitted to escape as soon as the door is released and before it is lifted.

The letter C designates the gudgeons of the door, the same having their bearings on shoulders *a*, formed at the lower ends of guide-bars D, between which and the posts B the gudgeons move in the ascent or descent of the door.

Each of the posts B is provided with a jamb, *b*, on its lower part, acting as a stop to the inner movement of the door, and in its lower or closed position the door is held up against these jambs or stops by a locking mechanism, consisting, in this example, of a door-sill or threshold, E, which is hinged to the bottom of the car, as at *e*, and adapted to overlap the door on its lower edge, and of a latch, F, which is attached to the door in a suitable manner to engage the hinged door-sill and hold the same in its locked position.

The parts last described constitute an efficient locking mechanism, while the hinged door-sill has the additional advantage that it forms a close joint between the door and the bottom of the car.

The gudgeons C are integral with metallic corner-pieces G, attached to the door at its upper corners, these corner-pieces being formed with offsets *e*, extending toward the inside of the car, at the inner edge of which offsets the gudgeons are situated, so that the gudgeons are brought on the inside of the door-posts. By this arrangement of the gudgeons C they are brought in a different vertical plane from the body of the door—namely, toward the inside of the car—and hence the door has a tendency to swing to an inwardly-inclined position on the gudgeons. When the door is lifted to the top of the car the gudgeons C are received in bearings *f*, formed at the upper ends of the guide-bars D, so that the door is thereby retained in its upper position, and it is at this point that the door swings to an inwardly-inclined position. The next step, after lifting the door to bring the gudgeons C into the bearings *f*, is to swing the door inward and upward, as indicated in Fig. 1, and to fasten the same to the top of the car by hooks and staples or other equivalent means; and it is obvious that by the tendency of the door to swing inward this operation is materially facilitated.

Another advantageous result of this tendency of the door is, that it remains within the sides of the car, and is not liable to strike a passing object.

When the door is lowered and the gudgeons C take their bearings on the shoulders *a* the gudgeons are brought beneath stops *i*, attached to suitable portions of the door-posts B, the office of which stops is to prevent an upward movement of the door when it is in a vertical position—that is to say, when it is closed and

locked. The stops *i* are respectively beveled on the upper part thereof to allow the gudgeons C to ride freely over them in the descent of the door. When the door is released and swings outward, as hereinbefore stated, the gudgeons C take a position within the vertical plane of the stops *i*, as indicated in Fig. 1, thus clearing the stops, so that the door may be readily lifted to an upper position.

The latch F, for fastening the hinged door-sill E, is pivoted to a lever, H, which has its fulcrum at one end on the door, as at *l*, while the other or free end thereof moves in a guide, *n*, attached to the door, and with which is combined a cam, *o*, for holding the parts in their locking positions.

For the purpose of strengthening the door it is provided with vertical ribs *p* at its opposite ends, and these ribs are fastened by rivets or bolts, which serve also to fasten metallic lining-strips *s*, serving to protect the door against wear by contact with the jambs *b* in its up or down movement.

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

1. In a freight-car, the combination, with the door-posts, of a door capable of being lifted and adapted to swing outward on gudgeons secured thereto at or near its upper edge, and having a locking mechanism for holding the door in its lower or closed position, the whole constructed and adapted to operate substantially as herein described.

2. In a freight-car, the combination, with the door-posts and with a door capable of being lifted and adapted to swing outward on gudgeons secured thereto at or near its upper edge, of a threshold hinged to the bottom of the car and adapted to overlap the door on its lower edge, and a fastening device acting on the threshold to hold the door in its lower or closed position, the whole constructed and adapted to operate substantially as described.

3. In a freight-car, the combination, with the door-posts, of a door constructed with corner-pieces having gudgeons and offsets, substantially as described, whereby a tendency is given to the door to assume an inwardly-inclined position, as set forth.

4. The combination, with the door constructed with corner-pieces having gudgeons and offsets, substantially as described, of stops serving to prevent an upward movement of the door when it occupies a lower and vertical position, as set forth.

5. The combination, with the door, the hinged threshold, and the latch F, of the lever H, carrying the latch, and the cam *o*, substantially as and for the purpose described.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

JAMES H. WICKES. [L. S.]

Witnesses:
W. HAUFF,
E. F. KASTENHUBER.