(No Model.)

I. V. KELLY.

CAR DOOR.

No. 522,019. Patented June 26, 1894.

Fig. 1.

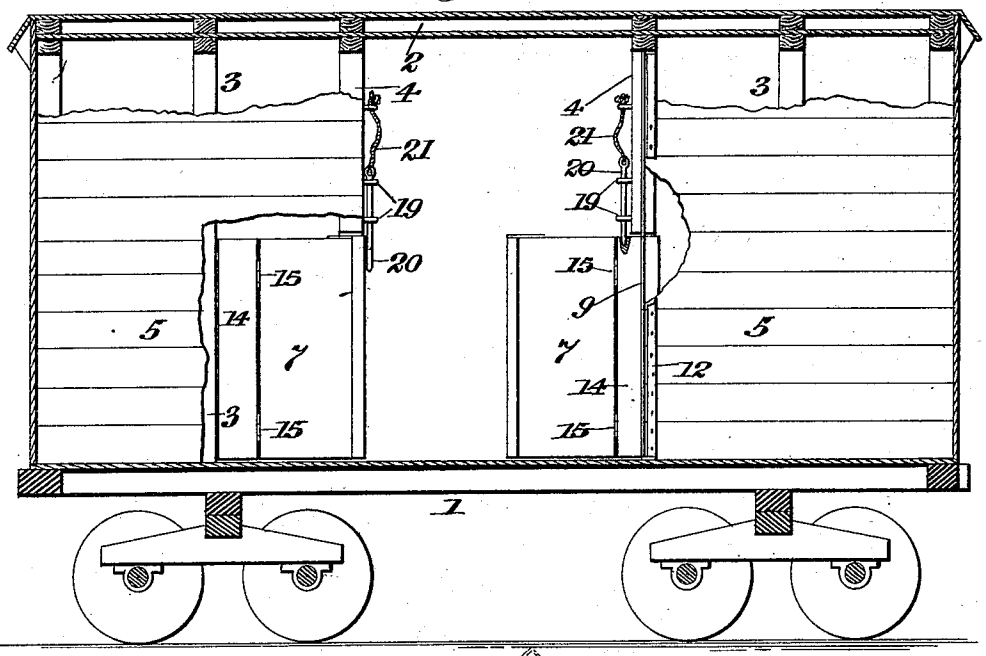


Fig. 3.

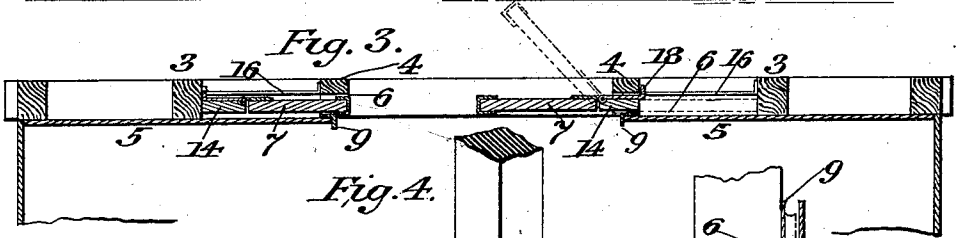


Fig. 4.

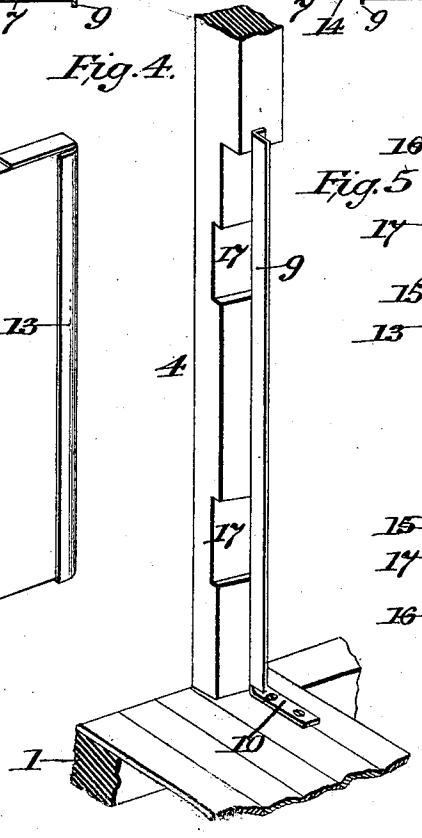


Fig. 2.

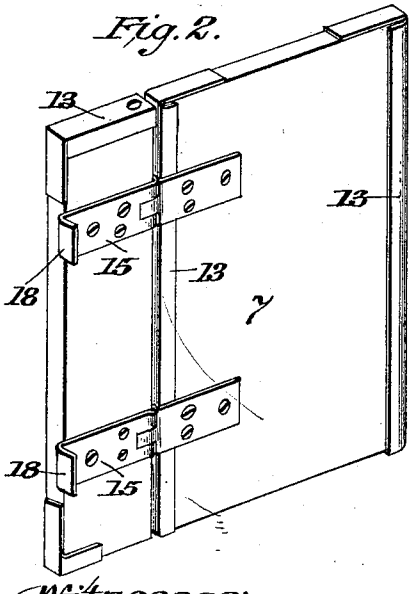
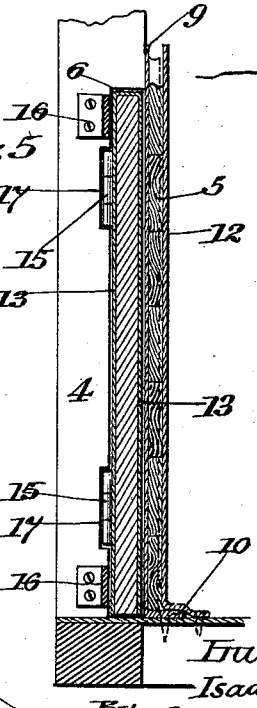


Fig. 5.



Witnesses:
D. P. Corl
L. M. Dalen

Inventor:
Isaac V. Kelly
By Benj. E. Coul.
Attorney.

THE NATIONAL LITHOGRAPHING COMPANY,
WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ISAAC V. KELLY, OF HUNTINGTON, WEST VIRGINIA.

CAR-DOOR.

SPECIFICATION forming part of Letters Patent No. 522,019, dated June 26, 1894.

Application filed September 8, 1893. Serial No. 485,068. (No model.)

To all whom it may concern.

Be it known that I, ISAAC V. KELLY, a citizen of the United States, residing at Huntington, in the county of Cabell and State of West Virginia, have invented certain new and useful Improvements in Grain-Doors; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in grain doors and adjacent parts of a car by which they are protected.

The doors are designed to be employed on the ordinary box, or freight car when used for transporting grain in bulk. The object is to protect the outer or car door proper from the pressure of the grain, and conceal it from evil disposed persons who oftentimes appropriate the ordinary grain doors for fuel. Doors having simply a sliding movement are found to be objectionable inasmuch as when the car is to be unloaded, the door must either be raised or slid back. This is difficult to do by reason of the pressure of the grain against them, therefore they are often cut out and destroyed.

My invention aims to overcome these objections by providing a door which can be opened outwardly to unload the car and slid back out of the way when the car is to be loaded with other freights, or is not in use.

With these ends in view my invention consists in certain features of construction and combination of parts, which will be hereinafter described and claimed.

Figure 1, is a central longitudinal section of a car constructed in accordance with my invention showing the same as being provided with two central doors, one of which is open and the other closed, and a part of the inner wall of the car at one side broken away to show the slidable extension to which the door is hinged. Fig. 2, is a perspective view of one of the doors removed from the car. Fig. 3, is a horizontal section through one side of the car. Fig. 4, is a detail in perspective of one of the door posts. Fig. 5, is a detail in elevation and partial section of the door post and adjacent parts.

In the said drawings the reference numeral 1 designates the sills which support the floor of the car, 2 the plate which supports the roof, 3 the intermediate posts, and 4 the door posts. The door posts 4, are cut away from a point about four and one-half feet from the floor, on the inner sides, to the lower ends forming in connection with the inner walls 5, of the car, a way 6, for the sliding door 7. These inner walls 5, consist of a number of boards secured to the intermediate posts, and at the door posts, are secured to a vertical angle bar 9, which bar at its lower end is bent upwardly at right angles, forming a short arm 10, which arm is bolted to the car floor. The flange of bar against which the ends of boards or inner wall abut, is cut away from that part which is bent up as described, the bar being left entire to the bottom of inner wall or lining of car. The upper end of said angle bar is secured to door post above the point where the post is cut away. To the inside of the boards forming the inner wall, at their ends, and opposite the angle bar, is secured by wood-screws or otherwise, a metal strap or bar 12.

The doors 7, may be of sheet iron, or wood, rectangular in shape, and if made of wood should have their edges bound with metal binding 13. At their rear or outer ends, the doors are hinged to extensions or vertical boards 14, by means of hinges 15. The doors and boards are slidable in the ways 6, and at their outer sides are provided horizontal guide bars 16, secured to door post and first intermediate post, against which post the vertical board 14 abuts when the door is put away in its housing. The door posts at the cut-away portion are formed with slots 17, aligned with said hinges so as to permit the latter to slide past said posts when the doors are closed. At the rear ends, the boards 14, are provided with arms 18, the free ends of which are bent outwardly at a right angle, forming stops to limit the movement of said boards when the doors are slid toward the center of the car, to close them. Working in staples 19, secured to door posts, are vertically movable pins 20, provided at their upper ends with ropes 21, by which they are connected to said posts. When

the doors are put away, these pins drop down in front thereof and prevent them from being shut, while, when said doors are shut, they drop into holes in the upper edges of the boards 14, and thus hold, or lock the doors in such position. The doors may also be provided with locking bars for securing them together when closed. These locking bars are not illustrated in the drawings, but may be of any of the ordinary or usual constructions.

The operation will be readily understood. When the cars are to be loaded the doors, and extensions to which they are secured are pushed back or rearwardly into the housing formed by the inner walls of the car, and the horizontal guide bars, thereby providing an opening at the center of the car. When the car is loaded the doors are slid toward the center of the car, and locked together by the locking bars and the pins 20.

To unload the car, the doors are unlocked and opened outwardly like an ordinary door, turning on their hinges so that access can be had to the interior of the car. When a sufficient quantity of the grain has been removed, the doors can be closed inwardly, and then slid back in their housings. In this position, as they have no outwardly projecting parts, there is no liability of their being injured in any way.

While my invention is more especially designed for use in connection with cars carrying grain in bulk, it may be employed for transporting the same in bags or other packages and also be used with cars carrying other merchandise.

Having thus described my invention, what I claim is—

1. In a grain or other car, the combination with the intermediate posts, the door posts cut away on their inner lower sides and with the inner walls of the car forming ways, of the outwardly opening and slidable doors and the extensions or boards to which said doors are hinged, working in said ways, substantially as described.

2. In a grain or other car, the combination with the intermediate posts, the door posts cut away on their inner lower sides and with the inner walls of the car forming ways, of the outwardly opening and slidable doors, the extensions to which said doors are hinged, working in said ways, and the horizontal guide bars secured to said posts, substantially as described.

3. In a grain or other car, the combination with the plates and sills and intermediate posts, and the door posts, cut away at their lower portions, of the inner side walls, the angle bars to which said walls are secured, the flange of said angle bar that stands at right angles to said door posts being cut away at the bottom and the remaining portion from which it was cut bent upward at right angles and secured to the floor of the car, said bar being left entire to the bottom of the inner wall of car, the vertical bars secured to said wall and to the car floor, and the slidable doors and extensions, substantially as described.

4. In a grain or other car, the combination with the intermediate posts, the door posts cut away at their lower inner sides and the inner walls, of the outwardly opening and slidable doors, the slidable extensions to which said doors are hinged, having a hole in their upper ends, and the vertically movable locking pins secured to the door posts and adapted to engage with the holes in said extensions by gravity, substantially as described.

5. In a grain or other car, the combination with the intermediate posts, the door posts cut away at their lower inner sides, and the inner walls, of the slidable doors and extensions, the hinges secured to said doors and extensions, the outer leaves of which have their ends bent at a right angle forming stops which engage with the door posts when the doors are open, substantially as described.

6. In a grain or other car, the combination with the intermediate posts, the door posts cut away at their lower inner ends or sides and the inner walls, of the slidable extensions having holes in their upper ends, the slidable doors, the hinges connecting said doors and extensions, the outer leaves of which have their free ends bent at a right angle forming stops adapted to engage with the door posts, and the vertically movable gravity pins connected with the door posts, and adapted to engage with the holes in said extensions, substantially as described.

7. In a grain or other car, the combination with the intermediate posts, the door posts cut away at their lower inner sides, and the inner walls, of the slidable extensions having holes in their upper ends, the slidable doors, the hinges connecting said doors and extensions, the outer leaves of which have their free ends bent at a right angle forming stops adapted to engage with the door posts, the vertically movable gravity pins connected with the door posts and adapted to engage with the holes in said extensions, and the horizontal guide bars secured to said posts, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

ISAAC V. KELLY.

Witnesses:
E. E. WILLIAMS,
P. W. SCOTT.

Correction in Letters Patent No. 522,019.

It is hereby certified that in Letters Patent No. 522,019, granted June 26, 1894, upon the application of Isaac V. Kelly, of Huntington, West Virginia, the title of the invention was erroneously written and printed "Car-Doors," whereas the said title should have been written and printed *Grain-Doors;* and that the said Letters Patent should be read with this correction therein that the same may conform to the records of the case in the Patent Office.

Signed, countersigned, and sealed this 3d day of July, A. D. 1894.

[SEAL.]

JNO. M. REYNOLDS,
Assistant Secretary of the Interior.

Countersigned:

JOHN S. SEYMOUR,
Commissioner of Patents.