2 Sheets—Sheet 1.

R. H. COLEMAN.

Car-Door.

No. 205,477. **Patented July 2, 1878.**

Fig. 1.

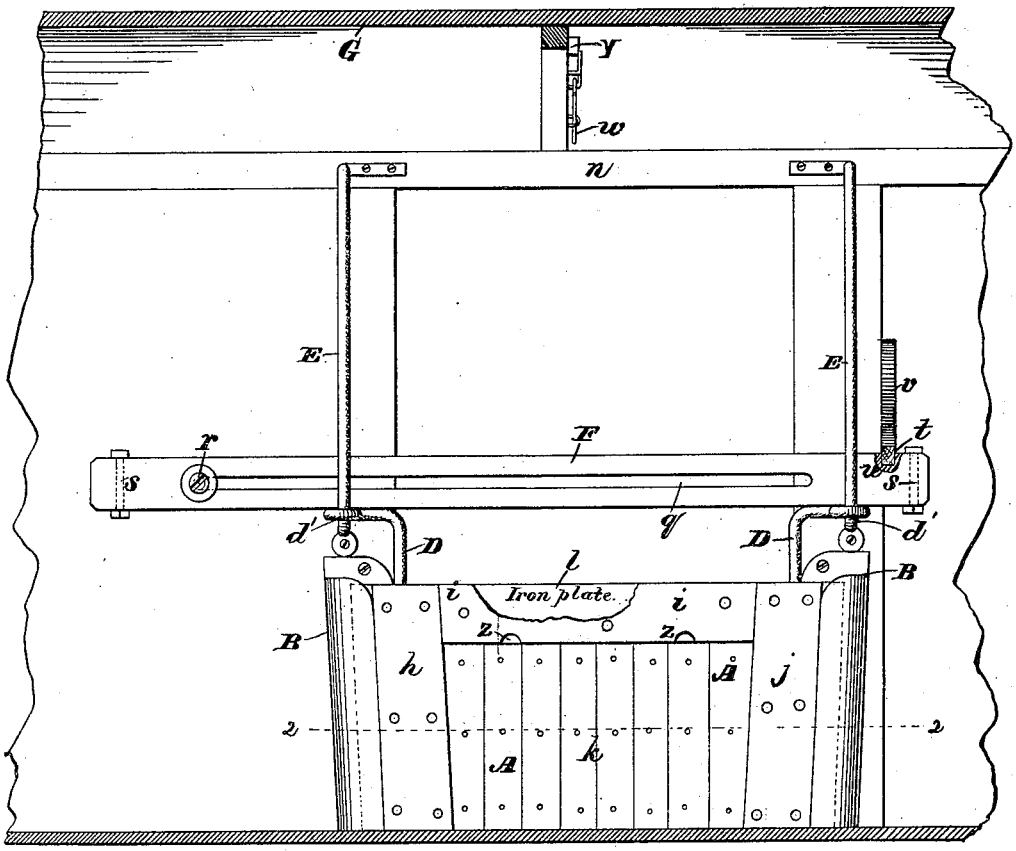
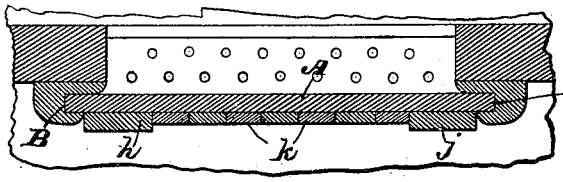


Fig. 2.



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2 Sheets—Sheet 2.

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Fig. 3.

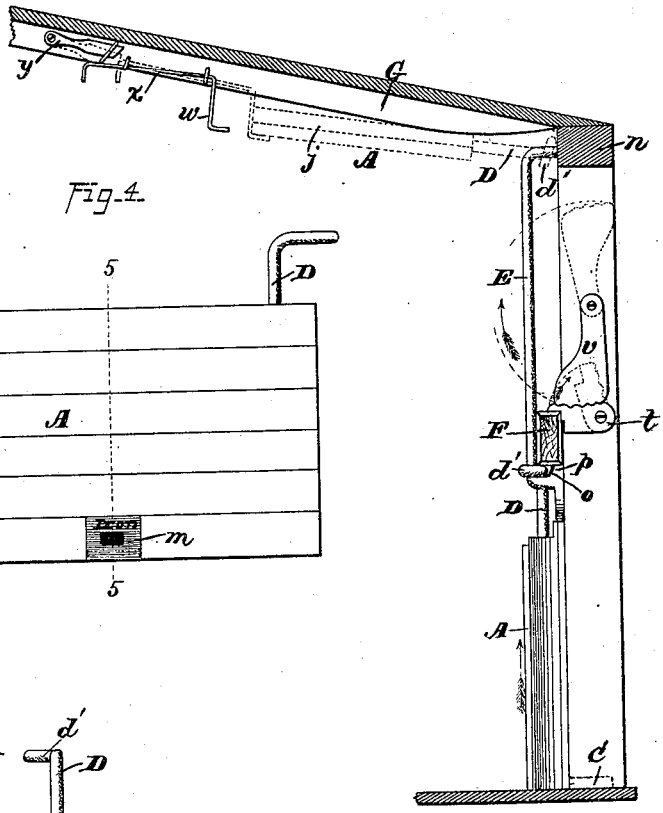


Fig. 4.

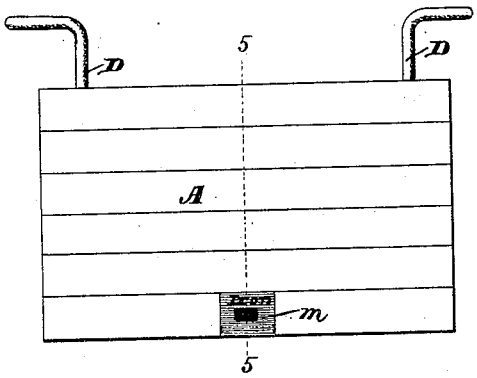


Fig. 5.

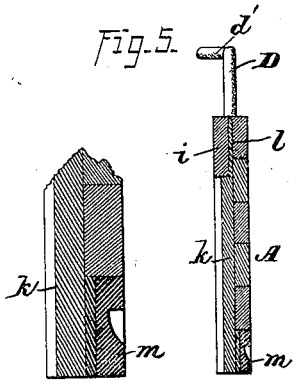
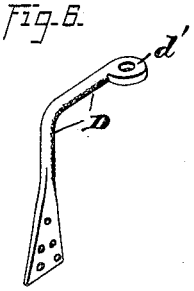


Fig. 6.



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UNITED STATES PATENT OFFICE.

ROBERT H. COLEMAN, OF ST. JOSEPH, MISSOURI.

IMPROVEMENT IN CAR-DOORS.

Specification forming part of Letters Patent No. **205,477**, dated July 2, 1878; application filed June 3, 1878.

To all whom it may concern:

Be it known that I, ROBERT H. COLEMAN, of St. Joseph, in the county of Buchanan and State of Missouri, have invented certain new and useful Improvements in Doors for Grain and Cattle Cars; and I do hereby declare that the following is a full, clear, and exact description thereof, which 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 letters of reference marked thereon, which form a part of this specification.

My improvements relate to a special construction of doors for grain-carrying cars, and to a novel mode of applying the same to the car, and whereby they are also adapted for cattle-cars.

In the drawings, Figure 1 represents the inner side of a car to which my invention is applied, and showing a portion of the roof, the grain-door being locked down to place; Fig. 2, a cross-section of the door in the line 2 2 of Fig. 1; Fig. 3, a partial cross-section of a car, showing part of the roof and of one side of the car and of my devices applied thereto; Fig. 4, an elevation of the door detached, showing its outer side; Fig. 5, cross-sections of the door in line 5 5 of Fig. 4, and Fig. 6 a detail.

A is the door; B B, two grooved guideways or shoes, in which the door slides; C, the weather-strip of the car, at the outside of the door; D D, bent iron spurs attached to the door; E E, iron guide rods or bars, on which the spurs D slide and are guided and sustained; F, a cattle-guard, serving also to fasten the door to place; G, a portion of the car-roof.

The door is double, being made of boards of appropriate thickness, placed face to face, and with their grains preferably crossing each other, and fastened together with wrought nails or other suitable fastenings, the inner thickness being made of three battens, *h i j*, as shown, and a panel, *k*, of, say, half-inch stuff, the balance of the door being made of, say, seven-eighths-of-an-inch stuff.

The outside I prefer to make of about six pieces, joined horizontally and tongued, grooved, and beaded, and all of pine, except the bottom board, which should be of harder wood, and the panel of about seven pieces placed perpendicularly.

At the upper part or edge of the door, between its two thicknesses, I place a thin iron plate or strip, *l*, to prevent the same being feloniously cut or sawed.

On the bottom board of the door is a countersink, *m*, or preferably a countersunk plate, whereby it may be raised from the outside, for a purpose hereinafter described.

The lower ends of the two spurs D D (which are of three-fourths ($\frac{3}{4}$) or seven-eighths ($\frac{7}{8}$) inch wrought-iron) are flattened out and punched and countersunk for screws. The flattened ends of these spurs are attached to the inner side of the inner thickness or battens of the door before the two thicknesses of the door are fastened together, as hereinbefore mentioned.

The upper parts of the spurs are bent over at right angles, and their ends are so bent as to form an eye, *d'*, on the end of each, so as to slide up and down easily upon the guide-rods E E. These rods or bars E E are of three-fourths ($\frac{3}{4}$) to seven-eighths ($\frac{7}{8}$) of an inch wrought-iron, and are bent into the shape shown in the drawings. They are fastened at the tops to the plate *n* of the door-frame, and at the lower ends to the posts of the door-frame.

At the lower end the bar is curved, so as to form the notch at *o*, to receive the eye *d'* on the end of the spurs, and also to form the horizontal or flat surface at *p*, for the cattle-guard F to rest upon when it is in place across the opening.

The grooved guideways or shoes B B, I make of cast-iron, and they are screwed to the posts of the door-frame, and are set a little slanting, (or wider apart at their upper than at their lower ends.)

The door A is also slightly tapering or inclined at the sides, which slide up and down in the grooves of the shoes. Consequently, when the door A is down, it fits snugly in place; but as soon as it is started or lifted upward it runs easily in the grooves by reason of the bevels or inclinations.

The wooden cattle-guard F should be of about eight by one and seven-eighths ($8 \times 1\frac{7}{8}$) inches, and slotted through the middle with

a slot, *q*, for the greater part of its entire length. This cattle-bar is affixed to a brace between the posts of the car-side by means of a pin, *r*, and washer, as shown. This screw or pin passes through the slot in the cattle-guard, and allows the guard to pass freely backward and forward. At each end of the cattle-guard is a bolt, *s*, or a carriage-bolt and nut, to prevent this guard from splitting.

Upon the side of the car, at any convenient place, should be affixed a cleat, just below the level of cattle-guard, so that when the cattle-guard is moved back the end of it may not drop down; or any other appropriate device may be provided for this purpose.

When the door is down in place, the eyes *d'* at the ends of the spurs fill the notches *o o* completely, so that their upper edges are flush with the rests *p p*. The cattle-guard F is then moved forward across the door, and its lower edge is supported upon the eyes and rests *p p*.

For the purpose of locking the cattle-bar, (and incidentally the grain-door,) the cast-iron catch *t* is attached by a screw to the side of the door-frame. This catch falls into a notch, *u*, in the end of the cattle-bar, as shown.

Just above the catch *t* is the cast-iron drop *v*, the lower edge of which is provided with ratchet-teeth, and the upper edge of the catch is also provided with ratchet-teeth to engage with the teeth on the drop.

When the catch is in the notch in the cattle-bar, the drop *v* is pressed downward and backward, so that the teeth thereon engage with the teeth on the catch, and the cattle-bar and door are thus firmly locked by this one device.

When the door is not in use, (but is thrown up and hooked to the roof of the car, as hereinafter described,) the cattle-guard alone is locked in the same manner.

We will now presume (all the parts being in the locked position described) that it is desired to use the car for cattle, and not for grain. The drop *v* is then thrown up. The catch *t* is next thrown up and back. The cattle-guard F is then slid back, and rests in a horizontal position on the cleat before described. The door A is then raised until the eyes on the ends of the spurs are at the upper ends of the guide-bars E. The door is then swung inward and upward toward the roof of the car until the lower edge thereof is above the hook *w* at the end of the slide-bar *x*, on the under side of the roof.

The bar *x* should be of wrought-iron, and shaped about as shown, and it is fastened to one of the beams of the roof by two or more staples, through which it plays freely.

As soon as the door is sufficiently raised, the hook is slid toward the side of the car, and the small cast-iron drop-catch *y* (just behind the hooked bar *x*) falls downward of its own weight and locks the hook in place. The cattle-guard is then moved forward across the door and secured, as before described.

When the car is loaded with grain, and the outer door has been opened and the cattle-guard slipped back, it may in some cases be necessary to raise the grain-door from the outside. For this purpose a small plate of cast-iron, to receive the end of a pinch-bar, (or bent lever,) may be affixed to the outside of the lower edge of the grain-door at about its middle.

Upon the inside of the door are two finger-holds or lifts, *z*, cut in the upper batten, to facilitate the lifting of the door.

I claim—

1. The described sliding door for grain-cars as made of two thicknesses of boards, battens *h i j*, the interposed metal strip *l* at the top, and the spurs D D, having eyes at their outer ends, and having their other ends flattened and secured between the two thicknesses, as shown, and for the purposes set forth.

2. In combination with the door A, the spurs D D, made and bent and applied between the two thicknesses of the door, as set forth, and the vertical rods E E, adapted at their tops to support the door when elevated by the agency only of the eyes of the spurs and the tops of the rods.

3. In combination, the vertically-sliding door and its spurs D D, the guide-rods E E, and the grooved guideways B B, substantially as shown and described.

4. In combination, the door A, guide-rods E E, slotted cattle-guard F, and a locking device for securing the same, substantially as shown and described.

5. In combination with the vertically-sliding door A and guide-rods E E, the hooked slide-bar *w x* and drop-catch *y* on the under side of the roof, substantially as shown and described.

6. The guide-rods E E, applied to the car, as shown, and provided each with a rest, *p*, and the notch *o*, adapted to receive the eye of the spur D and support it flush with the rest *p*, as shown and described.

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