

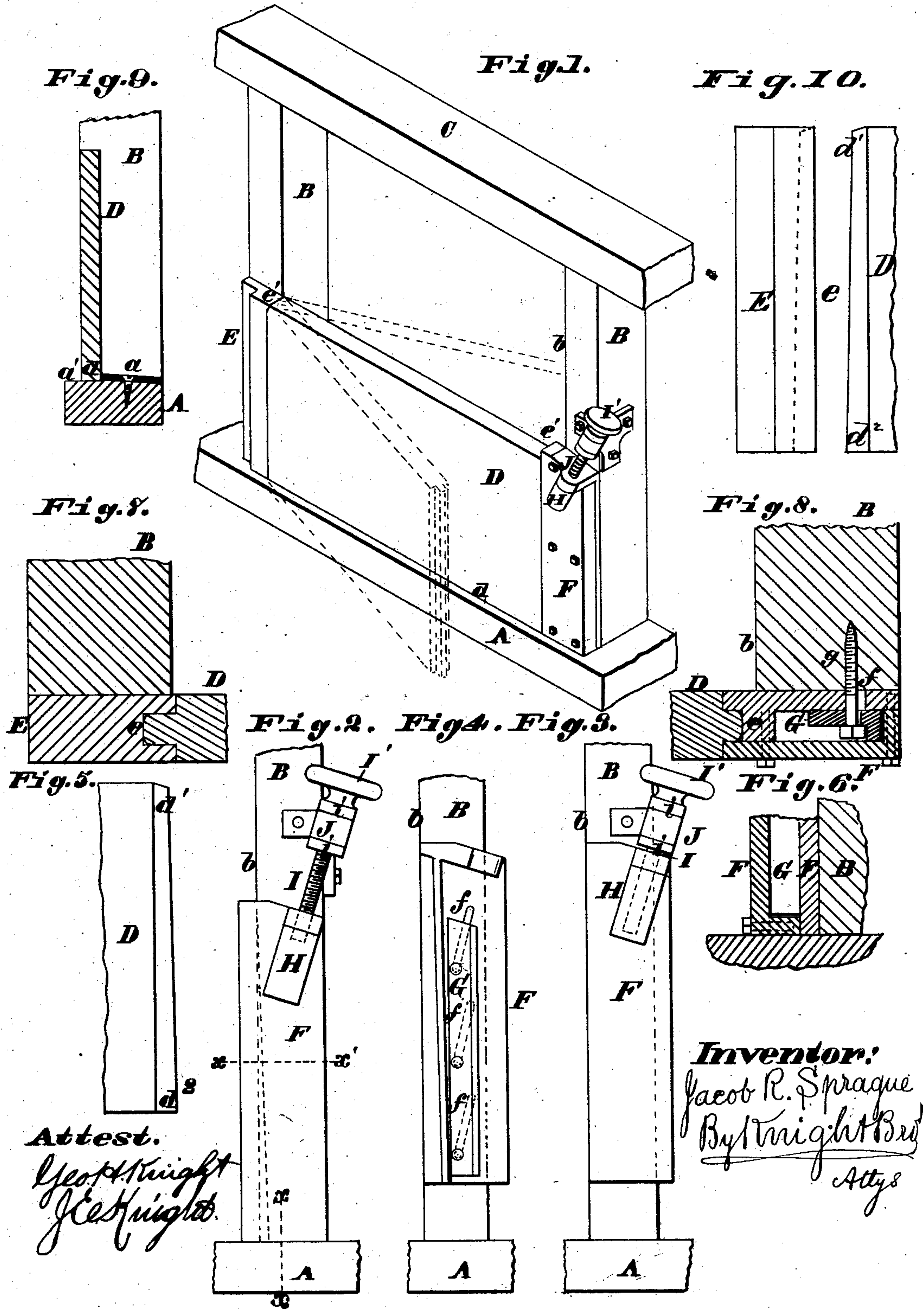
(No Model.)

J. R. SPRAGUE.

GRAIN CAR DOOR.

No. 244,941.

Patented July 26, 1881.



UNITED STATES PATENT OFFICE.

JACOB R. SPRAGUE, OF ST. LOUIS, MISSOURI.

GRAIN-CAR DOOR.

SPECIFICATION forming part of Letters Patent No. 244,941, dated July 26, 1881.

Application filed February 23, 1881. (No model.)

To all whom it may concern:

Be it known that I, JACOB R. SPRAGUE, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Grain-Doors for Freight-Cars, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification.

My improvement consists in a grain-door which is held in position by a fixed and movable cleat which engage its ends. The ends of the door have tongues to enter suitable grooves in the cleats, said tongues being made wider at the lower than the upper ends, so that the edge of the tongue is somewhat oblique to the top and bottom of the door, and as the grooves in the cleats are shaped accordingly, and the edge of the tongues have bearing against the inner sides of the cleat-grooves, the door is held down by this means.

My invention also applies to certain details of construction, hereinafter set forth and claimed.

Figure 1 is a perspective view, showing the improvement with the door locked in position, and dotted lines showing the door swung inward and outward. Fig. 2 is a face view of the movable cleat in its lower position. Fig. 3 is a face view of the movable cleat in its upper position. Fig. 4 is a similar view of the cleat, with the outer plate removed to show the obliquity of the inner side of the groove, which receives the tongue on the end of the door. Fig. 5 is a side view of one end of the door. Fig. 6 is a detail transverse section at $x x$, Fig. 2. Figs. 7 and 8 are enlarged detail horizontal sections at the level indicated by $x' x'$, Fig. 2, showing the position of the ends of the door in the cleats. Fig. 9 is a transverse vertical section through the door and sill. Fig. 10 is a view of the cleat and opposite end of the door to that shown in Fig. 5.

A is a door-sill, B the side posts, and C the lintel, of a freight-car door. The sill or threshold A has a ledge or raised portion, a , leaving a depressed part, a' , inside it, in which the lower edge, d , of the door D rests when it is in position as shown in Figs. 1 and 9. The ledge a sustains the lower edge of the door against inside pressure, and serves to make a tight joint which prevents the escape of grain at that

point. I prefer to form the ledge a by securing an iron plate upon the top of the timber forming the rest of the threshold; but the ledge a may be formed of the body of the timber by sinking the groove a' therein. The door is made with a tongue, $d' d^2$, at each end. Said tongues enter respectively grooves in the fixed and movable cleats which are connected to the door-posts.

E is the fixed cleat. This cleat is preferably made of metal, and is firmly attached to the door-post by screws, or otherwise. The cleat E has a groove e to receive the tongue $d' d^2$ at that end of the door. The groove e should be closed at the upper end, at e' , to hold down the door at that end by bearing upon the tongue, though in addition to the projection or closure e' at the top of the groove the door is held down by the form of the tongues $d' d^2$. These tongues are made wider (in the direction of the length of the door) at their lower ends, d^2 , than at their upper ends, d' , so that their salient edges are somewhat oblique to the top and bottom edges of the door, and the grooves e in the cleats are accordingly made deeper at their lower ends to embrace the tongues snugly, and so that the salient edges of each tongue bear against the inner face of its groove.

F is a movable cleat by which one end of the door is held in place. This cleat has a groove, e , to receive the tongue of the door, and the top end of the groove should be closed to bear upon the tongue. This bar, or closure, or projection is shown at e' . It has the same purpose as that shown in the fixed cleat E. The cleat F is made movable against the post B, working upward and downward in an oblique direction, so that it moves outward into the doorway as it descends to engage the end of the door. To secure this movement the cleat has oblique slots f in its inner plate, which work on pins or screws g extending from a guide-plate, G, through the slots into the post. The guide-plate G is inclosed between the inner and outer plates of the cleat F, so as to provide a guide to prevent the lateral displacement of the cleat.

H is a screw-threaded socket at the upper end of the cleat F.

I is a lock-screw, whose lower end screws in the socket H. The screw I turns in the lug J

attached to the door-post, and is restrained from endwise movement in the lug by collars *ii*, which bear upon the bottom and top of the lug J.

5 I' is a hand-wheel by which the screw is turned. By turning the screw the cleat F is raised or lowered. The screw I should extend in the same direction as the slots *f*, so that there will be no tendency for it to bind in its
10 bearings. The moving cleat, when in its outer and lower position, as shown in Figs. 1 and 6, projects beyond the corner *b* of the door-post; but when in its upper position, as shown in Figs. 2 and 3, its grooved edge is about in line
15 with the corner *b*. When the cleat F is in this position, and the door is lifted clear of the ledge *a*, the end of the door in proximity to said cleat can be moved inward or outward past the side post, swinging upon the other end as a hinge.
20 Thus in unloading a car where grain or other merchandise is against the inner side of the door it is only necessary to elevate the cleat F and lift the door clear of the ledge *a* and remove the door outwardly, the door swinging
25 upon the other end as a hinge. The door may be connected to the car by a chain, or left free. The chain may be long enough to allow the use of the door for a gangway, or it may be so
30 purpose.

It will be seen that the screw acts as a lock to the cleat F, holding it in any position in which it may be placed, without any other lock being needed.

I claim as new and of my invention—

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1. The combination, with a grain-door for freight-cars, of cleat F, secured to the door-post and sliding obliquely thereon, for the purpose set forth.

2. The combination of the obliquely-sliding
40 cleat F, on the door-post, and a bevel-ended door, as set forth.

3. The combination of fixed cleat E, car-door D, having beveled ends, and obliquely-moving
45 cleat F, substantially as and for the purpose set forth.

4. The combination, with the obliquely-moving door-locking cleat F, of the locking-screw I and lug and socket J and H, secured to the
50 post and movable cleat respectively.

5. The combination, with a side post, B, and grain-door D, adapted to move inward and outward, of the moving cleat F, constructed and arranged to advance beyond the side of the
55 doorway to engage the end of the door, substantially as and for the purpose set forth.

JACOB R. SPRAGUE.

Witnesses:

SAML. KNIGHT,
GEO. H. KNIGHT.