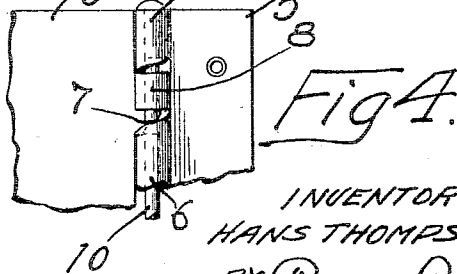
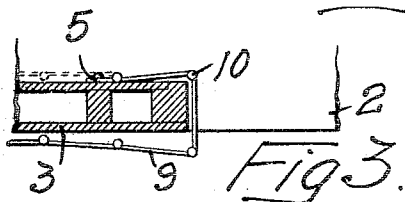
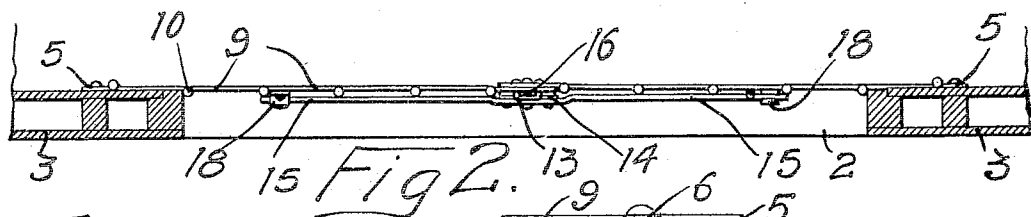


953,869.



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HANS THOMPSON, OF MINNEAPOLIS, MINNESOTA.

GRAIN-DOOR.

953,869.

Specification of Letters Patent.

Patented Apr. 5, 1910.

Application filed March 9, 1908. Serial No. 420,063.

To all whom it may concern:

Be it known that I, HANS THOMPSON, of Minneapolis, Hennepin county, Minnesota, have invented certain new and useful Improvements in Grain-Doors, of which the following is a specification.

My invention relates to grain doors for freight cars and the object of the invention is to provide an apparatus of simple construction, easily applied to any type of freight car and thoroughly grain tight.

A further object is to provide a door which will permit the car to be used for merchandise or other goods, and in unloading the car can be swung to a position where it will not interfere with the work of removing goods from the car or loading them therein, and cannot become broken or damaged.

Other objects of the invention will appear from the following detailed description.

The invention consists generally in various constructions and combinations, all as hereinafter described and particularly pointed out in the claims.

In the accompanying drawings, forming part of this specification; Figure 1 is an outside view of a portion of a freight car showing my invention applied thereto. Fig. 2 is a longitudinal sectional view of the same. Fig. 3 is a detail sectional view illustrating one side of the door swung outwardly to an open position. Fig. 4 is a detail view illustrating a portion of the hinge by means of which each door section is supported on the side of the car.

In the drawing, 2 represents the door sill, 3 the side wall of the car and 4 the door opening. The grain door is composed of two sections arranged upon opposite sides of the opening, each section being composed of comparatively narrow leaves hinged together and adapted to be folded one upon another to collapse the door. The end leaves 5 are fastened by any suitable means to the side of the car and are provided with hinge elements 6 on one edge, which have inclined or cam surfaces 7 that are engaged by hinge elements 8 on the adjoining leaf 9, a pivot rod 10 passing through said elements and holding them together while permitting the leaf 9 and the others connected thereto to be swung back and forth to open or close the door section. A series of the leaves 9 are provided having hinges 11 con-

necting the adjoining edges together, said leaves being comparatively narrow and the hinges permitting them to be folded sufficiently one against another to open the door or swing it to a point where it will not interfere with the loading or unloading of the car. These leaves are preferably of metal though any suitable material may be used, and they are mounted on the car so that one of the hinges 11 will be opposite the edge of the door opening on each side and allow the leaves to be swung outwardly and against the side of the car, as indicated in Fig. 3, where they will not interfere with the loading of merchandise into the car or its removal therefrom.

The leaf 5 is set back away from the door opening so that when the door sections are swung inwardly there will be no obstruction to the door opening, and as the leaves are swung inward the hinge elements 8 will ride on the inclined surfaces 7, and the door sections will be raised off the floor and the operation of opening the door will be greatly facilitated.

For the purpose of locking the door sections in their closed position I arrange two of the adjoining leaves so that they will lap by one another, as indicated in Fig. 2, one leaf being provided with slots 12 to receive staples 13 on the other leaf. A plate 14 is pivoted on one of the leaves and levers 15 are secured on said plate, and bolts 16 are pivotally mounted thereon and adapted to slide in guides 17 on the door leaf and enter the staples 13 and lock the lapping leaves of the door together. The free ends of the levers 15 are adapted to pass behind straps 18 that are secured at one end to the door sections, and a spring 19 is mounted on one of the door leaves in position to engage one of the levers and hold the sliding bolts in locking engagement with the staples 13. Whenever desired the levers may be oscillated on their pivot to release the door sections and permit the leaves to be folded back one upon another and open the door.

Small door sections 20 are provided at the lower end of each of the lapping leaves and are normally held in place by the sliding bolt 16. Upon the upward movement of this bolt the door sections may be swung outwardly to permit the discharge of the grain. The levers 15 are of sufficient length to brace the door sections and hold them in aline-

ment with one another, thus preventing the door from being bulged outwardly by the pressure of the grain.

I claim as my invention:

5 1. A grain door for freight cars, comprising two sections each composed of a series of narrow leaves having their vertical edges hinged together, each section being hinged on the inside of the car and having
10 their abutting vertical edges arranged to lap by one another near the middle of the door opening when the sections are in their closed position, one of said lapping sections having staples fitting within slots in
15 the other lapping section, a plate pivoted on one of said sections, bolts carried by said plate and vertically slidable in guides and in said staples and levers secured to said plate and extending transversely of the ver-
20 tically hinged sections and having means for securing them against premature movement, substantially as described.

25 2. A grain door, for freight cars, comprising two sections, each composed of a series of narrow leaves having their vertical edges hinged together, each section being hinged on the inside of the car and at a distance from the door opening corresponding substantially with the width of one of
30 the leaves whereby a hinge will be provided on each side at the edge of the door open-

ing, and said sections be capable of swinging inwardly or outwardly, and said leaves being of greater width than the thickness of the car wall, and permitting the sections to
35 be swung back against the wall on the outside of the car, substantially as described.

3. A grain door for freight cars comprising two sections, each composed of a series of narrow leaves having their vertical edges
40 hinged together, and each section being hinged to the car wall upon opposite sides of the door opening, the abutting edges of said sections lapping by one another a distance equal substantially to the width of one
45 of the leaves, and one lapping leaf having staples thereon adapted to enter slots in the other lapping leaf, bolts vertically slidable in guides on said other lapping leaf and adapted to enter said staples, means pivot-
50 ally connected with said bolts for operating them, and said means extending transversely of the door sections to brace the sections and hold them in alinement with one another.

55 In witness whereof, I have hereunto set my hand this 12th day of February 1908.

HANS THOMPSON.

Witnesses:

RICHARD PAUL,
J. A. BYINGTON.