

No. 658,159.

Patented Sept. 18, 1900.

G. J. SANTA CRUZ.
FALSE FLOOR FOR CARS.

(Application filed June 27, 1900.)

(No Model.)

4 Sheets—Sheet 1.

Fig. 1.

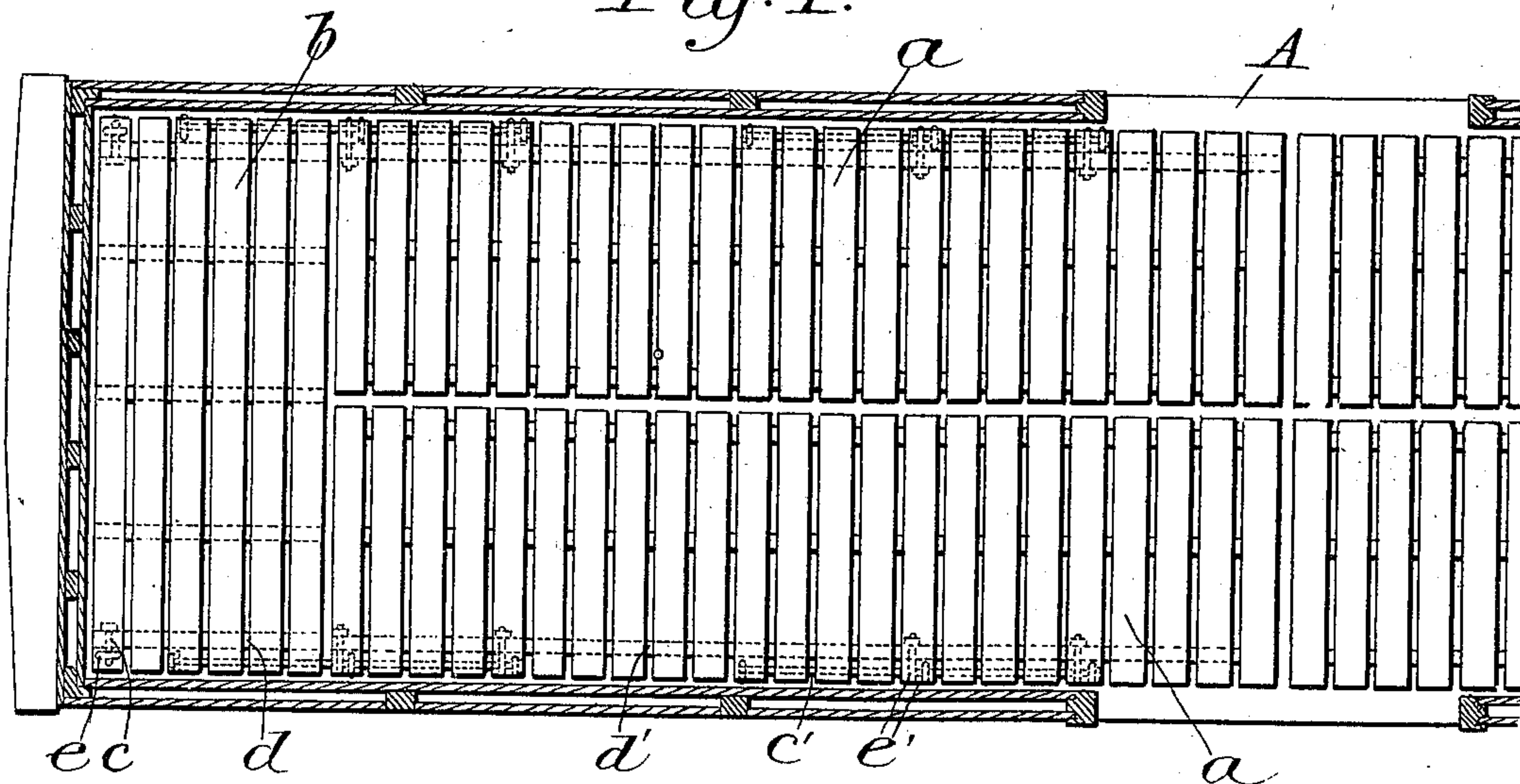
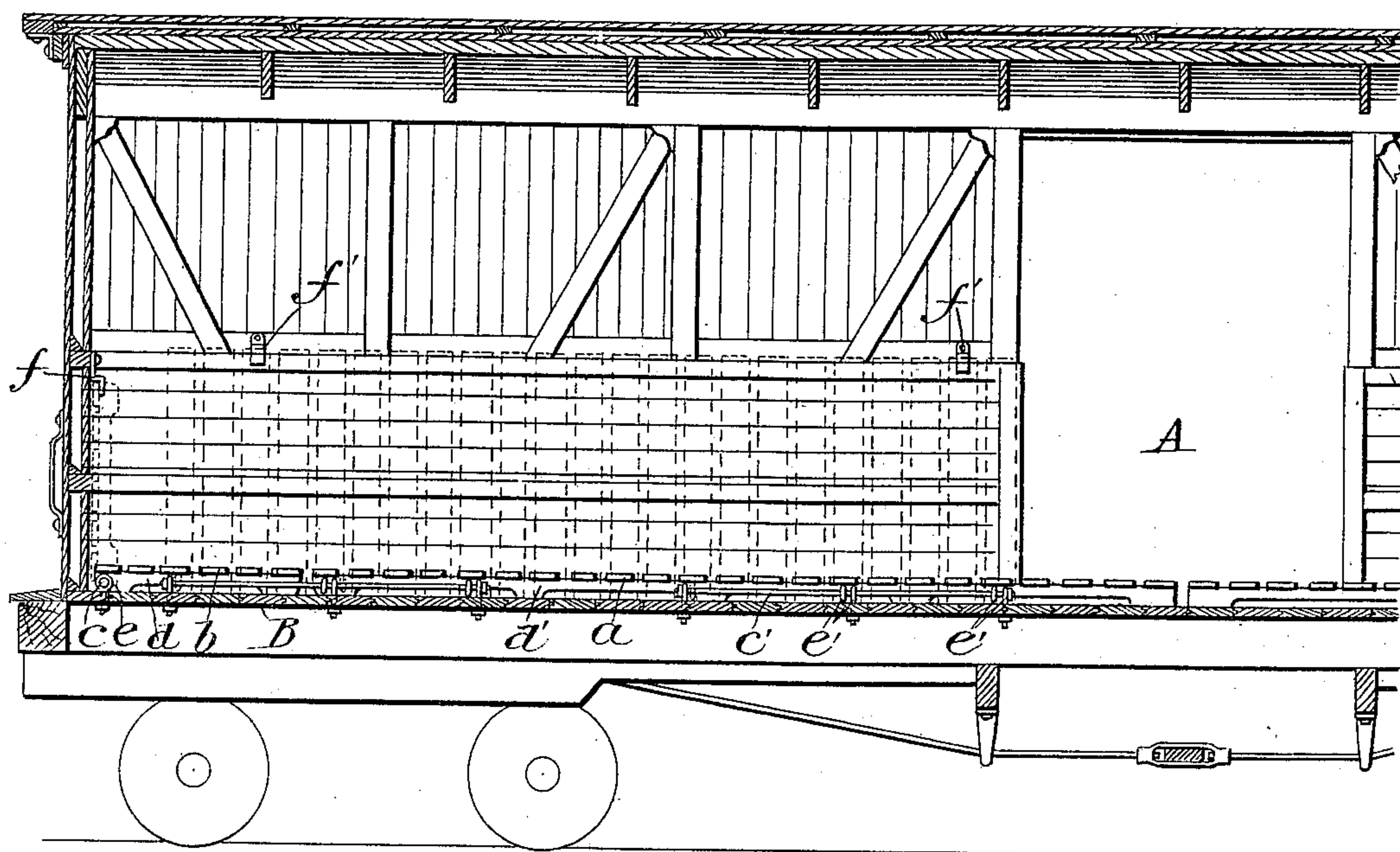


Fig. 2.



Witnesses:
D. W. Edlun.
J. E. Hutchinson.

Inventor:
George J. Santa Cruz
by Spencer P. Prentiss,
Attorney.

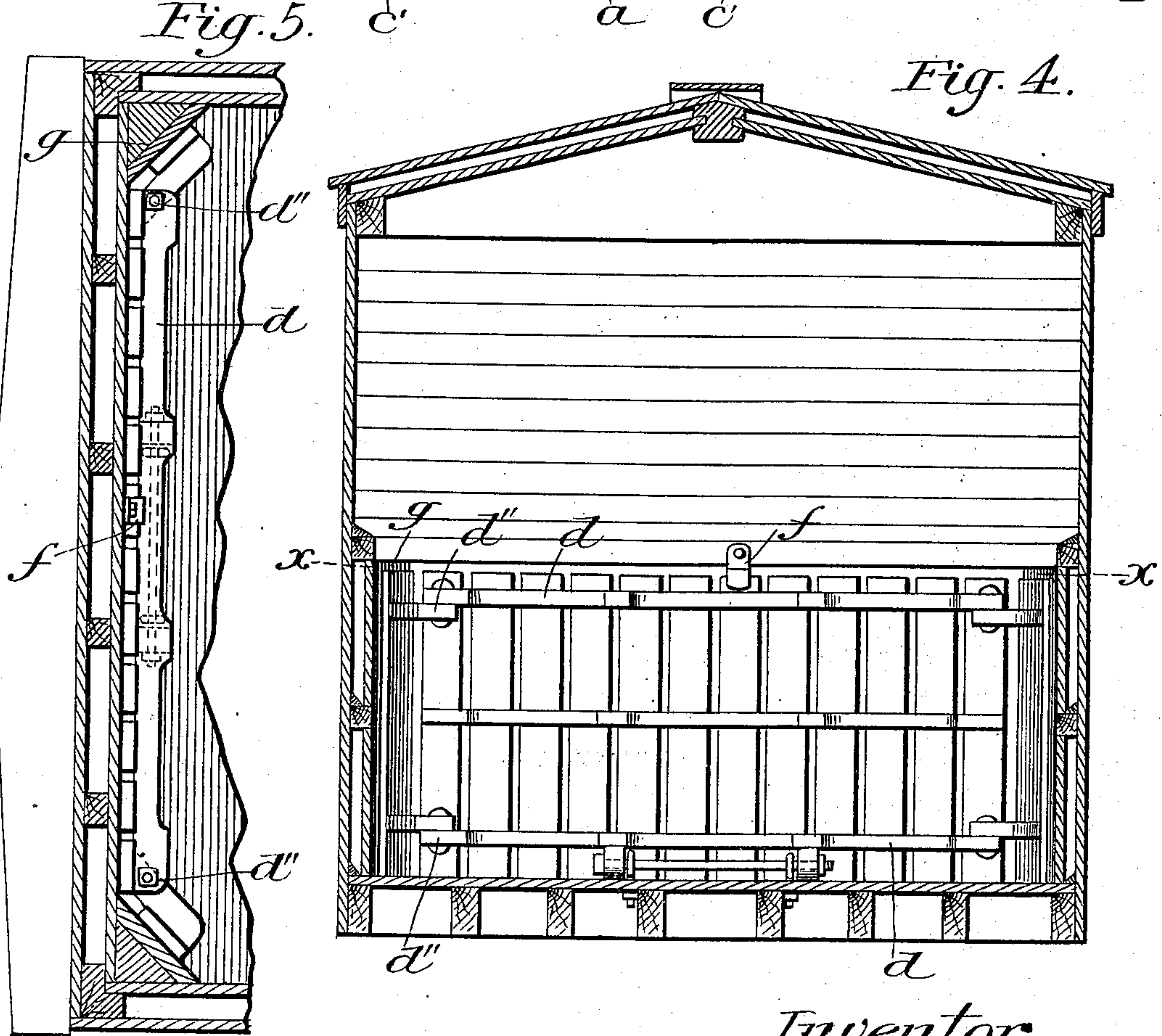
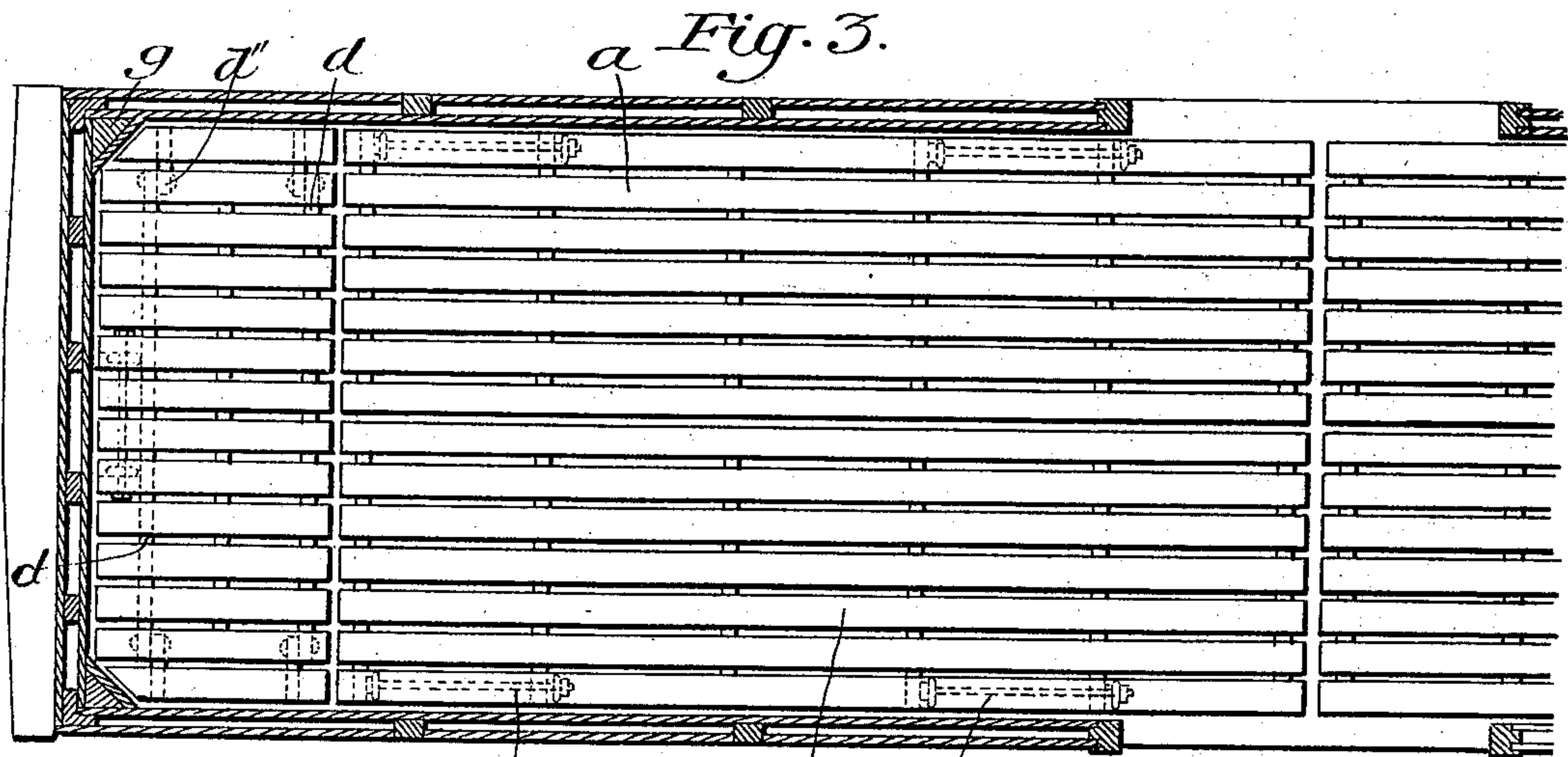
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4 Sheets—Sheet 2.



Witnesses:
D. W. Edelin.
J. E. Hutchinson Jr.

Inventor:
George J. Santa Cruz
by Spencer P. Phentis,
Attorney.

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Fig. 6.

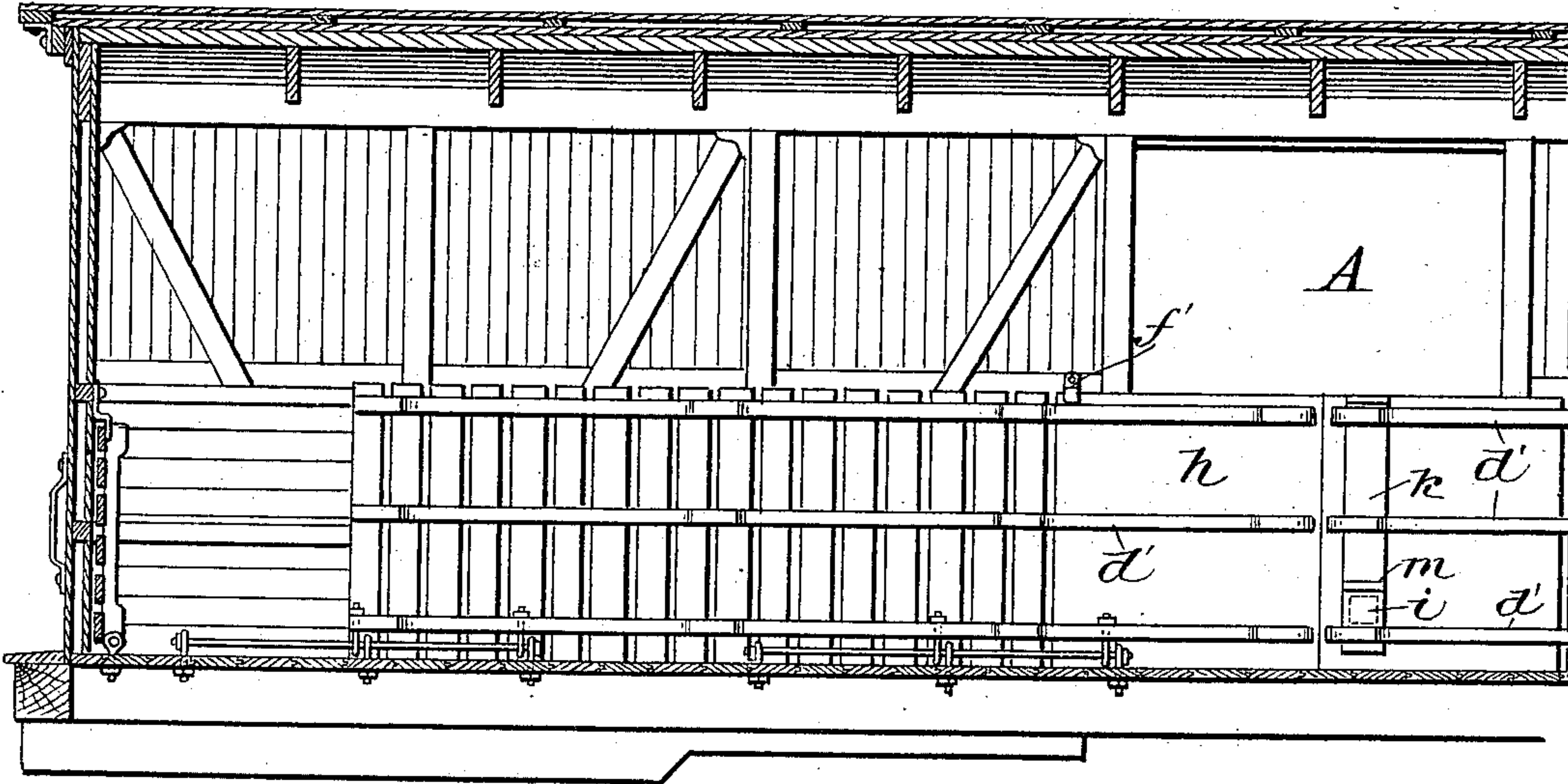
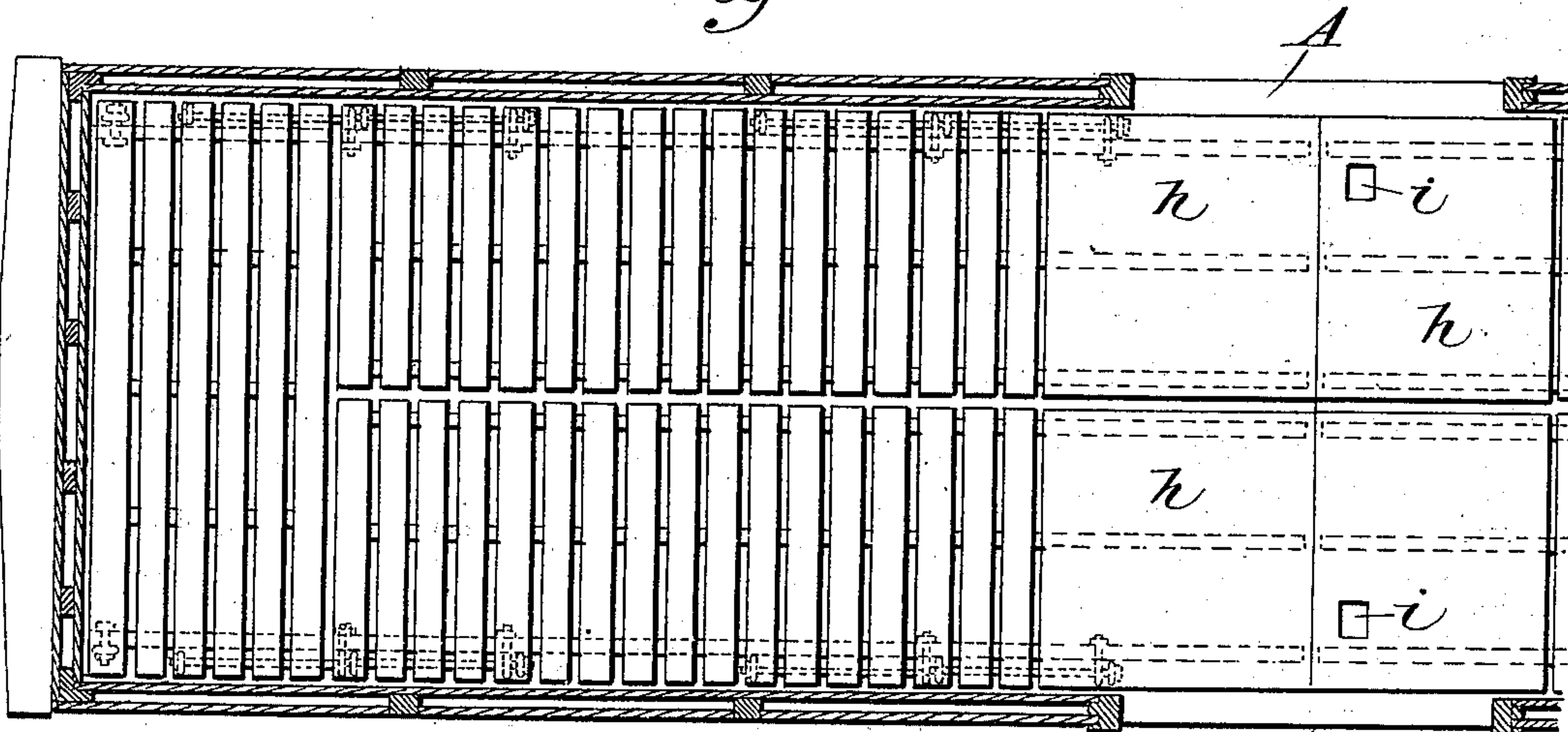


Fig. 7.



Witnesses:

O. W. Edlin.
J. E. Hutchinson Jr.

Inventor:

George J. Santa Cruz
by Spencer B. Puntis,
Attorney.

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4 Sheets—Sheet 4.

Fig. 9.

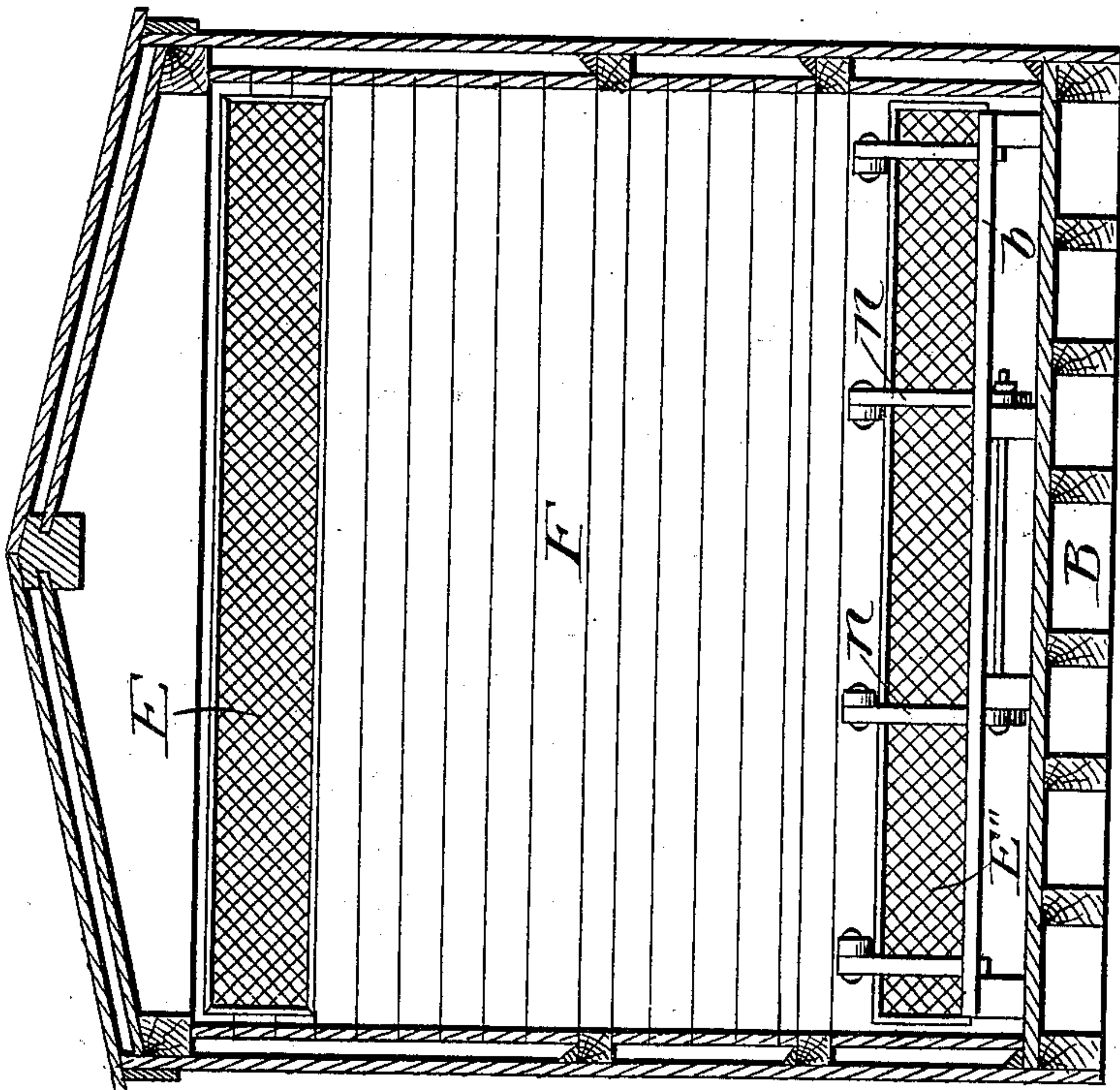
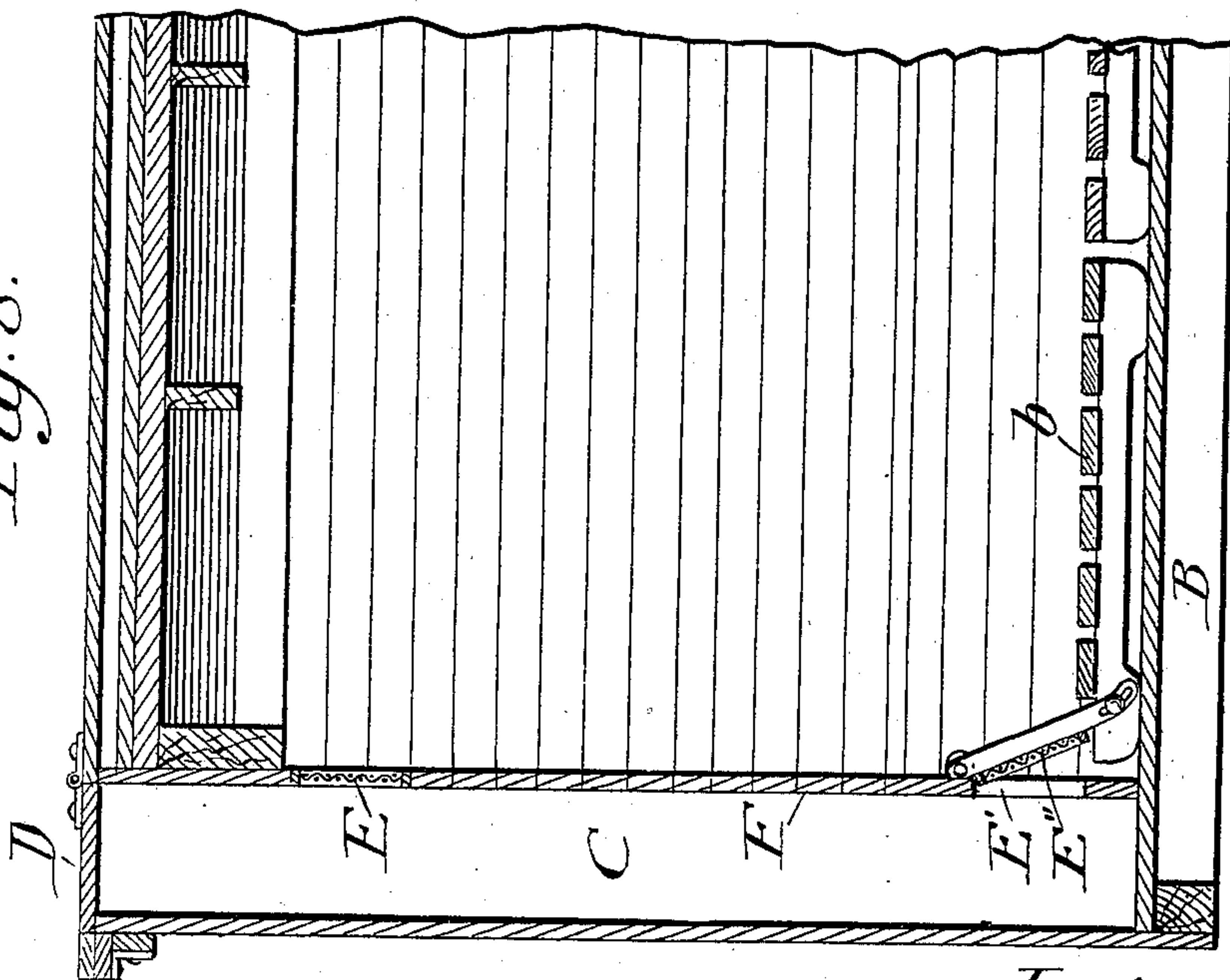


Fig. 8.



Witnesses:
D. W. Edeline.
J. E. Hutchinson Jr.

Inventor
George J. Santa Cruz
By Spencer B. Prentiss,
Attorney.

UNITED STATES PATENT OFFICE.

GEORGE J. SANTA CRUZ, OF MOBILE, ALABAMA.

FALSE FLOOR FOR CARS.

SPECIFICATION forming part of Letters Patent No. 658,159, dated September 18, 1900.

Application filed June 27, 1900. Serial No. 21,823. (No model.)

To all whom it may concern:

Be it known that I, GEORGE J. SANTA CRUZ, a citizen of the United States, residing at Mobile, in the county of Mobile and State of Alabama, have invented a new and useful False Floor for Cars, of which the following is a specification.

My invention relates to sectional open-work floors for railway-cars or transportation-vehicles, which allow the free circulation of air or liquid beneath the freight.

In the transportation of perishable food products—such as vegetables, fruit, dairy products, meats, and the like—it is desirable to have a free circulation of air in the vehicle in order to prevent heating and consequent deterioration, and in some cases, as is well known, it is necessary to provide means for artificially cooling this air and keeping it at approximately a constant temperature. As most traffic of this kind is carried on by means of railways, efforts to meet these requirements have been directed principally to the design and construction of freight-cars adapted to accommodate the various kinds of products mentioned. Freight-cars as ordinarily built to carry heavy freight—such as general merchandise, pig-iron, grain in bulk, &c.—are not suitable for the transportation of vegetables and other products of a perishable nature on account of their closeness and the lack of proper ventilation.

The principal object of my invention, therefore, is to produce a sectional open-work floor of convenient and economical construction, which may be easily placed in or removed from railway-cars or transportation-vehicles, which shall allow the free circulation of air or liquid beneath the freight, and be adapted to fold up against the ends and sides of the car free of the door-spaces.

A further object of my invention is to so construct the side sections of my floor that the same may be used as grain-doors when folded against the walls of the car.

The invention consists of a certain arrangement of the parts and details of construction hereinafter to be described and claimed, and illustrated in the accompanying drawings, in which like letters of reference indicate corresponding parts.

Referring to the drawings, Figure 1 shows

a sectional plan view of a freight-car to which my invention is applied. Fig. 2 is a vertical sectional view of same, the sections being shown in raised position by dotted lines. Fig. 3 is a sectional plan view showing a modification of the end section. Fig. 4 is a cross-sectional view of the car, showing an end section in its raised position; and Fig. 5 is a sectional view of same, taken on the line *xx* of Fig. 4. Fig. 6 is a vertical sectional view showing my floor adapted for use as a grain-door. Fig. 7 is a sectional plan view of the same. Fig. 8 is a vertical sectional view of my invention applied to a refrigerator-car, and Fig. 9 is a cross-sectional view of the same.

My floor is preferably constructed in six sections, of which four extend in pairs nearly the length of the car and two are placed transversely, one at each end. Referring to Figs. 1 and 2 of the drawings, *aa* represent two of the side sections of the false floor in position for use, each extending from the middle of the car to the end section *b*. This latter is hinged to the main floor of the car by any suitable means, such as the bolts *c*, passing through two of the battens *d* of said section and through the eyebolts *e*, secured to the main floor. Any well-known form of hinge suitable for the purpose may be used, however. Thus hinged section *b* may be folded up and back against the end of the car, as shown by dotted lines in Fig. 2, where it is held in place by the button or angle-iron *f* or any other suitable means. The side sections are slidably hinged to the main floor near the sides of the car by means of the eyebolts *e'*, of which two in each hinge are secured to the batten *d'* of the section and three to the main floor. The long bolt or rod *c'* passes through the eye of each eyebolt, as shown, completing the hinge. In the normal or position of use the relative positions of the eyebolts are as shown by the dotted lines in Fig. 1 and by the whole lines in Fig. 2, the spaces between them being such as to allow of the proper lateral movement of the sections.

Now when it is desired to fold up my floor out of the way either for the purpose of cleaning the car or for the accommodation of freight, for which the slat floor would not be suitable, the end sections are first secured to the end walls of the car, as before described.

The side sections are next raised up and pushed toward the ends of the car, the eye-bolts sliding upon the rods until they occupy the position indicated by dotted lines in Fig. 2, where they fit closely against the walls, leaving the doorways A of the car entirely free, and in which position they are securely held by the buttons *f'*. It is obvious that any sliding hinge suitable for my purpose may be employed; but the one just described is preferred.

The advantages of this construction and arrangement are obvious. As the number of cars employed on a railway for the shipment of different kinds of freight varies with the seasons of the year and the production, and as a car is frequently required to carry one kind of freight out and another on its return trip it is desirable to so equip many of them that they may be easily converted to accommodate the different kinds. Where a movable slat floor is employed, if it be detachable it is liable to become separated from the car and lost or broken; but by my construction it is a permanent fixture in the car and is divided into convenient sections which may be quickly and easily folded up out of the way, leaving the doorways clear and occupying little of the available space. My floor also is of extremely simple and cheap construction, is strong and durable, and may be easily removed from the car for repairs or any other purpose by removing the bolts upon which the sections are hinged. In this and the subsequently-described forms of my invention an important feature is the construction of the battens or scantlings upon which the slats of the floor rest. The lower sides of these are notched to form a series of inverted-U-shaped openings, the exact form of which may be varied at pleasure. These permit cross-ventilation and allow the air to circulate freely in all directions without materially lessening the solidity or strength of the floor itself. This is clearly shown in Figs. 2, 4, and 5.

It is sometimes desirable to arrange the slats of my floor longitudinally in the car, in which case the battens would of course be transversely placed, as shown in Fig. 3. Here the side sections are hinged by passing the rods or bolts *c'* through eyebolts, as before described, and through holes bored for the purpose in the battens of the section, the pierced battens sliding along the rods when the sections are run back toward the ends of the car.

While freight-cars are often constructed with square inside corners, as shown in Fig. 1, they are frequently provided with corner-pieces *g*, as shown in Figs. 3, 4, and 5. When this is the case, it is obvious that as the end sections are hinged as near the ends of the car as practicable, so as to lie close to them when folded back, their end slats would prevent this position. To obviate this difficulty, these end slats are movably connected with

the rest of the section by pivoting the ends of the supporting-battens *d'*, as at *d''*. (Shown by dotted lines in Fig. 3 and by whole lines in Figs. 4 and 5.) In Fig. 4 this section is seen folded against the end of the car, the end slats being brought toward the observer and accommodating themselves to the corner-pieces *g*. This is clearly shown in Fig. 5, which is a sectional plan view on the line *xx* of Fig. 4.

When cars fitted with my improved floor are used for the transportation of grain in bulk, the slat floor is not necessary for ventilating purposes and may be folded against the sides of the car. In this connection my floor by a slight alteration in its construction may be adapted to serve the purpose of a grain-door, as shown in Figs. 6 and 7. Here the slats of the side sections coming opposite the car-doorways and a short distance beyond are replaced by a solid floor *h*, resting on the battens *d'*, so that when raised and secured in the position shown in Fig. 6 a good grain-door is formed, the solid portion of the movable floor fitting snugly against the sill and lower portion of the door-frame.

In order to facilitate the discharge of the grain, a hole *i* is cut in the solid portion of the false floor near the door-sill. This is provided with a slide *k*, working in slots in the battens *d'* and adapted to be raised or lowered to allow or check the flow of grain from the opening. *m* is a stop-strip to prevent the slide from being raised entirely out and becoming detached from the floor. When the false floor is thrown down in the position shown in Fig. 7, these slides are concealed and protected from injury by the solid portions *h* of the floor.

In applying my invention to refrigerator-cars having ventilating-openings between the ice-chamber and the interior of the car it has been found that the circulation of air from the lower of said openings is often impeded by the freight being piled against the screen covering it. One form of such a car fitted with my flooring is shown in Figs. 8 and 9, in which C represents the ice-chamber at one end of the car, provided with a cover D and having a screened upper opening E. The lower opening E' is provided with a screen E'', hinged at its upper edge to the partition F, the movable members of said hinges extending across the screen and two of them, *n n*, being extended to form part of the hinge of the floor end section *b*. These extension-pieces *n n* are slotted, so as to form a loose hinge with the rod or bolt *o*, which secures them to the battens of the floor-section, as shown. This construction permits the said end section after being thrown down for use to be drawn a short distance from the partition, so that the freight loaded upon it cannot obstruct the opening E', but will rest against the hinged screen, thus allowing the cooled air to enter and circulate freely under the false floor. When not in use, the section may be shoved back

and folded up against the partition as easily as in the case of the single hinge. This arrangement also facilitates the cleaning out of the ice-chamber C, to allow which the end floor-section should be raised clear of the main floor and supported against the partition in such a manner as to hold the screen E'' entirely clear of its opening, giving ready access to the ice-chamber.

10 Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

15 1. In a car, the combination of a sectional floor comprising end sections and intermediate sections, each of said sections being made up of slats and battens as described, the end sections being hinged to the ends of the car and adapted to be folded up thereagainst, while the intermediate sections are adapted to be folded up against the sides of the car, substantially as described.

25 2. In a car, the combination with the main floor, of a sectional open-work floor, adapted to rest on the main floor, each of said sections being hinged at its edge to the car-body, and the sections adjacent to the car-door being slidably mounted in place, substantially as described.

30 3. In a car, the combination with the car-body, of a sectional floor, said sections being hinged to the car-body and adapted to cover the main floor, each end section having pivoted ends, substantially as described.

35 4. In a car, the combination with a car-body, of a sectional floor, each section being made up of slats and battens, and hinged to the car-body, the end sections having pivoted ends and the intermediate sections having a sliding connection with the car-body so as to permit them to be moved clear of the door-space, substantially as described.

40 5. In a refrigerator-car, the combination with an ice-chamber located in the end of the car, and a pivoted screen located at the lower

end of the ice-chamber, of a sectional open-work floor, the section of the floor adjacent to the ice-chamber being pivotally connected with the lower edge of the screen, the remaining sections of the sectional floor being hinged to the car-body, substantially as described. 45 50

6. In a car, the combination with a ventilating-opening at the end thereof near the floor, a hinged screen adapted to cover said opening, of a sectional open-work floor, the section adjacent to said opening being loosely hinged to the lower edge of said screen, and the remaining sections of the sectional floor being hinged to the car-body, substantially as described. 55

7. In a car, the combination of a sectional floor comprising end and side sections, the side sections adjacent to the door-space being slidably hinged to the car-body and adapted to form the car-door, substantially as described. 60 65

8. In a car, the combination of a sectional open-work floor comprising end and side sections, each of said side sections adjacent to the door-space being slidably hinged to the car-body and provided with a closed portion opposite the door-space, substantially as described. 70

9. In a car, the combination of a sectional open-work floor comprising end and side sections, each of said side sections adjacent to the door-space being slidably hinged to the car-body and provided with a closed portion opposite the door-space, a discharge-opening in said closed portion, and a slide to control the discharge therefrom, substantially as described. 75 80

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE J. SANTA CRUZ.

Witnesses:

J. W. CORRY,
C. L. HUMPHREY.