

No. 704,709.

Patented July 15, 1902.

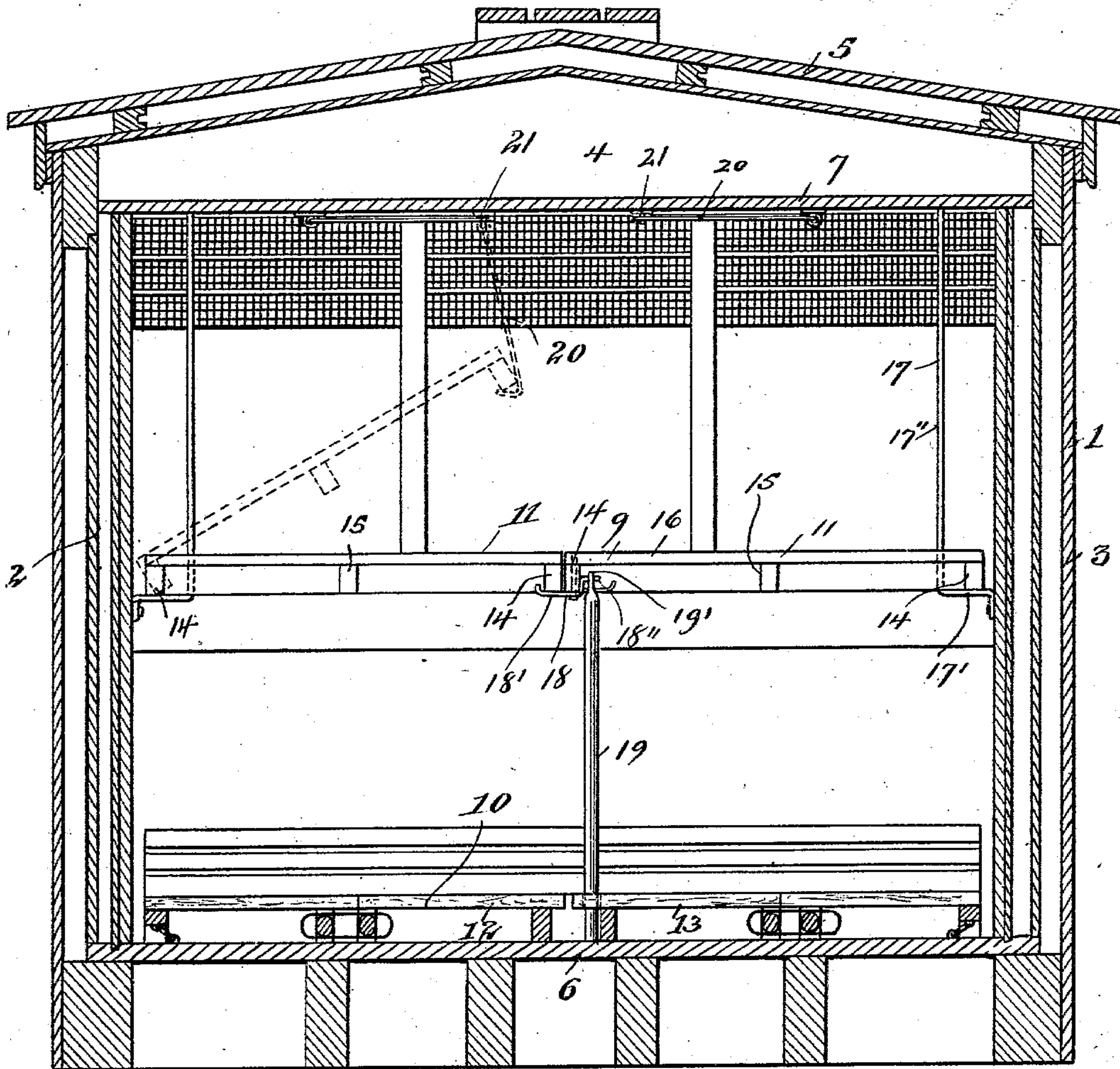
W. E. SHARP.
DOUBLE DECK CAR.

(Application filed Apr. 15, 1901.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1.



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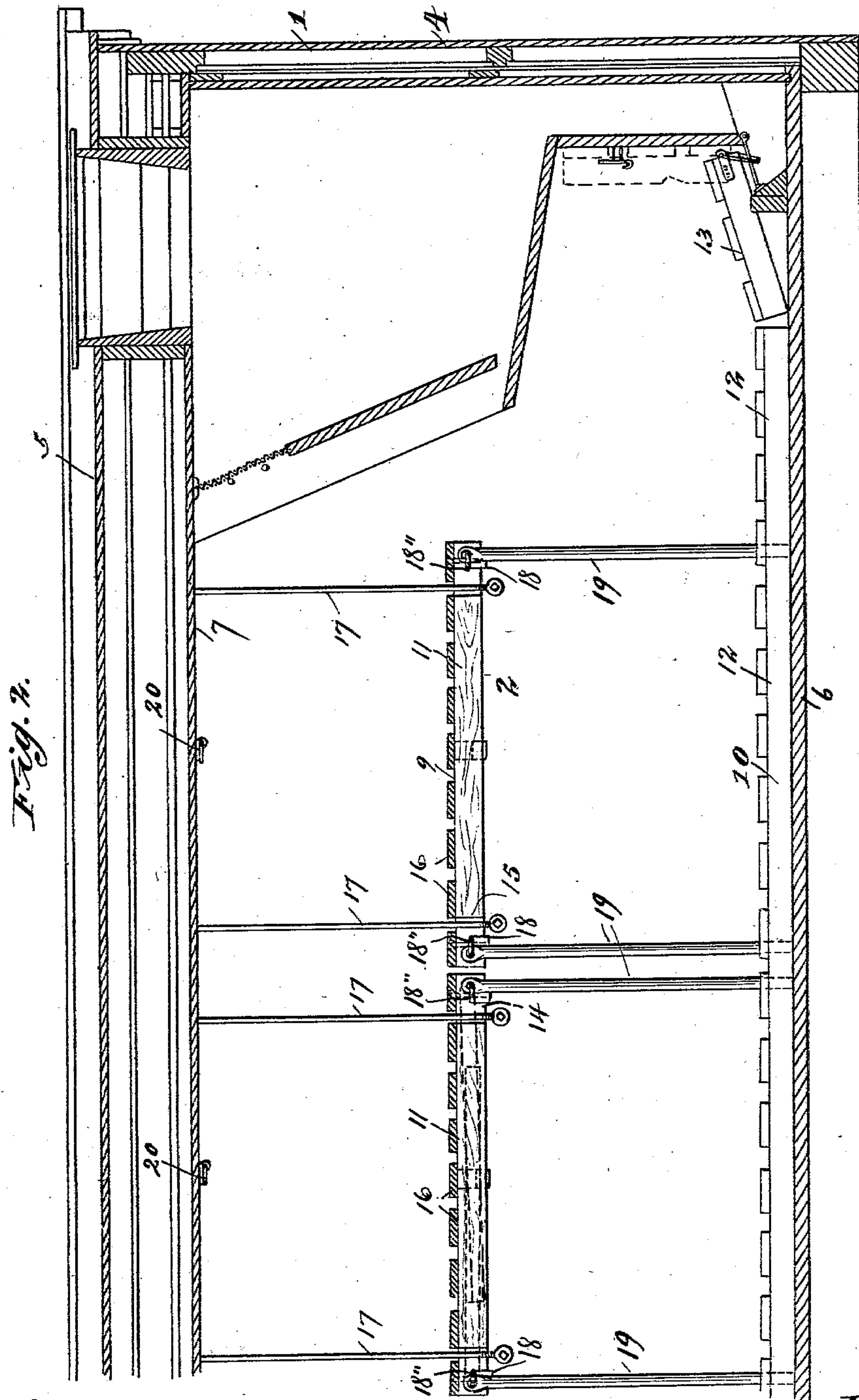
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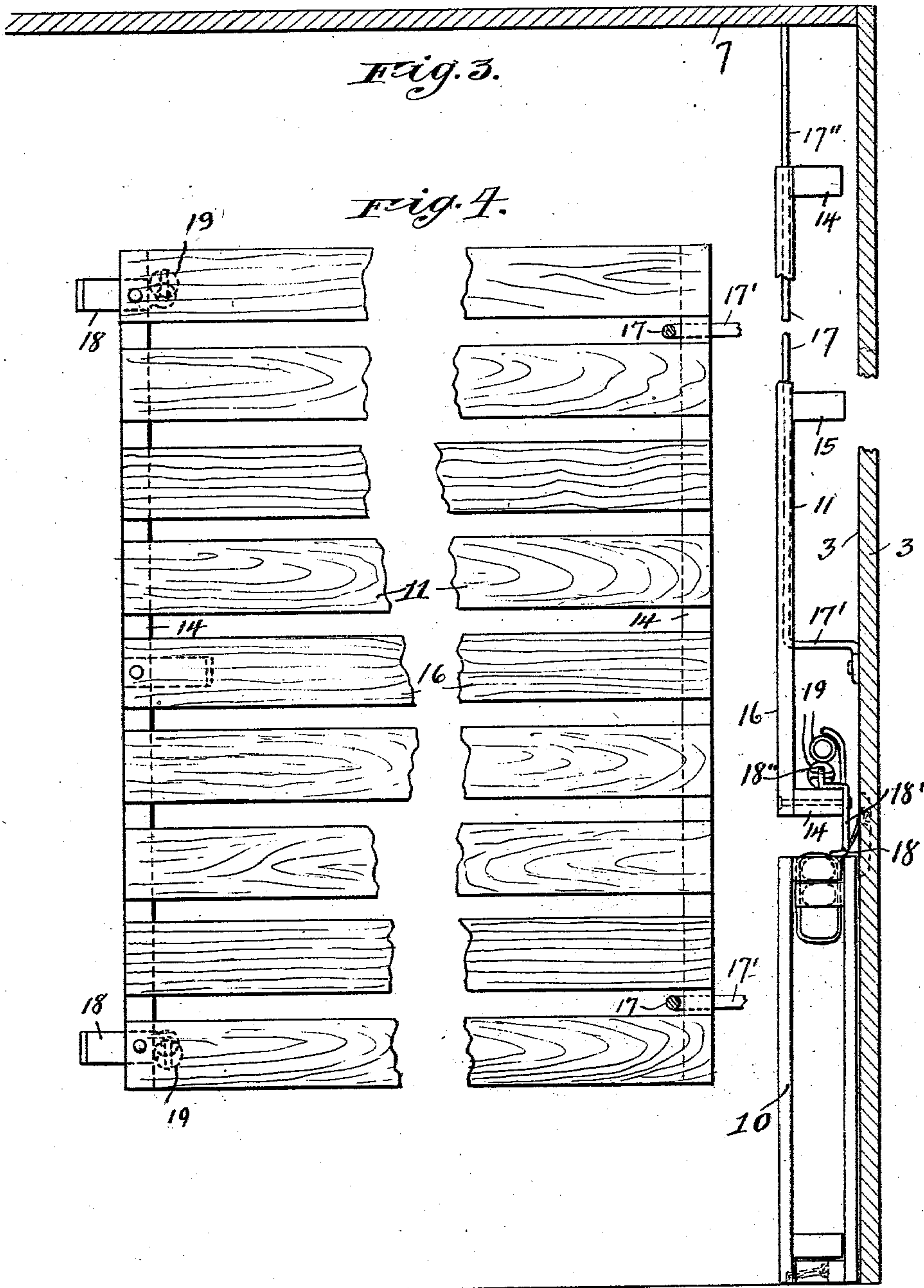
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3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

WILLIAM E. SHARP, OF CHICAGO, ILLINOIS, ASSIGNOR TO ARMOUR & COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

DOUBLE-DECK CAR.

SPECIFICATION forming part of Letters Patent No. 704,709, dated July 15, 1902.

Application filed April 15, 1901. Serial No. 55,965. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. SHARP, of the city of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Double-Deck Cars, of which the following is a specification.

This invention relates to improvements in freight-cars, and refers more specifically to improvements in collapsible racks or floor-sections for use in such cars.

The object of the invention is to provide for a car, which may be otherwise of ordinary construction, a series of removable racks adapted to be arranged and supported to form an intermediate floor or double deck, the sections of said series being so constructed that they may be shifted out of the way and stored against the sides of the car when not in use without occupying more than an insignificant amount of space and in which stored position the sections are reliably secured out of the way of harm.

To this end the invention consists in the matters hereinafter described, and particularly pointed out in the appended claims, and will be readily understood from the following description, reference being had to the accompanying drawings, in which—

Figure 1 is a transverse vertical sectional view taken through the body of an ordinary freight-car and showing the arrangement of rack-sections therein. Fig. 2 is a central longitudinal vertical sectional view of the car-body, taken on a line extending between the outer longitudinal joist members of the leg-supported rack-sections and the pivoted legs thereof. Fig. 3 is a fragmentary transverse vertical sectional view showing the rack in stored position. Fig. 4 is a plan view of one of the rack-sections, the central portion thereof being broken out to reduce the size of the figure.

As will hereinafter appear, the present invention is not limited to any particular type of closed freight-car, these rack-sections and their mountings being suitable for use either in refrigerator-cars or in any ordinary box-car.

Referring to the drawings, 1 designates as a whole the body of a closed car comprising side walls 2 3, respectively, end walls 4, roof

5, and the usual floor and ceiling 6 7, respectively.

9 and 10 respectively designate as a whole two series of rack-sections, the individual sections of the upper series being designated 11 and those of the lower 12 and 13. It may be stated at this point that the lower series of rack-sections 10 are constructed and arranged substantially in accordance with the construction described in Letters Patent granted to T. B. Kirby October 21, 1900, No. 656,462, to which patent reference is made for a detailed description of the same.

Describing in detail the construction and arrangement of the upper series of rack-sections 9, it may be noted that while the sections are herein shown as of open or slatted construction, suitable for the shipment of such products as require circulation of air through the car, yet it will be understood that these sections may be equally within the scope of the invention constructed with close joints, so as to constitute a practically continuous floor when in operative position.

Each rack-section 11 is constructed of a width substantially equal to one-half the width of the car and of such length that the rack-section is not unduly heavy and unwieldy, said sections being preferably and as shown in the present instance made of a length equal to one-half the distance between the side door and the end of the car. In other words, there are on each side two rack-sections placed end to end between the side-door opening of the car and either end of the latter. Each section comprises a pair of longitudinally-disposed joists 14, one at each lateral margin of the section, and an intermediate joist 15, across which longitudinal supports are arranged to extend a series of slats 16, suitably secured thereto at regular intervals apart, as best shown in Fig. 4. The intermediate supports 15 are shorter than the full length of the rack, their ends terminating some distance from the end margins of the rack-sections, as best indicated in Fig. 2, for a purpose which will hereinafter appear.

17 17' designate pairs of combined supporting and guide rods, one pair for each rack-section 11, said rods each comprising a horizontal supporting portion 17', secured to the

side wall of the car at a suitable height to support the rack-sections in the desired position, as best indicated in Fig. 1, and a vertical portion 17", which extends from the horizontal supporting portion at right angles upwardly and is secured to the ceiling. The length of the horizontal portions 17' is somewhat greater than the vertical thickness of the joists or longitudinal members of the rack-sections, so that the latter may be adjusted into vertical position behind the pairs of rods and be thereby held in the position shown in Fig. 3 in a manner to be hereinafter more fully described.

In order to provide supports for the meeting margins of the opposite pairs of racks, means are provided as follows:

18 designates clips secured to the inner longitudinal support 14 of one of each pair of transversely opposite rack-sections, there being two such clips upon each such section and preferably located near the respective end margins thereof, as best shown in Figs. 1 and 2. Each clip 18 consists of a plate-like body portion 18', adapted to be secured flatwise against the lower edge of the longitudinal support 14, so as to project laterally beneath and form a support for the longitudinal stringer of the meeting rack-section, and an eye portion 18'', formed upon one end of the plate-like body and located inside of the longitudinal stringer and somewhat above the lower edge of the same, as clearly indicated in Fig. 1. To the eye 18'' is pivotally attached a depending leg or support 19, conveniently and as herein shown formed of gas-pipe provided at one end with a flattened portion through which is formed an eye 19', which is engaged with the eye of the clip 18, the construction being such that the leg or support may be folded upwardly parallel with and between the upper and lower planes of the rack. In the present instance the legs 19 are made of a suitable length to rest upon the lower series of racks 10; but in case this latter series be omitted they may obviously be made of sufficient length to rest directly upon the floor of the car.

In shifting the rack-sections into their stored positions their outer edges, which are located adjacent to the side walls of the car when they are in operative position, are carried up so that they are uppermost when the rack is in vertical position and that side of the rack which is the under side when in operative position is next to the side wall of the car. Inasmuch as the racks are of a width somewhat greater than the distance between the horizontal supporting portions of the rod 17 and the floor of the car, it is necessary that the racks be lifted bodily upwardly some distance before their meeting edges can be lowered far enough to carry the rack into a vertical position. Furthermore, when the racks are in stored position they are held with their upper edges near the ceiling of the car, so that to permit the rack to swing down bodily

about the pivotal connection formed by the engagement of its outer longitudinal support with the horizontal portion of the rod 17 would incur unnecessary work, since the rack would thereafter have to be lifted bodily upwardly again. In order to avoid these objections and to facilitate the adjustment of the racks into stored position, I provide supporting-hooks 20, one for each rack-section, and pivotally secured to the ceiling of the car at a point about midway of the lengths of the respective rack-sections, but nearer their meeting edges, as indicated at 21, these hooks being of a suitable length to engage with the edge of the rack-section when the latter is lifted up to an angle approaching forty-five degrees, as indicated in dotted lines in Fig. 1. After the rack has been lifted up, and thus engaged with its hook, the opposite side of the rack is likewise carried up into and beyond a horizontal position, whereupon the hook is disengaged and this edge of the rack allowed to descend into vertical position, after which it is raised bodily to the desired height and secured. It will be noted in this connection that the ends of the intermediate supports 15 of each rack-section are cut sufficiently short to avoid interference with the rods 17.

When the series of rack-sections constituting my present invention are used in conjunction with a series of rack-sections substantially like those of the Kirby construction herein illustrated, the latter series of rack-sections when folded up into stored position form a convenient means of support upon which to rest the upper rack-sections in stored position—that is to say, the upper edges of the pairs of rack-sections 12 form ledges upon which the lower edges of the upper series of rack-sections rest, thereby holding them securely in uplifted position. In the case of those sections which carry the supporting-plates 18 said plates form leg-like supports, which rest upon the upper margins of the lower racks, as indicated clearly in Fig. 3, while in the case of the opposite series of racks which are unprovided with such supporting-plates they obviously rest directly upon the subjacent series of racks. The character of the engagement between the upper and lower series of racks is such that ordinarily no special means are required for holding the upper rack-sections from working outwardly out of engagement with the subjacent racks; but obviously ordinarily retaining-hooks and eyes may be provided—for example, similar to those described in the said Kirby patent—for securing the racks absolutely in stored position.

Any suitable means may be employed for holding the rack-sections elevated in stored position in case they be used in a car unprovided with the lower rack-sections adapted to form ledges upon which they may rest, as hereinbefore described.

It will be understood from the foregoing de-

scription that the details of construction may be modified to some extent without departing from the spirit of the invention. For example, while the suspension-hooks 20 are an important aid in accomplishing the shifting of the rack-sections from stored to operative position, and vice versa, yet such suspension-hooks may obviously be dispensed with, at the sacrifice, of course, of their aid.

Any suitable construction of rack may be employed to form the double deck of that portion of the car located between the side-door openings. For example, a rack-section like that described in my application filed contemporaneously herewith, Serial No. 55,964, is well adapted for this purpose.

I claim as my invention—

1. A double-deck apparatus for cars, comprising a series of vertically-disposed guide-rods arranged adjacent to, but separated from, the side wall of the car, rack-sections at the lower ends of said guide-rods, a series of rack-sections of less width than the transverse width of the car, severally provided along their longitudinal edges next the wall of the car with longitudinally-extending supporting joist members adapted to rest upon said rack-supports between the said guide-rods and the wall of the car, the construction and relative arrangement of said joist and guide-rods being such as to permit the rack-sections to be swung into vertical position and shifted upwardly with their longitudinally-supporting joists between the guide-rods and wall of the car, means for supporting said rack-sections in said vertical and uplifted positions at a height above the floor of the car sufficient to accommodate a similar rack-section arranged in vertical position beneath the same and means for supporting the outer edges of the rack-sections to hold the same in horizontal position.

2. A double-deck apparatus, comprising a series of vertically-disposed guide-rods arranged adjacent to, but separated from, the side wall of the car, rack-sections at the lower ends of said guide-rods, a series of rack-sections of less width than the transverse width of the car, severally provided along their longitudinal edges next the wall of the car with longitudinally-extending supporting joist members adapted to rest upon said rack-supports between the said guide-rods and the wall of the car, the construction and relative arrangement of said joist and guide-rods being such as to permit the rack-sections to be swung into vertical position and shifted upwardly with their longitudinally-supporting joists between the guide-rods and wall of the car, means for supporting said rack-sections in said vertical and uplifted positions at a height above the floor of the car sufficient to accommodate a similar rack-section arranged in vertical position beneath the same and means for supporting the outer edges of the rack-sections to hold the same in horizontal position, and suspension-

hooks secured to the ceiling of the car at points respectively above the several rack-sections and adapted to temporarily support the swinging end of the several rack-sections at a height intermediate their normal horizontal position and the ceiling of the car.

3. A double-deck apparatus for cars, comprising a series of vertically-disposed guide-rods arranged adjacent to, but at an interval from the side wall of the car, each guide-rod having at its lower end a horizontal extension extending outwardly to and connected with the side wall and forming a rack-support, a series of rack-sections of less width than the transverse width of the car, each comprising a longitudinally-disposed joist member adjacent to each side margin and a series of transverse slats secured to said joist members, the joist member at the outer edges of said rack-sections being arranged to extend between said guide-rods and the adjacent side wall of the car and adapted to rest upon the rack-supporting portions of said rods, and means for supporting the opposite edges of said rack-sections comprising one or more legs pivotally connected with one member of each pair of laterally opposite sections and respectively adapted to be folded upon the rack-sections when out of use, and projections upon the leg-supported sections adapted to engage and support the opposite meeting sections, substantially as described.

4. A double-deck apparatus for cars, comprising two series of vertically-disposed guide-rods arranged adjacent to, but at an interval from the respective side walls of the car, each guide-rod having at its lower end a horizontal extension extending outwardly to and connected with the side wall and forming a rack-support, two series of rack-sections connected with the respective series of supports, each rack-section of a width approximately equal to one-half the width of the car, and each comprising a longitudinally-disposed joist member adjacent to each side margin and a series of transverse slats secured to said joist members, the joist member at the outer edge of each rack-section being arranged to extend between a pair of said guide-rods and the adjacent side wall of the car and adapted to rest upon the rack-supporting portions of said rods, means for supporting the meeting edges of the said rack-sections comprising plate-like extensions secured to the under side of the joist at the meeting margins of one section and underlying the joist of the laterally opposite section and means for supporting said sections at their meeting margins comprising legs pivotally connected with said plate-like extensions, and adapted to be folded upon the racks when out of use, substantially as described.

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