

No. 670,400.

Patented Mar. 19, 1901.

H. A. TURNER.
CAR FOR STOCK OR OTHER FREIGHT.

(Application filed Dec. 11, 1900.)

(No Model.)

3 Sheets—Sheet 1.

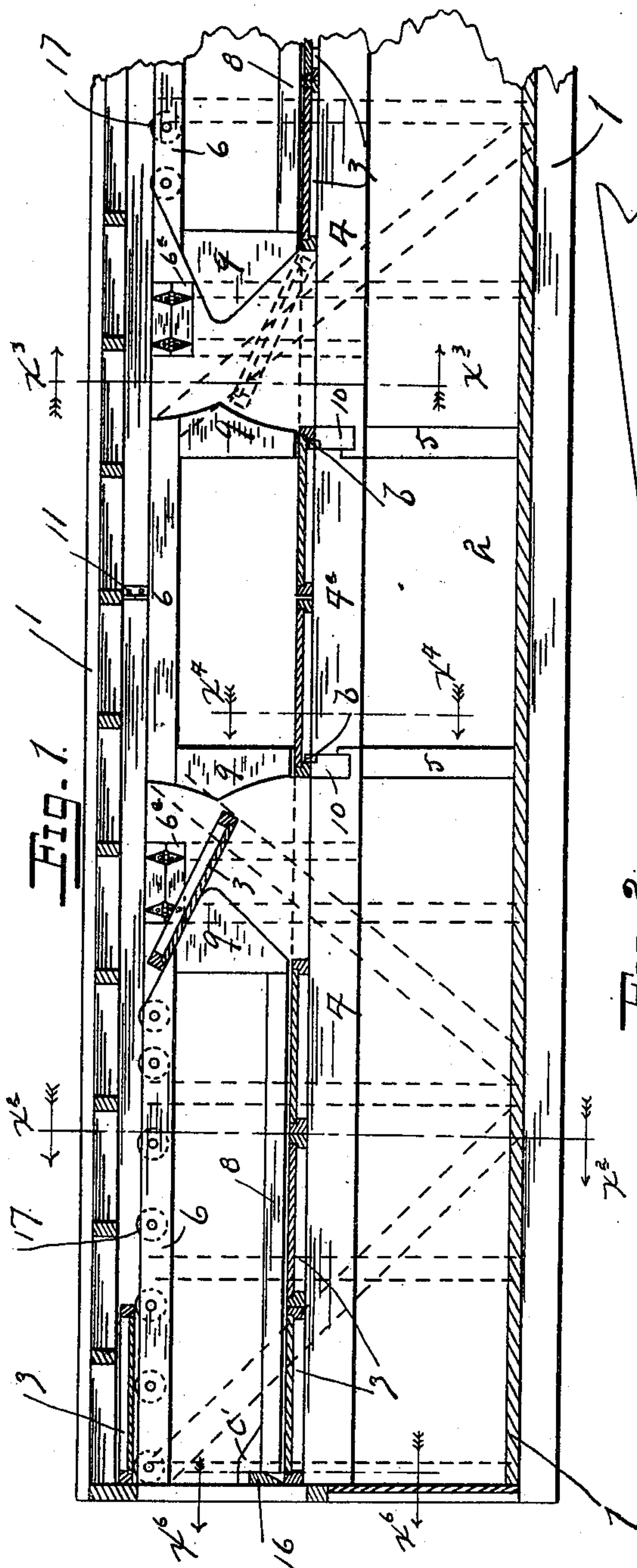


Fig. 2.

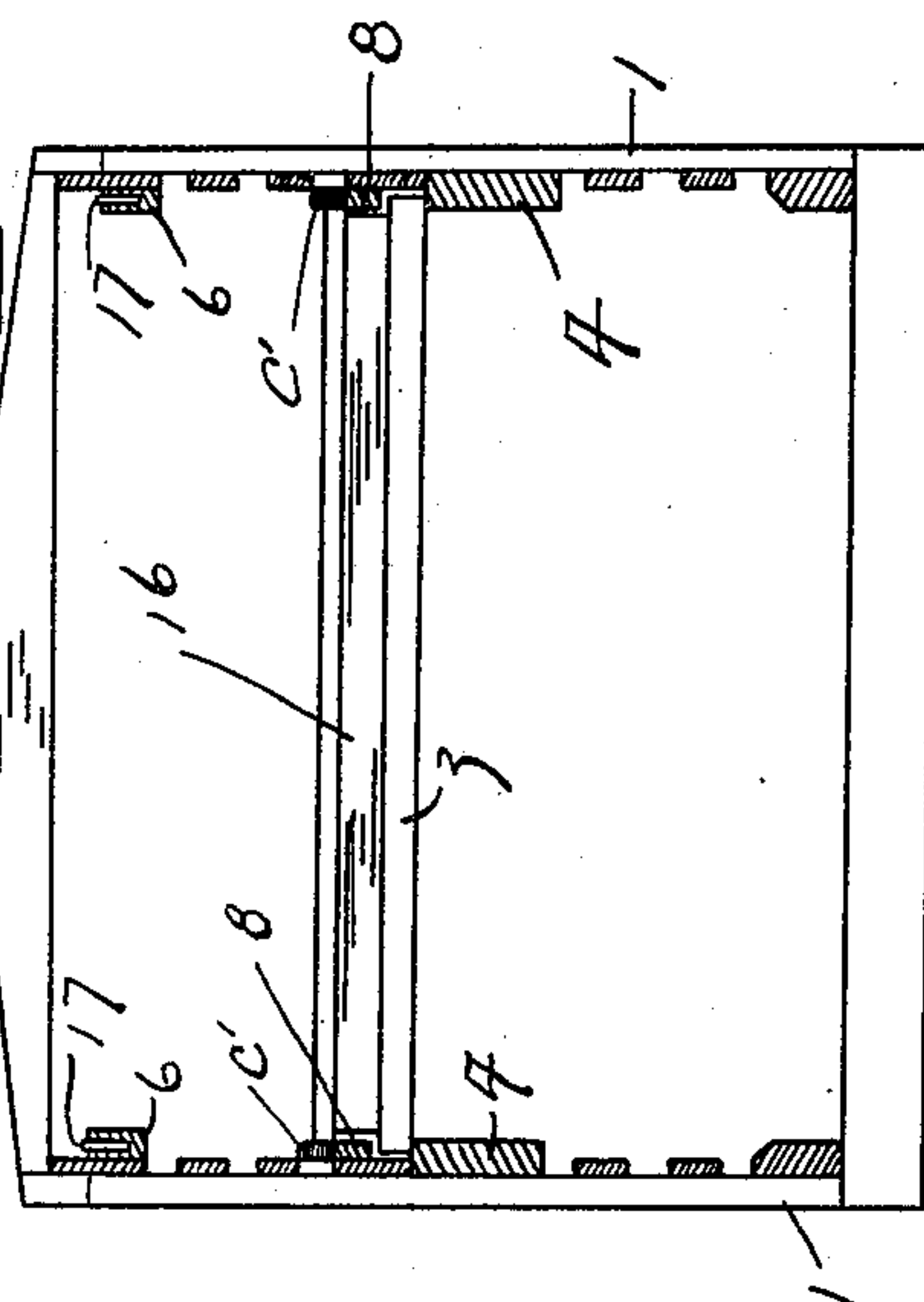
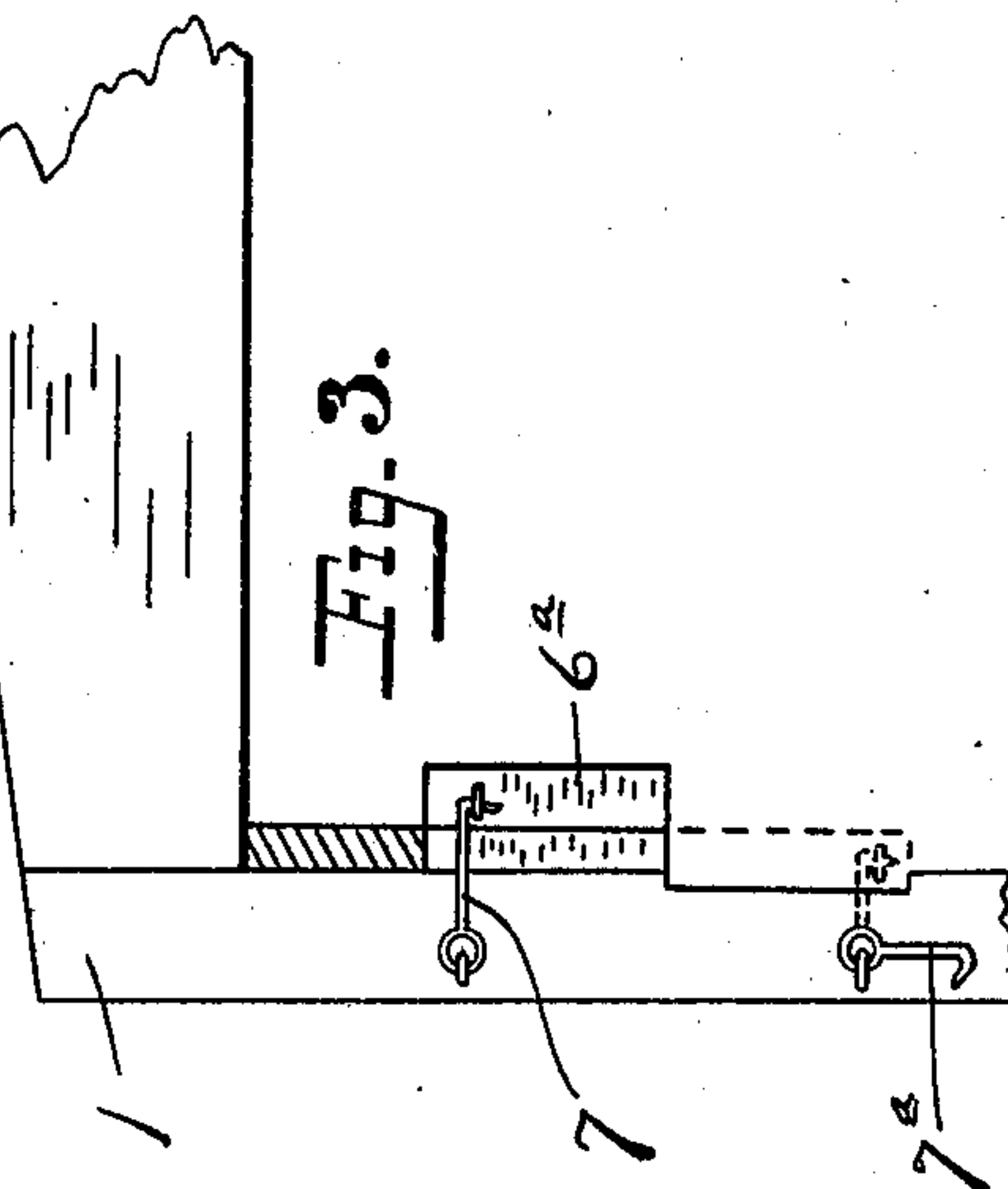


Fig. 3.



Witnesses.
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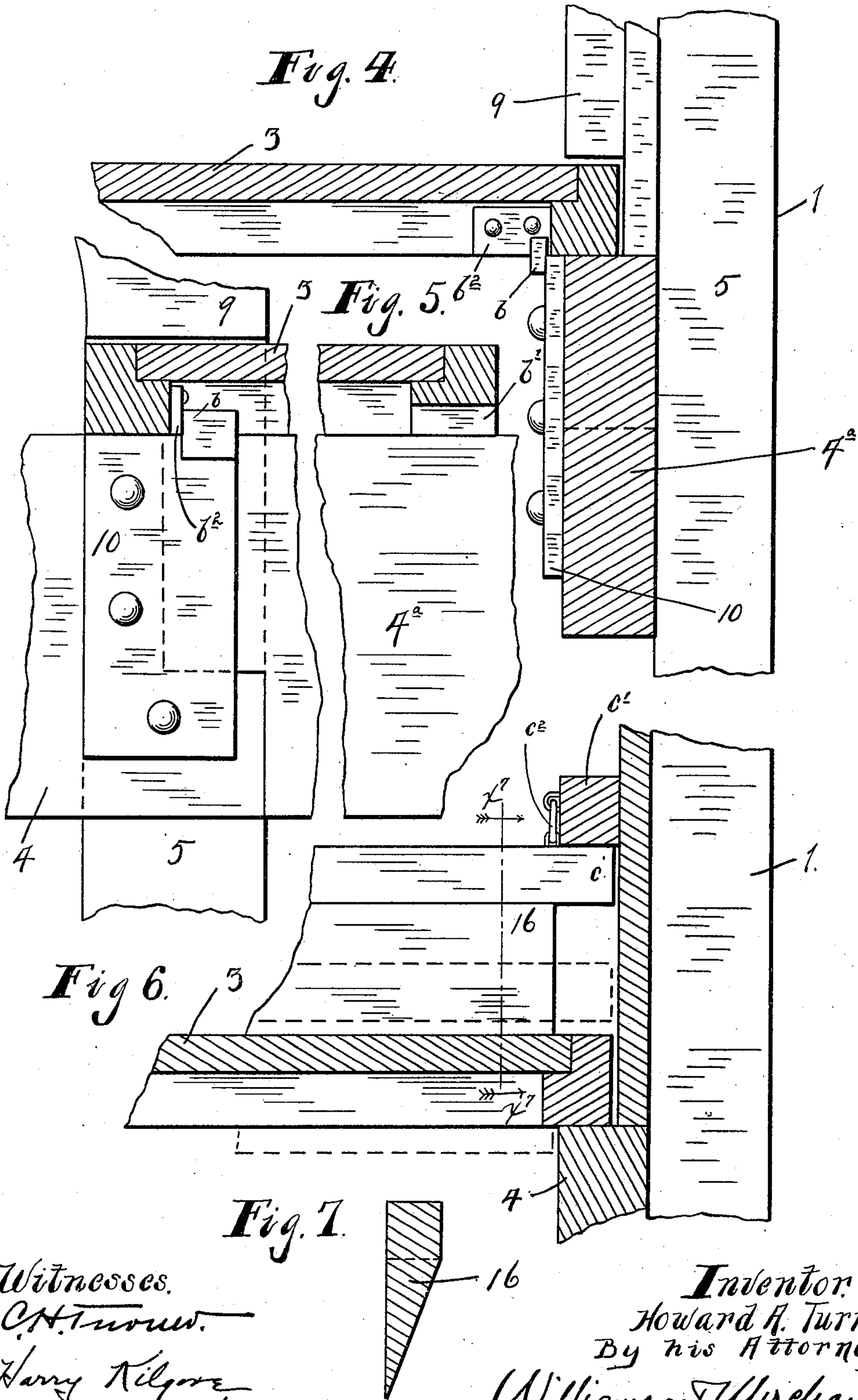
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3 Sheets—Sheet 2.



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3 Sheets—Sheet 3.

Fig. 8.

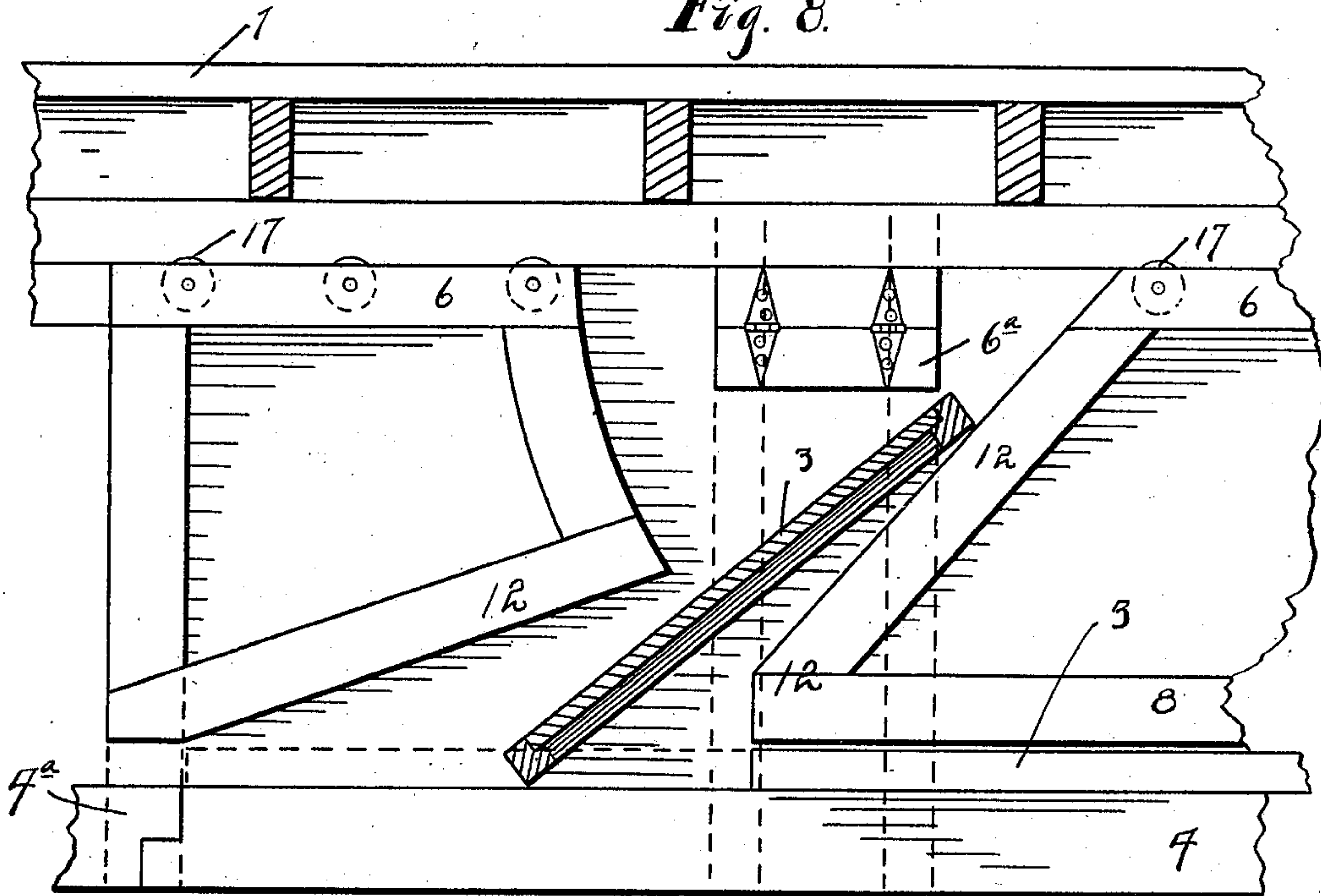
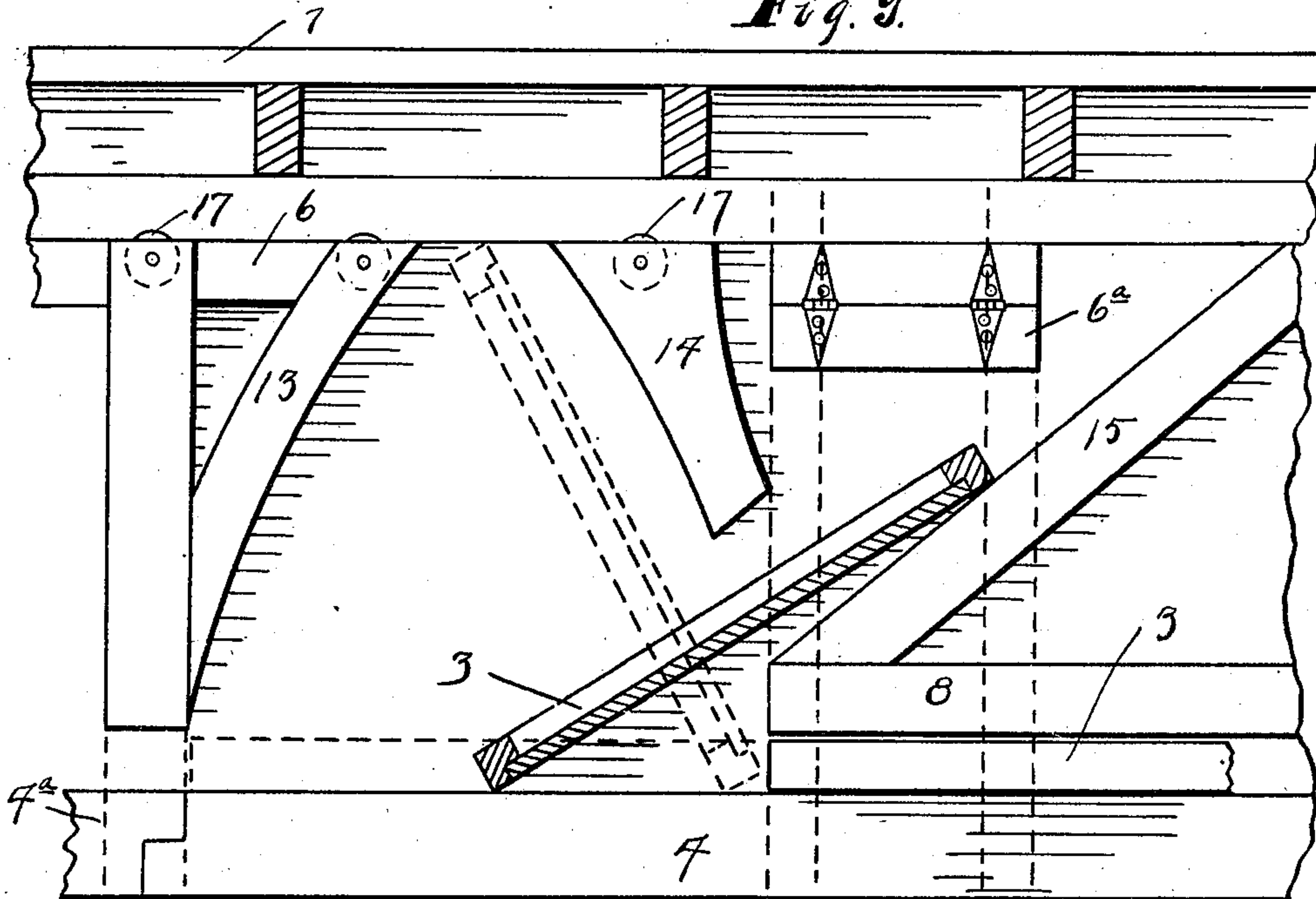


Fig. 9.



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UNITED STATES PATENT OFFICE.

HOWARD A. TURNER, OF MINNEAPOLIS, MINNESOTA.

CAR FOR STOCK OR OTHER FREIGHT.

SPECIFICATION forming part of Letters Patent No. 670,400, dated March 19, 1901.

Application filed December 11, 1900. Serial No. 39,463. (No model.)

To all whom it may concern:

Be it known that I, HOWARD A. TURNER, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Cars for Stock or other Freight; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to cars for stock and other freight of the class which are convertible from single to double deckers, and conversely, in order to adapt the same for use in shipping either large or small animals, and when shipping the latter to double the capacity of the car. When using the car for other classes of freight or when the convertible feature is applied to box and refrigerator cars, the range of capacity is also greatly increased for some classes of merchandise.

My invention has for its object to improve this class of cars with a view of securing increased efficiency, especially in point of reliability and economy of maintenance.

To these ends my invention consists of the novel devices and combinations of devices, which will be hereinafter described, and defined in the claims.

The invention is illustrated in the accompanying drawings, wherein like notations refer to like parts throughout the several views.

In said drawings, Figure 1 is a view in vertical longitudinal central section through a portion of the car-body equipped with my improvements, some parts being broken away and other parts being removed to avoid confusion of line. Fig. 2 is a vertical cross-section on the line $x^2 x^3$ of Fig. 1, but with the siding applied to the car. Fig. 3 is a partial cross-section on the line $x^3 x^3$ of Fig. 1. Fig. 4 is a partial cross-section on the line $x^4 x^4$ of Fig. 1. Fig. 5 is a detail in central vertical section lengthwise of the car in the same plane as Fig. 1, but on a larger scale and with some parts broken away. Fig. 6 is a detail in vertical section on the line $x^6 x^6$ of Fig. 1 with some parts broken away, looking outward at the take-up blocks. Fig. 7 is a detail showing the take-up block or wedge in cross-section on the line $x^7 x^7$ of Fig. 6. Fig.

8 is a view in longitudinal vertical section in the same plane as Fig. 1 through a portion of a car equipped with a modified form of connecting-guides between the upper and lower sets of supporting-rails for the deck-sections, and Fig. 9 is a similar view showing another modification in the form of said connecting-guides.

The car-body 1 is of the customary or any suitable form adapted for use in shipping stock and is provided at its longitudinal center with the customary door-openings 2 in its side walls. This car-body is equipped with shiftable deck-sections 3 and suitable cooperating parts, adapting the same to be supported in a lower or working position slightly above the vertical center of the car and in an upper or idle position directly under the car-roof and to be shifted from one position to the other without permitting the same to be removed from the car without violence to some of the parts. This prevents the deck-sections from becoming lost or stolen. When said deck-sections are in their lowermost or working position, they rest upon supporting-rails, shown as made up of the main members 4, extending from the door-posts 5 to the ends of the car and being fixed to the sides of the car, and of central or removable members 4^a, detachably secured either to the fixed rail members 4 or the door-posts 5 in any suitable way for spanning the door-openings 2 and completing the rails to the full length of the car. When in their uppermost or idle position, said deck-sections 3 rest upon supporting-rails secured to the sides of the car, slightly below but near to the roof, and which upper set of supporting-rails is shown as made up of end and central members 6, fixed to the sides of the car, and pivoted sections 6^a, hinged to the sides of the car in gaps between the fixed sections 6. The pivoted sections 6^a are adapted to fold downward out of the way, so as to afford clearance for the passage of the deck-sections 3 to and from their idle positions, and adapted to be turned up under the last-raised deck-section and be there locked by hooks 7 or other devices, as shown in Fig. 3, for holding up the last-raised deck-section and locking the entire set of deck-sections in their idle position on the upper set of supporting-rails 6 and 6^a.

Guard-rails 8 are fixed to the sides of the car directly above the fixed members 4 of the lower supporting-rails in position to over-reach the deck-sections 3 at their side edges when the deck-sections are in their lowermost or working position.

Suitable guides 9 extend from the lower to the upper set of the supporting-rails for the deck-sections, and these guides 9 are spaced apart to afford ways through which the deck-sections 3 can be shifted from their working to their idle position, or conversely, and are so constructed and disposed relative to the two sets of rails and relative to each other, that the deck-sections cannot be removed while the same are being shifted through the said ways from one position to the other. As shown in Fig. 1, for example, the said guides 9 are so disposed and have guiding-surfaces of such shape that the upper and lower ends of the ways afforded between the said guides are of greater length lengthwise of the car at the upper and lower ends of the guides than at the midway point of the guides. This construction permits the deck-sections 3 to be turned up edgewise after being brought to the lower ends of the ways between the guides 9 and then to be reversed or turned upside down and shoved overhead onto the upper set of supporting-rails 6 and 6^a. The pivoted rail-sections 6^a are left down until the last deck-section 3 is raised and are then upturned, as before stated, and there locked by the hooks 7. In making this shift from working to idle position part of the deck-sections 3 are shoved outward toward the ends of the car onto the fixed rail-sections 6 and others are shoved toward the center of the car onto the fixed rail-sections 6 over the door-openings, and then the last section is raised into place and the pivoted rail-section 6^a turned up, as described. When the said deck-sections 3 are in their uppermost or idle position, it is obvious that they are held from displacement by their supporting-rails 6 and 6^a and the roof of the car.

The connecting-guides 9 are of a thickness about the same as the supporting-rails 4 and the guard-rails 8. The guard-rails 8 and the guides 9 cooperate to keep the deck-sections 3 from being lifted off from their supporting-rails 4 and 4^a in all positions which they can take in their travel lengthwise of said supporting-rails 4^a and 4^a with the exception of the lift permitted through the ways afforded by the guide 9 when shifting from their working to their idle position.

In order to prevent removal of the deck-sections 3 by bringing the same in succession to the center of the car on the supporting-rails 4 and 4^a, the said deck-sections 3 and the said supporting-rail members 4 or some fixed part of the car-body are provided with interlocking surfaces, which prevent the deck-sections from being moved beyond a predetermined limit across the door-opening, which predetermined limit is such that the deck-sections

are always held on the rail members 4 and with portions thereof either under the guides 9 or sections of the guard-rails 8. The devices shown for this purpose are plates 10, fixed to the rail-sections 4 adjacent to the door-posts 5 and provided with stop-lugs *b*, which project into the path of the frame-pieces of the deck-sections 3. The said deck-sections 3 are of batten form, with rectangular frame-sections at their margins which support suitable flooring secured thereto. The cross-car members of these frame-pieces are of greater depth than the flooring, and the frame-piece facing the car-door opening is provided with slots *b'*, adapted to pass the stop-lugs *b*, projecting from the fixed plates 10, and hence the deck-sections 3 can move across the door-opening until the rear cross-piece of the deck-section abuts against the stop-lugs *b*. As shown, the rear frame-pieces of the deck-sections 3 are provided with chafing-irons *b*², which come up against the stop-lugs *b*, as clearly shown in Figs. 4 and 5. As the deck-sections 3 from the opposite halves of the car must move in opposite directions on their supporting-rails 4 and 4^a to cross the door-openings 2, the said deck-sections are made rights and lefts in respect to the interlocking surfaces and slots *b'*, which prevent the deck-sections from moving beyond the center of said door-openings. Because the deck-sections 3 are thus made rights and lefts it is necessary to keep the deck-sections from the opposite halves of the car from being mixed up or shifted from one half of the car to the other. For this purpose dividing-stops 11 are fixed to the car-body at the center of the door-openings between the upper set of rail-sections 6 and the car-roof, as shown in Fig. 1, at the longitudinal center of the car. Hence the deck-sections 3 for each half of the car cannot be shifted from one end of the car to the other when taking the same down from their idle positions or when putting the same from their working into their idle positions. Of course it is obvious that the deck-sections from the two halves of the car cannot be passed from one end of the car to the other on the lower set of supporting-rails 4 and 4^a, because the stop-lugs *b* prevent any such result.

It was noted that with the guides 9 shaped and applied as shown in Fig. 1 the deck-sections 3 reverse or become turned upside down and so remain when in their idle position. This is done to increase the clearance when the car is to be used as a single-decker. If the deck-sections should go into their idle position right side up, the frame-pieces of the deck-sections would project downward somewhat and might be engaged by the horns of the animals.

While the guides 9 have been shown in Fig. 1 as located with one member of each pair of guides near the door-posts 5, it is of course obvious that they might be located at any other desired point in the car between the

door-openings and the ends of the car. The point is that the said guides afford suitable ways for shifting the deck-sections from working to idle position without permitting the said deck-sections to become lost or stolen or removed for any purpose without violence to the car. This is a great improvement in stock-cars of this class. In the service it has been found that when shiftable sections are employed without being at all times secured to the car said deck-sections will be stolen or will become detached and lost, and hence the deck-sections are liable to be missing at the time when most needed. In the car herein disclosed this cannot occur.

In the modification shown in Fig. 8 the connecting-guides 12 are shown as of angular form and are so disposed relative to each other as to afford proper ways to permit the deck-sections 3 to be shifted from their working to their idle positions and be kept at all times right side up, while also serving the same function as the guides 9 shown in the main views in preventing the removal of the deck-sections while being shifted.

In the modification shown in Fig. 9 the guides are three in number, (marked, respectively, 13, 14, and 15.) The members 13 and 15 connect the upper and lower sets of supporting-rails; but the member 14 simply projects downward from above to divide the space between the members 13 and 15 in the upper portion of the ways, thereby preventing clearance sufficient to permit the removal of the deck-sections at any point of the shift. The guides 13, 14, and 15 are so related that the deck-sections 3 when being shifted from working to idle position may be reversed and go into their idle position upside down, with the same results as with the guides shown in Fig. 1, or may go right side up.

It is of course obvious that the connecting-guides which afford the proper ways for permitting the deck-sections 3 to be shifted from working to idle position could take still other forms than those shown so long as they served the corresponding functions.

It is preferable that the deck-sections 3 should be made of wood, and, if so, it may be desirable to provide some compensation for shrinkage, so as to avoid any openings between the sections sufficient to pass the foot of a small animal. For this purpose I provide take-up blocks 16, having blades of wedge shape, adapted to be forced between the deck-sections or between the deck-sections and the end walls of the car. As shown, said take-up blocks 16 are mounted for application between the deck-sections and the end walls of the car. Said take-up blocks have lateral projections c on their heads, which overreach the supporting-rails 4 and are adapted to engage therewith to limit the downward movement of said blocks, and said lateral lugs c also underreach lugs c' , fixed to the ends of the guard-rails 8, as best shown in Figs. 1 and 6, thereby preventing the upward removal or

displacement of said take-up blocks at all times. Normally said take-up blocks 16 may be held up by hooks c^2 , as shown in Fig 6, in an idle or inoperative position, so as not to interfere with the deck-sections 3. When it is necessary to use the same, said take-up blocks 16 may be unhooked and forced downward between the end walls of the car and the end sections of the deck, thereby under the wedging action forcing the deck-sections 3 together and closing up the openings which might otherwise exist. As shown, the upper set of supporting-rails 6 are provided with antifriction-rollers 17 for facilitating the movement of the deck-sections 3 when shifting the same.

It will be understood that the details of the construction may be changed without departing from the spirit of my invention. Hooks 7^a may be applied, as shown in Fig. 3, to hold the pivoted rail-sections 6^a in their downturned position.

It is obvious that this car maximizes clearance and is free from any parts that can become loose or be detached.

While the invention has been illustrated as applied to a stock-car, it is of course obvious that the same is equally applicable to an ordinary box or refrigerator car and that when so applied the range of capacity of the car will be greatly increased for some classes of merchandise. In some cases also where the load carried may not be any larger the possible disposition afforded will better protect the goods. The same remarks apply when the stock-car is itself used for other forms of merchandise.

While the independent deck-sections 3 have been said to be in their "idle" position when resting on the overhead or top set of supporting-rails directly underneath the roof of the car, it must be obvious that the said word "idle" is used with reference to the convertible feature of the car as in contrast with the word "working" when applied to the deck-sections when being supported by the lower set of supporting-rails. Even when in their uppermost positions on the top set of supporting-rails it is obvious that merchandise might be suspended from the said deck-sections, and in that sense the overhead position would be also a working position. Such use might be made of the deck-sections sometimes, especially when using the same in box-cars.

What I claim, and desire to secure by Letters Patent of the United States, is as follows:

1. In a car, the combination with independently-shiftable deck-sections, of lower and upper sets of rails for supporting said deck-sections when in working and in idle positions, respectively, and guides connecting said lower and upper sets of rails, which guides afford ways for permitting the said deck-sections to be shifted from working to idle positions, or conversely, with said parts so constructed and disposed that said deck-

sections cannot be removed from the car, and hence cannot become lost or stolen, substantially as described.

2. In a car, the combination with shiftable deck-sections, of lower and upper sets of rails for supporting said deck-sections, when in working and in idle positions, respectively, which upper set of rails is provided with gaps for permitting the passage of said deck-sections to and from their idle positions, and retaining devices applied in said gaps for holding up the last-raised deck-section and thereby securing all the deck-sections in their idle position on the upper set of rails, substantially as described.

3. In a car, the combination with shiftable deck-sections, of lower and upper sets of rails for supporting said deck-sections when in working and in idle positions, respectively, which upper set of rails is provided with pivoted members adapted to move out of the way to open the gaps for the passage of the deck-sections to and from their idle position, and to assume a position underneath the last-raised deck-section to bar the said gap and hold all the deck-sections in their idle positions, substantially as described.

4. In a car, the combination with shiftable deck-sections, of lower and upper sets of rails for supporting said deck-sections when in working and idle positions, respectively, which upper set of rails is provided with pivoted members adapted to turn downward to open gaps for the passage of the deck-sections to and from their idle position, and to be locked in an upturned position, underneath the last-raised deck-section, to uphold the same, and retain all the deck-sections in their idle positions, substantially as described.

5. In a car, the combination with shiftable deck-sections, of lower and upper sets of rails for supporting said deck-sections when in working and in idle positions, respectively, guides connecting said lower and upper sets of rails, and spaced apart to afford ways through which the deck-sections may be shifted from working to idle positions, and conversely, guard-rails cooperating with said guides to prevent said deck-sections from being lifted off from the lower set of said rails, and interlocking surfaces on the deck-sections and the lower set of rails or other part of the fixed car structure, which interlocking surfaces cooperate to prevent the deck-sections from being pulled off from the lower supporting-rails endwise, at the car-openings, substantially as described.

6. In a car, the combination with shiftable deck-sections, of rails fixed to the sides of the car, for supporting said deck-sections in working position, and interlocking surfaces on said rails and deck-sections, respectively, which cooperate to prevent the deck-sections from being moved off from the ends of said rails

at the car-door openings, substantially as described. 65

7. In a car, the combination with shiftable deck-sections, of the lower set of rails for supporting said deck-sections in working position, the upper set of rails directly underneath the car-roof made up of the fixed members 6 and pivoted members 6^a, the guides 9 connecting said lower and upper sets of rails, the guard-rails 8 cooperating with the guides 9, as described, means for locking the pivoted rail-sections 6^a in their upturned positions, and the interlocking surfaces on the deck-sections and the lower set of supporting-rails for preventing the deck-sections from being pulled off from said lower rails at the car-door openings, all of which parts cooperate, as described, whereby the deck-sections can move from working to idle positions, or conversely, but can never become detached from the car, without violence thereto, and hence will not become lost or stolen, substantially as described. 70 75 80 85

8. In a car, the combination with the shiftable deck-sections 3 having the slots *b'* in the forward members of their frame-pieces, of the lower and upper sets of rails, for supporting said deck-sections in working and idle positions, respectively, guides connecting said lower and upper sets of rails and affording ways through which the deck-sections can be shifted from working to idle positions, or conversely, the fixed stop-plates 10 having the stop-lugs *b* adapted to pass through the slots *b'* in the deck-sections 3, and engage with the rear piece of the deck-section frame, as described, and the dividing-stops 11 fixed to the car-body, for preventing the deck-sections which belong to the opposite halves of the car from becoming intermingled, substantially as described. 90 95 100 105

9. In a car, the combination with wooden shiftable deck-sections and rails for supporting same in working position, of the guard-rails 8, the take-up blocks 16 having the wedge-shaped blades and provided with the lateral lugs or projections *c* overhanging the supporting guard-rails 8, substantially as and for the purposes set forth. 110

10. In a car, the combination with wooden shiftable deck-sections and rails for supporting the same in working position, of take-up blocks applicable to compensate for shrinkage between the deck-sections, and means for normally holding said take-up blocks in an idle position out of the way of the shiftable deck-sections, substantially as described. 115 120

In testimony whereof I affix my signature in presence of two witnesses.

HOWARD A. TURNER.

Witnesses:

JAS. F. WILLIAMSON,
F. D. MERCHANT.