

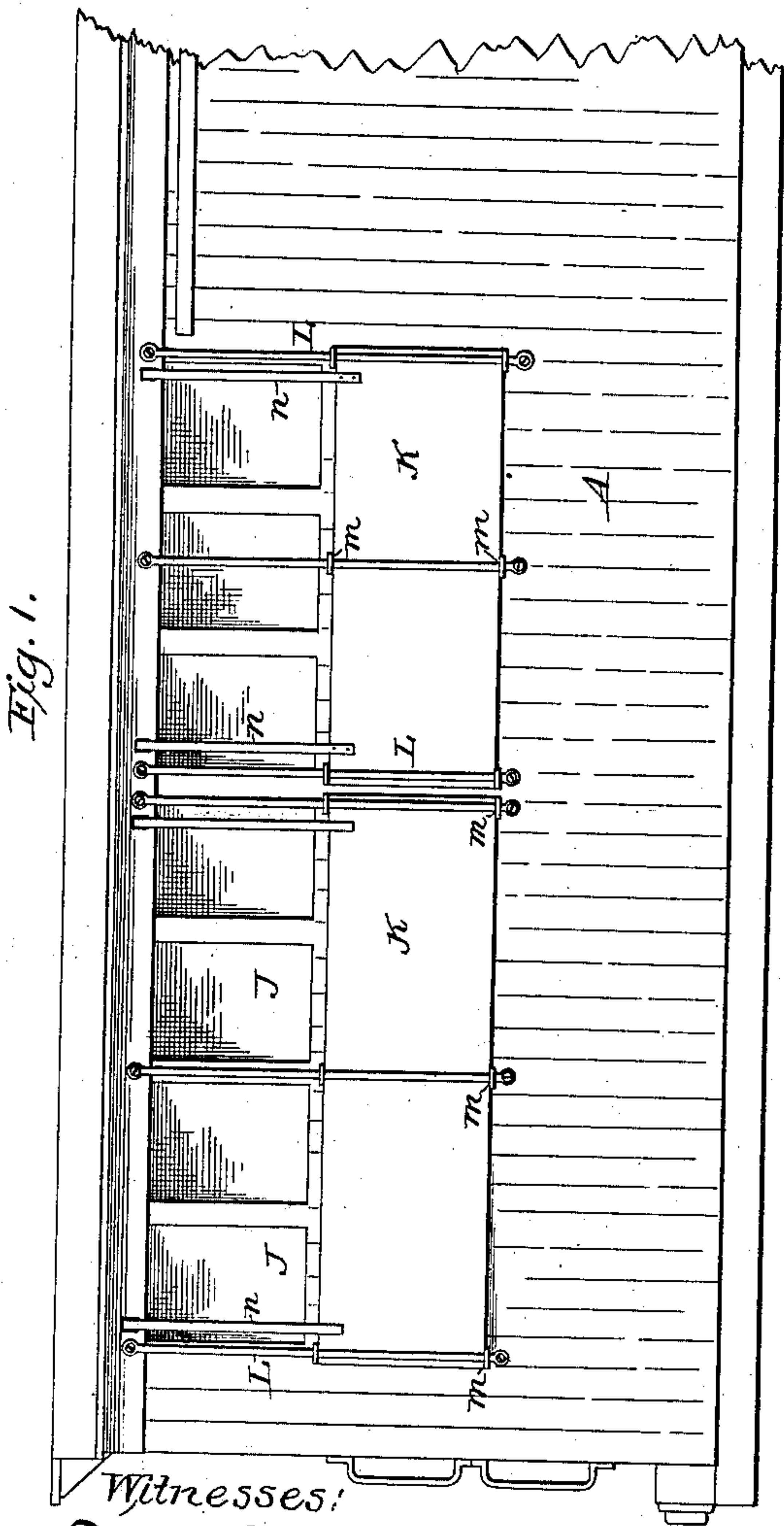
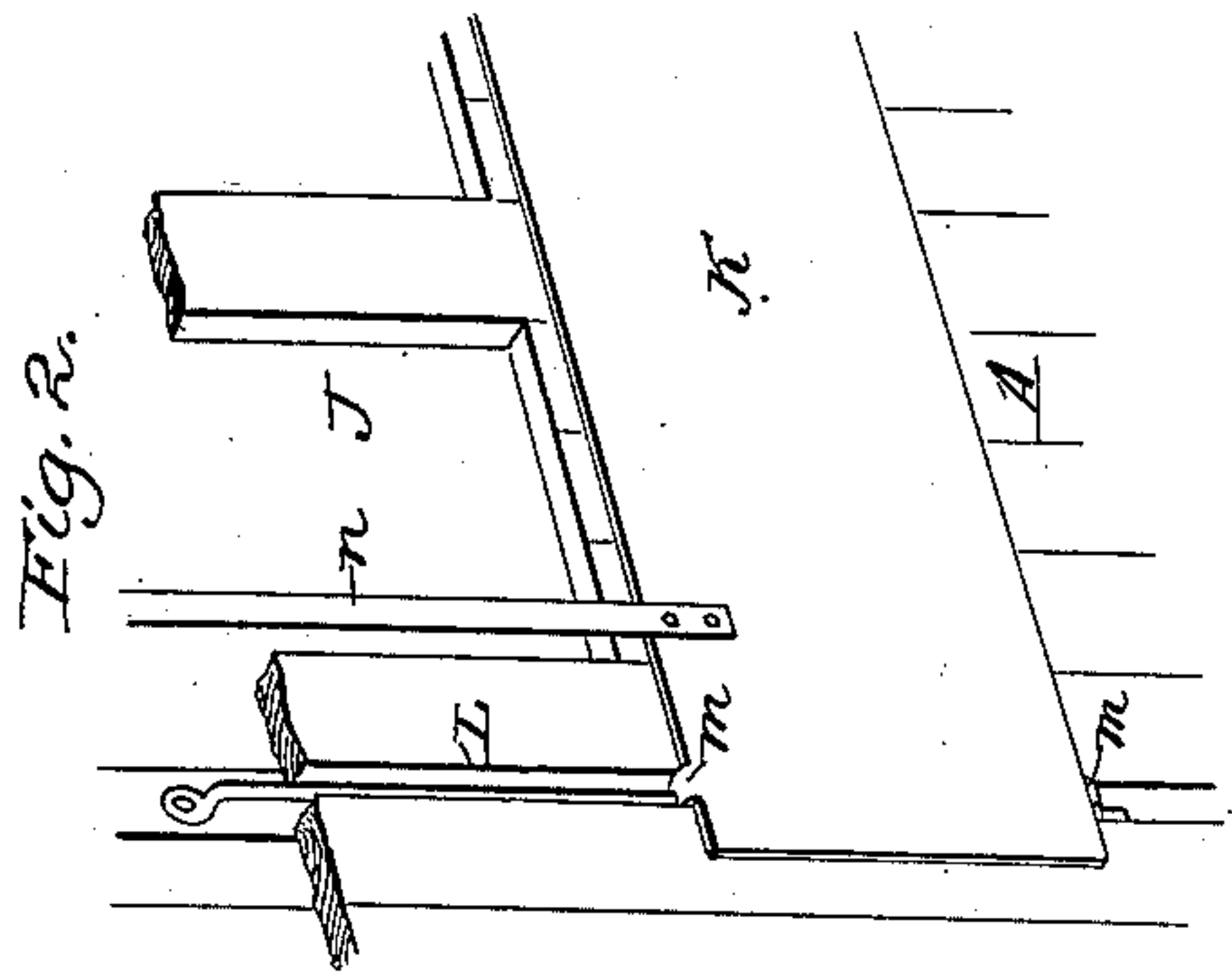
(No Model.)

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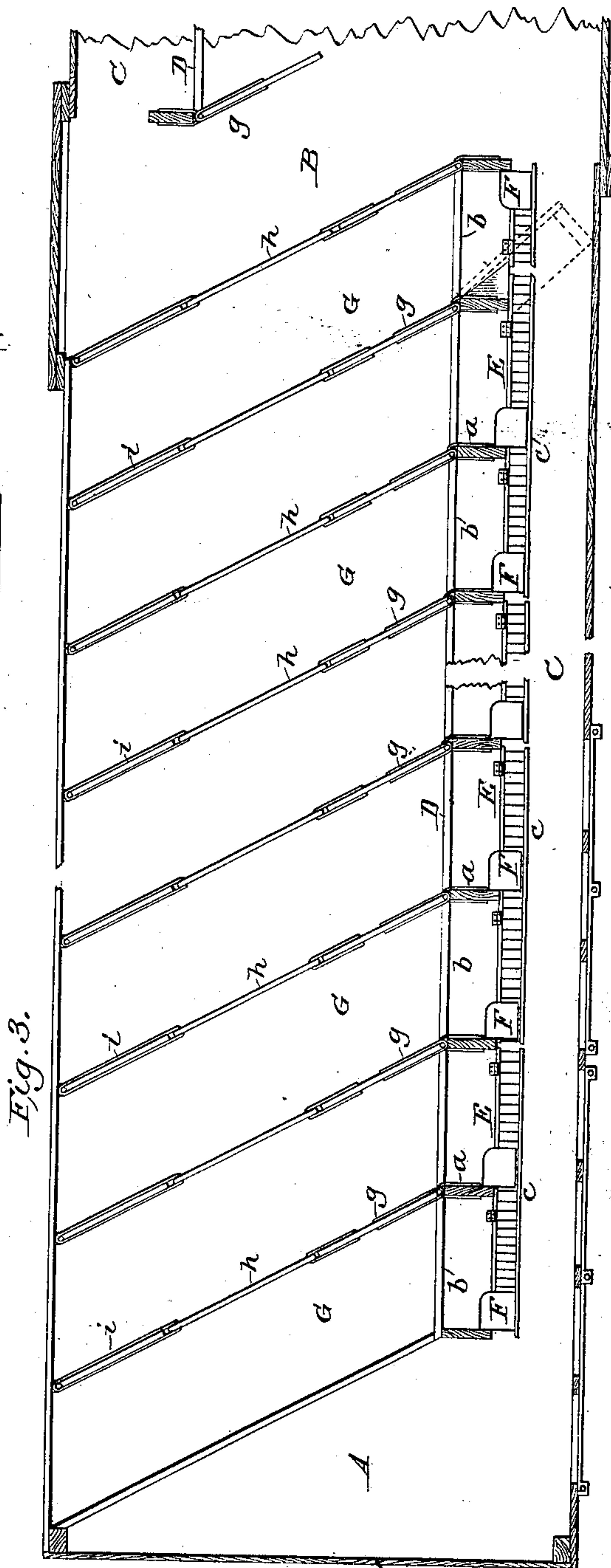
C. A. DAVIS.
RAILWAY CAR.

No. 375,989.

Patented Jan. 3, 1888.



Witnesses:
James F. O'Connell
Arthur Ashley



Inventor:
Charles A. Davis,
by Dodge & Sons,
his Attys.

(No Model.)

2 Sheets—Sheet 2.

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Fig. 4.

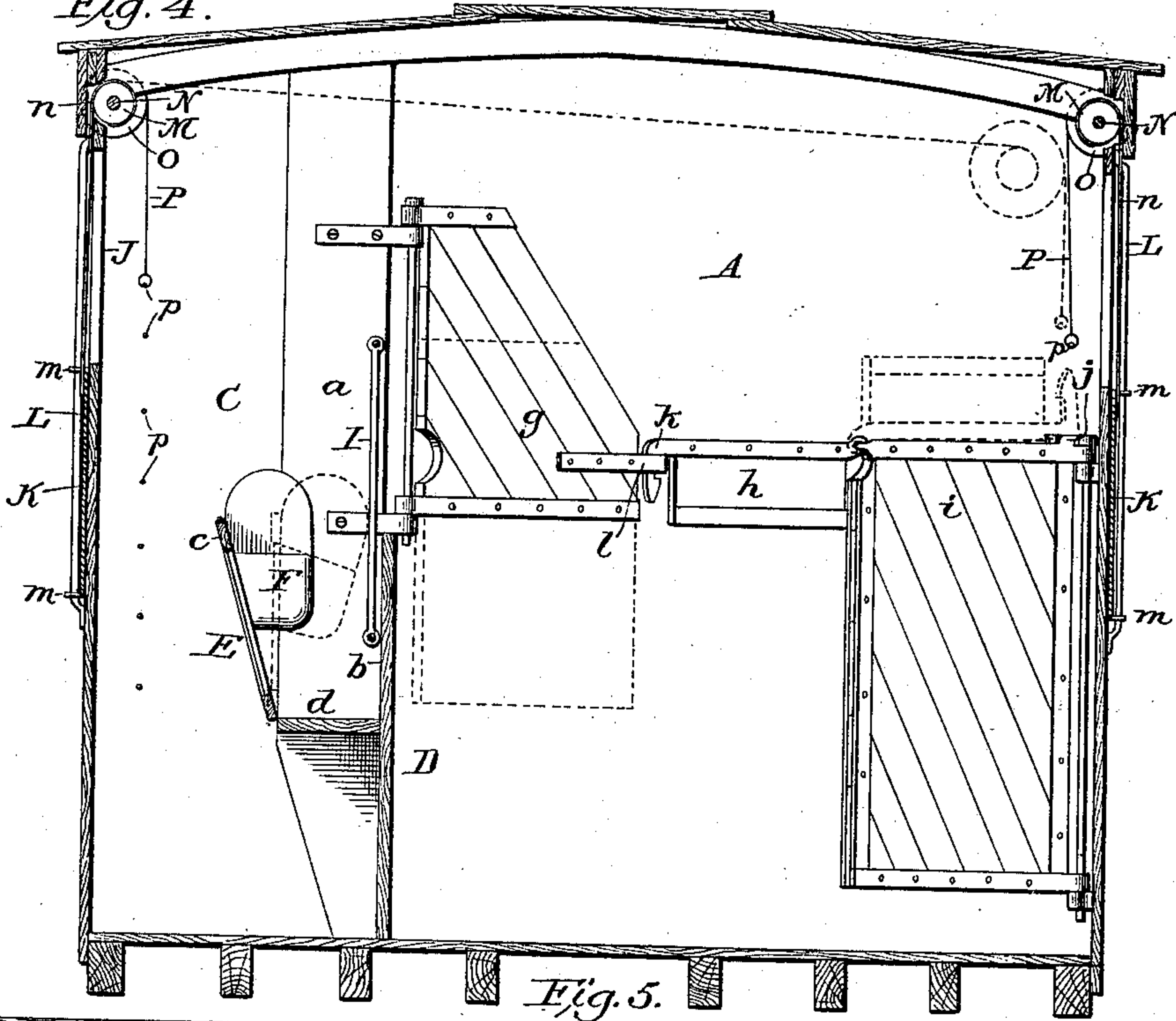
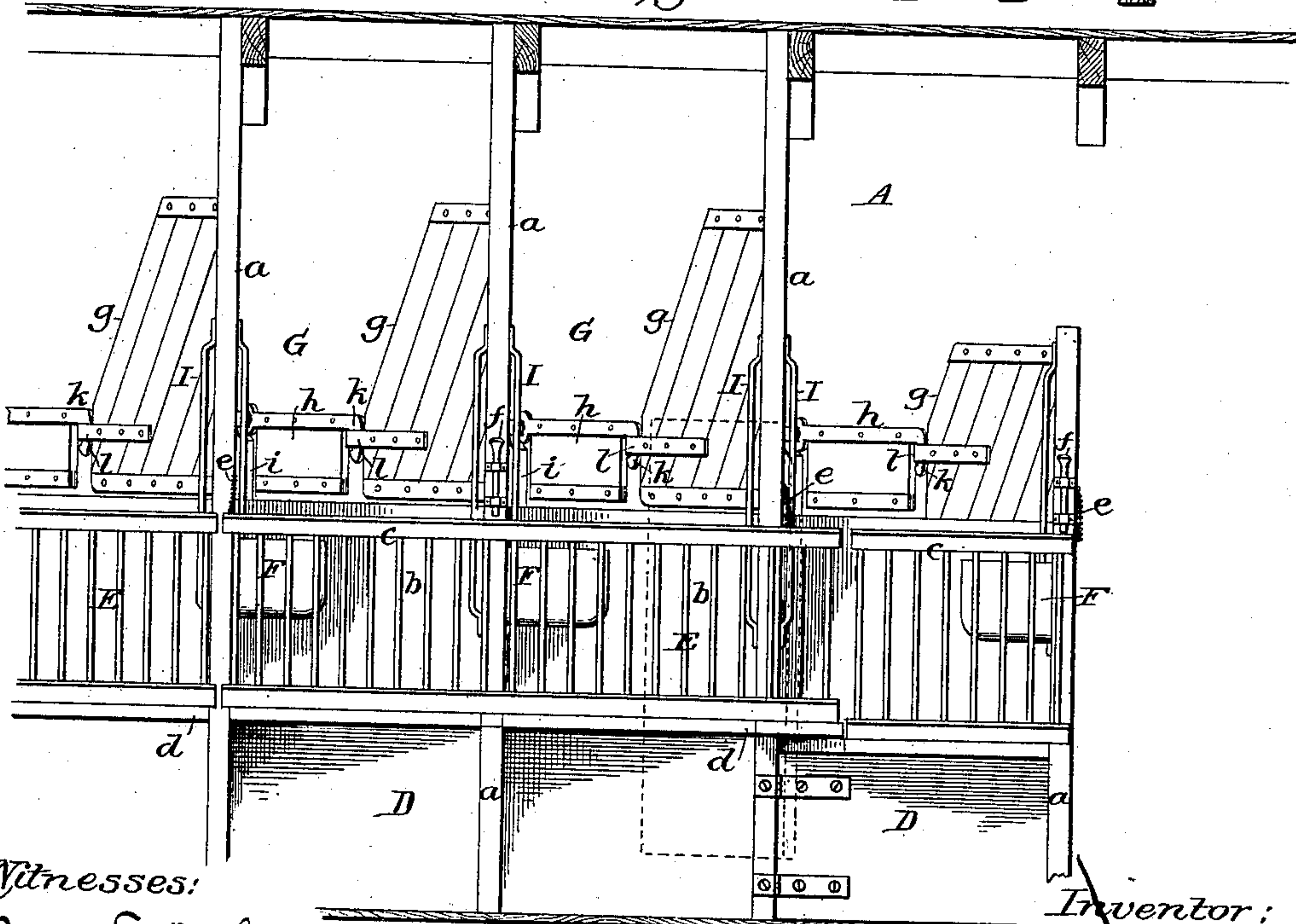


Fig. 5.



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UNITED STATES PATENT OFFICE.

CHARLES A. DAVIS, OF WASHINGTON, DISTRICT OF COLUMBIA.

RAILWAY-CAR.

SPECIFICATION forming part of Letters Patent No. 375,989, dated January 3, 1888.

Application filed October 29, 1887. Serial No. 253,736. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. DAVIS, of Washington, in the District of Columbia, have invented certain new and useful Improvements in Railway-Cars, of which the following is a specification.

My invention relates to that class of railway-cars especially designed for the transportation of horses; and the improvements consist in various features and details, hereinafter explained, whereby I am enabled to carry a large number of horses in a car of given dimensions, to safely and expeditiously load and unload the car, to conveniently carry and supply to the horses the feed and water required, to properly ventilate the car, and to close the same to prevent the entrance of cold air, rain, snow, &c.

The present invention is in the nature of an improvement upon the car for which Letters Patent of the United States were granted to me bearing date the 25th day of October, 1887, and numbered 371,928, though having no necessary connection therewith. Reference is, however, made to said patent for such parts as are not shown or explained herein.

Figure 1 is a side elevation of one end of a car, showing the guard or cover by which the ventilating-windows are closed when required; Fig. 2, a view showing a slight modification in the arrangement of the guides for said guard or cover; Fig. 3, a horizontal section showing the arrangement of the stalls in one-half of the car, the arrangement being the same for each half, except that the stalls front in reverse directions and the aisles in front of them are on opposite sides of the car; Fig. 4, a transverse vertical section through the car; Fig. 5, a face view of the partition which separates the stalls from the aisle, showing the hay-racks and illustrating the construction which enables the fronts of the end stalls to swing across the side aisles in loading and unloading the car.

In the construction of cars of this class it is important, to provide against injury of the horses by their being thrown down, or through kicking or biting of one another, to so arrange the interior of the car that the attendant may readily pass about in the same from end to end and reach any horse at all times; that feed may be conveniently carried in ample quantity and readily supplied to the horses; that the

entrance and exit of the horses shall be unattended with danger of injury, and at the same time be easy and expeditious; and, finally, that there be no unnecessary complication, involving expensive construction and elaborate manipulation of parts or appliances.

To attain these various objects is the aim of the present invention, which will now be explained with the aid of the drawings.

In said drawings, A indicates the body of a box-car, which may be of substantially the ordinary construction as to its sills, floor, walls, and roof, and which will of course be carried by the usual trucks.

The car-body A is divided by a passage-way, B, at its mid-length and running obliquely across the car into two sections, which are in all material respects duplicates of each other, but the stalls and aisles of which occupy reverse positions, as in the patent above referred to, this reversal being for the double purpose of properly balancing the load and of enabling the attendant to approach each horse from the left or "near" side, as is customary in handling horses. From the oblique cross-aisle or passage-way B an aisle, C, extends to each end of the car, one at the right-hand and the other at the left-hand side of the car, looking from either end. The aisles C are separated from the stall portion of the car by upright partitions D, the supporting-timbers of which advisably extend from the floor of the car to the roof to give the necessary stiffness and strength. These partitions are made of such depth from face to face as to afford space for hay-racks E and water or feed troughs F within them, and in line with the stall-partitions there are placed vertical planks or timbers *a*, by which the hay-racks are separated one from another, the timbers being spaced a distance apart equal to the width of the stalls and made sufficiently heavy to sustain the weight of and the strain put upon the front ends of the stall-partitions. The inner side of the series of hay-racks is formed by boarding *b*, which constitutes the front of the series of stalls G, and the fronts *c* of the racks are formed of slats, boards, or light metal work hinged at the lower edge to the bottom board, *d*, of the racks, as shown in Figs. 4 and 5, so that they may swing out at their tops into the aisles C to give ample space for hay or feed, or

be swung up flush with the face of the partitions to give a wider clear space than would otherwise be available, it being understood, however, that even when the fronts are swung outward there is sufficient space for the passage of the attendant through the aisle.

The movement of the fronts *c* is limited by chains *e*, for which, however, link-bars, ropes, straps, or other equally well-known equivalents may be substituted.

Hooks *f* or any other convenient and common form of fastening device may be employed to hold the fronts in their vertical or folded position.

From the longitudinal partitions *D* a series of oblique cross-partitions extend to the farther side of the car, each partition consisting of three sections, *g*, *h*, and *i*, as shown in Figs. 3 and 4. The sections *g* are hinged to the upright planks or timbers *a* of the longitudinal partitions, in order that they may be swung around against the face thereof in loading and unloading the car to give clear space for entrance and exit of the horses, and for the same purpose the rear sections, *i*, are hinged to the wall of the car at the rear ends of the stalls, and the middle sections, *h*, are hinged or jointed to the rear sections in such manner that they may be swung upward in a vertical plane and thrown over upon the upper edge of the rear sections, *i*, as indicated by dotted lines in Fig. 4.

To insure the placing of the middle section squarely upon the top of the rear section and its retention there, said rear section is furnished with two slightly-diverging guide-arms, *j*, which project somewhat above the top of section *i*, as shown in Fig. 4.

The front and rear sections, *g* and *i*, of the stall-partitions are of such length that they fold flat against the face of partition *D* and the wall of the car, respectively, without overlapping, thus avoiding any sharp edges or projections, which might injure a horse in the event of its becoming unruly and rearing or prancing about.

For the purpose of securely connecting the free end of the middle section to the front section the former is furnished with a strong metal hook, *k*, which enters an eye, *l*, of the front section, as shown in Fig. 4, the hook being advisably recessed or slightly barbed on its inner face to prevent the accidental lifting of the hook, the parts being so proportioned that in inserting the hook slight pressure shall be required to carry it to its seat in the eye.

When the middle section is thrown back upon the rear section, the two may be swung around against the wall of the car together, making only the projection due to the thickness of one section and avoiding any danger of the middle section swinging away from the rear section. The hook and eye and the hinges will preferably be made of strap-iron of good weight, which will give adequate strength, and serve also as a binding for the sections *g*, *h*, and *i*.

The hay or feed racks *E* of each half of the car may have their fronts made in one continuous length, with the exception of that for the stall next to the cross-aisle *B*, or in separate sections embracing one, two, or more stalls, as preferred.

The troughs or boxes *F* will be made watertight, so as to serve not only for small feed, but also for moist feed or for water, and may be attached to the hinged fronts *c*, as in Fig. 4, or secured to the bottom, the stationary side, or the end of the rack, as deemed expedient.

Rods *I* are secured to the dividing-boards of the racks for the attachment of halters or chains, by which the horses are hitched and prevented from moving beyond certain prescribed limits.

Below the bottom *d* of the racks the dividing boards or planks *a* are cut away to increase the width of the floor-space of the aisles *C*, as shown in Fig. 4.

In preparing the car for loading, each middle section, *h*, of the stall-partition is turned over upon the adjoining rear section, *i*, and the latter, as also the front section, *g*, swung around horizontally against the wall of the car and against the longitudinal partition *D*, respectively, so as to leave the space between the partition and the farther wall of the car unobstructed.

The two stalls next to the cross-aisle *B* each require that the front end of the stall be arranged to swing across the longitudinal aisle *C*, and that the front section of the dividing or stall partition fold against the face of said front end, in order to give ample space for conveniently handling the horses at the middle of the car. In order that this may be done with the present arrangement of racks, I make the bottoms *d* of the stalls next to the middle aisle enough lower than those of adjoining stalls to permit them to pass beneath the latter, as shown in Fig. 5, and I make the fronts of the racks of these two stalls (next to the aisle) shorter than the width of the stalls, the bottom *d* of each being cut off obliquely, as shown in the same figure, and the bottom of the next stall being extended and cut off on the same oblique line, so that jointly these constitute a continuous bottom for the swinging rack. In this way, and by extending the front of the second rack to within about two inches of the front of the swinging rack, I am enabled to secure a rack of full size for the first stall at each side of the central or cross aisle.

It is highly important that provision be made for properly ventilating the car, and to this end windows or openings *J* are made in the sides of the car. To permit the convenient closing of these windows to whatever extent required, I provide a cover or blind, *K*, which may be in one continuous length to extend over all the window-openings of a group or series, or in separate lengths, each covering one, two, or more of the openings. These covers or guards run in or upon vertical guides *L*, it being preferred to employ for this purpose

round iron or steel rods, and to form or provide the guards or covers with ears *m*, perforated to permit the rods to pass through them.

The guards will be advisably made of sheet or plate metal, in which case the ears may be advantageously formed integral with the body. If such metallic guard or blind be made of considerable length, there will be a sufficient degree of expansion and contraction under variations of temperature to cause the ears to bind upon or in the guides; hence when guide-rods are used I elongate the holes in the ears sufficiently to compensate for expansion and contraction. If, however, grooved or flanged guides be used, I make the flanges or overhanging portions sufficiently wide to afford proper play and allow for expansion and contraction. When guide-rods are used, they may be placed outside the guard or blind, as shown in Figs. 1 and 3, or they may be set in recesses formed in the sheathing, as in Fig. 2, the ears *m* being turned outward or inward accordingly.

From the guard or guards *K* bands, straps, or chains *n* pass upward to and about drums or pulleys *M*, keyed or otherwise made fast upon a common shaft, *N*, carried in suitable boxes or bearings at or near the top of the car, the pulleys extending through openings in the wall of the car sufficiently to cause the bands to pass straight up to them without rubbing against intermediate surfaces or passing through or over intermediate guides.

Upon turning the rod the guard or guards may be lifted to cover more or less each and all the windows or openings at that side of the car.

For the purpose of conveniently rotating the shaft and providing ample power for so doing, I secure upon the shaft *N* a secondary drum or wheel, *O*, of larger diameter than the drums or pulleys *M*, and I wind upon this drum a band or chain, *P*, in a direction the reverse of that in which the bands or chains *n* are wound, the inner ends of the band or chain *P* and of the bands or chains *n* being in such case made fast to their respective drums or wheels. Upon drawing down the band or chain *P*, and thereby unwinding it from its drum or wheel, the shaft will be rotated in proper direction to wind up the chains *n* and to lift the guard or guards; or upon allowing the band or chain *P* to pass upward the weight of the guard or guards will cause the bands or chains *n* to unwind, the shaft being thus rotated and the band or chain *P* being caused to wind upon the drum or wheel. A series of pins or hooks, *p*, is provided, with any one of which the band or chain *P* may be engaged to hold the guard or guards at the required elevation.

If desired, each window may have an independent guard, in which case a continuous shaft need not be provided, the bands, chains, or cords *n* in such case merely passing upward over pulleys and being engaged with suitable pins or hooks. I, however, prefer the ar-

range ment shown and described, as it enables the attendant to open or close all the windows of a side simultaneously and equally, and this is ordinarily desirable. A similar arrangement of windows and guards or covers is or may be employed for each end or half of the car.

A water-supply tank will be carried at any convenient point within the car, preferably across one end, its arrangement not entering, however, into the present case.

By reason of the oblique arrangement of the stalls, which secures adequate length thereof without unduly cramping the aisles *C*, there is formed at each end of the car a triangular space, giving room for an attendant and for the feed, &c.

The car constructed as above set forth is cheap and simple to build, may be quickly and easily prepared for the reception or discharge of its load, affords a clear and unobstructed passage-way from end to end of the car, giving prompt and easy access to each and every horse at all times, and, owing to the placing of the feed-racks and troughs wholly within the partitions between the longitudinal aisles and the stalls, there is no obstruction either of the windows or the aisles, the ventilation is free and unobstructed, and the attendant may pass about the car from end to end without walking over the hay or other feed or stooping to pass beneath the same, as has been necessary in cars heretofore in use.

Instead of hinging the middle sections of the stall-partitions to the rear sections, they may be hinged to the front sections, the effect being the same.

In the drawings I have shown and in practice I prefer to make the front and middle sections of the stall-partitions of a depth to reach only a short distance below the top of the rear section, which latter extends down nearly to the floor. This arrangement is advantageous in that it requires less material and renders the partitions lighter, and that it permits a better circulation of air through the car about the horses, while effectually keeping the horses apart.

It will be seen that by my arrangement of windows and guards I am enabled to do away with slats or other obstructions in or across the windows when opened for ventilation—a matter of marked importance where many animals are carried in the small space of a car.

By placing the window guards or covers on the outside I am enabled to avoid interference with the trussing or bracing of the car, which is a point that is very essential in practice.

Instead of placing the bottom of the swinging rack lower than that of the adjoining rack, it may be at the same level, the short filling-piece in such case being placed higher or lower than the bottom of the swinging rack.

Having thus described my invention, I claim—

1. In a car, in combination with a series of stalls and a passage-way extending lengthwise and at the side of the car, a hay-rack or series of racks having their front or outer section hinged at the bottom to the partition, the top of the section being free to swing out into the passage-way or to be folded into the partition at will, substantially as and for the purpose set forth.
2. In combination with a series of stalls, a passage-way and a hay-rack provided with a swinging front section and a feed trough attached to the swinging front section of the rack, substantially as and for the purpose set forth.
3. In a car, a series of partitions, each consisting of a front and rear hinged section and an intermediate section serving to connect the front and rear section and arranged to fold over on top of one or the other of the end sections.
4. In a car, a series of partitions, each composed of a front and rear section and an intermediate section connecting the bottom of the front section with the top of the rear section, substantially as shown and described.
5. In a car, the combination of a series of stalls, a longitudinal aisle at the side of the car, a partition separating the stalls and the aisle and containing feed-racks for the respective stalls, and a stall-front hinged to said partition and bearing the rack for said stall, the bottom of its rack being cut away to permit it to swing forward.
6. In combination with aisle C, partition D, and stalls G, a stall-front hinged to the partition and provided with a hay-rack on its front

side, the bottom of the rack being cut away to permit the front to swing forward, and a stationary filling-piece to cover the cut-away portion of said bottom.

7. In a car, the combination, with windows or openings in its wall, of a vertically-movable external guard or cover adapted to be raised and lowered to cover or uncover a series of said windows simultaneously and equally.

8. In combination with a car-body having windows or openings, guide-rods secured to the wall of the car, a guard or guards having perforated ears to encircle said rods, pulleys, bands, or chains attached to said guards and passing about said pulleys, and a winding shaft or arbor for taking up or paying out said bands or chains.

9. In combination with a car and its windows, vertically-movable guards adapted to move over the same, a rotary shaft, drums or pulleys secured upon said shaft, bands extending from the guards to the drums or pulleys, a secondary drum also secured upon said shaft, and a band wound upon the secondary drum in a direction the reverse of the winding of the bands of the other drums or pulleys.

10. In combination with a car and its windows, a guard movable vertically in relation thereto, bands for raising and lowering the same, and a series of pins or catches with which to engage one or more of the bands to hold the guard at any desired height.

In witness whereof I hereunto set my hand in the presence of two witnesses.

CHARLES A. DAVIS.

Witnesses:

ANDREW PARKER,
WILLIAM W. DODGE.