(No Model.) 2 Sheets—Sheet 1.

W. CLINE.

HAY RACK FOR STOCK CARS.

No. 597,262. Patented Jan. 11, 1898.

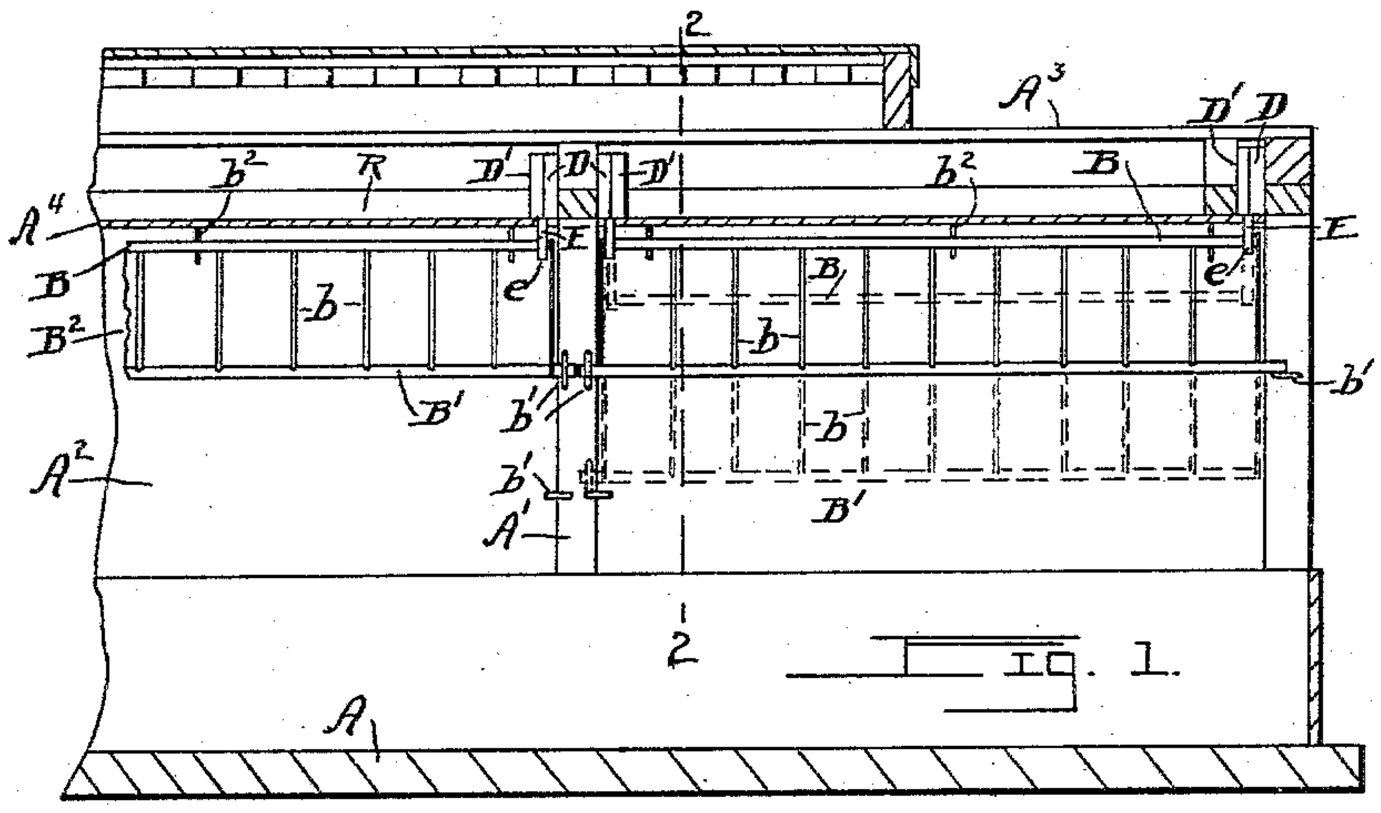

Fig. 1.

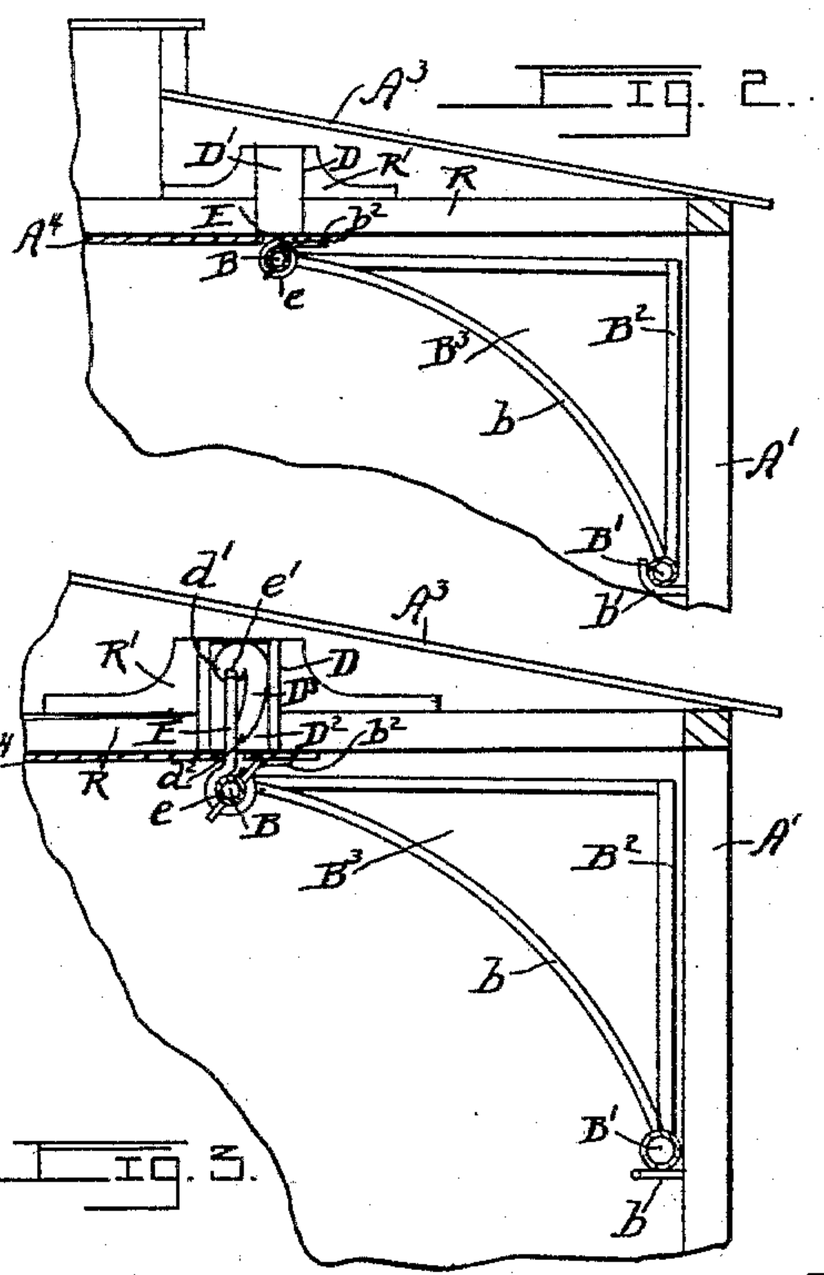

Fig. 2.

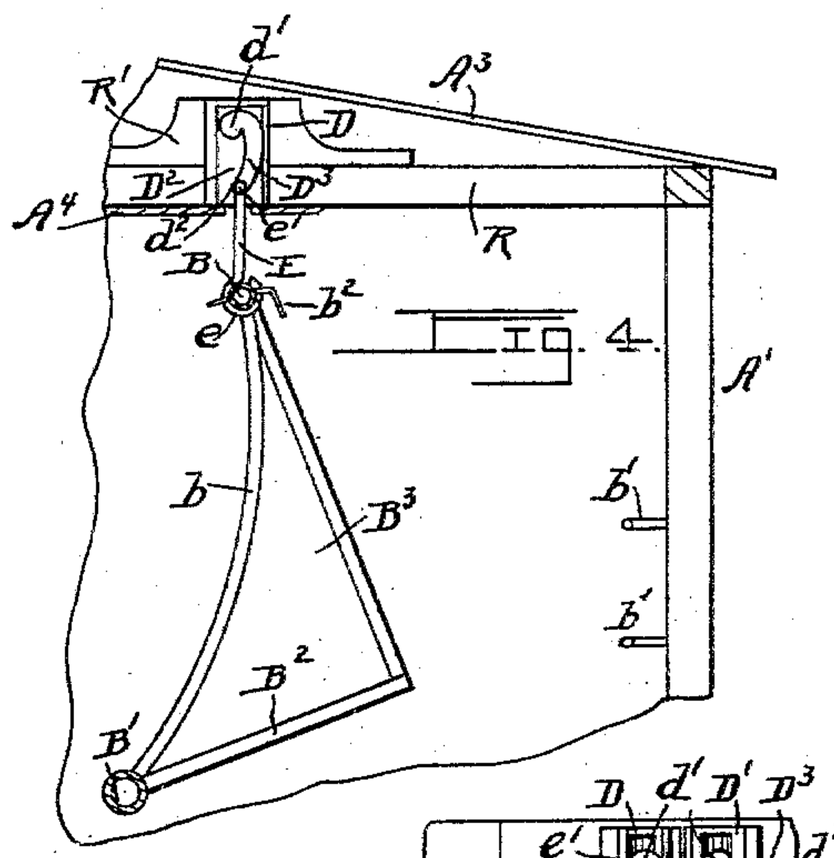

Fig. 4.

Fig. 3.

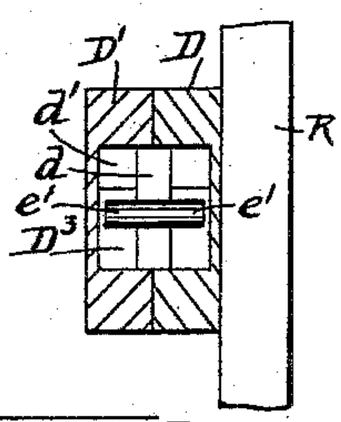

Fig. 6.

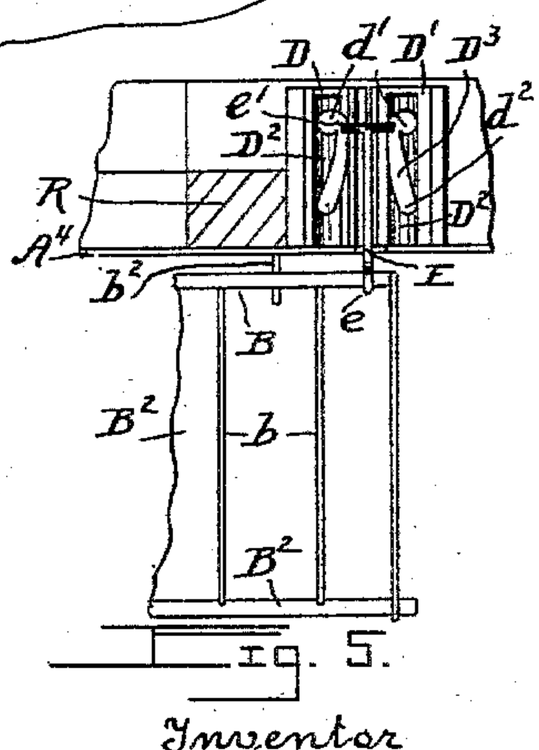

Fig. 5.

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(No Model.) 2 Sheets—Sheet 2.

W. CLINE.

HAY RACK FOR STOCK CARS.

No. 597,262. Patented Jan. 11, 1898.

Fig. 10.

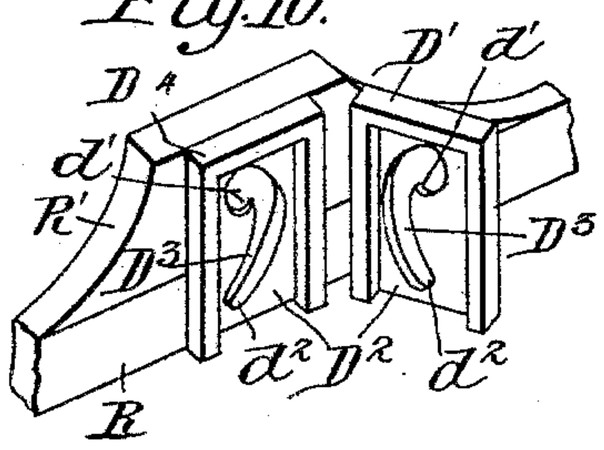

Fig. 7.

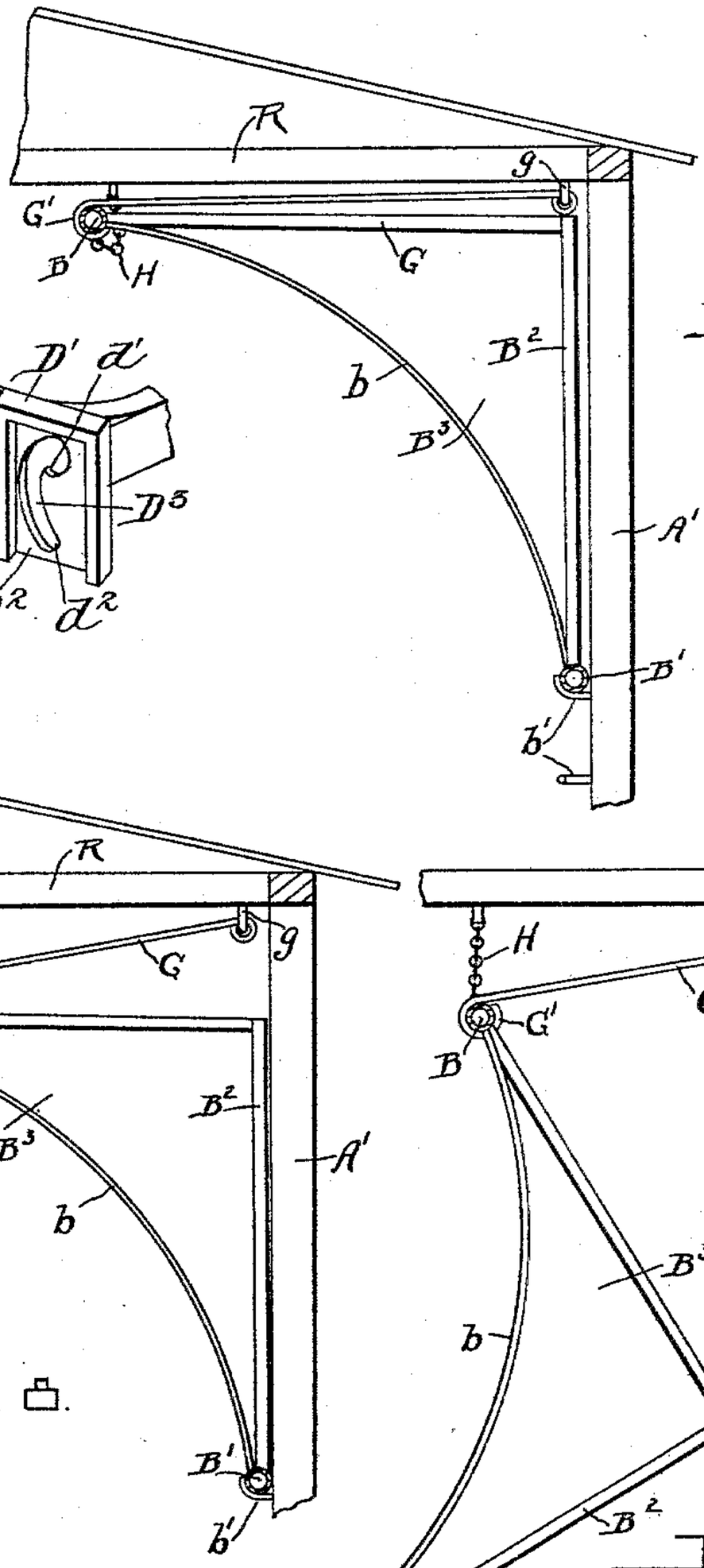

Fig. 8.

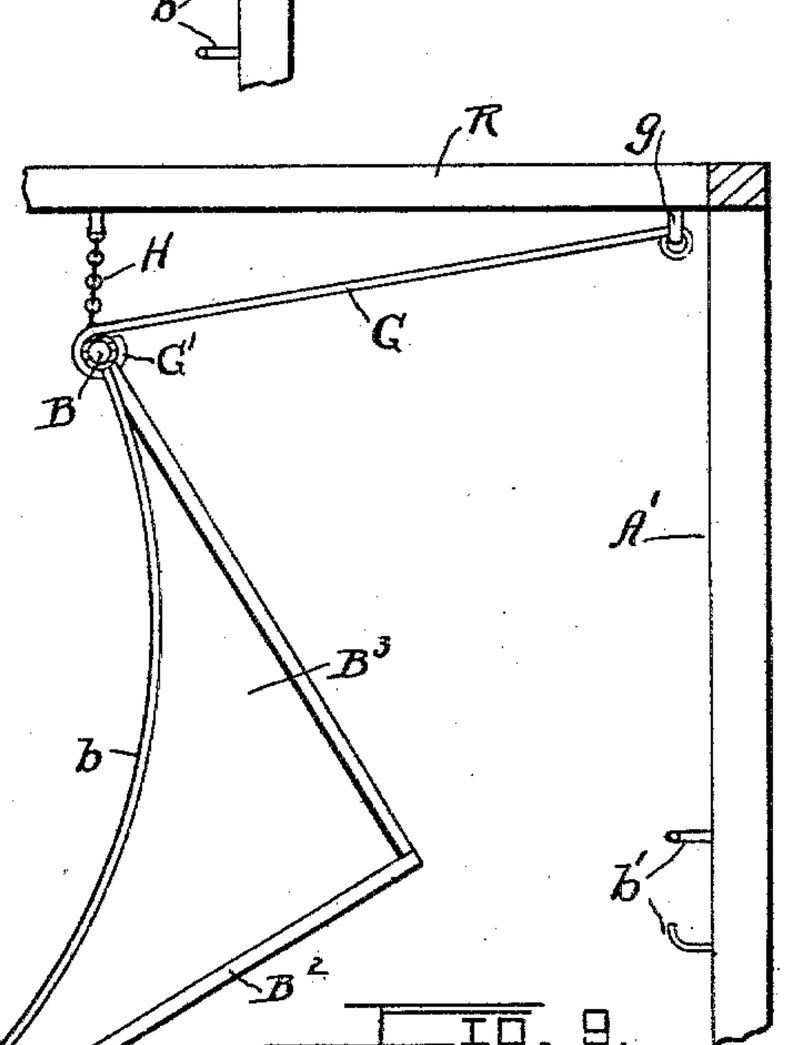

Fig. 9.

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UNITED STATES PATENT OFFICE.

WILLIAM CLINE, OF LANCASTER, PENNSYLVANIA, ASSIGNOR TO DANIEL D. GOOD, JOHN J. STEWART, AND JOSEPH SONDHEIMER, OF SAME PLACE.

HAY-RACK FOR STOCK-CARS.

SPECIFICATION forming part of Letters Patent No. 597,262, dated January 11, 1898.

Application filed October 23, 1896. Serial No. 609,824. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM CLINE, a citizen of the United States, residing at Lancaster, in the county of Lancaster, State of Pennsylvania, have invented certain Improvements in Hay-Racks, of which the following is a specification.

This invention relates to improvements in adjustable hay-racks, and more particularly to those adapted for use in stock-cars, and it is an improvement upon the hay-racks shown and described in Letters Patent for an improvement in stock-cars, No. 575,459, issued to me by the United States on January 19, 1897; and the object of the improvements is to provide hay-racks that can be adjusted to adapt them for feeding either horses or cattle.

The invention consists in the construction and combination of the various parts, as hereinafter fully described, and then pointed out in the claims.

In the accompanying drawings, forming a part of this specification, Figure 1 is a longitudinal vertical section of a portion of a stock-car embodying my improvements, showing the hay-racks in the elevated position occupied thereby when adjusted for feeding horses; Fig. 2, a vertical section of the same on broken line 2 2 of Fig. 1; Fig. 3, a similar section on the same line, the outer plate or cap of the supporting-box of the carrying-rod of the hay-rack being removed; and Fig. 4, a similar section on the same line, but showing the hay-rack in the position occupied thereby when adjusted for feeding cattle, but swung back from the side of the car, the cap of said supporting-box being removed. Fig. 5 is a view of a supporting-box located at an angle with the joist to which it is to be secured, the cap being turned back, so as to show the meeting faces of the plates comprising said box, the carrying-rod being also turned around, with the cross-bar thereof located opposite the upper seats in the grooves in said plates; and Fig. 6, a horizontal section of one of the supporting-boxes, the cross-bar of the carrying-rod being shown in a position intermediate of the seats in the grooves in the plates forming the box. Fig. 7 is a vertical section of a portion of the car-body, showing a modification of the construction, the hay-rack being in its elevated position; Fig. 8, a similar view, but showing the hay-rack in its lowered position; Fig. 9, a view of the position of the hay-rack when the lower edge thereof is swung back into the car; and Fig. 10, a perspective view of the inner faces of the plates forming one of the supporting-boxes, the outer plate or cap being turned back for that purpose.

Similar letters indicate like parts throughout the several views.

Referring to the details of the drawings, A indicates the floor of the car; A′, the side posts thereof; A^2, the sides; A^3, the roof, and A^4 the floor of the hay-loft.

B is the upper horizontal bar of the hay-rack; B′, the lower horizontal bar thereof, to which is attached an upwardly-extending plate B^2, that forms the bottom of the rack when the same is lowered, as will be explained; B^3, transverse plates closing the ends of the hay-rack, and *b* vertically-curved slats having their ends secured in bars B and B′.

The hay-racks subtend the angles between the sides and the top of the car and are divided vertically into sections. Secured to the contiguous sides of the roof-joist R above the ends of each section of the hay-racks are boxes D, supporting the upper ends of carrying-rods E, which are attached to the upper horizontal bar B of the sections of the hay-rack located beneath them. This upper horizontal bar B is cylindrical in cross-section, and it revolubly engages eyes *e* in the lower ends of carrying-rods E. The lower bars B′ of the hay-racks are detachably connected with the sides of the car by bent pins *b*′, revolubly secured in posts A′, and when it is desired to fill the hay-loft and the racks with hay the upright portions of pins *b*′ are turned to a horizontal position and the lower edges of said racks are swung back into the body of the car. With the hay-racks in this depending position the hay is loaded into said lofts and into the racks, the plates B^2 supporting the hay in the racks until the same are again restored to their normal positions.

Each supporting-box D is constructed of two plates D′ D^4. The inner plate D^4 bears against the joist R, to which it is attached, and the outer plate or cap D′ is secured to and bears against the outer face of plate D^4.

Should the joist not have sufficient depth to afford a bearing for boxes D, a block R′ is secured to the joist to increase such depth, as shown in the drawings. In the meeting faces of said plates are rectangular recesses D^2, which register with or are located opposite each other when the plates are united. The lower ends of said recesses are open, and this opening and the united recesses D^2 form a channel *d* for the passage of the carrying-rod E. In the backs of these recesses are oppositely-located grooves G^3, having their upper ends curved downward to form the upper seats *d′* for the head or cross-arm of said carrying-rod, to be described. The bodies of grooves D^3 are also curved until their lower ends d^2 are in approximately vertical planes with the seats *d′*. These lower ends form the lower seats for said head, as illustrated. The upper end of each carrying-rod E has a T-shaped head, with the ends of the cross-arm *e′* thereon engaging the oppositely-located grooves D^3. When the hay-racks are in the elevated position they occupy when the car is loaded with horses, the ends of the cross-arm *e′* of the T-heads rest in the upper seats *d′* of grooves D^3, as shown in Fig. 3. On the horizontal bars B are shoulders b^2, which when the racks are in the elevated position described engage the floor A^4 of the hay-loft and prevent said racks from being accidentally raised by upward pressure from the heads of the horses or otherwise.

To adjust a hay-rack for the feeding of cattle, the upright portions of pins *b′* are turned to a horizontal position and the lower edge of said rack is swung back into the body of the car, thus revolving horizontal bar B, so as to disengage shoulders b^2 from floor A^4 and swing them into an approximately horizontal position. Then the rack is raised until cross-arms *e′* are disengaged from seats *d′* and the horizontal bar B is manipulated, so that cross-arms *e′* may be moved down through grooves D^3 until the ends thereof rest in the lower seats d^2, when the lower horizontal bar of the hay-rack is again secured to the side of the car. As will be understood, the lower edges of the hay-racks can be swung back into the body of the car to be filled with hay, when the said racks occupy either their upper or lower positions, as shown in Fig. 4.

In Figs. 7, 8, and 9 is shown a modification of the mechanism for adjusting the elevation of the racks. In this construction the supporting-boxes D and the carrying-rods E are omitted. Instead thereof there are rods G, having their outer ends hinged to the under sides of joists R by staples *g*, the inner ends of said rods having formed thereon eyes G′, in which is revolubly engaged the horizontal bar B of the hay-rack. Bar B is also connected with joists R or with the floor A^4 of the hay-loft by chains H of the length of the drop of said hay-rack when lowered from its elevated to its lowered position. To operate hay-racks of this construction, the same being in an elevated position, the upright portions of the pins *b′* are turned to a horizontal position, and the lower edge of said rack is then drawn inward until free from said pins, when the rack is allowed to descend easily to the length of chains H, the inner ends of rods G turning in staples *g*, and then the lower edge of said rack is again secured to the side of the car by means of the lower pins *b′*. To restore the hay-rack to its elevated position, the operation is reversed. In this construction any particular manipulation of the connections of the upper edge of the hay-rack is avoided in adjusting its position.

I do not limit myself to any particular means for detachably securing the lower edges of the hay-racks to the sides of the car. Neither do I restrict myself to the particular construction and arrangement of parts for supporting the upper edges of said racks or of the bearings for upholding the same herein shown and described.

My invention involves a radical departure in the construction and principle of operation in hay-racks, the invention consisting, broadly, in hay-racks adapted to be adjusted for feeding at different elevations.

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

1. The combination, in a car, of a feed-rack subtending an upper angle of a car, a vertically-adjustable connection between one edge of the feed-rack and the car-body and located on one side of the subtended angle, and means for detachably connecting the other edge of the feed-rack with the car-body in an adjusted position on the other side of said subtended angle, for the purpose specified.

2. The combination, in a car, of a feed-rack subtending an upper angle of the car, a vertically-adjustable hinge connection between one edge of the feed-rack and the car-body and located on one side of the subtended angle, and means for detachably connecting the other edge of the feed-rack with the car-body in an adjusted position on the other side of said subtended angle, for the purpose specified.

3. The combination, in a car, of a feed-rack subtending an upper angle of the car, means for detachably connecting the lower edge of the feed-rack in an adjusted position to a car-wall forming the vertical side of said angle, and a vertically-adjustable connection between the upper edge of the hay-rack and a portion of the car-body in the plane of a horizontal side of said angle, for the purpose specified.

4. The combination, in a car, of a feed-rack subtending an upper angle of the car, means for detachably connecting the lower edge of the feed-rack in an adjusted position to a car-wall forming the vertical side of said angle, a device having one end secured to a portion of the car-body in the plane of a hori-

zontal side of said angle, and a vertically-adjustable hinge connection between the other end of said device and the upper edge of the hay-rack, for the purpose specified.

5. The combination, in a car, of a feed-rack subtending an upper angle of the car, means for detachably connecting the lower edge of the feed-rack in an adjusted position to a car-wall forming the vertical side of said angle, a device having one end secured to a portion of the car-body in the plane of a horizontal side of said angle, a vertically-adjustable hinge connection between the other end of said device and the upper edge of the hay-rack, and a rod having one end connected with said upper edge of the hay-rack and the other end connected with the car-body to one side of said hay-rack, for the purpose specified.

6. The combination, in a car, of a carrying-rod, a hay-rack having its top bar journaled in the lower end of the carrying-rod, a vertically-arranged series of bearings for the upper end of said rod, and a detachable connection between the lower edge of said rack and the side of the car, for the purpose specified.

7. The combination, in a car, of a supporting-box, an upper and a lower seat in said box and connected by a groove, a carrying-rod, an arm on said rod and adapted to engage said seats and to travel through said groove, a hay-rack having its upper edge journaled in the lower end of the carrying-rod, and a detachable connection between the lower edge of said rack and the side of the car, for the purpose specified.

8. The combination, in a car, of a supporting-box, a lower seat in said box and connected by an upwardly-extending groove with an upper seat located below the upper end of said groove, a carrying-rod, an arm on said rod and adapted to engage said seats and to travel through said groove, a hay-rack having its upper edge journaled in the lower end of the carrying-rod, a detachable connection between the lower edge of said rack and the side of the car, and a device to prevent the raising of said rack when in its normal position, for the purpose specified.

9. The combination, in a car, of a supporting-box, a lower seat in said box and connected by an upwardly-extending groove with an upper seat located below the upper end of said groove, a carrying-rod, an arm on said rod and adapted to engage said seats and to travel through said groove, a hay-rack having its upper edge journaled in the lower end of the carrying-rod, a detachable connection between the lower edge of said rack and the side of the car, and a shoulder on the upper edge of the hay-rack and adapted to engage a detent above said rack when the same is in its normal position, for the purpose specified.

10. The combination, in a car, of a supporting-box formed of two plates, recesses in the meeting faces of said plates, lower registering-seats in the back of said recesses and connected by upwardly-extending grooves with upper registering-seats located below the upper ends of said grooves, a carrying-rod extending into the chamber formed by said recesses, arms on said rod and adapted to engage said seats and to travel through said grooves, a hay-rack having its upper edge journaled in the lower end of the carrying-rod, a detachable connection between the lower edge of said rack and the side of the car, and a shoulder on the upper edge of the hay-rack and adapted to engage a detent above said rack when the same is in its normal position, substantially as and for the purpose specified.

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