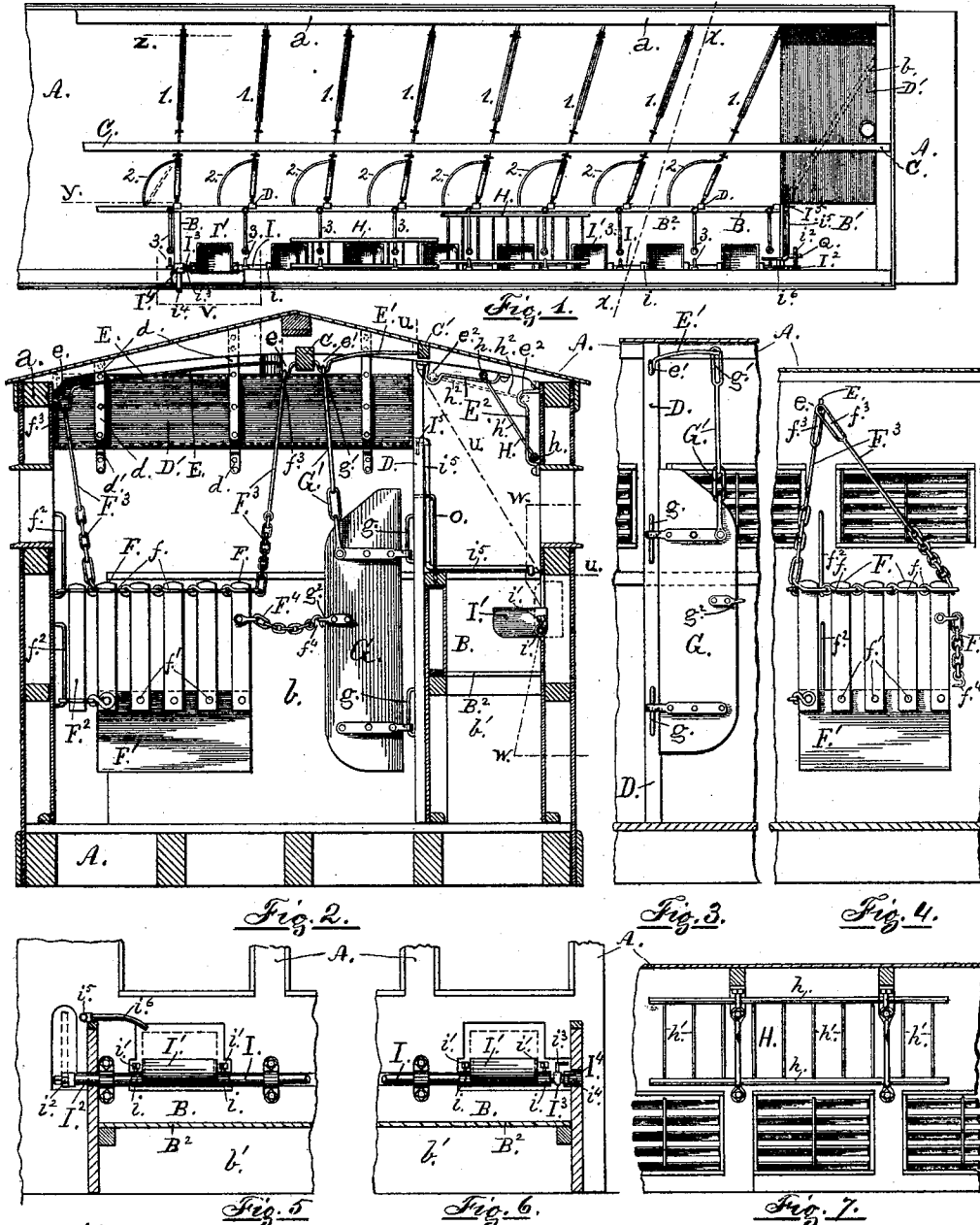


(No Model.)

G. GROSSMAN.
STOCK CAR.

No. 487,668.

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UNITED STATES PATENT OFFICE.

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STOCK-CAR.

SPECIFICATION forming part of Letters Patent No. 487,668, dated December 6, 1892.

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To all whom it may concern:

Be it known that I, GEORGE GROSSMAN, of Lancaster, in the county of Lancaster and State of Pennsylvania, have invented certain new and useful Improvements in Stock-Cars; 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 improvements in that class of stock-cars which have a manger arranged along one side and are especially adapted to the transportation of horses, mules, &c.

The object of the invention is to provide better and more convenient means for the proper care of live stock in process of transportation, so that the same number of animals can be safely carried and delivered in prime condition at destination in cars that are from five to seven feet less in length than those heretofore in use.

The improvements consist in specially-formed rods arranged in separate sets in the upper portion of the car and secured to its roof and side walls; also, in specially-formed wings and stall-gates hinged to a side wall of the car and to the front wall of the manger, all of which, as well as other elements, are more particularly described in the following specification, and distinctly set forth in the claims.

The purposes of this invention are attained by the mechanism and devices illustrated in the accompanying drawings, in which similar letters and figures of reference designate like parts throughout the several views, and in which—

Figure 1 is a plan of one-half of a stock-car embodying the elements of my invention, the roof and the extreme rack-sections removed and a portion inclosed by the line *v* in horizontal section; Fig. 2, an enlarged and completed sectional elevation from the left of the portion to right of the line *x x* in Fig. 1; Fig. 3, an enlarged sectional elevation from above of a portion below the line *y* in Fig. 1, showing the stall-wing folded against the front wall of the manger; Fig. 4, an enlarged sectional elevation from below of a portion above the line *z* in Fig. 1, showing the stall-gate

folded against the wall of the car; Figs. 5 and 6, views from the left of portions to the right of and inclosed by the line *w w* in Fig. 2, showing, respectively, the right and left hand ends of the manger; and Fig. 7, a view from the left of a portion to the right of the line *u u u* in Fig. 2, showing a hay-rack section in place.

A designates the body of the car, and B the manger arranged along one side, extending from the central doors to near the end, where its corner-post is connected at a short distance from the opposite corner with a partition *b*, as high as the manger, forming a chamber *B'*, which may be used for the storage of hay, &c., and the space *b'* underneath the feed-bottom *B*², being removable, may be used for the same purpose.

C designates a longitudinal beam secured to the under face of the rafters near the center line of car, and C' a similar beam placed above the front wall of the manger and secured to the roof. At stall intervals are arranged a number of perpendicular posts D, rigidly secured to the front wall of manger and to the beam C', before mentioned.

At each end of the car in its upper portion is a tank D', rigidly secured to the rafters and end wall by means of straps *d* and brackets *d'*, as shown in Fig. 2. These several elements, with the exception of the arrangement of the posts D, are only mentioned as they are used in connection with the elements of my present invention, which elements will now be described.

Three sets of rods E, E', and E² are arranged in the upper portion of the car and secured at their extremities to its roof and side walls, Figs. 1 and 2. The rods E, having near their ends downwardly-formed U-shaped loops or depressions *e*, extend obliquely about one-half way across the body of the car, but with increasing obliquity from the center to the ends thereof, and the rods have each one extremity secured into the top plate *a* of the rear side wall and the other extremity secured into the forward side of the beam C, before mentioned, as is indicated by the situations marked 1. These rods form the base of the stall-partitions, and by means of the U-shaped depressions *e*, just mentioned, are adapted to

support and hold in place between the bodies of the animals the stall-gates, yet to be described. The rods E' , having each a downwardly-formed **U**-shaped loop or depression e' near the forward ends, have these extremities secured into the rear side of said beam **C** and extending obliquely toward the center of the car and have their rear extremities secured into the front face of the beam C' , before mentioned, as is indicated by the situations marked 2. These rods form the continuation of the base of the stall-partitions to the front wall of the manger, and by means of the **U**-shaped depressions e' , just mentioned, are adapted to hold in place between the heads of the animals the stall-wings, yet to be described. These rods are shown curved in the drawings; but they may be extended straight in the general diagonal direction, as is indicated by dotted lines near the center of the car. The rods E^2 are used in pairs, arranged over the manger, one of each pair secured to the under face of the rafters and the other to the upper portion of the adjacent side wall, but in the same vertical plane, as is indicated by the situations marked 3. These rods have respectively near their upper or forward ends each one an outwardly or a downwardly formed **U**-shaped loop or depression e^2 . Every two pairs of said rods are adapted to hold a rack-section, yet to be described, diagonally in place across the included roof-angle, (see Fig. 2,) and by means of the **U**-shaped depressions e^2 , just mentioned, adapted to hold said rack-section to the roof of the car.

The diagonal arrangement of the stall-partitions shown in the drawings, made permissible by giving to the rods E and E' the successive increasing obliquity before mentioned, makes the stalls longer, successively, from the center of the car to ends thereof, allowing the smallest animals to be loaded at the center of the car and gradually larger ones toward its ends, giving the advantage of placing the heaviest part of the load over the trucks and the lightest portion at the center.

Stall-gates F , Fig. 2, composed of a number of vertical strips jointed together by interlocking links f , embracing their upper ends and by having inserted into their lower ends a section F' of folds of heavy canvas or rubber packing and secured thereto by rivets f' , are hinged at their rear ends or edges by means of link-sections F^2 onto two wide staples f^2 , vertically placed and secured into the rear wall of the car. To the tops of the front and rear ends of these gates are linked the lower ends of suspension devices F^3 , formed of lower chain portions and upper rod portions having at their upper ends elongated loops or eyes f^3 , which are mounted so as to be freely movable upon the rods E and to rest in the **U**-shaped depressions e to hold said stall-gates in position between the bodies of contiguous animals. To the front strip of each gate is secured the rear end of a chain

F^4 , having a hook f^4 at its free end to engage an eye secured to the front edge of the stall-wings, yet to be described. By reason of the interlocking links f joining their vertical strips the gates are made yielding between the animals, conforming readily to the contours of their bodies and preventing chafing or abrading. By reason of the canvas or rubber under portion F' the bottoms of the gates are made pliable to prevent injury thereto should any of the animals get their legs under. By reason of the wide staples f^2 the gates may be readily raised by the animals should any get down and under, aiding them to rise without danger of breaking limbs, and by reason of the hinged sections f^2 and by moving the forward loops f^3 from the front to the rear **U**-shaped depressions e said gates may be readily folded against the adjacent side wall of the car, Fig. 4.

A wing or door G , of sufficient height and approved width, is hinged at one edge to wide staples g , secured into the front face of each post D , before mentioned. To the top, near the front edge of these doors, are linked the chain ends of suspending devices G' , having at their upper or rod ends elongated loops or eyes g' , mounted and freely movable upon the rods E' , and by resting in the **U**-shaped depressions e' , before mentioned, are adapted to hold said wings in position between the heads of contiguous animals, Fig. 2. To the front edge of each of these wings is secured an eye g^2 , adapted to engage and hold the hooks f^4 , before mentioned, when the gates and wings are to be linked together to form the stall-partitions between the loaded animal. These wings are intended to prevent animals hitched to the manger from injuring each other by biting, and by reason of the wide staples g , to which the wings are hinged, and by moving the loop g' from the **U**-shaped depression e' over the rod E' against the beam C' , said wings may be readily folded against the front wall of the manger, Fig. 3. This folding of both gates and wings is quite necessary to the convenient loading and unloading of stock.

Rack-sections H , formed of two parallel rods or pipes h , joined at intervals by a number of parallel rods or rungs h' , having their extremities rigidly secured into said pipes, are mounted each section upon two pairs of the rods E^2 , before mentioned, so as to extend diagonally downward over the roof-angle of the car when in use for feeding and to be moved up under the roof when not needed, the depressions e^2 holding the rack-sections in place, as indicated by the dotted lines h^2 , Figs. 1, 2, and 7. It will here be observed that section after section may be brought down from its position against the roof of the car, placed in the position shown in Fig. 7, and conveniently filled through its ends, dispensing with the openings through the roof heretofore in use for that purpose; also, that this operation of filling said sections will be especially convenient

when the space b' of the manger has been utilized for the storage of hay or fodder.

Sections I, of piping of approved size, have their ends screw-threaded, screwed into hubs i , arranged at the lower and rear corners on the outside of the end walls of troughs I' and rigidly secured thereto by set-screws i' , tapped into said hubs, so as to form one continued body or water-course adapted to be recessed into and journaled in bearings secured to a side wall of the car. This body is placed within the manger, one trough to each stall, as shown in full lines, Fig. 1, and is adapted to be turned into the side of the car, as indicated by dotted lines, Fig. 2. For the purpose of turning the rear end section I^2 extends through the rear end wall of the manger, is plugged and made angular at its extremity, and provided with a handle or lever i^2 , as shown in Figs. 1 and 5.

A stop Q is here placed under said lever and secured against the outer end wall of the manger to stop the downward progress of the troughs and hold them in a horizontal position to water the stock, Fig. 1. The other end section I^3 is made shorter and is provided with a valve i^3 . This section I^3 has its outer extremity also screw-threaded and somewhat loosely screwed into a suitable joint or pipe-fitting I^4 , which is rigidly secured into this end wall of the manger and is provided with an outlet pipe or nozzle i^4 , extending through the outer casing to the outside of the car. This valve and nozzle serve to drain the troughs to keep the manger dry, Figs. 1 and 6. A spigot-valve I^5 , having a downwardly-turned nozzle, is secured into the end wall near the bottom of the tank D' and next to the corner-post D at the end of the manger, Figs. 1 and 2. To this nozzle is attached a pipe i^5 , which extends downward along said post to the top rail of the manger and thence rearward along the top of the manger to a point near the side wall of the car, Fig. 2, where it turns inward over the first trough in the manger, terminating in an outlet spout or nozzle i^6 , slightly curved downward at the end, Fig. 5. The valve I^5 is easily operated from the chamber B' , before mentioned. The pipe is so placed as to be safely secured in place and to be out of the way, for it may be readily stepped over when it is desired to enter the manger, and the pipe i^5 is adapted, by reason of the valve I^5 and the nozzle i^6 , to admit water by gravitation from the tank above to the troughs below.

Reference being had to Fig. 2, o designates a wide staple vertically placed and attached to the rear side of the post D and to the top rail of the manger; but the halter-chains are omitted. Two of these staples are placed and secured behind each post D , so that each animal in the stalls may be hitched on both sides to the manger. These staples having considerable width upward allow to the halter-straps or hitching-chains secured thereto a degree of freedom of motion up or down according to the animals may raise or lower

their heads, all of which being so apparent this description is deemed sufficient without separate illustration.

It will here be observed that the arrangement of the elements just described is precisely the same, but in opposite positions, in the other half of the car and not here shown; that the heaviest part of the load will be in the ends of the car over the trucks, where the load is carried; that both stall-gates and wings being foldable against the side wall and manger stock may be conveniently loaded and unloaded; that the stall-gates being light and yielding readily conform to the horizontal contours of the bodies of the animals between which they are suspended, and that for this reason said animals may be more closely placed and shorter cars used in their transportation than could otherwise be done with safety.

I am aware that prior to this invention stock-cars have been constructed in which were arranged diagonal stall-partitions, watering-troughs that could be turned up into a side wall of the car, devices to admit water by gravitation into the troughs, and stall-partitions that were foldable against the rear side wall of the car. I therefore do not claim these elements, broadly, but only as constructed and arranged and for the purposes hereinbefore set forth.

Having now described my invention and set forth its application, what I do consider new, and desire to secure by Letters Patent, is—

1. In a stock-car such as described, the rods E , arranged across about one-half of the body of the car at successively-increasing obliquity from the center to the ends thereof and having their ends secured near the top of the car, the depressions e and e , formed near the ends of said rods, the suspension devices F^3 , comprising the lower chain portions adapted to be linked to the tops of the front and the rear ends of stall-gates, as described, and the upper rod portions having at their upper ends the elongated loop-eyes f^3 , said loop-eyes mounted and freely movable back and forth on said rods and adapted to rest in said depressions e , and the stall-gates F , as described, having the tops of their front and rear ends secured to the lower ends of said suspension devices to hold said stall-gates in position, substantially as described, and for the purpose set forth.

2. In a stock-car as herein described, the stall-gates F , comprising a number of parallel vertical strips, as shown, the interlocking links f , embracing and secured to the upper ends of said strips, the hinge-joints formed between said strips by the interlocking of said links, the section F' of folds of canvas or rubber packing recessed into and secured to the lower ends of said strips, the link-sections F^2 , having one edge hinge-jointed to the rear ends of said stall-gates and the other edge hinged onto two wide staples f^2 , said staples arranged lengthwise in the same vertical plane

and secured to the rear side wall of the car, and the tops of the front and rear ends of said gates adapted to be linked to the chain ends of the suspension devices F^3 , as shown, all substantially as described, and for the purpose set forth.

3. In a stock-car as hereinbefore described, the rods E' , arranged diagonally forward toward the center of the car, having their front ends secured into the back of the longitudinal beam C and their rear ends secured into the parallel beam C' , the depressions e' , formed near the front ends of said rods, and the suspension devices G' , comprising the lower chain portions, their lower ends adapted to be linked to the tops of the front ends of the stall-wings G , as shown, and the upper rod portions having at their upper ends the elongated loop-eyes g' , said loop-eyes mounted upon and freely movable back and forth on said rods E' and adapted to rest in said depressions e' , and the stall-wings G , as described, having the tops of their front ends secured to the lower ends of said suspension devices and their rear ends hinged onto two wide staples secured to the front wall of the manger, as shown, and their front ends adapted to be linked to the front ends of the stall-gates F , as described, substantially as described, and for the purpose set forth.

4. In a stock-car of the class described, the stall-wings G , as shown, having their rear ends hinged onto two wide staples g , said staples arranged in pairs lengthwise in the same vertical plane and secured to the front face of the perpendicular posts D , said posts arranged at stall intervals and secured against the front wall of the manger, the stops of the front ends of said wings secured to the chain ends of the suspension devices G' , as shown, said suspension devices having the elongated loops g' of their upper ends mounted upon

and freely movable back and forth on the rods E' , as shown, and the rods E' , having the depressions e' , as shown, said rods secured diagonally in position near the roof of the car, all substantially as described, and for the purpose set forth.

5. In a stock-car such as herein described, the rods E , having the depressions e near the ends thereof, and the rods E' , having the depressions e' near the forward ends thereof, said rods E and E' secured near the top of the car, the suspension devices F^3 , having the elongated loop-eyes f^3 at their upper rod ends on said rods E , and their lower chain ends linked to the tops of the front and rear ends of the stall-gates, as shown, said gates at their rear ends, by means of the link-sections F^2 , hinged to the rear wall of the car, as shown, and the chains F^4 , having the hooks f^4 at their forward ends, and their rear ends secured to the front edge of said gates, the suspension devices G' , having the elongated loop-eyes g' at their upper rod ends on said rods E , and their lower chain ends linked to the tops of the front ends of the stall-wings G , as shown, said wings hinged at their rear ends to the front wall of the manger, as shown, and the eyes g^2 , secured to the front edge of said wings, and the hooks f^4 , engaged into the eyes g^2 , whereby said gates F and said wings G are linked together and the stall-partitions completed across the body of the car, substantially as described, and for the purpose set forth.

In testimony whereof I have hereunto subscribed my name in the presence of two subscribing witnesses.

GEORGE GROSSMAN.

Witnesses:

DANIEL H. HERR,
EDWIN BOOKMYER.