(No Model.)

B. C. HICKS.

STOCK CAR.

No. 455,716. Patented July 7, 1891.

Fig. 1.

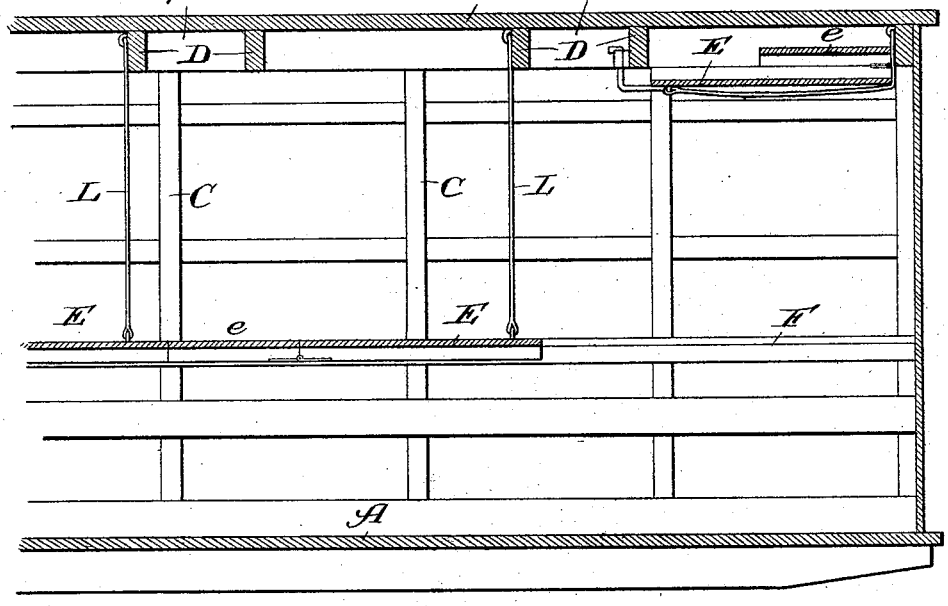
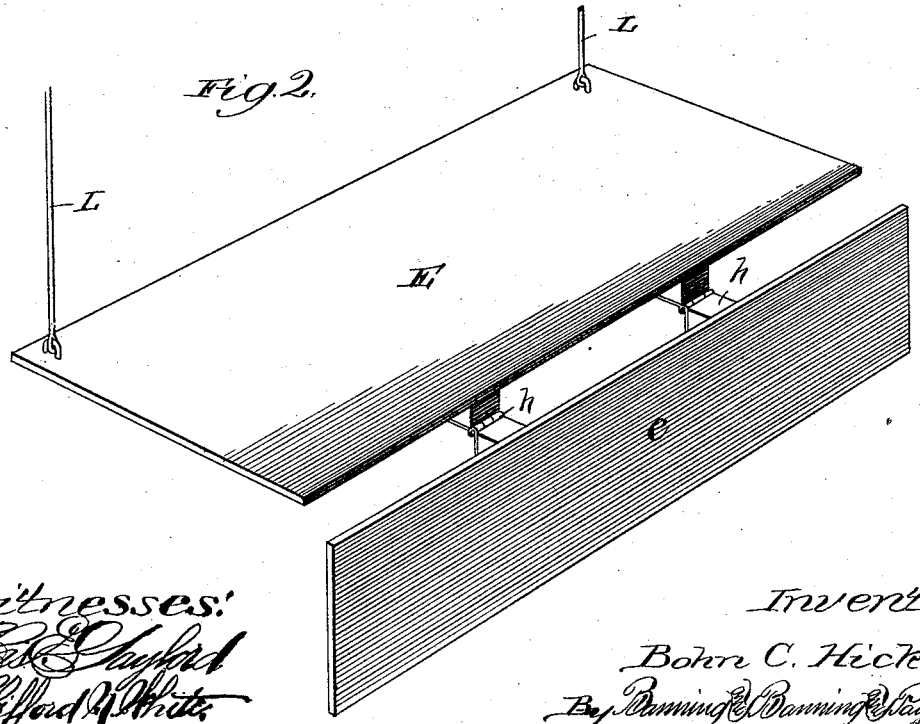


Fig. 2.



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UNITED STATES PATENT OFFICE.

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STOCK-CAR.

SPECIFICATION forming part of Letters Patent No. 455,716, dated July 7, 1891.

Application filed April 16, 1891. Serial No. 389,196. (No model.)

To all whom it may concern:

Be it known that I, BOHN CHAPIN HICKS, a citizen of the United States, residing at Chicago, Cook county, Illinois, have invented a new and useful Improvement in Stock-Cars, of which the following is a specification.

The present invention relates to combination or double-deck stock-cars. A double-deck stock-car is one which has a horizontal intermediate partition, floor, or deck which divides the car into upper and lower compartments, the purpose of the intermediate or "double" deck being to increase the capacity of the car for carrying small animals, such as sheep or hogs. In the most approved stock-cars of the present time the double deck is made removable, so that the car becomes a combination-car adapted both for the transportation of small animals, such as sheep and hogs, and of large animals, such as cattle and horses, the double deck being removed when the cattle are to be transported. It is also desirable that the double deck should be made removable, in order that the car may be utilized as an ordinary box freight-car for carrying ordinary or "dead" freight, since under ordinary circumstances live stock is only shipped in one direction on a railroad. In providing a stock-car with such a removable double deck there are two controlling conditions. When the double deck occupies its normal operative position as a deck, it must have a solid firm support, it must present an unbroken complete platform for the animals, and it must, as a consequence, extend the entire width and length of the car. No uncovered openings or breaks in the double deck are permissible, since the animals would step into them, and thus become injured, and it is equally essential that the deck, while movable from its normal position, where it forms a second floor to the car, should nevertheless be a permanent portion of the car and not removable entirely from the car. This is obviously necessary, since the deck, if movable from the car, would not always be available when needed. Consequently the deck when removed from its operative normal position in the car must be stored within the car, and when thus stored it should not interfere with the capacity of the car for carrying cattle (or ordinary dead freight) to the minimum extent, and be, if possible, utilized for beneficial purposes. In order that the double deck may fulfill these essential requirements, it has been the usual practice to make the deck of a number of sections of such size as to be conveniently handled within the car, and the deck-sections when not in operative position have been stored within the car, in some instances at the ends and in other cases in the roof of the car. As between storing the deck-sections in the ends of the car and in the roof the latter method is preferable and is adopted in the most approved cars, since valuable space is occupied by storing the sections in the ends of the car, whereas when the sections are stored in the roof of the car they are not only out of the way, but they can also be used for beneficial purposes. The present invention relates particularly to such double-deck cars where the sections of which the deck is composed are stored wholly at the roof of the car; but in storing the double deck in the roof of the car there are a number of circumstances which must be taken into consideration. In the first place it is exceedingly desirable, when the car is used as a cattle-car, that the interior should be divided into compartments by vertical partitions extending crosswise of the car. These partitions are mainly desirable because they prevent the cattle from being thrown or "bunched" at one end of the car by the sudden stopping or starting of the train, which would result in injury both to the cattle and to the car. These partitions in the most approved stock-cars are made flexible, so that they may be raised vertically by rolling and be stored in the roof of the car when not in use, as when the car is used for ordinary dead-freight purposes. In the second place, stock is frequently transported for long distances, requiring it to be kept in the car several days. Consequently it becomes necessary, both for humane reasons and for the sake of maintaining the cattle in the best marketable condition, to make provision for feeding and watering the cattle in transit. The space between the roof and the double-deck sections, when the latter are lifted to the roof, affords ample capacity for storing

feed during the longest haul, and it is customary in modern stock-cars to provide water-troughs along the sides of the car and a water-distributing tank in communication with the troughs, which tank can be quickly supplied with water at the usual water-supply-stations along the railroad, and distribute the water uniformly to the watering-troughs. It is desirable that the water-tank should be located in the roof of the car, where it is out of the way, and near the center of the car, so that the troughs may be uniformly supplied with water.

Another important consideration is the necessity for gaining access to the interior of the car. Cattle are frequently thrown down onto the floor of the car, owing to the stoppage and other sudden movements of the train, and also it often happens, especially on an unusually long trip, that one (or more) of the cattle falls down through weakness. Unless such fallen cattle are lifted to their feet they are in danger of being killed or so badly injured as to be unfit for slaughtering, owing to the other cattle in the same compartment trampling upon them. They are also in danger of being smothered to death. Accordingly it is essential to provide some practicable and convenient means of access to the interior of the car, when the train is in motion as well as when standing still, to enable one of the stockmen accompanying the train to enter the car and assist the fallen cattle to rise. Access cannot be had through the usual doors at the center of the sides of the car when the train is in motion, and even if entrance could be had through these usual doors the stockman would only gain access to one of the compartments of the car formed by the flexible transverse partitions. The same objections lie to the openings usually provided in the ends of the cars. Accordingly special provisions are necessary for gaining access to the car. In cattle-cars which are not provided with double decks the problem is a simple one and has been solved by means of doors in the roof of the car. Doors so located are exceedingly well adapted for this purpose, since the roofs of the cars afford the usual means of communication from car to car in a freight-train, and they are consequently conveniently accessible to the stockmen when the train is either standing or in motion; but when, for reasons already suggested, the double-deck sections in a combination car have been elevated to the roof, communication to the interior of the car through the roof has been cut off. Several attempts have been made to enable access to be had through outwardly-swinging doors or shutters in the sides of the car; but they have proven to be impracticable. Such outwardly-swinging parts cannot be utilized when the train is in motion, since they are in danger of striking fixed structures along the track—such as bridges, signal-posts, and the like—and passing or standing trains.

Now the object of the present invention is to so construct, arrange, and operate the movable deck that it may fulfill all of the essential features of a double deck and at the same time be properly related to and combined with the other essential features of the combination-car, so that each feature of the car may accomplish its particular functions perfectly and properly without being interfered with or adversely affected by the double deck. In other words, the object of the invention is to take a stock-car which has the vertically-movable transverse partitions and the watering and other appliances which go to make up a perfect cattle-car and to apply thereto a movable double deck, which, when positioned for use, forms a firm, solid, unbroken second floor, and which may be lifted entirely into the roof when not in use, and when there not only be wholly out of the way and form a feed-storage receptacle, but also permit access to the interior of the car through the roof-openings and permit the free and unobstructed use of the movable transverse partitions and of the watering and other appliances. It is also desirable to have a deck-section which, when folded and stowed in the roof, shall not take up the entire roof-space, but shall leave room in such space for the carrying of any appliances other than those already referred to; or, in other words, to provide a deck which shall be continuous and unbroken when down, covering the whole area of the car, and which shall not be continuous or cover the entire area when raised.

The objects of the invention are accomplished by the novel construction of the sections of which the double deck is composed, the location of the deck-sections in the car relatively to the position of the appliances in the car, and the mode of operation in raising and lowering the deck-sections.

Each section of which the deck is composed is entirely unattached to the other deck-sections and is independent of them in its movements. Each section when in position for use extends entirely across the car and its ends rest upon the beltry-rails, which afford a firm and solid support, so that each section can be appropriately termed a "transverse section," since it has no break or joint at right angles to its length. When the deck-sections are in position for use, the longitudinal edges of one section fit closely against the adjacent longitudinal edges of the sections on both sides thereof, so that the several sections together form an unbroken second floor or deck. When elevated into the roof, the deck-sections still occupy a horizontal position and extend transversely across the car; but they do not when thus elevated form an unbroken ceiling or false rod; but, on the contrary, transverse spaces are left between adjacent sections, and the deck-sections are so arranged and located that a portion of these transverse spaces coincide with the roof-openings, others occur where the vertical movable

partitions are located, and still others occur at the place where the water-supply tank (or tanks) is secured, when such openings, partitions, or tanks are used; but when they are not used the spaces may come at any point desired. Now, to enable these transverse spaces between adjacent deck-sections to be provided when the deck-sections are raised each deck-section is made of two parts hinged together. The joint between the two parts or leaves of each deck-section extends longitudinally with reference to the deck-section, and consequently transversely with reference to the car. The two parts or leaves of each deck-section are so hinged together that when the deck-section occupies its normal position as a part of the double deck they lie in the same plane side by side; but when the deck-section is elevated to the roof the two leaves or parts fold the one upon the other, so that the longitudinal space in the car occupied by the deck-section when raised is less than when the deck-section is positioned for use. Consequently when the several deck-sections thus constructed are elevated transverse spaces are left between them.

The present improvements are illustrated in the accompanying drawings, wherein Fig. 1 is a longitudinal vertical section of a portion of a double-deck or combination car provided with the improvements, and Fig. 2 is a perspective view of one of the double-deck sections.

Referring to the drawings, A is the floor, B the roof, C the side studdings, D the carlings, and F the beltry-rails, of an ordinary stock-car.

The car as thus far described constitutes, simply, a cattle-car, and the features and appliances thus far described possess in themselves no novelty. The car is, it will be understood, to be equipped, as is usual, with drinking-troughs properly arranged (which, however, are not shown in the drawings) and with suitable feed-racks. The drawings are intended to show a modern cattle-car equipped with the most approved appliances.

The double deck is formed of a plurality of independent deck-sections E *e*. The proper number of these independent deck-sections is determined by the length of the car, the number of compartments into which it is divided by the vertical transverse partitions, and the considerations relating to convenience in handling. The drawings illustrate a portion of a car of about thirty-six feet in length, (a usual and customary length,) divided into three compartments. Accordingly the double deck is made up of six independent sections of equal size, two being provided for each compartment. This makes the deck-sections of a convenient size for handling.

Each deck-section is, as a whole, a parallelogram and extends transversely across the car without any joint extending longitudinally of the car. Each deck-section is supported, when positioned for use, by its ends resting on the beltry-rails F, whereby a firm and solid support is obtained. Each deck-section is composed of two parts, members, or leaves E and *e*. These two parts or members are separated by a joint extending transversely of the car, and they are hinged together by any suitable hinges, as *h*, so that the one portion can fold upon the other, the two parts, however, not being detachable or independent of each other. Each deck-section shown is strengthened by truss-rods and truss-blocks. The two parts E *e* of each deck-section are so arranged relatively that when resting on the beltry-rails they form a plane unbroken upper surface, there being no open joint between them, and the several deck-sections, when in position for use, lie closely together, as shown at the left in Fig. 1, so that an unbroken second floor is formed. When, however, each deck-section is raised, one of the two parts of which it is formed is folded upon the other part, (as indicated at the right in Fig. 1,) so that transverse spaces *p* are provided between adjacent deck-sections.

The means employed for raising and lowering the several deck-sections independently of each other and for holding the deck-sections when elevated in a horizontal position and in a secure manner, are as follows:

Each deck-section is joined to the car by one or more cables L, (two, one at each end, being the preferred number,) such cables serving to support the deck-sections during the folding and unfolding operations, and being like and serving the same purpose as the rods H, set forth in Letters Patent of the United States, No. 344,044, granted to me June 22, 1886. The cables are flexible, so that flexible junctions between the deck-sections and the car are provided, and they are made long enough so that when the deck is lowered for use no part of the weight of the stock will be devolved upon the cables, the beltry-rails taking up the entire burden at such times. The cables are attached at their upper ends to brackets or to the carlings, as preferred. The brackets are not essential, because the cables will sustain the raised and folded deck-sections at the side where said brackets are located, should the brackets be omitted.

The parts of each folding deck-section are preferably so hinged together, as shown, that the under side of the two parts come together when the section is folded, the special object being to avoid bringing the upper or floor surfaces together, which would be objectionable, because these surfaces are usually covered with manure and could not well be folded one upon the other by reason of such accumulations. Another advantage attending this preferred manner of hinging is that when the deck-section is reversed, as it is in the act of raising it to the upper position, the folding member *e* is sustained and neither hangs down nor requires means to hold it up against the main member E.

Although I have spoken of the advantages

to be derived from using this form of deck in connection with a car having openings in the roof and flexible partitions, it will be obvious that these are not the only advantages, and that the deck might be used in a car which had neither the openings in the roof nor the flexible partitions, the spaces furnished between the sections of deck when stowed away in the roof being capable of utilization for many other purposes, as for storing various appliances for the car, &c., and I do not herein claim this deck in connection with the roof-openings or flexible partitions, since when so connected and combined the deck is the subject of another patent, No. 451,682; but in this application I desire to cover the deck, broadly, in whatever connection it may be used.

I claim—

A stock-car having a double deck composed of a plurality of independently-movable transverse deck-sections which are movable from a position where they form the double deck to a position where each section is wholly in the roof of the car when not in use, each of said deck-sections extending transversely and horizontally across the car when in use and also when raised to the roof, and each of said sections being composed of two members hinged together, the joint between said members extending transversely across the car, whereby when all of such sections are in position for use an unbroken double deck is formed, but when such deck-sections are raised the members of each section are folded upon each other, providing a plurality of spaces between the several sections, and means for supporting said deck-sections in the roof of the car when not in use, substantially as described.

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