Jan. 12, 1926. **1,569,071**

R. C. CHISAM

CONVERTIBLE STOCK CAR

Filed March 25, 1925 2 Sheets-Sheet 1

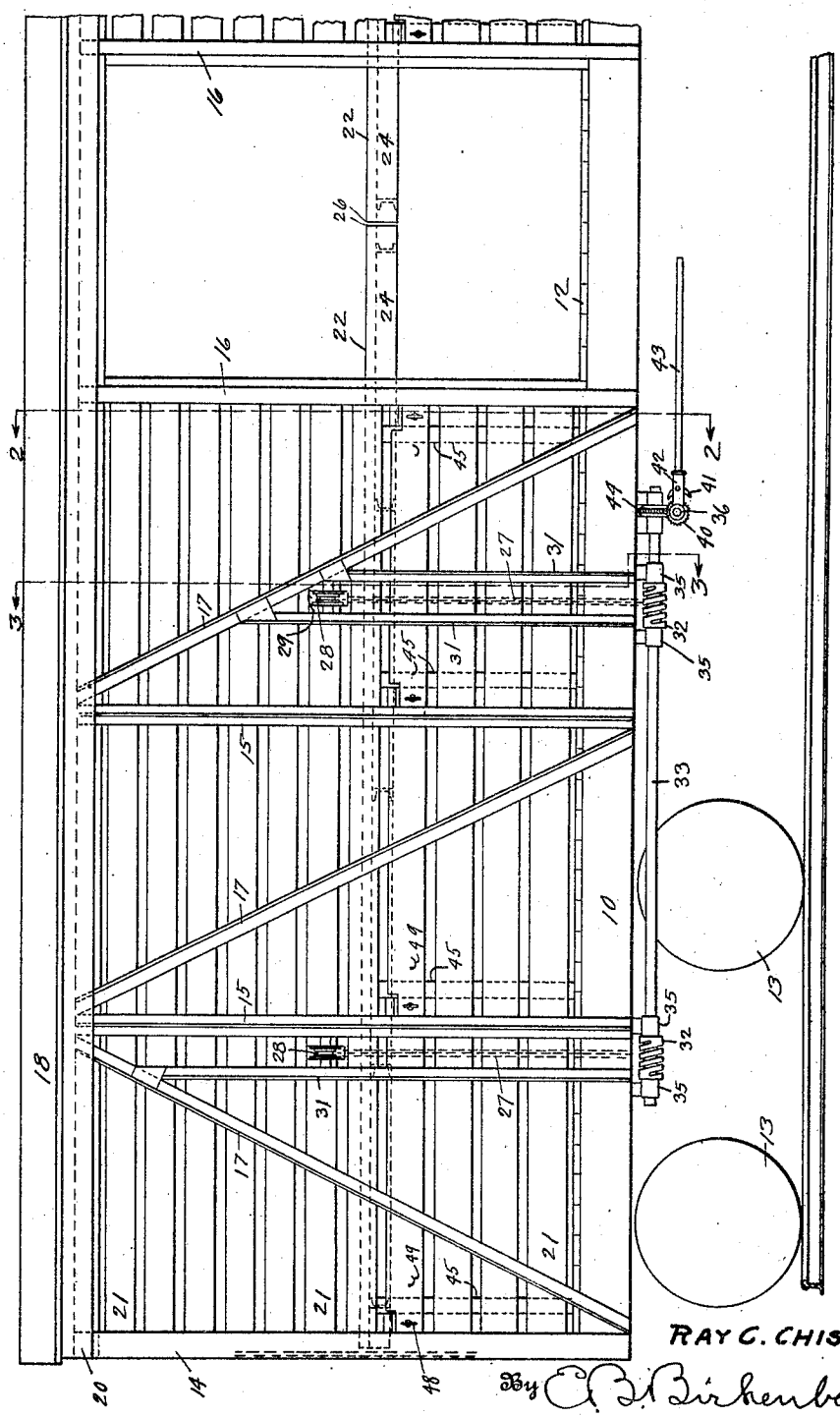


FIG. 1

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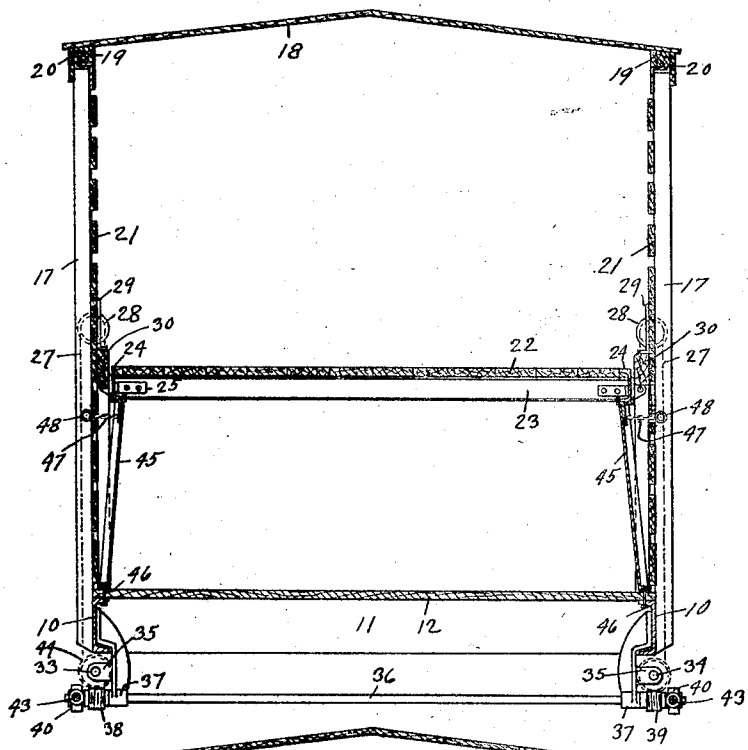


FIG. 2

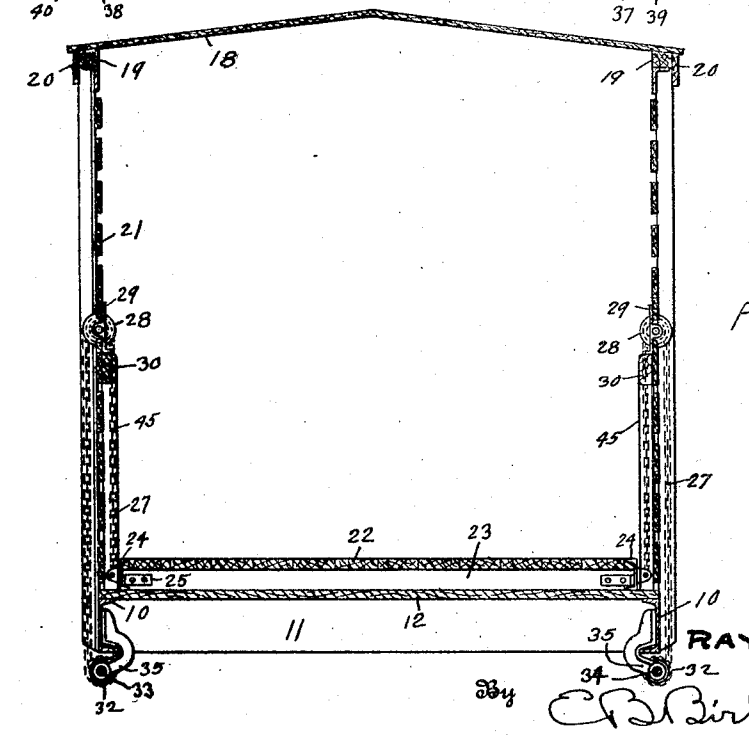


FIG. 3

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UNITED STATES PATENT OFFICE.

RAY C. CHISAM, OF THE DALLES, OREGON.

CONVERTIBLE STOCK CAR.

Application filed March 25, 1925. Serial No. 18,094.

To all whom it may concern:

Be it hereby known that I, RAY C. CHISAM, a citizen of the United States, and a resident of The Dalles, in the county of Wasco and State of Oregon, have invented a new and useful Convertible Stock Car, of which the following is a specification.

This invention relates generally to rolling stock such as is employed on railroads, and particularly to stock cars adapted to be converted into single or double deck cars.

The first object of this invention is to provide an exceedingly simple and efficient form of convertible stock car.

The second object is to so construct the convertible portion of the car that its cost will not be prohibitive and that it is easily operable by two men.

The third object is to so construct same that the upper deck cannot possibly be lowered instantaneously or dropped, but must be lowered manually.

The fourth object is to so construct same that no additional weight is imposed upon the upper portion of the stock car, which, owing to its nature, is already of comparatively flimsy construction.

The fifth object is to so construct the device that the operation of its working parts is not in any way affected by distortion of the car frame.

The sixth object is to construct the device in two sections for the purpose of adding to the ease of operation for a small crew, and at the same time facilitate installation and repairs.

The seventh object in providing a practical form of convertible stock car is to reduce the amount of rolling stock required by a road to accommodate seasonal and sectional demands.

These, and other objects, will become more apparent from the specification following as illustrated in the accompanying drawings, in which:

Figure 1 is a side elevation of one end of a stock car extending beyond the side door. Figure 2 is a vertical transverse section taken along the line 2—2 in Figure 1. Figure 3 is a vertical transverse section taken along the line 3—3 in Figure 1, but showing the upper deck in a lowered position.

Similar numbers of reference refer to the same parts throughout the views.

Referring in detail to the drawings, in order to illustrate the device there is indicated the usual form of side frames 10 and cross ties 11 of a freight car provided with the usual deck 12 and wheels 13, as well as the angle iron corner posts 14, T iron side posts 15, door frames 16 and sloping angle iron braces 17. The usual form of roof 18 is supported by the plates 19 around which is placed a facia board 20. Spaced slats 21 are provided for the sides of the car.

Turning now to the device itself it will be seen to consist of an upper deck 22 supported by the channel irons 23 secured to the upper deck frames 24 by means of the clips 25. The deck 22 is divided into two portions whose ends 26 almost touch in the middle of the car, sufficient clearance being allowed to permit easy operation.

To each of the longer sides of each of the upper decks 22 is attached the chains 27 by fastening same to the frames 24 in any convenient manner. The chains 27 then pass upwardly around the sheaves 28, which are mounted on the brackets 29 on top of the rails 30, between the posts 15 and the auxiliary posts 31. The chains 27 then pass downwardly and fasten to the spirally grooved drums 32 on the shafts 33 and 34, which are supported by the bearings 35.

Transverse shafts 36, supported by the bearings 37 which hang from the side frames 10, are provided near their ends with the worms 38 and 39 and at their extreme ends with the ratchet wheels 40 adapted to be rotated in either direction by the pawls 41 on the arms 42, into which may be inserted a crowbar 43 or a suitable rod. The worm wheels 44, which are secured on the inner ends of each of the shafts 33 and 34, mesh with the worms 38 and 39 on the shafts 36.

Along the sides of the car and at convenient intervals are placed the supporting posts 45 for the upper decks 22. These posts are preferably secured to the deck 12 by means of the bolts 46, which are loose enough to permit the posts to swing transversely with the car as far as permitted by the chains 47, which pass through some of the slats 21 and are provided on their outer ends with the rings 48 to limit the amount that they may swing. Hooks 49 are also provided in the slats 21 through which the chains 47 pass in positions which will make it possible to hold the posts 45 against the

sides of the car by hooking the rings 48 over the hooks 49 when the car is being used as a single deck car.

The operation of the device is as follows: Assuming that the stock car equipped with this device is in the position shown in Figure 3—that is, with the upper deck resting upon the lower deck—as would be the case when shipping cattle, coke, lumber, etc., and it is desired to convert this car into a double deck stock car, it is only necessary for the operator to insert the bar 43 into an arm 42 and by a pumping action through the ratchet wheels 40, the worms 38 and 39 and the worm wheels 44 wind the chains 27 upon their respective drums, thereby causing one half of the upper deck, or the portion of the upper deck which extends from one end to the middle of the car, to rise uniformly until its lowermost portion is above the upper ends of the posts 45, which have been previously released from the hooks 49. As soon as the upper deck clears these posts they will swing, or can easily be pulled, into the position shown in Figure 2, after which the ratchet is reversed and the weight of this section of the upper deck is permitted to rest upon the posts rather than upon the chains. This operation is now repeated for the other end of the car.

It will be understood, of course, that if two men are available they can work at opposite ends of the shafts 36, or they may be raising both ends of the upper deck at the same time, depending upon the degree of haste being made and the choice of the operator.

It is evident that by this arrangement of parts it is impossible to drop a deck or to endanger the lives of anyone who might be around same, since it is not possible to drive these decks downwardly at a speed which would make it impossible for anyone under same to escape.

It is also evident that the working parts are all underslung and do not interfere in any way with the ladders or safety appliances now existing. It can also be seen that it is not possible to lower any portion of a deck unit at a different speed from any other portion since a whole deck unit is driven from the same source.

Devices of many different kinds employing movable upper decks have been constructed in the past, a majority of which raise the upper deck upwardly when not in use and store same immediately under the roof 18. This system has two disadvantages which have been overcome by this device. The first is the greater difficulty in cleaning, and the second is the more serious difficulty presented by adding a very considerable weight to the upper portion of the stock car, which, as previously intimated, is normally of a very light construction; thereby adding greatly to the strains to which these cars are subjected in transit, especially when taking curves and during the starting and stopping of the trains of which these cars form a part.

It is a matter of common knowledge that the railroad of today is struggling for its very existence. A considerable portion of the expense of modern railroads lies in the amount of rolling stock which must stand on sidings a large portion of the year, during which time it feeds upon the resources of the railroad as an idle investment which is rapidly deteriorating.

Still another factor which this device eliminates, is the necessity of long hauls for certain types of stock cars, say, for instance, a single deck car to a point at which a number of double deck cars may be lying on a siding—or the reverse condition—owing to the fact that there today seems to be no practical form of convertible stock car.

In the construction of this device there has been borne in mind not only the necessity of having a convertible car, but also the important factors which render the use of this type of device practical on our modern railroad systems.

As previously stated, many attempts have been made to construct a practical form of convertible car, typical forms of which are disclosed in Patents No. 1,166,500, 260,299, 265,427, 1,081,588, 823,983, 447,919, 380,725 and 29,409 which have thus far not found their way into use in railroad stock car building. I am therefore not claiming this device broadly, but I do intend to cover such forms and modifications of my device as fall fairly within the appended claims.

I claim:

1. In a convertible stock car, the combination of a stock car; a centrally divided upper deck normally resting on said lower deck; sheaves mounted in the sides of said car; chains passing over said sheaves through the car sides the inner ends of which fasten to said upper deck; a longitudinal shaft under each car side frame and under each section of the upper deck having the outer end of said chains wound thereon; a worm wheel on each of said longitudinal shafts; a transverse shaft under said car; worms on said transverse shaft meshing with said worm wheel; reversible ratchets on said transverse shafts; and means for supporting said upper decks on said lower decks independently of said chains or car sides.

2. In a convertible stock car, the combination of a stock car; an upper deck divided in the middle of its length and normally resting on the deck of said car; a pair of sheaves mounted in the side of said car above the raised position of said upper deck along each side of each section thereof; a chain passing over each sheave having its inner

end fastened to its section of upper deck; a longitudinal shaft under each side of each upper deck section mounted under the car frame; drums mounted on said shaft on which are wound the outer ends of said chains; a worm wheel on each longitudinal shaft; a transverse shaft under said car; worms on said transverse shaft meshing with said worm wheels; ratchet wheels on said transverse shaft for rotating said worm shaft in either direction; supports for said upper deck sections, each of which consists of an upright post loosely attached to the main deck of said car and having a recess formed in its upper end adapted to receive the frame of the upper deck and having a stay chain attached thereto passing through the side slats of the car, each of said chains having a stop ring formed on the outer end thereof adapted to limit the inward swing of its post; and hook means on said slats to which said rings may be attached in a manner to hold said posts outwardly against the sides of said car.

RAY C. CHISAM.