No. 795,849. PATENTED AUG. 1, 1905.

I. J. NAUGHTON.

CONVERTIBLE STOCK OR STABLE CAR.

APPLICATION FILED JULY 11, 1904.

4 SHEETS—SHEET 1.

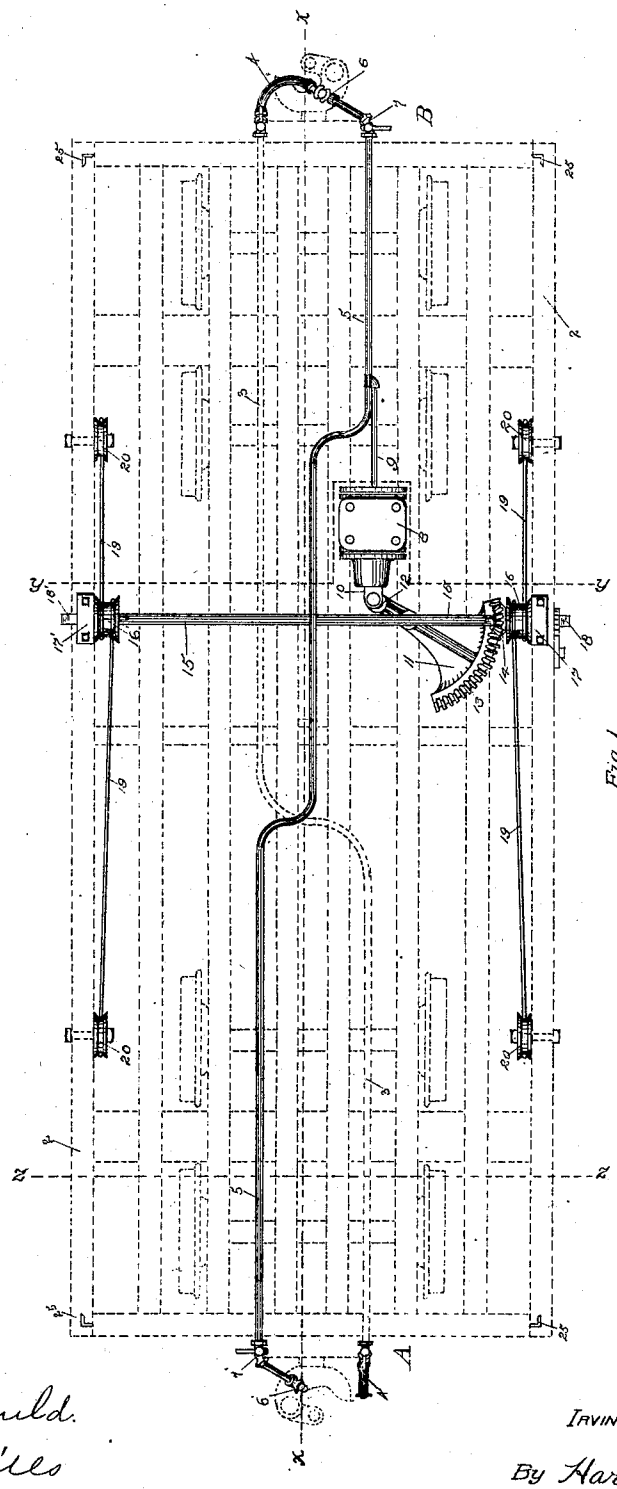


Fig 1.

Witnesses.
H. S. Gould.
C. W. Miles

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ANDREW B. GRAHAM CO. PHOTO-LITHOGRAPHERS, WASHINGTON, D. C.

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4 SHEETS—SHEET 2.

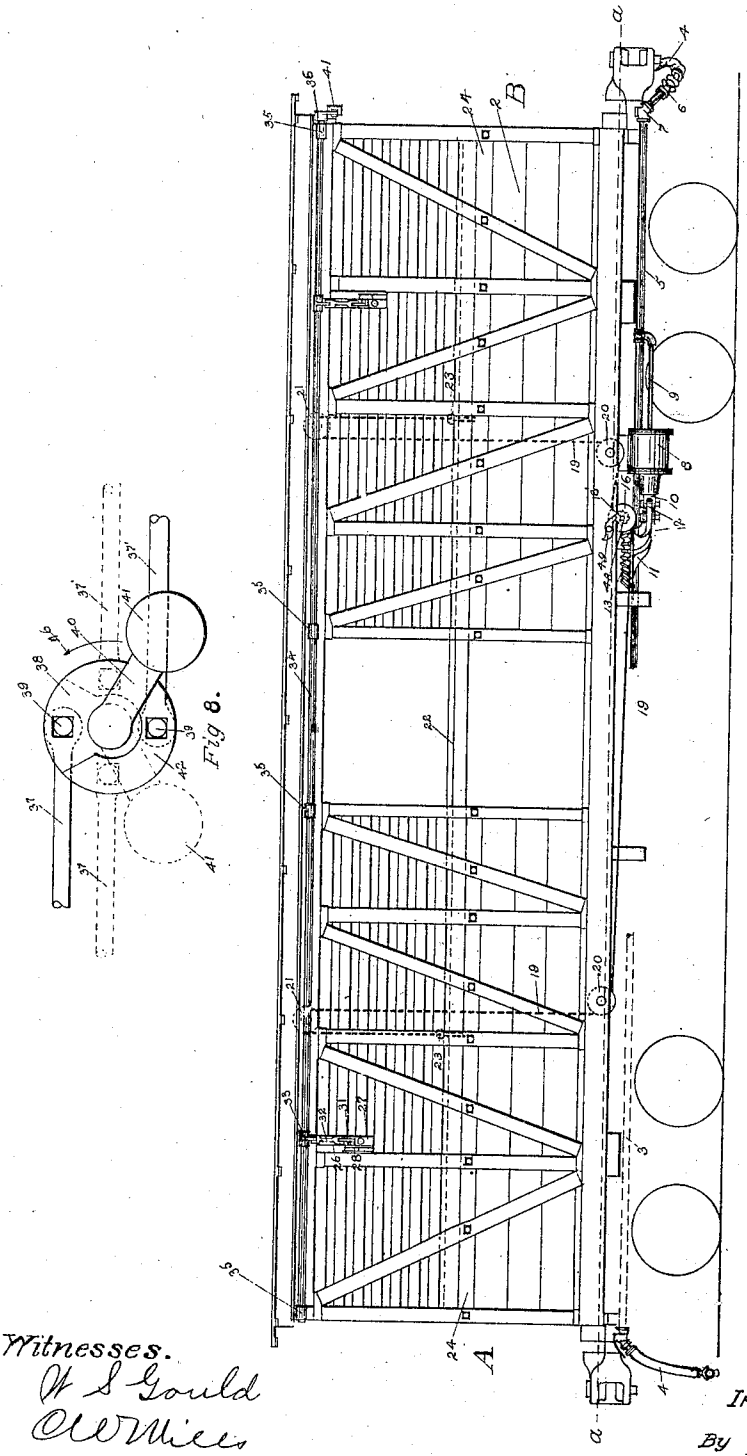


Fig 2.

Fig 8.

Witnesses.
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4 SHEETS—SHEET 3.

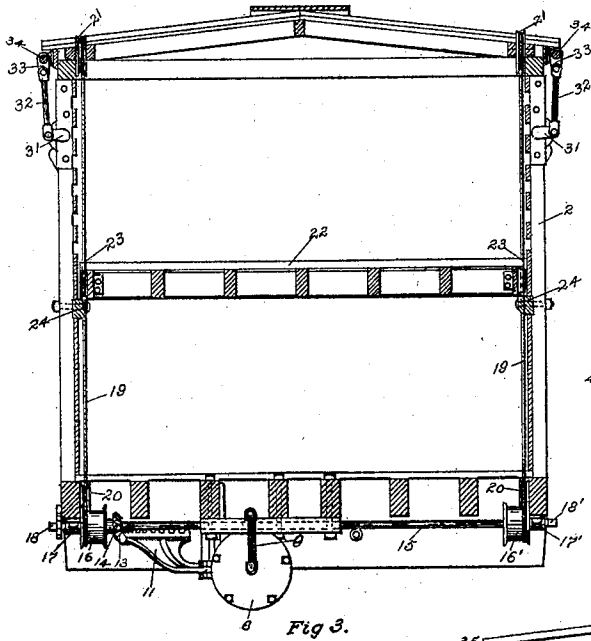


Fig 3.

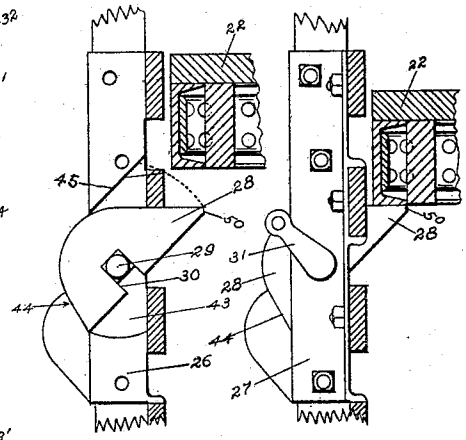


Fig 7.

Fig 6.

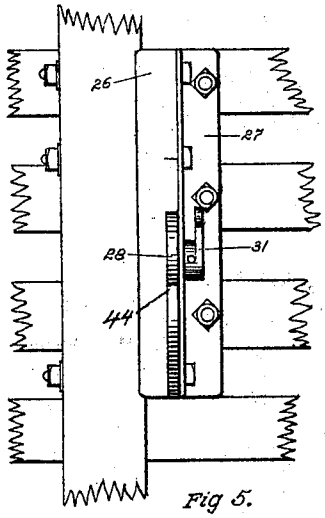


Fig 5.

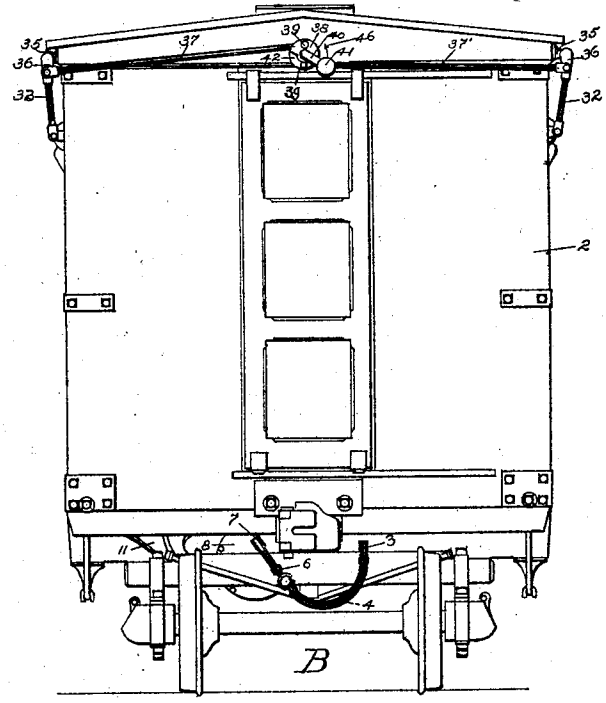


Fig 4.

Witnesses.
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4 SHEETS—SHEET 4.

Fig. 11.

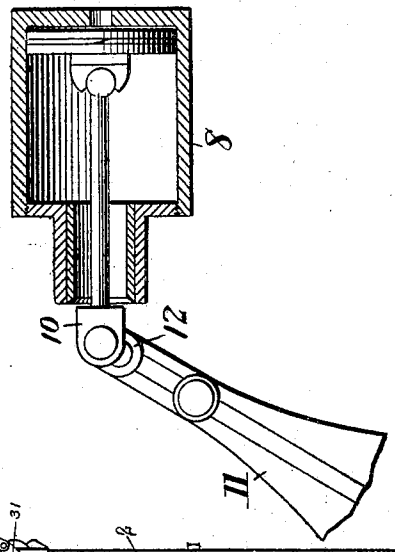


Fig 10

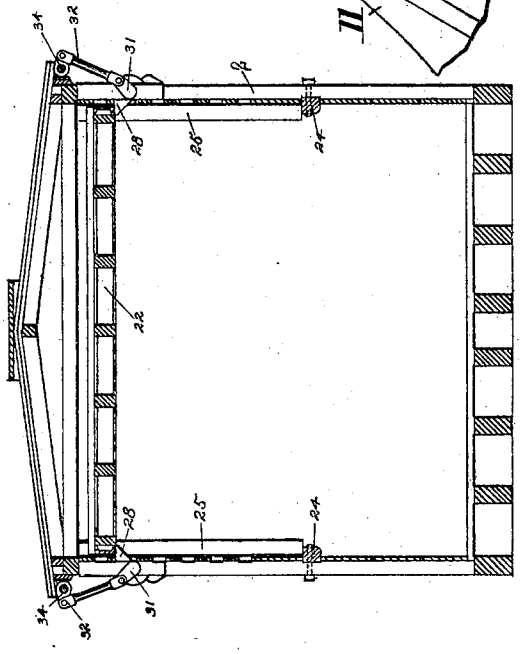
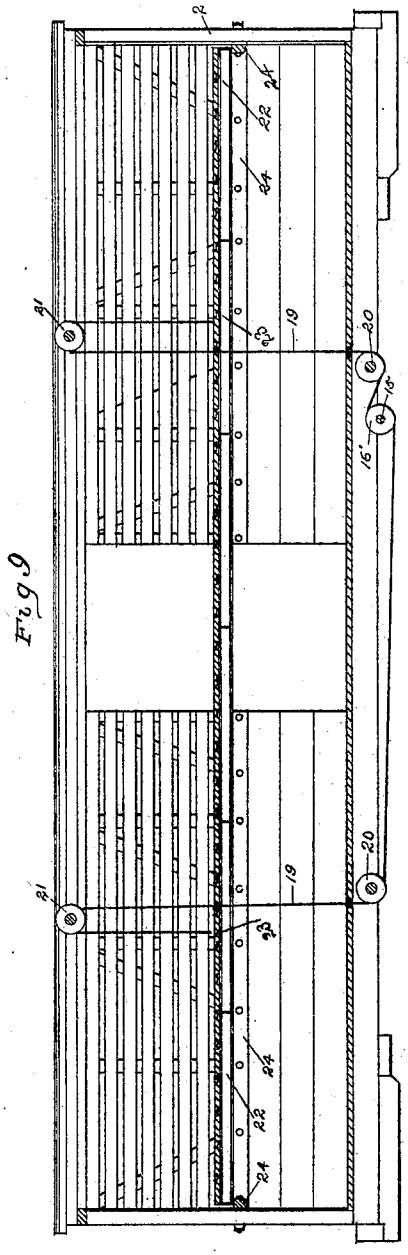


Fig 9



Witnesses.

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C. W. Miles.

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UNITED STATES PATENT OFFICE.

IRVING J. NAUGHTON, OF WATERTOWN, NEW YORK.

CONVERTIBLE STOCK OR STABLE CAR.

No. 795,849. Specification of Letters Patent. Patented Aug. 1, 1905.

Application filed July 11, 1904. Serial No. 216,104.

To all whom it may concern:

Be it known that I, IRVING J. NAUGHTON, a citizen of the United States, residing at Watertown, in the county of Jefferson and State of New York, have invented certain new and useful Improvements in Convertible Stock or Stable Cars, of which the following is a specification.

This invention relates to improvements in convertible stock or stable cars designed for use by railroads in connection with the transportation of live stock from one station or point to another, by the use of which either large or small animals may be loaded and transported with the greatest convenience, economy, and safety and with the least possible waste of time and car-space.

The particular object of my invention is to provide a convertible stock or stable car which may be employed either as a "single" or a "double" deck, so called—that is to say, the said car may be used as a single deck or compartment when the live stock to be transported consists of large animals, such as horses or cattle, or it may be readily converted into a car having two decks or compartments when smaller animals—such as swine, sheep, calves, and the like—are to be transported.

A prominent feature of my invention consists of a convertible stock or stable car wherein I provide an upper deck or floor which is movable, preferably formed into one solid platform or part extending horizontally the substantial length and width of the inside of said car, constructed of suitable thickness and strength to sustain and carry the heaviest load to be transported thereon, and it is intended to rest upon a metallic or wooden girth attached to or framed into the inner walls of said car on a line substantially midway between the lower or main floor and the roof of said car to form two separate compartments of equal size extending throughout the length and width of said car to facilitate the transportation of small animals, and I provide means upon said car whereby said movable deck or floor may be quickly hoisted out of said position upon said girth and moved in vertical guides or slide-bearings to a point just beneath the roof of said car and securely locked and held thereat, thus converting said car into a single compartment of sufficient depth for the loading and transporting of large animals, and to this end I employ simple but powerful means for raising and lowering said movable platform or deck and also for locking and upholding or releasing the same, said means being in constant connection with said movable deck or floor and always ready for immediate use.

Another feature of my invention consists of automatic means, in connection with the source of air-pressure and the train-pipe of the air-brake system common to railway-cars, whereby said air-pressure is employed to raise or lower said movable deck or platform to convert said car from a single to a double deck car, or vice versa, and through said means to effect such conversion or change practically instantaneously without the employment of any manual power in removing or replacing said intermediate or movable deck.

A further feature of my invention comprises an auxiliary air-pipe preferably located on the under side of said car, the same as the air-brake train-pipe, provided with angle-cocks and couplings for air-hose at each end of said car and a cylinder of suitable capacity connected with said auxiliary air-pipe, the said auxiliary air-pipe being adapted to connect with the air-brake train-pipe by means of a section of hose attached to the latter at either end of said car to form a passage for a supply of air-pressure to be obtained from the air-brake system or directly from a locomotive to operate said auxiliary cylinder and the train of mechanism and connections extending between said cylinder and said movable platform or deck, thereby to raise or lower the same for the purpose of converting said car from a single to a double deck, or vice versa.

A further feature of my invention consists of a plurality of locking and supporting dogs or latches located at or near the top of said car and preferably mounted on or pivoted to certain of the upright timbers or like parts forming the walls of said car, said dogs or latches being adapted to swing inwardly beneath and to sustain the weight of said movable deck and to securely hold the same when lifted or elevated to its position beneath the car-roof to convert said car into a single compartment for loading and transporting large animals or any kind of dead freight, said dogs or latches to be swung outwardly to release said movable deck to make ready for lowering the same, and I provide on said car simple means for operating said dogs in either direction simultaneously and also for holding said dogs in either their outward or inward positions in a positive manner.

Still another feature of my invention con-

sists of providing means whereby said stock-car may be converted into either a single or double deck car by the employment of manual power alone at such times as it is not convenient or possible to obtain or use the air-pressure referred to. To accomplish this, I provide square ends upon the shaft underneath the car which carries the cable-drums, thus forming a double winch which may be operated by hand-power by the use of cranks or other suitable devices and operate said movable deck to raise or lower the same for either of said purposes named.

It will be noted that on all railway-cars having air-brake pipe connections the train-pipes at either end of the cars where the hose-couplings are attached are located so that the hose describes a diagonal line where it crosses the space between two cars. In other words, these connections run from right to left throughout a train of cars. To provide against trainmen making mistakes by coupling the air-hose of the brake system of another car with the auxiliary air-pipe on my improved car, the hose-couplings of my auxiliary air-pipe at either end of said car are placed in a position the reverse of that of the regular air-brake pipe and hose couplings and at such a distance therefrom that the section of hose attached to an adjoining car cannot be connected with said auxiliary air-pipe through mistake; but it is so located that the hose coupled to the train-pipe at the ends of said stock-car may be swung underneath the draw-bar of said car or in other directions, if deemed preferable, and connected with said auxiliary air-pipe, thus forming a continuous passage for the air-pressure from one end of said car to the other and back again through said auxiliary air-pipe and said cylinder to the end of the car where the pressure is applied, so that by attaching the air-hose coupled to a locomotive (or other car intervening between a locomotive and said convertible stock-car) to the train-pipe at one end of said car and then coupling the hose from the train-pipe to the auxiliary air-pipe at the farther end of said car the air-pressure will travel the full length of said car and return, as described. After said movable deck has been either raised or lowered, as the case may be, the pressure should be released gradually either by the engineer through his brake-valve by throwing the same into the release position or by another person by opening the angle-cock on the free end of said auxiliary air-pipe at the end of said stock-car at which said air-pressure is applied.

When the movable deck or floor has been lifted out of position for use as a deck and the locking devices or dogs have been swung inwardly under the edges of said deck to withhold and lock the same when elevated to the top of the car, the tension or power exerted by the air-pressure should be relieved by gradually releasing said pressure in either manner, as explained above, so as to allow said movable deck to slowly settle down and rest upon said dogs or latches, and when such a car is found with said movable deck in its idle position near the car-roof and it is desired to lower the same to provide two decks or floors the air-pressure should first be applied so as to lift said deck up slightly clear of said dogs or latches to permit them to be swung outwardly to allow said deck to descend to the supporting-girth midway between the roof and bottom of said car. It will be obvious that the said movable deck or platform, together with the various devices and means for its operation and use, may be applied to any of the existing makes or forms of stock-cars, as well as to new cars built especially for the same. To that end I may prefer to so construct said platform or deck that it may be inserted into any car in sections of suitable length and afterward securely and rigidly joined together to form a complete and solid deck or floor without departing from the principles of my invention. In the formation and construction of said movable deck I prefer to employ steel or iron for the framework and to cover same with wood or other suitable flooring material.

The invention consists generally in the constructions and combinations hereinafter described, and particularly pointed out in the claims.

The invention will be more readily understood by reference to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a sectional view substantially on the line *a a* of Fig. 2, showing the reversed positions of the air-pipes, also showing the location and manner of connecting the operating parts beneath the car. Fig. 2 is a side elevation of a stock-car embodying my invention. Fig. 3 is a vertical section of the end of the car substantially on the line *y y* of Fig. 1 and showing a car with two decks or floors. Fig. 4 is an end elevation showing means of connecting train-pipe with auxiliary air-pipe, also showing means for operating the deck locking and withholding parts simultaneously from the end of the car. Fig. 5 is an enlarged detail view of the locking and withholding dogs and the manner of attaching the same to the body of the car. Fig. 6 is a detail view showing a section of the movable deck resting upon the locking-dog. Fig. 7 is a detail view, partly in section, of one of the locking-dogs in working position, showing the manner of operating said dog and also showing section of movable deck in position above and clear of said dog, where it must be lifted and held to permit of the outward or inward movement of the dogs. Fig. 8 is an enlarged detail of the crank-lever and counterweight shown on Fig. 4. Fig. 9 is a longitudinal section of the car

on the line *x x* of Fig. 1, showing the movable platform or deck resting upon the girth in the middle of the car. Fig. 10 is another vertical section of end of car on the line *z z* of Fig. 1, showing the movable deck or platform resting upon and being held at the top of the car by means of the locking-dogs. Fig. 11 is a sectional view of the piston-cylinder and its piston.

Similar characters of reference are applied to the same parts throughout the drawings, and, except in a few instances, like parts in the separate groups or series are referred to by the same characters.

As shown in the various figures of the drawings, 2 represents the body of the car having but one permanent immovable floor. 3 is the air-brake train-pipe with its complement of parts, the same as is carried by all railway-cars, and 4 is the section of air-hose usually coupled with said train-pipe for use in connecting the air-brake system of one car with that of another. 5 represents an auxiliary air-pipe constituting a part of my invention and which is shown in Fig. 1 as being located on said car in a position the reverse of that of the air-brake train-pipe. 6 and 6′ are air-hose couplings attached to the ends of said auxiliary air-pipe 5. 7 and 7′ are cut-out cocks in connection with said auxiliary air-pipe 5, as shown in Figs. 1 and 2, and are intended to be used for the same purposes as the well-known angle-cocks employed on the air-brake train-pipes. 8 represents an air-cylinder having direct connection with auxiliary air-pipe 5 through the branch pipe 9. 10 is the piston-rod of cylinder 8, provided with a cross-head which connects with lever 11, pivoted underneath said car at the end marked 12. The other end of said lever is formed into a bevel-toothed sector or bevel segment-gear 13, which meshes with and operates the bevel-gear 14, mounted upon the shaft 15. 16 and 16′ are drums, also mounted upon shaft 15. Shaft 15 is supported by and has its bearings in brackets 17 and 17′, which are suitably secured to the under side of said car. 18 and 18′ are square ends formed on the shaft 15, to which cranks or other suitable devices may be applied for the purpose of rotating shaft 15 by the employment of manual power. 19 represents a cable. There are four of these, two of which are connected with each of the drums 16 and 16′ in such manner that they are coiled or uncoiled upon each drum in opposite directions. The object in providing for the reverse winding and unwinding of said cables is to cause all of said cables to travel toward or away from said drums at the same time and speed, so that the length of travel of each cable will be exactly the same at every operation. This is necessary in order to maintain the movable platform in said car in a true horizontal position during the intervals in which the same is being either raised or lowered. The fact that all of said operating means must be located beneath and on the outside of said car, so as not to interfere with the free use of the inside space of the car for loading and transporting both live and dead freight, renders it necessary in order to accomplish the elevating and lowering of said movable deck by and through the medium of said cables and drums to provide a series of sheaves or rollers over which said cables may run for the purpose of eliminating as much as possible all friction and strain resulting from the angling course through which said cables must extend and travel. To this end I have provided and shown four such sheaves 20, one for each of said cables, at the bottom of said car, and four like sheaves 21, located at or near the top of said car for the same use. 22 represents the adjustable or movable platform referred to constructed as nearly to the length and width of the inside measurements of said car as will permit of its being elevated to the top of said car, where it will be out of the way when not required as such deck or floor. The several cables 19 are connected with said platform 22 at the points numbered 23, as shown in Figs. 2, 3, and 9. 24 represents a girth composed of either metal or wood, or of a combination of both, which is rigidly secured to the inner sides and about midway between the roof and the main floor of said car in such manner as to provide a solid and unyielding support for said movable platform 22 when in use as a deck or floor. The angle-guides 25, located at each corner inside said car and extending from girth 24 to the top of the car, are intended to provide for the free and true vertical movement of platform 22 for the purpose of preventing the same from swaying or oscillating and also to prevent it from coming in contact with the side or end walls of said car to hinder or retard the raising and lowering of said platform. 26 and 27 represent a series of plates, preferably made of iron or steel, securely fastened to the side walls or upright timbers of said car, as shown in Figs. 2 and 3, also in details, Figs. 5, 6, and 7. Between each pair of these plates is mounted the dog or latch 28, which is held in vertical position and is limited in its movements by said plates.

29 is one of a series of shafts with journaled ends having bearings in plates 26 and 27. The middle portion of shaft 29 is made square to conform to the squared recess 30 of the dog 28, by means of which said dog is rocked or swung inwardly to support and lock deck 22 when elevated to the top of the car or swung outwardly clear of said deck to permit the same to descend to the girth 24 for use as a deck or floor. The cranks 31 are attached to said shafts 29, and these are connected with cranks 33 by means of the short rod 32. Cranks 33 are mounted upon rods 34, which extend the full length along each

side of said car, as shown in Fig. 2. 35 represents one of a series of brackets or hangers which support and afford bearings for the rods 34. As shown in Figs. 2 and 4, the rods 34 are each provided, at one end B of said car, with the cranks 36, to which the outer ends of the cross-rods 37 and 37′ are connected. 38 represents a disk or wheel pivoted in the center and on the outside of the gable of said car, to which the inner ends of the rods 37 and 37′ are connected at opposite points by means of the bolts or pins 39. The disk 38 when operated in connection with the rods 37 and 37′ performs the work of a lever pivoted at its center. 40 represents a crank-like lever, which also is pivoted to the end of the car concentrically with said disk 38, and on the free end of said crank-lever is shown the ball-shaped counterweight 41. The disk 38 is provided on its face side with a shoulder or projection 42, which projects into the path of the crank-lever 40 and is intended as a means of partially rotating said disk 38 when crank-lever 40 is operated, and it likewise serves as a stop for said crank-lever to prevent it from being turned in either direction beyond its required travel. A further object of said shoulder 42 on said disk is to provide means for holding said disk and also the rods 37 and 37′ in either of the positions shown by the full lines in Fig. 4 and by the dotted lines in Fig. 8. In each of said positions the weight of the ball 41 will be exerted against said shoulder 42. Fig. 8 shows an enlarged detail of the disk 38, the crank-lever 40, and the counterweight 41. Both the full and the dotted lines of this figure show the manner of connecting the rods 37 and 37′, as well as the relative position of all of said parts after each different operation.

By reference to Fig. 7 it will be seen that the plate 26 has a recess 43 on one side of a depth to correspond with the thickness of the dog 28, and from Figs. 5 and 6 it will be seen that said dog is held in place by plate 27 and by shaft 29, which has its bearings in plates 26 and 27. It will also be seen that by reason of the form of dog 28 and of the recess 43 said dog is limited to but a slight free movement. When the point 50 of said dog 28 is swung outward, as shown in Fig. 7, it is held from further outward movement by the shoulder or projection 44, which is in line with and against which the dog will bear when swung to the position indicated in Fig. 7 of the drawings. On the other hand, when said dog 28 is swung back into its pocket between plates 26 and 27 its travel or movement is again limited by shoulder 45 of plate 26. Hence as the outward and inward movement of the dog 28 is so slight the movements of all of the parts representing the locking and withholding connections, including crank-lever and counterweight 40 41, are limited accordingly, and when the several cranks, rods, and levers referred to are made and adjusted in proper manner it becomes a simple matter to operate crank-lever and weight 40 41 to positively lock and hold said dogs 28 in either of the two positions described and shown. When crank-lever 40 is in the position shown by the full lines in Figs. 4 and 8, all of the dogs 28 are held in their outward position, as shown in Fig. 3, and do not project into the car; but when said crank-lever and counterweight 40 41 are in the reverse position (shown by the dotted lines of Fig. 8) said dogs 28 are in position to support and lock said movable platform 22 in its elevated position at the top of the car, as shown in Figs. 6 and 10. In turning crank-lever 40 around to the position shown in dotted lines in Fig. 8 it is carried past the center of its axis or pivot far enough to be retained in such position by reason of the counterweight 41 and also the fact that the rods or levers 37 and 37′ and the rest of the parts connected with said dogs 28 have traveled the full distance allowed by the shoulder 44. All of the dogs 28 are operated simultaneously by the simple turning of said crank-lever 40 in either direction, as shown.

When the movable platform 22 is in use as a deck, the crank-lever and counterweight 40 41 should be thrown into the position shown in Fig. 4, so that the dogs 28 will be held back in their pockets and not project into the car, and thus prevent possible injury to small animals crowded into the upper compartment by reason of their coming in contact with the sharp points 50 of said dogs.

Having thus described in detail the various parts comprising my invention, I will now explain in a general way the workings of said parts in order to show the manner of converting one of my improved stock-cars from a single to a double deck or compartment, and vice versa. For the purpose of such explanation I will assume that a car equipped with my improvement is in the form of a double-deck car and that the platform 22 is resting on the girth 24 midway between the roof and the lower or permanent floor of said car and that it is desired to convert said car into one having but one deck or compartment for loading horses or cattle or other large animals. The proceedings will then be as follows: A locomotive is coupled to said stock-car (or with other cars intervening between said stock-car and the locomotive) at, say, the end of the car indicated by the letter A. The air-hose attached to the locomotive or adjoining car is coupled with the air-hose on the train-pipe at said end A. Then the section of air-hose 4, connected with the train-pipe 3 at the farther end B of said car, is swung beneath the draw-bar and coupled with auxiliary air-pipe 5 by means of the coupling 6, as shown in Figs. 1, 2, and 4. The angle-cocks of the train-pipe are then opened, and cut-out cock 7 in the

auxiliary air-pipe 5 is also opened, while cut-out cock 7′ at A is left closed. The train-line pressure being thus turned into train-pipe 3 of said car passes thence through air-hose 4 into auxiliary air-pipe 5, thence through the branch pipe 9 and through a small port into cylinder 8. The object in providing a small port for admitting the pressure into said cylinder is to allow said cylinder to become charged in a gradual manner, so as not to permit it to be operated too suddenly. As soon as the pressure admitted into said cylinder 8 becomes strong enough to actuate the same piston-rod 10 begins to move outwardly, turning lever 11 on its pivot. At the instant lever 11 starts to move the bevel segment-gear 13 on the other end of said lever 11 begins to rotate bevel-gear 14, together with shaft 15 and drums 16 and 16′. As the drums revolve the several cables 19 are slowly coiled or wound around and are all carried toward said drums, and the force or power exerted by the air-pressure operating said cylinder 8 and the train of parts connected therewith lifts said movable platform or deck 22 upward from the girth 24. The upward movement of said platform 22 is continued until it reaches its highest point, which is limited by the car-roof. When said platform comes to a stop against the under side of the roof, it is held there momentarily by the force of said pressure while one of the trainmen goes to end B of said car and turns the crank-lever and counterweight-ball 40 41 from their position as shown in the full lines in Figs. 4 and 8 upward in the direction indicated by the dart 46 till it reaches the position shown by the dotted lines in Fig. 8. By this operation the rods 37 and 37′ are each moved in opposite directions toward the outer corners of said car until they stand in the position shown by the dotted lines in Fig. 8, thereby swinging the cranks 36, connecting with said rods, outwardly and partially rotating the long rods 34. Cranks 33, rods 32, cranks 31, shafts 29, and the latches or dogs 28 are all actuated thereby and thrown into the position as shown in Figs. 6, 7, and 10. By this operation the dogs 28 are swung underneath the edges of said movable platform or deck 22 a sufficient distance to receive and support said platform. After this has been done the air-pressure should be gradually released from said cylinder 8 and said auxiliary air-pipe 5 by opening the cut-out cock 7′ at the free end of auxiliary air-pipe 5 or by the engineman through his brake-valve in the same manner in which he accomplishes the gradual release of the air-brakes. Platform 22 will then settle down and rest upon said dogs 28, as shown in Fig. 10, and the work of converting said car is completed. As soon as the said platform has descended upon the dogs or latches the remainder of the air-pressure may be released at once. When platform 22 and the several dogs 28 are in the position last described, it is impossible for said dogs to be withdrawn as long as the weight of said platform bears upon them. The reasons for this will become apparent upon reference to Figs. 6, 7, and 10, which show the relative positions of both said dogs and said platform. The under edges of the platform being flat conform to the level tops of the dogs, and the fact that said dogs when operated have a rotary motion which is imparted by the shaft 29, journaled in the plates 26 and 27, renders it practically impossible for said dogs to be withdrawn or said platform to be released either intentionally or accidentally until the heavy weight of said platform has first been lifted clear of the dogs, as shown in Fig. 7. In order to reconvert said car and change it back to a double deck or compartment, the procedure will be as follows: Connect the locomotive with said car, making all of the air connections and applying the air-pressure in the same manner, as explained above, for converting said car from double to single deck. As soon as the pressure has been applied the deck or platform 22 will be lifted up toward the car-roof, so that it will be clear of said dogs 28. (See Fig. 7.) Then the crank-lever and counterweight 40 41 are turned back to the right till they come to a rest in the position shown in Fig. 4 and by the full lines in Fig. 8. This operation produces the simultaneous movement of all of the locking and withholding mechanism or parts, and thereby the outward swinging of the dogs 28 clear and free of said platform 22, as already described. Then by gradually releasing the air-pressure from said cylinder 8 and the auxiliary air-pipe 5 the deck or platform 22 will gravitate by its own weight to its resting place upon the girth 24, where it will remain until it becomes necessary to convert said car again. The hose 4 should then be disconnected from the auxiliary air-pipe 5 at the coupling 6, and the cut-out cocks 7 and 7′ should be closed.

In case it should become necessary to convert my improved car for either of the purposes herein set forth and it is not possible or convenient to obtain a pressure of air to accomplish the change I have provided the shaft 15 with square ends 18 and 18′, to which cranks or other suitable devices may be applied, thus forming double winches for the manual operation of said shaft 15, together with the other parts necessary to be operated to accomplish the elevating or lowering of movable platform 22, and in this connection I have provided the ratchets 48 upon the ends of shaft 15 and also the pawls 49 to engage said ratchets for the purpose of preventing deck 22 from descending or falling while the same is being operated manually. In such a contingency the procedure will be practically the same as described above, except that no air-pressure or connections are necessary and

the operation of cylinder 8 becomes a mere idle incident.

Believing that the operation of my convertible stock-car will be fully understood from the foregoing further special explanation thereof is regarded as unnecessary.

It is obvious that many of the details of construction of the said improvement may be varied without departing from my invention.

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

1. In a convertible stock or stable car of the class described, the combination, with the body and the running-gears of a car, of a movable deck or floor located within said car, adapted to a position substantially midway between the main floor and roof of said car, for use as a second or double deck or floor, and fluid-pressure-actuated means connected with said car, and with said movable deck or floor, whereby the same may be elevated to a position just beneath the roof of said car, for the purpose of converting said car into a single deck or compartment, substantially as shown and described.

2. In a convertible stock-car of the class described, the combination, with the main structure of a stock or stable car, of a movable platform, adapted to be placed inside of said car, in a position substantially midway between the roof and the main floor of said car, and running parallel with said main floor and roof, for use as a second or upper floor, and fluid-pressure-actuated means attached to said car and connected with said movable platform, for operating the same in directions, either upward or downward and all times maintaining said platform in a level position, substantially as shown and described.

3. In a convertible stock or stable car of the class described the combination, with the body of a car, of an adjustable platform or deck, having dimensions substantially of the length and width of the inside space of said car, a girth secured to the inside walls of said car, to hold said platform in a position midway between the roof and the floor of said car, said platform being adapted to be elevated to, or lowered from, a position at or near the roof of said car, means for holding said platform in said elevated position, said means comprising recessed plates having shoulders to limit the movement of dogs or latches in opposite directions, and a series of dogs or latches fitting in said recessed plates and operable simultaneously from the outside of said car, to either hold, or release said movable platform, substantially as shown and described.

4. In a convertible stock-car of the class described, the combination, with the body of a car, of a movable platform within said car, of a width and length substantially the same as the inside measurements of said car, means connected with said movable platform, and capable of being connected with the air-brake train-pipe of said car, and adapted to receive and use an air-pressure derived from said air-brake train-pipe, to elevate or lower the said movable platform, for the purpose of converting said car into one or two compartments or decks, substantially as shown and described.

5. In a convertible car of the class described, the combination, with the body of a car having an air-brake train-pipe, of an auxiliary air-pipe, adapted to be connected with said train-pipe, a cylinder directly connected with said auxiliary air-pipe, and adapted to operate a train of mechanism and connections extending between said cylinder and a movable platform located within said car, to either elevate or lower said movable platform, by the employment of air-pressure obtained from said air-brake train-pipe.

6. In a convertible stock-car of the class described, the combination, with the body of a car, of an auxiliary air-pipe, a cylinder, and its piston-stem, connected with said pipe, a lever, one end of which connects with the piston-stem of said cylinder, the other end in the form of a sector having bevel gear-teeth, to engage and operate a bevel-gear enmeshed with the same, a shaft on which said bevel-gear is mounted, drums carried by said shaft and secured to each end thereof, a number of cables attached to said drums, adapted to wind and unwind from opposite directions on each of said drums, said cables extending from said drums, over sheave or roller bearings, in directions to form suitable connections with a movable platform or deck, for the purpose of raising or lowering the same, to convert said car into single or double compartments, substantially as shown and described.

7. In a convertible stock-car of the class described, the combination with a car having but one permanent deck or floor, at the bottom thereof, of an air-brake train-pipe provided with air-hose couplings, an auxiliary air-pipe extending the full length of said car, and provided at each end with cut-out cocks and air-hose couplings, and so located on said car that only the air-hose coupled to said train-pipe on said car may be connected with said auxiliary air-pipe, to supply a pressure of air to a cylinder connected with said auxiliary air-pipe, and means in connection with said cylinder for operating a movable platform placed within said car, to provide single or double compartments therein, substantially as shown and described.

8. In a convertible stock or stable car, of the class described, the combination, with an air-brake train-pipe and a source of air-pressure, of an auxiliary air-pipe, a cylinder in connection therewith, adapted to be operated by said air-pressure, when said train-pipe and said auxiliary air-pipe are connected at but one end of said car, a piston-rod attached to said cylinder, a lever connecting at one end with said piston-rod, the other end consisting

of a bevel-toothed sector, a bevel-gear mounted upon a shaft and in mesh with the teeth of said sector, drums mounted upon each end of said shaft, a series of cables, or chains to serve as cables, attached to said drums in such manner that said cables on each drum are coiled or wound around said drum in opposite directions, to accomplish the elevating or lowering of a movable platform inside said car, to which said cables are attached, a series of dogs or levers, adapted to be operated simultaneously, for the purpose of holding, or releasing, said movable platform, for the purpose of converting the space in said car, from a single to a double compartment, or vice versa, substantially as shown and described.

9. In a convertible car of the class described, the combination, with the body of a car, of a movable deck or floor, a series of cables attached to said movable deck and to drums mounted upon a shaft underneath said car, a cylinder operatively connected with, and adapted to operate said shaft and said drums, an auxiliary air-pipe connecting with said cylinder, adapted to form a passage for a pressure of air flowing from the air-brake train-pipe to said cylinder, to cause the raising, as well as the gradual lowering of said movable deck or floor, for the purposes shown and described.

10. In a convertible stock-car of the class described, the combination, with the structure of a car, of an air-brake train-pipe, an auxiliary air-pipe, applied in a manner reverse to that of said train-pipe, of a cylinder in connection with said auxiliary air-pipe, a movable platform or floor located within said car, means connecting with said cylinder and said movable platform, adapted to raise or lower the same, by the force of air-pressure obtained from said air-brake train-pipe, substantially as described and shown.

11. In a convertible stock or stable car, the combination, with the body of a car, of a deck or floor placed within said car, adapted to be moved either upward or downward, by the employment of fluid-pressure-actuated means carried upon said car, and in constant connection with said movable deck or floor, means comprising a series of dogs, attached to the upper sides of said car, adapted to be swung into the path of said movable deck or floor, after the same is elevated to its highest position, to withhold and prevent the said deck or floor from descending or falling, substantially as shown and described.

12. In a stock-car of the class described, the combination, with a single-deck car, of a movable platform or deck located inside said car, adapted to be adjusted to horizontal positions either at a point near the roof, or at a point midway between said roof and the lower or main floor of said car, fluid-pressure-actuated means provided on said car and connected with said movable platform or deck, for elevating or lowering the same, substantially as shown and described.

13. In a convertible stock-car of the class described, the combination with the body of a car, of a movable deck or floor placed within said car, a series of angle-guides secured to the insides of the four corners of said car, extending vertically between the roof and the main floor thereof, a plurality of dogs placed at intervals around the sides of said car, recessed plates in which said dogs fit and having shoulders to limit movement of the dogs, rods on each side of said car connected with each other, and adapted to operate said dogs simultaneously, for the purposes either of holding or releasing said movable deck or floor, substantially as shown and described.

14. In a convertible stock-car of the class described, the combination with the body of a car, of a movable deck or floor constructed to conform to the inside measurements of said car, as to length and width thereof, guides, angular in form, secured to the inside of the corners of said car, to compel the vertical movement of said movable deck or floor, a series of holding-dogs of suitable number and strength, to sustain the weight of said movable deck or floor, a plurality of wire or chain cables connected with said movable deck or floor, a number of sheave or roller bearings, to support and guide said cables, drums to which said cables or chains are connected, for the purpose of winding or unwinding the same, a shaft carrying said drums, mounted in suitable bearings secured to under side of said car, a bevel-gear on said shaft, a lever pivoted underneath said car, one end in the form of a bevel segment-gear in mesh with said bevel-gear, the other end of said lever connected with the piston-rod of a cylinder, also secured to under side of said car, an auxiliary air-pipe extending the length of said car and connected with said cylinder, an air-brake train-pipe on said car, adapted to be connected with said auxiliary air-pipe, to provide a passage for a pressure of air from said train-pipe to said cylinder, whereby the same may be actuated to raise or lower said movable deck or floor, to convert or change said car into either one or two compartments, substantially as shown and described.

15. In a convertible stock-car of the class described, the combination, with the body of a car, and an air-brake train-pipe provided thereon, of an auxiliary air-pipe capable of being coupled with said train-pipe on said car, but not with the train-pipe of another car, a cylinder connected with said auxiliary air-pipe, a pivoted lever operatively connected with said cylinder, a bevel-gear in mesh with one end of said lever, a shaft carrying said bevel-gear, drums secured to the ends of said shaft, cables connected with said drums and adapted to be coiled or wound upon said drums from different directions, sheaves or

rollers to carry and guide said cables, a movable platform inside said car to which said cables are attached, a series of angle-guides to control and limit the movements of said platform, a girth inside said car, to support and maintain said movable platform in a true horizontal position, substantially midway between the main floor and the roof of said car, a plurality of dogs or catches near the top of said car, adapted to hold said movable platform in a position just beneath the roof when elevated thereto, all for the purposes as shown and described.

16. In a convertible stock or stable car of the class described, the combination, with the body of a car, of a movable deck or floor made to fit loosely inside the walls of said car, adapted to be moved upward or downward, angle-iron guides secured to the four corners inside said car and in which the platform moves, a plurality of holding-dogs capable of being operated simultaneously to intercept and hold said movable deck or floor when raised to the top of said car, and likewise operable to instantly release said deck or floor, when the same is to be lowered, for use as a deck or floor, recessed plates having shoulders to limit movement of the dogs and in which recesses said dogs fit substantially as shown and described.

17. In a convertible stock-car of the class described, the combination, with the body of a stock-car, of an air-brake train-pipe, an auxiliary air-pipe and air-cylinder in connection therewith, a piston-rod on said cylinder in constant connection with one end of a lever pivoted underneath said car, the other end of said lever comprising a bevel segment-gear, a bevel-gear in mesh with said segment-gear, a shaft upon which said bevel-gear is carried, a drum mounted near each end of said shaft, cables attached to said drums, adapted to be wound upon or unwound from said drums in opposite directions, a series of sheaves or rollers to support and carry said cables, to reduce the friction and strain of said cables when operating under a heavy load, a movable platform or deck inside said car in constant connection with said cables, and adapted to be either raised or lowered upon the application of a sufficient power or force, substantially as shown and described.

18. In a convertible stock-car of the class described, the combination, with the body of a car, of a movable platform inside said car, capable of being operated in vertical directions, fluid-pressure-actuated means carried on said car for moving said platform, a plurality of dogs located at intervals around the upper sides of said car, adapted to be operated simultaneously, to hold said movable platform in a position at the top of said car, for transforming the same into a single compartment for large animals, and likewise adaptable to simultaneously release said movable platform, to permit the same to be lowered to the middle of said car, to convert the same into two equal compartments for small animals, substantially as shown and described.

19. In a railway-car of the class described, the combination, with the body of the car and a complement of air-brake appliances, of an auxiliary pipe and cylinder independent of like air-brake parts, but capable of being connected with said air-brake parts, for the purpose of obtaining a pressure of air to actuate said auxiliary cylinder, a movable platform inside said car, a train of mechanical connections, connecting said cylinder with said movable platform, and intended to effect the raising or lowering of said platform, whenever said cylinder is actuated by the application or release of said air-pressure, substantially as shown and described.

20. In a convertible railway stock-car of the class described, the combination with the body of a car having air-brake-pipe connections, of an independent air-pipe, capable of being connected with said air-brake pipe, a cylinder connected with said independent air-pipe, a train of mechanical connections connecting said independent air-pipe and cylinder with a movable platform or floor within said car, and adapted to move said platform, by the application of a pressure of air to, or the discharge of the same from, said independent air-pipe and cylinder, when connected with said air-brake pipe and a source of air-pressure, substantially as shown and described.

21. In a convertible stock-car of the class described, the combination with the body of a car having air-brake-pipe connections, of an independent pipe and cylinder capable of being connected with said air-brake-pipe connections, a train of mechanical connections intervening between and connecting with said independent pipe and cylinder and a movable deck inside said car, and adapted to move said deck, by the application of a pressure of air from said air-brake-pipe connections into, or the discharge of said pressure from said independent pipe and cylinder, substantially as shown and described.

22. In a convertible stock-car of the class described, the combination, with the structure of a stock-car, of an adjustable platform or floor, capable of being used either as a deck or floor, or as an overhead ceiling in said car, a plurality of cables attached to said platform, at each side thereof, in such positions that when said cables are operated to lift said platform, the same balances and is maintained in a true horizontal position, a girth secured to the inside walls of said car, to support said platform in a position midway between the roof and the main floor of said car, for use as an upper deck or floor, a series of dogs or latches, adapted to hold said platform, when the same is elevated to the top of the car, for the purpose of converting said car into one

having a single compartment, means in connection with said cables and adapted to connect with the train-pipe of the air-brake system on the car for moving said platform, by the use of a pressure of air derived from said air-brake system, substantially as described.

23. In a stock or stable car of the class described, the combination with the body of a car, of a movable platform or deck, of a length and width conformable to the inside dimensions of said car, and adapted to be adjusted to a position substantially midway between the roof and the main floor of said car, when double decks or compartments are required, and likewise capable of being lifted from said position in the middle of the car to a position just beneath the roof, for the purpose of converting said car into one having a large compartment, a plurality of dogs or latches placed on the upper side walls of said car, of such number and strength as to support and hold said movable platform or deck when not in use as a floor or deck, said dogs being operable simultaneously to hold, or to release said movable platform, a number of cables in constant connection with said movable platform, and with a series of drums, upon which they may be coiled and uncoiled, to cause the moving of said platform, a shaft carrying said drums, and also a bevel-gear, a pivoted lever, one end of which consists of a bevel segment-gear in constant mesh with said bevel-gear, the other end of said lever being connected with the piston-rod of a cylinder, an auxiliary air-pipe connected with said cylinder, a train-pipe on said car, adapted, when connected with said auxiliary air-pipe, to supply a pressure of air to said cylinder, for the purpose of actuating the same, to move said movable platform, substantially as shown and described.

24. The combination with the body of a stock-car and an air-brake train-pipe, of an auxiliary air-pipe, adapted to be connected with said train-pipe at either end of said car, an air-cylinder operatively connected with said auxiliary air-pipe, a lever connected with said cylinder, a bevel-gear operated by said lever, a shaft, with a drum mounted on each end thereof and rotated by said lever and said bevel-gear, a pair of cables connecting with, and adapted to be wound or unwound upon said drums in opposite directions, a number of sheaves or rollers to guide and support said cables, a movable platform or deck within said car, connected with said cables and adapted to be elevated or lowered by the winding or unwinding of said cables on said drums, for the purposes shown and described.

25. The combination with the body of a stock-car, of a counterweighted lever pivotally attached to one end of said car, a series of dogs mounted on the side walls of said car, and adapted to be operated by said counterweighted lever, to hold a movable deck within said car, and also adapted to release said movable deck, substantially as shown and described.

26. The combination with the body of a stock-car, of a movable platform inside said car, means provided on said car for raising and lowering said movable platform, a series of dogs on the side walls of said car, adapted to hold said movable platform in an elevated position at or near the top of said car, a plurality of cranks and rods in connection with said dogs, a disk pivoted at one end of said car connected with said rods and cranks, a counterweighted crank or lever pivoted concentrically with said disk, and adapted to operate said dogs, for the purpose of holding said movable platform when elevated, as well as to release said platform when the same is to be lowered, substantially as shown and described.

27. The combination with the body of a stock-car and an air-brake train-pipe, of an auxiliary air-pipe applied to said car in a position the reverse of that of said train-pipe, a cylinder connected with said auxiliary air-pipe, a piston-rod operated by said cylinder, a lever provided at one end with a bevel segment-gear, operated by said piston-rod, a bevel-gear in mesh with said segment-gear, a shaft carrying said bevel-gear and also a pair of drums, rotated by said bevel-gears, a plurality of cables adapted to coil and uncoil upon said drums, a movable platform inside said car to which said cables are attached, and which is operable for the purpose of being raised or lowered, a series of holding-dogs, adapted to engage and hold said platform when elevated, a disk and a counterweighted crank-lever pivotally attached to one end of said car, connected with said locking-dogs, and adapted to operate all of said dogs simultaneously, substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

IRVING J. NAUGHTON.

Witnesses:
TALCOTT C. DEMPSY,
EDGAR O. BLOODOUGH.