

No. 761,550.

PATENTED MAY 31, 1904.

G. E. SIMONTON.  
COMBINATION STOCK, COAL, AND COKE CAR.

APPLICATION FILED MAR. 12, 1903.

NO MODEL.

3 SHEETS—SHEET 1.

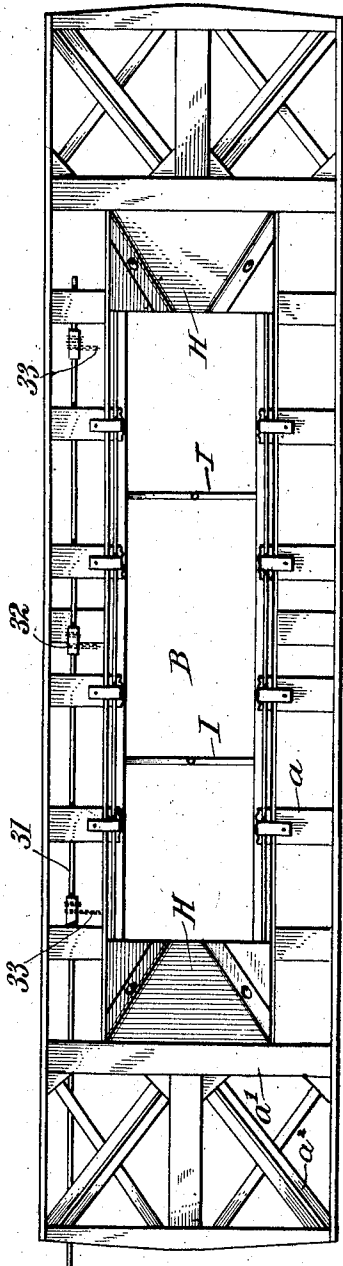


Fig. 1.

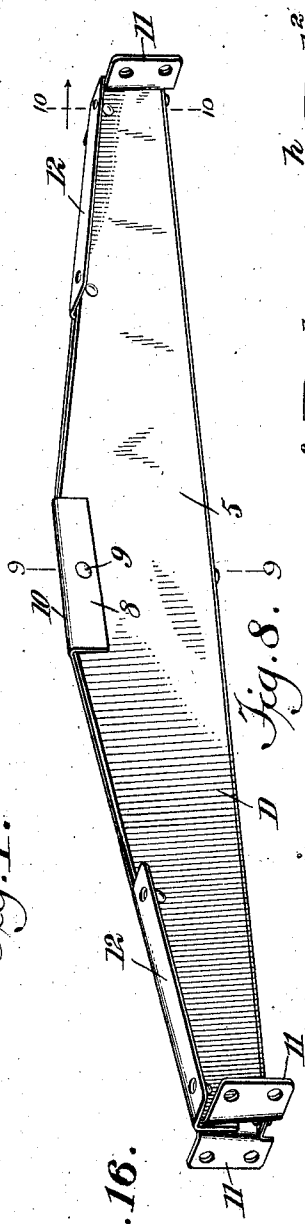


Fig. 8.

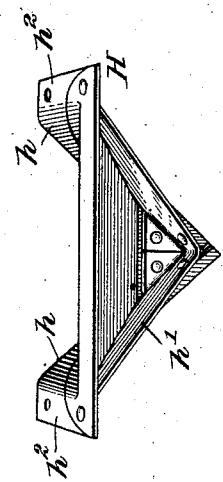


Fig. 11.

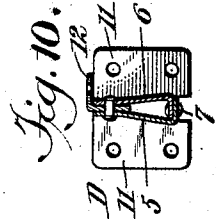


Fig. 10.

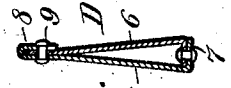


Fig. 9.

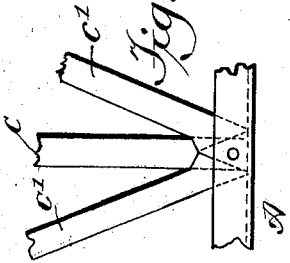


Fig. 16.

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Fig. 2.

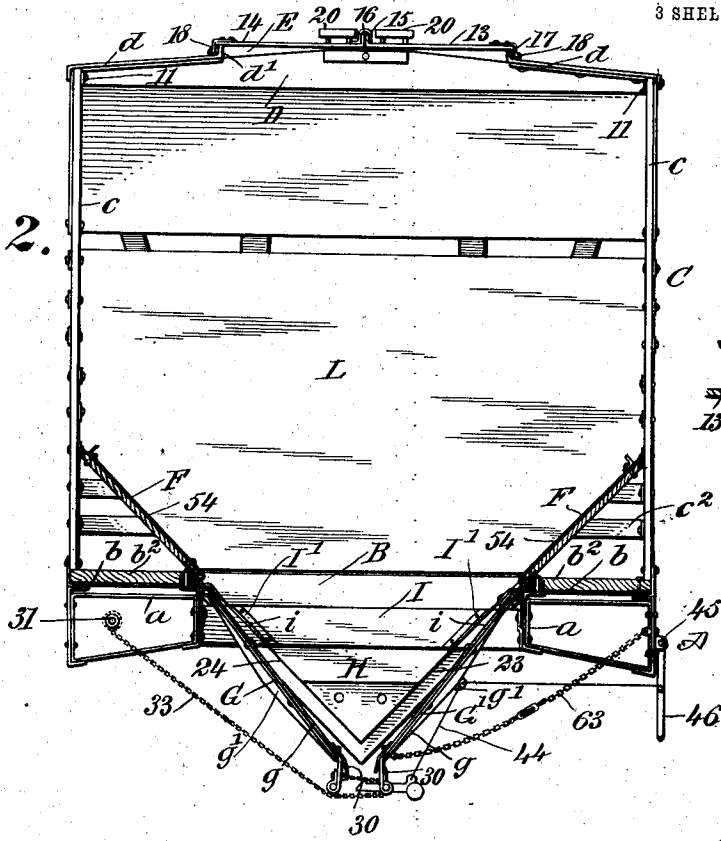


Fig. 7.

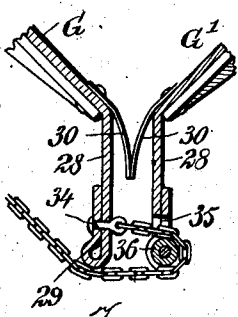
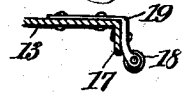


Fig. 4.

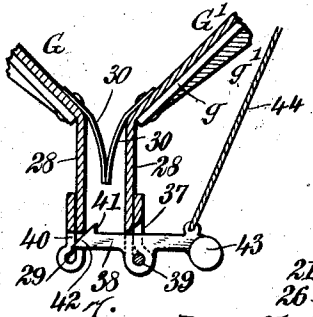


Fig. 5.

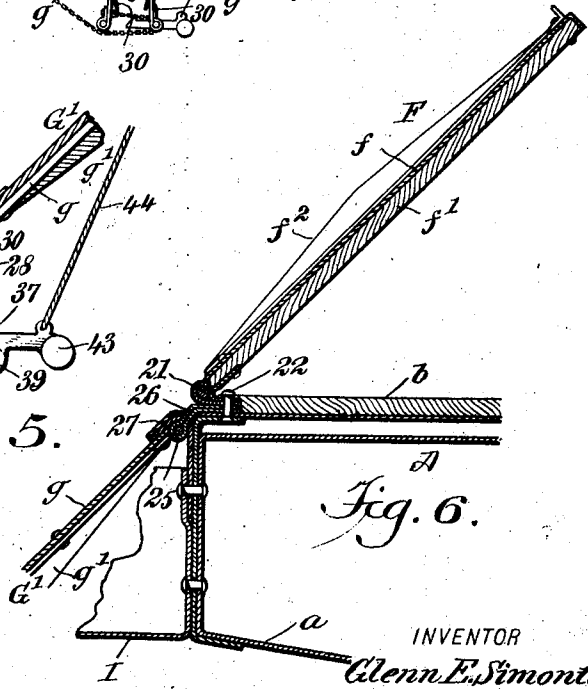


Fig. 6.

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No. 761,550.

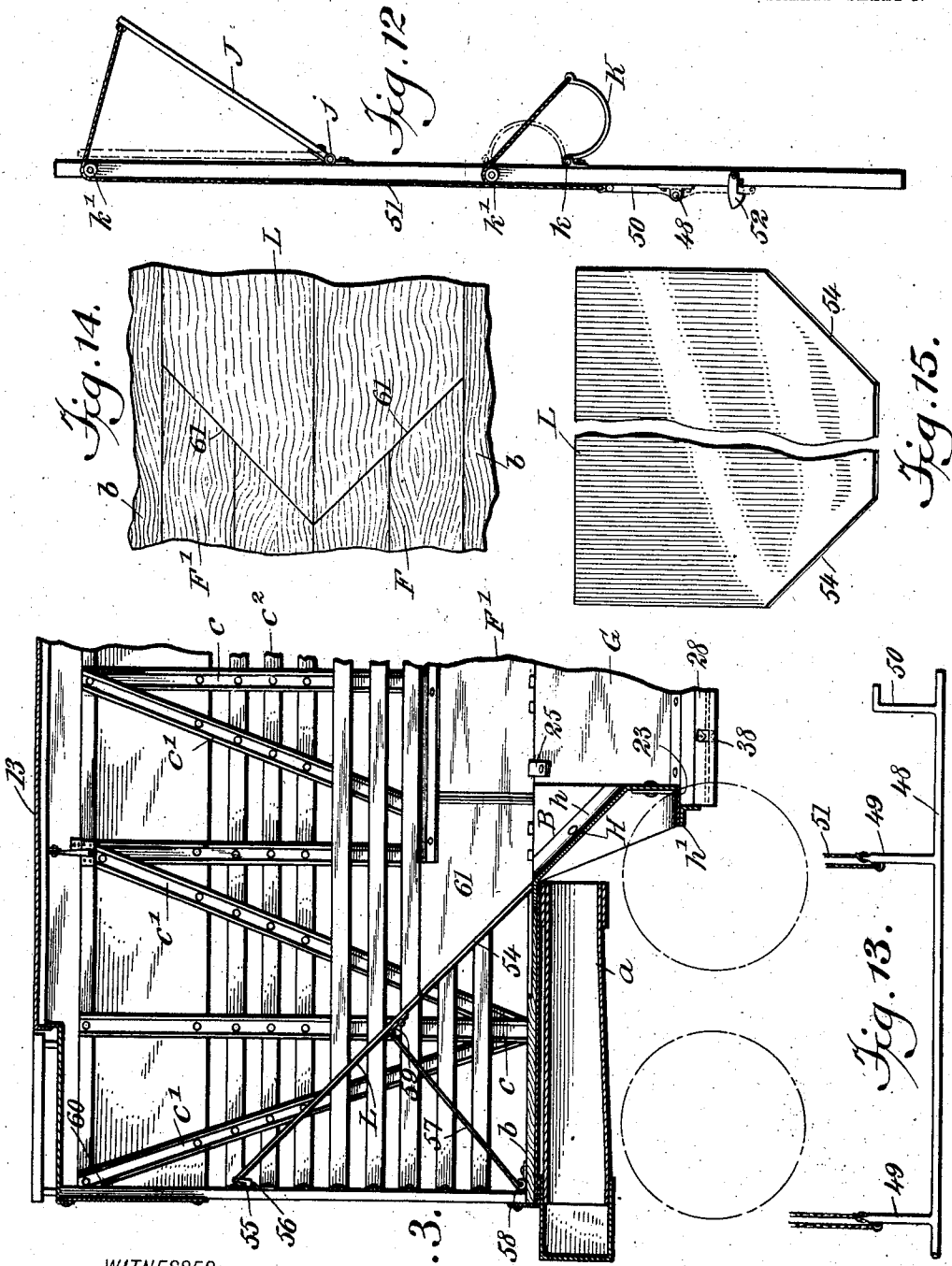
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3 SHEETS—SHEET 3.



WITNESSES:  
*A. D. Appleman*  
*H. J. Bunker*

*Fig. 3.*

INVENTOR  
*Glenn E. Simonton*  
 BY *Wm. M. [Signature]*  
 ATTORNEYS.

# UNITED STATES PATENT OFFICE.

GLENN E. SIMONTON, OF VANWERT, OHIO.

## COMBINATION STOCK, COAL, AND COKE CAR.

SPECIFICATION forming part of Letters Patent No. 761,550, dated May 31, 1904.

Application filed March 12, 1903. Serial No. 147,415. (No model.)

*To all whom it may concern:*

Be it known that I, GLENN E. SIMONTON, a citizen of the United States, and a resident of Vanwert, in the county of Van Wert and State of Ohio, have invented a new and Improved Combination Stock, Coal, and Coke Car, of which the following is a full, clear, and exact description.

My invention relates to metallic railway-cars adapted for use in the transportation of live stock, coal, and coke, although it may be used for transporting ballast and other dumpable material and for other substances.

The object of this invention is to provide a metallic structure which may be used to transport live stock in one direction over a railroad and thereafter converted into a car adapted to carry coal, coke, ballast, or other material when reshipping the car, thus making the car useful in transporting freight in any direction and increasing the earning capacity of the car by obviating the return of the same in an empty condition.

Further objects and advantages of the invention will appear in the course of the subjoined description, and the novelty will be defined by the annexed claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a bottom plan view illustrating the underframing employed by me in the construction of my improved convertible metallic car. Fig. 2 is a vertical transverse section through one style of the car, showing it adapted for use in transporting dumpable material. Fig. 3 is a longitudinal vertical section through an end portion of the improved car, illustrating the position of a movable false end adapted for use within the car-body when the structure is to be used as a hopper-car. Fig. 4 is a fragmentary detail section through the cooperating hopper-doors, illustrating the means for closing them and for securing a tight joint between the opposing portions of said doors. Fig. 5 is a view somewhat similar to Fig. 6, showing a means for positively locking the meeting portions of the hopper-doors. Fig. 6 is another detail fragmentary sectional

view illustrating the means for hinging the hopper-doors and the floor-doors to a permanent section of the car-floor. Fig. 7 is a detail fragment illustrating an edge portion of the roof-door adapted for use in connection with a car of the type shown by Fig. 2. Fig. 8 is an enlarged detail perspective view of one of the deck-rafters. Fig. 9 is a cross-section thereof in the plane of the dotted line 9 9 of Fig. 8. Fig. 10 is another cross-section taken in the plane of the dotted line 10 10 of Fig. 8 locking in the direction of the arrow. Fig. 11 is a detail perspective view of one end section of the hopper adapted to be secured in place at an end portion of the hopper-opening in the bottom of the car. Fig. 12 is a detail vertical sectional elevation through one side of the car, illustrating a feed-rack, a water-trough, and means for simultaneously adjusting said rack and trough to their folded positions. Fig. 13 is a detail view, in side elevation, of one means for adjusting said rack and trough shown in Fig. 12. Fig. 14 is a detail plan view showing the way of closing the hopper-doors relatively to the movable false end of a hopper-car. Fig. 15 is an elevation of a movable false end adapted to be used within the car when the latter is to be loaded with dumpable material, and Fig. 16 is a detail view of a portion of the body.

The car-bottom of my invention has its body and underframing made of plate-steel and pressed steel of commercial shapes, and in Fig. 1 the underframing A is shown as consisting of a series of sills  $a'$  and the transverse braces  $a''$ . This underframing A has its series of sills arranged to support a permanent section  $b$  of the car-floor, said sections being spaced partly throughout their length to produce a hopper-opening B in said car-floor. This hopper-opening extends longitudinally of the car at the middle thereof, the end portions of said opening terminating at suitable distances from the ends of the car. The body C of the stock-car is of a slatted construction, and it consists of the plurality of channeled metallic posts  $c'$  and the longitudinal metallic members, strips, or plates  $c''$ . The posts  $c$  are vertical, while the posts  $c'$  are

diagonal, said posts  $c'$  being disposed at an angle to the vertical posts  $c$ , as shown by Fig. 3. I prefer to arrange two of the diagonal posts  $c'$  in downwardly-converging relation, and the lower meeting ends of these posts  $c'$  are flanged and bolted in a suitable way to the corresponding lower end of one vertical post  $c$ , whereby the diagonal posts serve as braces to the side of the car. The posts  $c c'$  overlap and are bolted to the underframing A, and on these posts are secured the plates or members  $c''$ , preferably by riveting the parts together.

In the style of car shown by the drawings the body is equipped with a deck having charging-openings extending longitudinally thereof, and said opening or openings are adapted to be closed by doors which may be constructed as disclosed in a prior application for sheet-metal cars filed by me on the 15th day of August, 1902, Serial No. 119,793. In Figs. 2 and 7 of the drawings I have illustrated a particular style of doors for closing the charging-openings in the deck or roof of the car, said doors being slidably fitted to the deck in order to close inwardly toward each other. The deck consists of plates  $d$  of sheet-steel or its equivalent, and the members of this deck are supported solidly in place by the employment of a series of rafters D, which range transversely of the car-body, each rafter being preferably constructed in the way shown more clearly by Figs. 8, 9, and 10 of the drawings. Each deck-rafter consists of two pieces of pressed steel, (indicated at 5 6,) said pieces corresponding in shape and assembled in upwardly-converging relation. The members of each deck-rafter are flanged at their lower edges, as at 7, and disposed in lapping relation, so that they may be riveted firmly one to the other, and by arranging these plates or members in converging relation they are adapted to have lateral engagement along the upper edge thereof. One of the plates—as, for example, the plate 5—is provided with a flange 8, which is doubled or folded over the upper edge of the other member 6, and this flange is held securely in position by a transverse rivet or bolt 9. The members of the deck-rafter have straight lower edges and inclined top edges, except at the middle portion of the rafter, where the upper edge is straight for a short distance, as indicated at 10 in Fig. 8. The ends of the plates 5 6 comprising each deck-rafter are bent substantially at right angles to form the lips 11, which are disposed in the same transverse plane and are provided with suitable perforations. (See Figs. 8 and 10.) The rafter is fitted in place between the vertical posts  $c$  on opposite sides of the car and in position for the end flanges 11 to engage with said posts, thus disposing the rafter in lapping relation to the posts and allowing the parts to be riveted firmly together. The inclined top edges of the series of deck-rafters afford substantial

supports to the members or plates  $d$  comprising the deck or roof, and to make provision for the ready attachment of the plates to the rafters I prefer to make each rafter with angle-iron strips 12, which are riveted between the upper edges of the members 5 6, said flanges 12 extending substantially at right angles to the plane of the rafter members 5 6 and lying against the under faces of the deck-plate  $d$ . The peculiar construction of the rafters allows them to extend across the charging-openings in the deck or roof and to afford minimum obstruction to the free passage of material from a chute or other loading device into the car when the latter is used for the transportation of dumpable material.

The charging-opening E extends longitudinally of the car at the middle portion thereof, and this opening is adapted to be closed by the slidable doors 13 14. The doors are provided at their inner edges with upstanding flanges 15, adapted to have abutting engagement when the doors occupy their closed positions, and the joint between these flanges of the oppositely-slidable doors is adapted to be closed by a suitable strip, as indicated at 16 in Fig. 2. Each door is provided at its outer edge with a depending flange 17, and to provide for the free sliding movement of the door over the deck-plate I prefer to equip each door at its outer edge with a series of rollers 18, one of which is shown by Fig. 7. Each roller 18 is loosely journaled in the depending lug of a metallic hanger 19, which is riveted in overlapping relation to the edge portion of a door. It will be understood that a series of these hangers and their complements of rollers are provided along the outer edge of each door and that said rollers are adapted to travel with minimum friction on the top exposed face of one of the deck-plates  $d$ . The flange 17 of the door is adapted to have abutting engagement with an upstanding flange  $d'$ , which is provided at the inner edge of each deck-plate  $d$ , said flanges  $d'$  of the deck-plates defining the limits of the charging-opening E in the deck.

If desired, the space between the flanges  $d'$  of the deck-plates and the depending flanges 17 of the slidable doors may be made watertight by the employment of yieldable strips or tongues adapted to be fastened to either of said flanges and to lie in interposed positions between the opposing flanges when the doors are closed. The slidable doors 13 14 may be equipped with the running-boards 20, as shown by Fig. 2, thus disposing the running-boards out of the way of the doors when they are opened to expose the charging-opening E. It will be understood that the doors in their closed position rest on the straight top edges of the series of deck-rafters D, thus supporting said doors firmly in position.

In the drawings I have shown the car as being equipped with the deck or roof doors;

but it will be understood that the car may be provided on one or both sides with suitable openings adapted to be closed by slidable doors, such side openings affording convenient means for the loading and unloading of stock into and from the car when it is employed as a stock-car.

The permanent members *b* of the car-floor are made of metallic plates having a wooden facing or covering *b*<sup>2</sup>, and this floor is also provided with doors *F*. (See Figs. 2, 4, 5, and 6.) Each floor-door *F* consists of a metallic plate *f*, which is provided on one side with a lining or covering *f*<sup>2</sup> of wood or its equivalent. The doors *F* are hingedly connected to the permanent sections *b* of the car-floor in a way which permits these floor-doors to be opened to the inclined positions shown by Figs. 2 and 6, although these doors may be adjusted to horizontal positions across the hopper-opening *B* in the car-floor for the purpose of closing said opening. Each floor-door *F* is provided on its under side with a series of angular metallic stays *f*<sup>3</sup>, and the lower outer edge of each door is constructed in such a way as to accommodate a hinge-rod 21. Around this hinge-rod is loosely fitted a series of strap-hinges 22, which are fastened in any suitable way to the permanent section *b* of the car-floor, said strap-hinges being received in suitable notches or recesses provided in the edge of the door *F*, which is attached to the rod 21. The two doors are attached by a like number of rods 21 to the inner edges of the permanent floor-sections *b*, (see Fig. 2,) and these doors are adapted to be opened or closed individually. The doors in their raised opened positions are adapted to rest against the respective sides of the car and to assume the inclined positions shown by Fig. 2, the inclination of said doors *F* corresponding to the inclination of the hopper-doors, to be presently described, thus providing for the ready passage of the material from the car-body into the hopper when the car is to be unloaded.

In the practical construction of the hopper at the bottom of the car I employ the hopper-doors *G G'* and two end sections *H*, said doors having hinged connection with the permanent floor-section *b* to constitute the closure for the hopper, while the end sections *H* are attached firmly in a suitable way to the underframing *A* at the end portions of the hopper-opening *B*. In Fig. 11 of the drawings I have shown the detailed construction and form of an end section of the hopper, the same being made in two pieces *h h'* of sheet-steel. The piece *h'* is fashioned to produce the upwardly-diverging side portions shown by Fig. 11, while the base *h* is disposed over the piece *h* and flanged at *h*<sup>2</sup> to rest on certain sills of the underframing *A* at the end portions of the hopper-opening *B*. The pieces constituting the end sections *H* are fastened firmly by riveting them, and these pieces are assembled in such relation as to pro-

duce the shoulders 23 24, (shown by Fig. 2,) said shoulders meeting at an angle at the lower extremity of the section *H* and diverging upwardly toward the permanent floor-sections *b*. The sections *H* at the opposite ends of the hopper-opening are disposed to diverge upwardly toward the car-floor, the position of one end section being indicated by Fig. 3, and the shoulders 23 24 of the end sections *H* lie in the path of the end edges of the hopper-doors *G G'*, thus disposing the parts in a way to secure close joints between the end sections and the hopper-doors, as will be readily understood by those skilled in the art.

Each hopper-door consists of a metallic plate *g*, having metallic angle-irons or braces *g'* fastened to the under side thereof, and said door is connected hingedly to the permanent car-floor. I prefer to fasten a hinge-rod 25 to the upper edge of each hopper-door, and each rod 25 is engaged by a series of hinge-straps 26, which are fastened in a suitable way to the floor *b*. In Fig. 6 I have shown the detailed construction of the hinges, which individually connect the floor-doors *F* and the hopper-doors *G G'* to the car-floor, and by reference to this figure of the drawings it will be seen that the floor-doors are hinged individually at the side edges of the hopper-opening *B*. The hinges 22 26 for one floor-door and one hopper-door are disposed adjacent to each other in order to compactly arrange the parts, and, if desired, these hinges may be disposed in pairs and in overlapping relation, so that they may be secured by a single set of rivets or other fastening devices to the car-floor.

The joints between the car-floor and the hopper-doors are closed by curved metallic hoods 27, each hood having a flange or part secured in a suitable way to the underframing *A* and extending over the upper edge of the hopper-door. The hoods extend longitudinally of the hopper-opening at the sides thereof and quite close to the car-floor, and these hoods are provided at suitable intervals with slots or openings which permit the hinge-straps 26 to pass therethrough, thus making provision for the attachment of the straps to the car-floor. (See Fig. 6.)

The hopper-doors *G G'* are provided at their free adjacent edges with depending lips 28, which in the closed positions of the doors are disposed in close parallel relation, as shown by Figs. 4 and 5, and the extreme edges of the lips are doubled upon themselves to form the loops 29. The hopper-doors are also provided with flexible or spring metal tongues 30, which are preferably fastened to the inner faces of the doors and extend below the angle formed by the bending of the metallic doors to provide the lips 28. These spring-tongues extend longitudinally of the doors and the hopper-opening, and said tongues are disposed in downwardly-convergent relation for the purpose of making the tongues meet or

abut at their free portions, thereby forming a close joint between the doors when the latter are closed, reference being had to Figs. 4 and 5.

5 Any suitable means may be provided for drawing the hopper-doors tightly together when the car is loaded with dumpable material; but, as shown by the drawings, I prefer to employ a winding-shaft 31, which extends  
10 longitudinally of the car and is journaled in suitable bearings afforded by the underframing A. This winding-shaft is provided at intervals with drums, (indicated at 32 in Fig. 1,) and on said drums are adapted to be coiled  
15 the winding-chains 33, said chains and drums being spaced at suitable intervals along the car-hopper and the winding-shaft. Each chain 33 has one end portion thereof secured to the flange 28 of the hopper-door G—for example, by means of the eyebolt 34. (Shown in  
20 Fig. 4.) The chain passes from the eyebolt through a slot or opening 35, which is provided in the flange 28 of the other hopper-door, G', and this chain passes around a guide-sheave 36, which is mounted for free rotation in the slotted part 35 of said door G'. After  
25 passing through the slot and under the sheave the chain is doubled, so as to extend below the looped edge 29 of the flange on the door G, and thence the chain leads to and is coiled on one spool of the winding-shaft. This method of arranging the chains permits them to be strained simultaneously by the rotation of the winding-shaft in one direction, and the  
30 chains are adapted to draw the doors into close relation for the purpose of compressing the yieldable tongues 30, thus securing a tight joint between the doors and overcoming the loss of the dumpable material contained in  
35 the car.

Any suitable means may be employed for rotating the winding-shaft 31, such as a lever and ratchet, well known to those skilled in the art, and similarly a locking device in the form  
40 of a ratchet and pawl may be used for locking the shaft; but as these devices are common in the art I do not consider it necessary to illustrate them.

I also provide means for positively locking  
50 the doors G G' in their closed positions, and to this end the flange of the door G' is provided with a series of slots 37, in each of which is arranged one of a series of latches 38, each latch being pivoted, as at 39, to the door-flange. The door G is provided in its lower  
55 edge with slots or openings, one of which is indicated at 40 in Fig. 5, and the series of latches are provided with beaks or shoulders 41 and with beveled noses 42, the other end of each latch being weighted, as at 43. To the latches 38, at or near the counterweighted portions thereof, are fastened cables or chains 44, which extend upwardly to a suitable rock-shaft 45, said rock-shaft having a handle 46  
60 for its convenient manipulation. When the

doors G G' are closed by straining the chains or cables 33, the flanges 28 of said doors are closed to compress the tongues and to make the latches 38 engage automatically with the  
70 notched edges 40 of the flange on the door G, the beveled noses of the latches riding against the edge of the door G and lifting the latches on their pivots until the shoulders 41 fit into engagement with the said door G. To release the series of latches simultaneously, it is only  
75 necessary to turn the rock-shaft 45 and strain the cables 44, thus turning the latches 38 on their pivots and withdrawing the shoulders 41 thereof from engagement with said door G.

To prevent the floor members *b* from col-  
80 lapsing or bulging along the side edges of the hopper-opening B, I employ a series of cross-ties I, two or more of which may be employed, as shown by Fig. 1. Each cross-tie I is constructed of pressed steel or other  
85 preferred sheet metal and made in substantially the same way as the deck-rafter D. (Shown by Fig. 8.) The cross-ties are disposed in positions to span the hopper-opening B transversely across the length thereof, and the end portions of these ties are fastened in  
90 a suitable way to sills of the underframing A. The cross-ties pass through suitable slots or openings which are provided in the hopper-doors G G', and when these doors are  
95 closed they abut at their inner faces against suitable stop-blocks I', which are secured to the cross-ties in the position shown by Fig. 2.

The improved metallic car of my invention is equipped with means for supplying feed  
100 and water to live stock which may be carried therein, and in Fig. 12 of the drawings I have shown one side of the car as having a feed-rack J and a water-trough K, said rack and  
105 trough extending lengthwise of the car and at a suitable distance above the floor thereof. The feed-rack J may be of slotted wooden construction, and this rack is flat, the lower edge thereof being hinged or pivoted, as at  
110 *j*, to the car side. The water-trough K is curved in cross-section and hinged at its outer edge, as at *k*, to the side of the car, the latter being equipped with guides or sheaves *k'* at points above the hinged connection of the  
115 rack and the trough to said car-body. The rack and the trough are adapted to be lowered to the operative positions (shown by full lines in Fig. 12;) but I have provided the car with means for simultaneously adjusting  
120 the rack and the trough to their closed positions. (Indicated by dotted lines in said Fig. 12.) The adjusting means consists of a rock-shaft 48, journaled in a suitable way on the outside of the car, said rock-shaft having a series of arms 49 and an operating-handle 50.  
125 Said arms are connected with the trough and the rack by ropes or cables 51, which lead over the sheaves *k'* and are fastened to the upper free ends of the trough and the rack. The handle 50 of the shaft is adapted to lie along-  
130

side of the car, as shown by Fig. 12; but when the shaft is turned and the rack and trough are raised the arm 50 is adapted to extend below the shaft and to be engaged by a latch 52.

5 In loading the car with dumpable material—such as coal, coke, or the like—I prefer to employ in each end thereof a false partition, (indicated at L in Fig. 3 and in detail by Fig. 15.) This false partition is arranged in an inclined  
10 position within the end portion of the car to extend from the hopper-section H to the end wall of the car-body. The partition is provided at its lower side edges with the downwardly-converging bevels 54, and the upper  
15 edge of the partition is provided with a catch 55, the latter being engaged with a keeper 56, attached to the end wall of the car on the inside thereof. This partition is stayed in place  
20 by a brace 57, which has a hinged connection at 58 with the floor of the car, the other end of said brace being connected by a link-hinge 59 to the partition at a point intermediate of its length. The partition is adapted to be  
25 folded into compact relation to the end of the car by lifting said partition bodily and folding it along with the brace 57 against said car end, and when in its folded position the catch  
30 55 of said partition is adapted to engage with another keeper 60, secured to the car end in a position above the keeper 56, thus making  
35 provision for holding the partition in its folded position. When I use the partitions in the end portions of the car, I prefer to make the floor-doors F F' with the beveled  
40 ends 61, (shown by Figs. 3 and 14,) said beveled ends of the doors being adapted for engagement with the beveled side edges 54 of the movable partition L, whereby the parts are compactly disposed to direct the dumpable  
45 material toward the hopper in the bottom of the car.

Any suitable means may be employed for closing the hopper-doors in lieu of the chains and the winding-shaft. When the car is  
45 constructed especially for transporting dumpable material, the hopper-doors may be stayed by the use of suitable chains, as 63, and they may be loosely connected by intermediate chains, (not shown,) adapted to limit the spreading  
50 movement of the doors when they are opened.

Although I have shown and described the system of floor-doors and hopper-doors as applied to a car of the class known as "stock-cars," it will be understood that said floor and  
55 hopper doors may be used individually or collectively in connection with any kind of car.

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

1. A convertible metallic car having a hopper-opening in the car-floor, hinged doors arranged to close across the hopper-opening, and hopper-doors both of which are hinged and arranged in their closed positions to lie in the inclined planes of the floor-doors when the  
65 latter are opened, said floor-doors and hopper-

doors when opened forming continuous inclined walls above and below the hopper-opening, and said hopper-doors moving on their individual hinges to laterally-spread positions for discharging a load centrally with respect  
70 to the car.

2. A convertible railway-car having a hopper-opening in the floor thereof, floor-doors hinged to the car-floor, and hopper-doors also hinged to the car-floor, the hinges of the floor-doors and the hopper-doors being arranged  
75 close together, and said doors adapted to lie in corresponding inclined positions to form converging walls in the bottom portion of the car.

3. A railway-car having a hopper-opening, an underframe, hinged floor-doors, hinged hopper-doors located below said floor-doors, and permanent cross-ties spanning the hopper-opening and secured to the underframe, said  
85 hopper-doors being provided with slots through which are passed the cross-ties.

4. A railway-car having an underframing, a hopper-opening in the car-floor, longitudinal hinge-rods secured to the underframing, hopper-doors fitted to said rods, and hoods secured to the underframing and housing the rods and the upper edges of the doors; said hoods serving as stays to the underframing.

5. A railway-car having a hopper-opening in the floor thereof, a pair of converging hopper-doors hinged to said floor, and hopper-sections disposed at the end portions of the hopper-opening and arranged to meet the end portions of the hopper-doors; each hopper-section consisting of two metallic members  
100 which are assembled to produce a double inclined shoulder bounded on one side by a marginal flange.

6. A railway-car having a hopper-opening in the floor, hopper-sections each consisting of two metallic members which are assembled to produce inclined shoulders and flanges at one side of the shoulders, and hinged doors arranged to close against the shoulders and  
110 within the flanges of said end sections.

7. In a railway-car, a hopper end section consisting of an angular plate  $\frac{1}{2}$ , and a flanged plate  $\frac{1}{2}$  united to said angular plate, said end section being provided with converging shoulders.  
115

8. A railway-car having hinged hopper-doors, and downwardly-inclined tongues carried by the free edges of the doors and disposed in opposing or facing relation; said  
120 tongues arranged to meet one another across the space between the doors on the closure thereof.

9. A railway-car having hopper-doors, yieldable tongues attached to said doors and disposed in converging and facing relation, said tongues adapted to meet each other and to be compressed by the closing movement of said doors, and means for drawing the doors  
125 together.  
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10. A railway-car having hopper-doors, and a plurality of self-acting latches carried by one door and disposed for engagement automatically with the companion door.
- 5 11. A railway-car having movable hopper-doors, one of which is provided with a plurality of keepers, a plurality of gravity-latches carried by the other door for engagement with said keepers, and means for moving said latches to free them from the keepers.
- 10 12. A railway-car having hopper-doors, a plurality of latches mounted at intervals on one of said doors and disposed for engagement automatically with the other door on the closure of the doors, and means for simultaneously withdrawing all the latches from their locking positions.
- 15 13. A railway-car having hinged hopper-doors provided with depending flanges, yieldable tongues projecting into the space between said flanges, and means for positively locking the doors in their closed relation.
- 20 14. A railway-car having hinged hopper-doors one of which is provided with notches in its lower edge, and a series of automatic latches carried by the other hopper-door and adapted to engage with the notched door for positively locking the doors in their closed positions.
- 25 15. A railway-car having hinged hopper-doors, latches carried by one of said doors in positions to engage automatically with the other door when the parts are closed, and means for adjusting the latches.
- 30 16. A railway-car having hinged hopper-doors ranging lengthwise of said car, a longitudinal winding-shaft, and a series of chains or cables arranged transversely beneath the car, each individual cable being attached to one door, engaging with the other door, and attached to the winding-shaft.
- 40 17. A railway-car having hinged hopper-doors ranging lengthwise of said car, a series of guide-rollers carried by one door, chains or cables arranged transversely beneath the car and fastened individually to the other door, and a single longitudinal shaft to which the chains or cables are fastened; said cables having slidable engagement individually with the guide-rollers on one door.
- 50 18. A railway-car having hinged hopper-doors, means for drawing said doors to their closed positions, and latches carried by one door and adapted for engagement automatically with the other door on the closure thereof.
- 55 19. A railway-car having hopper-doors, a series of guides carried by one door, a series of cables or chains attached to the other door and extending around said guides, and a series of latches alternating with the cables and carried by one door for automatic engagement with the other door.
- 60 20. A railway-car having a hopper-opening in the floor thereof, hinge-rods extending longitudinally of the hopper-opening and supported on the floor, doors hinged to a pair of said rods and arranged to close across the hopper-opening, and other doors hinged to the other pair of rods and disposed in converging relation to form a hopper.
- 65 21. A railway-car having an underframing, a hopper-opening in the floor of the car, a hopper-door hinged to the underframing at a point below the hopper-opening, and a metallic hood ranging lengthwise of the hopper-opening and attached at one side to the underframing, said hood acting as a stay for a sill of the underframing and the free edge of the fixed hood extending over the hinged edge of the hopper-door.
- 70 22. A railway-car having an underframing, a hopper-opening in the floor of the car, a curved metallic hood ranging lengthwise of the hopper-opening and attached at one edge to the underframing and serving as a stay therefor, and a door having its hinged edge inclosed by said hood.
- 75 23. A railway-car having a hopper-opening, and a movable inclined partition extending continuously from the hopper-opening to an end portion of the car, said partition being adjustable to a vertical position and in close relation to one end of the car to form an inside wall of the car-body.
- 80 24. A railway-car having a hopper-opening and an inclined hopper-section, and a partition supported removably within the car and adjustable to an inclined position coincident with the hopper-section.
- 85 25. A railway-car having a hopper-opening, a partition within said car and extending upwardly from said hopper-opening, and a hinged brace connected to said partition, the latter being foldable against a wall of the car.
- 90 26. A railway-car having a hopper-opening, an inclined partition extending upwardly from the hopper-opening and foldable against a wall of the car, means for holding the partition in its folded and adjusted positions, and a brace for said partition.
- 95 27. In a railway-car, a deck-rafter consisting of complementary longitudinal members united together, the corresponding end portions of said members being bent in opposite directions and producing attaching-flanges at the ends of said rafter.
- 100 28. In a railway-car, a deck-rafter having complementary longitudinal members provided at their end portions with angular flanges, the upper edges of said members having lateral flanges and one of said members having a lip or tongue bent into locking relation to the other member.
- 105 29. A railway-car having channeled posts in the body thereof, certain of said posts being disposed in converging and lapping relation.
- 110 30. In a railway-car, a deck-rafter consist-
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ing of complementary metallic sections united firmly together, and angular rivet-flanges secured between the members of the rafter and having exposed angular portions.

5 31. A railway-car having a hopper-opening, an underframe, cross-ties secured to the underframe and extending across the hopper-opening, hopper-doors provided with slots arranged to loosely receive the cross-ties, and

means for closing the slots in said doors when the latter are closed.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GLENN E. SIMONTON.

Witnesses:

GEO. W. KOHN,  
J. B. CROUCH.