

May 9, 1933.

H. H. HUDSON

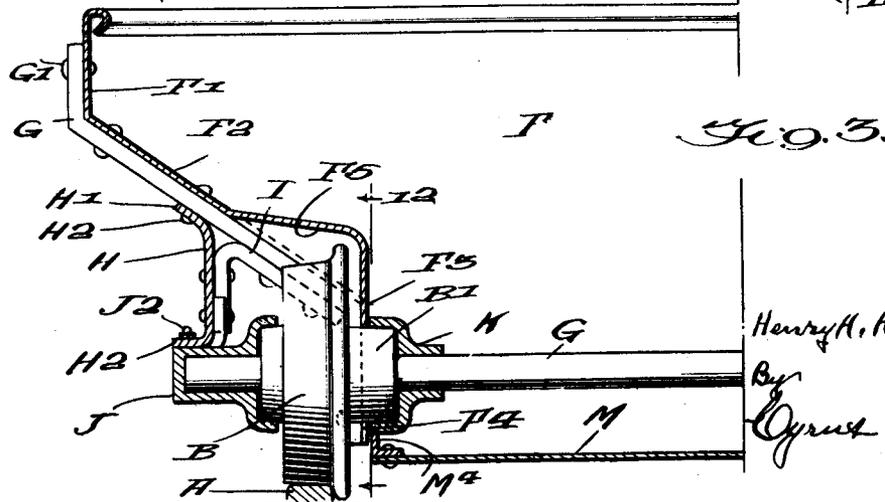
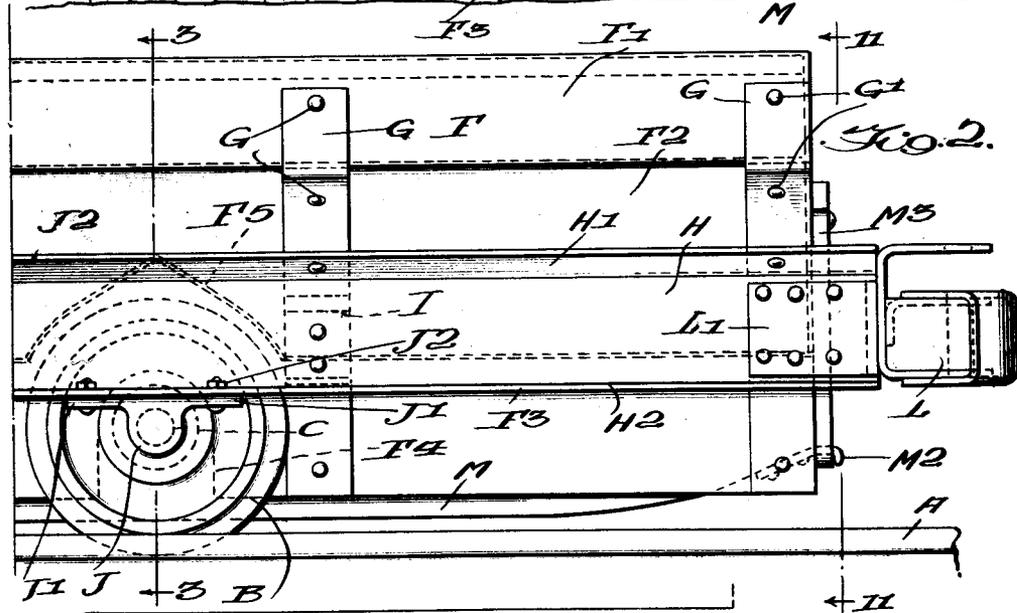
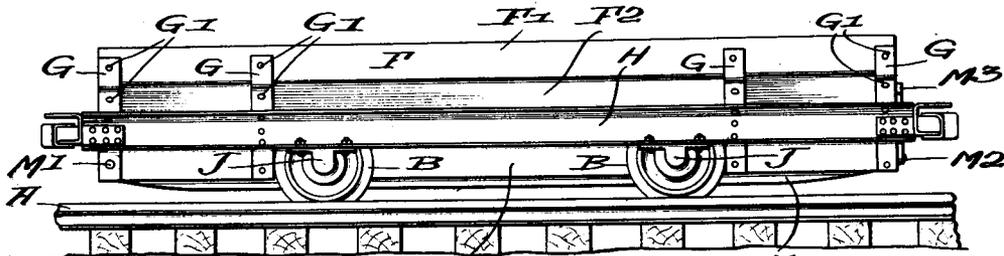
1,908,674

MINE CAR

Filed March 31, 1931

5 Sheets-Sheet 1

FIG. 1.



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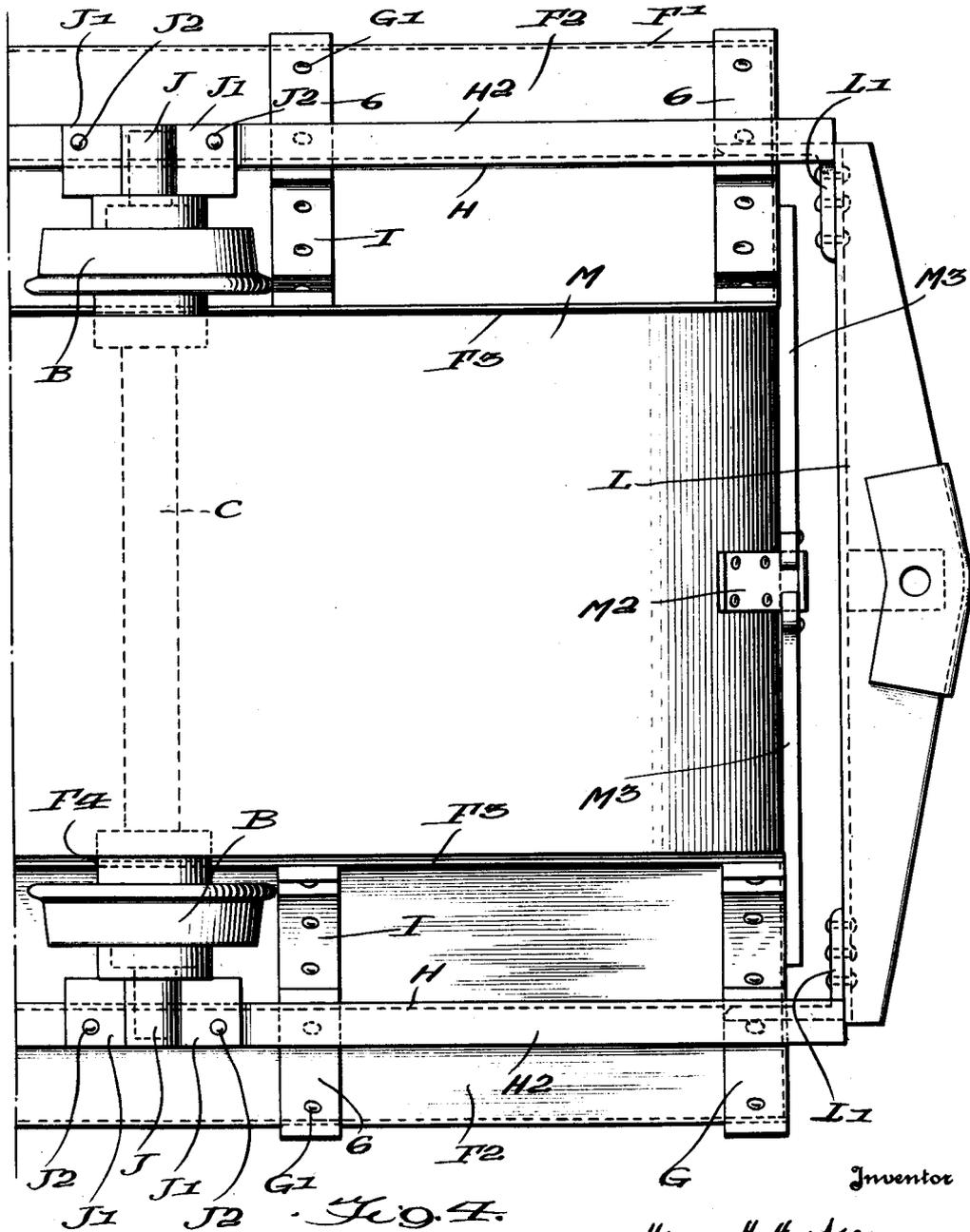
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MINE CAR

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5 Sheets-Sheet 2



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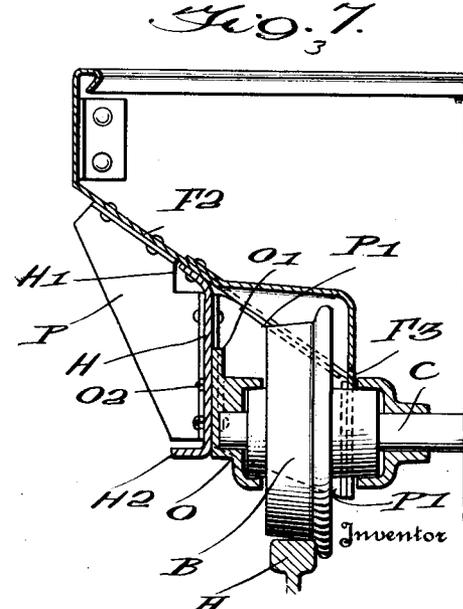
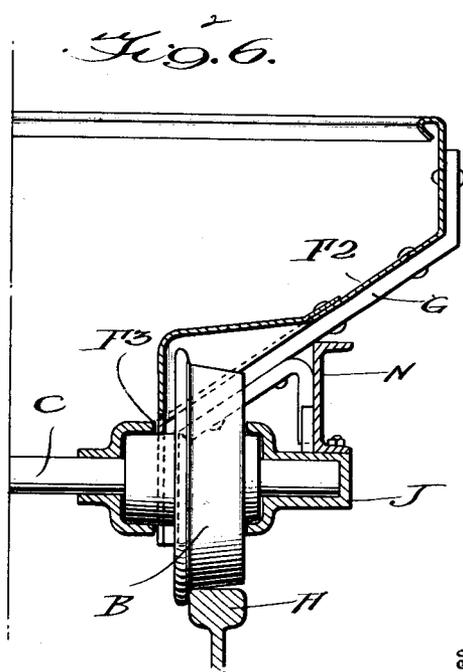
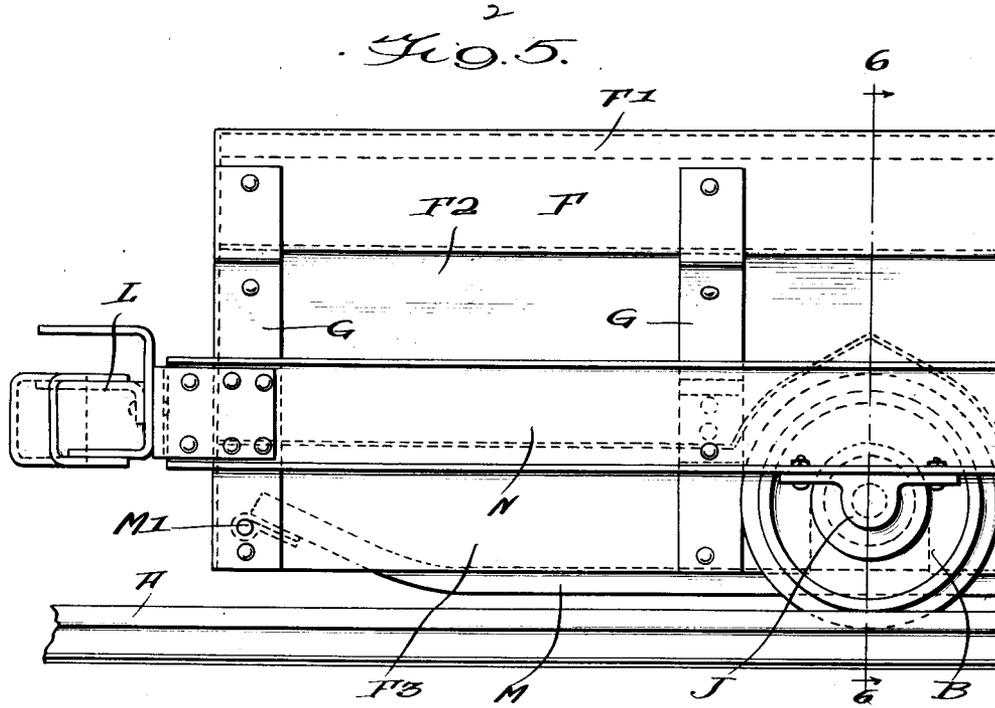
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MINE CAR

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5 Sheets-Sheet 3



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MINE CAR

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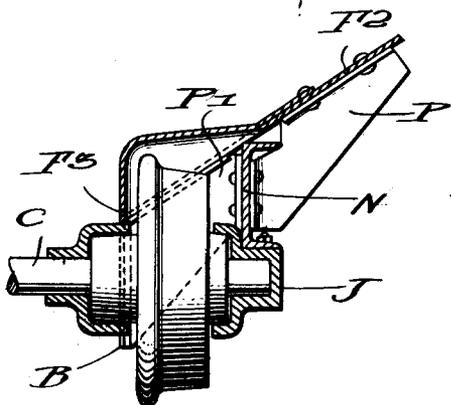
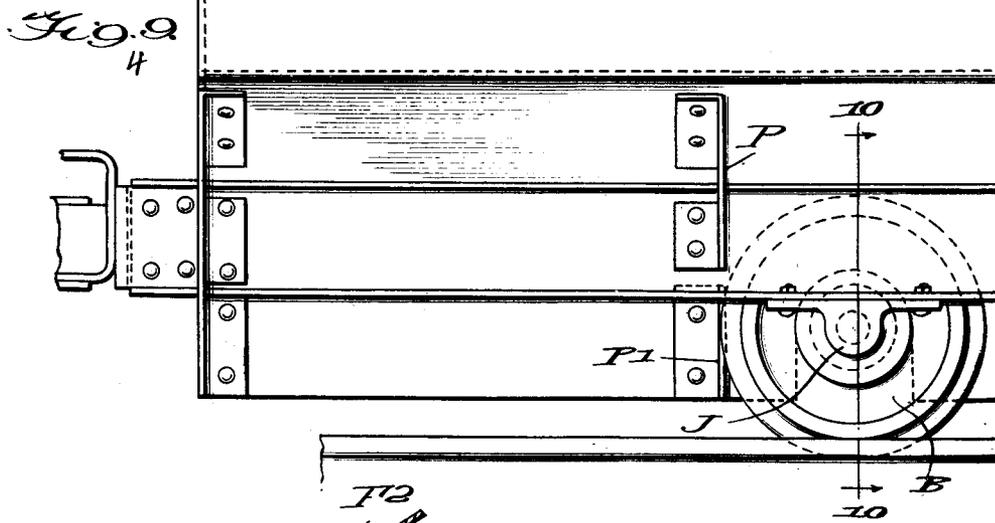
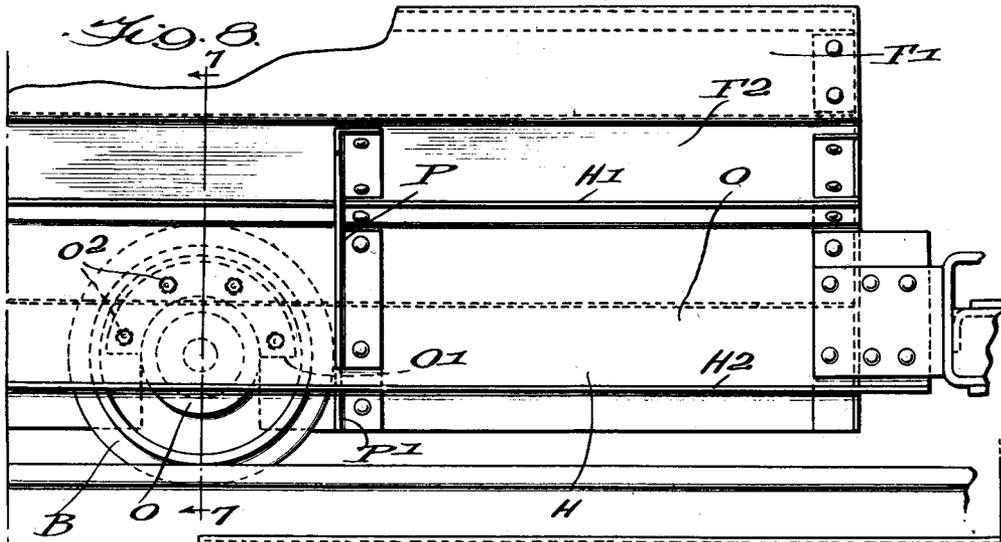


Fig. 10.

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MINE CAR

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FIG. 11.

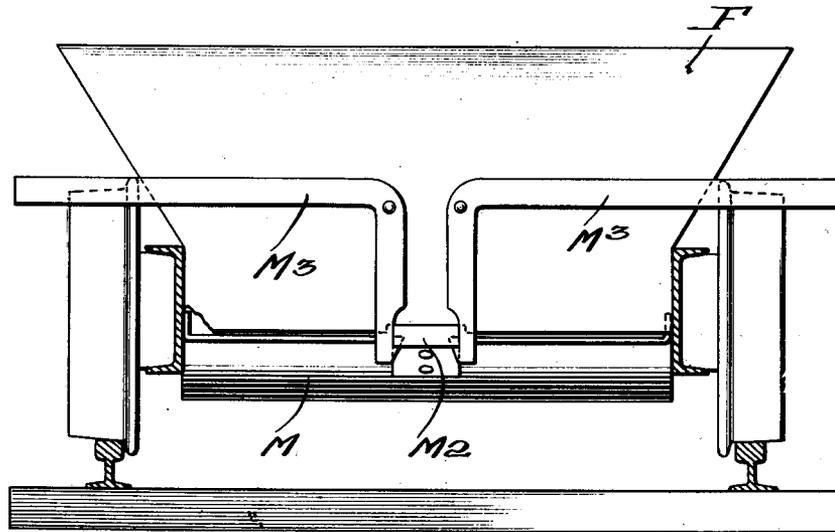
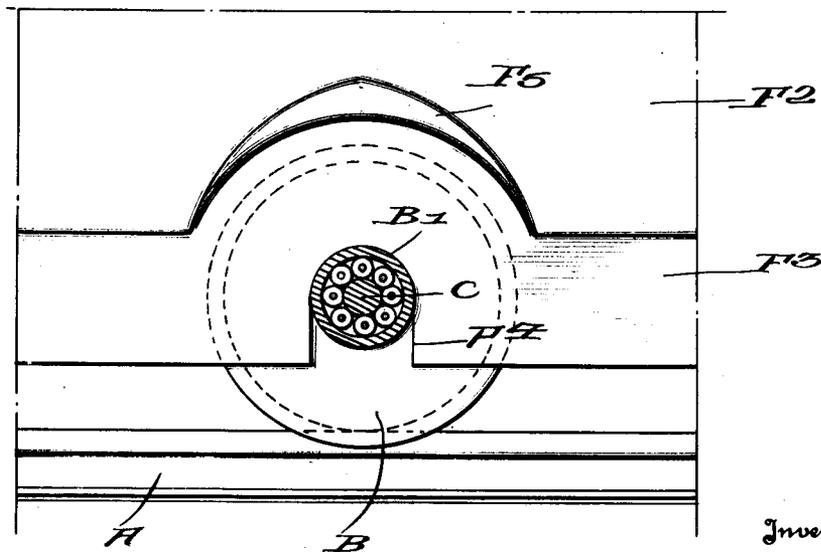


FIG. 12.



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UNITED STATES PATENT OFFICE

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MINE CAR

Application filed March 31, 1931. Serial No. 526,691.

This invention relates to an improvement in drop bottom mine cars.

The principal object of the invention is to provide a drop-bottom central discharge mine car of a very large capacity with a low height and a wider top to the car than has heretofore been possible for cars of this type when of limited height. The car is of the drop bottom design, where it is necessary to have a rather steep slope to the stationary flaring side walls in order that the coal may shed into the central opening. For use in coal mines the plane of the sloping side wall is at an angle of approximately 35 or 40 degrees from the horizontal and in this car the plane of the side wall when thus sloped intersects the top edge of the wheel at a point outside of the track-gauge line at the base of the wheel flange at the top of the wheel.

The car is provided with side sills on the outside of track-gauge line in order to dispose the wheel bearings or boxings on the outside of the track-gauge line, which construction permits of the supporting of the flared side walls at lower points, thus providing a wider top car with relatively low height, and thus increasing the capacity of the car when the over-all height of the car is limited. The bumpers extend outward beyond the track-gauge line and are connected with the side sills. With this construction it is possible to eliminate the inside sills.

This construction not only permits the flare of the car to start at a lower point but also permits the widening of the bottom doors, all of which cooperate in obtaining additional car capacity for a certain limited over-all height and width. Also the wider discharge opening in the bottom is an advantage in that it permits of the handling of larger sizes of lading material for certain track-gauges. With this construction, the width of door opening can be made the maximum possible when single piece drop doors are used which fall between the base of the rails of the mine track.

In the accompanying drawings:

Fig. 1 is a side elevation of a complete car, illustrating an application of the invention thereto;

Fig. 2 is an enlarged side elevation of an end portion of the car;

Fig. 3 is a partial transverse sectional view therethrough on the line 3—3 of Fig. 2;

Fig. 4 is a bottom plan view of an end portion of the car;

Fig. 5 is a side elevation of an end portion of the car showing a modification in the side sills and tie member;

Fig. 6 is a partial transverse sectional view therethrough on the line 6—6 of Fig. 5;

Fig. 7 is a partial sectional view on the line 7—7 of Fig. 8;

Fig. 8 is a side elevation of an end portion of the car showing a further modification in the side sills and tie members;

Fig. 9 is a similar view of still another modification;

Fig. 10 is a partial sectional view therethrough on the line 10—10 of Fig. 9;

Fig. 11 is a transverse upright section on the line 11—11 of Fig. 2 but showing modifications in the side sills and car sides; and

Fig. 12 is a detail sectional view on the line 12—12 of Fig. 3.

Referring to the drawings, A, A are track rails. The wheels of the car are designated B, B and are provided with hubs B1, applied to axles C, C. The wheels are rotatably mounted on the axles C or, if desired and as is often provided in mine cars, the axles may rotate with the wheels.

In the form of the invention shown in Figs. 1 to 4, the upper part of the car body F may be constructed of sheet metal and has extended side walls F1, which are provided with flared portions F2 terminating at their lower edges in bottom wings F3, which extend downward on the inside of the wheels B and are notched as at F4 to slip over the hubs B1. The flared portions F2 have hoods F5 over the tops of the wheels B. The slope of the flared portions F2 is such that the lading will shed into the central opening between the wings F3 to be dumped through the bottom of the car, and is shown as approximately thirty-five degrees from the horizontal.

It will be noted in Fig. 3 that each of the flared portions F2 is at an acute angle to

a horizontal plane, and the plane of this flared portion F2 intersects the top of the wheel approximately at its outer edge, or outside of the track-gauge line at the base of the wheel flange at the top of the wheel. These flared portions F2 are thus lowered to increase the capacity of the car and the car provided with a wider top but is relatively low in height. The inside end of the hood F5 is approximately in the same vertical plane as the wing F3 and forms a continuation thereof.

Tie bars G extend upward on the outer sides of the side walls and effectively brace the same. These tie bars G extend approximately from the top edge of the side walls F1 to the bottom edge of the wings F3 in the form shown in Figs. 1 to 4, and are riveted thereto as at G1.

The side sills are shown at H, and it will be noted that these sills are disposed on the outer sides of the wheels B and are therefore on the outside of the track-gauge line. In the form shown in Figs. 1 to 4, these side sills H are in the form of plate members, each having an upper outturned flange H1 riveted as at H2 to the tie bars G and the flared portions F2 of the side walls. A lower outturned flange H2 is formed on each of the side sills H and extends approximately horizontally. A bracket I is arranged between the side sills H and each of the tie bars G, being rigidly secured thereto as by riveting, in order to brace the intermediate portion of each of the side sills H and the flared sides F2.

Bearing boxings J are disposed beneath the flange H2 of each side sill H and each of said boxings has arms J1 extending in opposite directions, by which said bearing boxing is fixed to the flange H2 as by bolts J2. The boxing J receives the outer end of the axle C and supports the body structure thereon.

Dust collars K are disposed within the wings F3 and surround and enclose portions of the axles C and hubs B1 on the wheels B.

The outer ends of the side sills H have a combined bumper and end sill L, secured thereto by corner brackets L1. The bumper and end sill structure L extends outward beyond the track-gauge line and is connected with the side sills H at points outside the gauge line. The bumper structure L is not connected with the wings F3 of the side walls other than through the side sills H and are not supported directly by the bumper and end sill structure. The load is thus supported from points outside the track-gauge line.

In drop bottom cars of the type shown, one or more of any practical drop door construction may be used. These are, so far as is known, patented constructions. Also one or more drop doors may be used. The construc-

tion shown has a single drop door M the side edges of which extend to within five inches of the upright planes of the adjacent track gauge lines and are braced by angles M4 at its edges, which door is covered by U. S. Patent to Sanford, No. 1,512,059, of October 21, 1924, and which is hinged as at M1 at one end of the car (see Fig. 1) and has a bracket M2 attached to the opposite end in position to be engaged by preferably two bell-crank levers M3, which are mounted at the rear end of the car and normally support the free end of the door M but are adapted to release the door when operated by suitable cams, which may be placed opposite the track to be engaged by the arms of the bell-crank levers in a manner heretofore well known in the use of drop bottom cars of this type. The Griffith multiple drop door construction, as covered by U. S. Patent No. 1,268,344, could also be used with this general car construction.

In the form shown in Figs. 5 and 6, the structure is the same as that above described, except that the side sills N are constructed of conventional structural channel-iron instead of as a plate H, shown in Figs. 1 to 4.

In Figs. 7 and 8, the side sills H are shown with the top flange H1 secured to the flared portion F2 of the sides of the car body, while the lower out-turned flange H2 of the side sill is free. The boxing O having a peripheral flange O1 by which this boxing O is secured to the inner face of the side sill H, as shown particularly in Fig. 7. Bolts O2 are employed to secure the boxing in place.

In this form of the invention, gussets P are employed in lieu of the tie bars G to brace the side walls of the car body, and which gussets P are arranged between the flared portion F2 and the outer sides of the side sills H. In this form, brackets P1 are also employed between the outer sides of the wings F3 and the inner sides of the side sills H, said brackets P1 also extending along portions of the undersides of the flared portions F2.

In Figs. 9 and 10, the channel-iron side sills N are shown and have the bearing boxes J attached beneath the lower flanges thereof to receive the axles C. Gusset ties P are employed between the channel bar side sills N and the flared portions F2 of the car body to effectively brace the same. Brackets P1 are also employed between the wings F3 and the inner sides of the side sills N.

In all of these forms, the end bumper structure L extends to and is connected with the side sills outside of the track-gauge line. This disposition of the side sills and bearing boxings outside of the track-gauge line and therefore outside of the wheels permits the flared portions of the side walls to be lowered to substantially increase the capaci-

ty of the car, and provide a wide car of relatively low height.

While it is necessary with this structure to remove the bearing boxings in order to remove the wheels, yet the wheels may be removed from the car without removing the side sill structure that rests on top of the boxings. The bolts J2 holding the boxings J may be loosened and the side of the car jacked up to permit the removal of the wheels. If desired, the lower part of the boxings could be made open so that the truck, as a whole, could be removed from the car without disturbing any bolts or without disturbing the side sill member, but merely upon jacking the car up high enough so that the top of the wheel flange would pass beneath the boxings, as then attached to the side sill members.

The reference in the claims to "standard track rails" or the equivalent is intended to refer to the rails of the track which runs throughout the workings where the car is used. The reference in the claims to "working clearance" between the wheels and the bottom wings, F3, is intended to refer to only sufficient room to permit free rotation of the wheels and not a substantial distance therebetween as has been used heretofore. Ordinarily the wheel hubs would project through these bottom wings, F3.

I claim:

1. In a four-wheel drop-bottom coal mining or similar rail car with a lading body having a central portion and side wing-portions, and with stationary lading bottoms to the side wing-portions, which bottoms are sloped for the discharge of the lading through openings made by the dropping of the bottom doors and for discharge between track rails, the combination of car wheels projecting into the said side wing-portions of the lading body, and deeply recessed wheel hood-coverings over the tops of the wheels, the said hood-coverings being sloped so as not to prevent the discharge of the lading through the dropped bottom doors, and the inside walls of the wheel hood-coverings being disposed approximately in the vertical planes of the side edges of the discharge openings.

2. In a four-wheel drop-bottom coal mining or similar rail car with a lading body having a central portion and side wing-portions, and with stationary lading bottoms to the side wing-portions, which bottoms are sloped for the discharge of the lading through openings made by the dropping of the bottom doors and for complete discharge between standard track rails, the combination of car wheels projecting into the said side-wing portions of the lading body, and deeply recessed wheel hood-coverings over the tops of the wheels, the said hood-coverings being sloped so as not to prevent the

discharge of the lading through the dropped bottom doors, and the inside walls of the wheel hood-coverings extending substantially to the upright plane of the adjacent outside edges of the drop doors.

3. In a four-wheel drop-bottom coal mining or similar rail car with a lading body having a central portion and side wing-portions, and with stationary lading bottoms to the side wing-portions, which bottoms are sloped for the discharge of the lading through openings made by the dropping of the bottom doors and for discharge between track rails, the combination of car wheels projecting into recesses in the side wing-portions so that the upper wheel flanges as disclosed in the vertical cross-sections of the wheels are buried within the said recesses, and wheel hoods covering the tops of the wheels and having the inside walls thereof disposed approximately in the vertical planes of the side edges of the discharge openings.

4. In a four-wheel drop-bottom coal mining or similar car with a lading body having a central portion and side wing-portions, and with stationary lading bottoms to the side wing-portions, which bottoms are sloped for the discharge of the lading through openings made by the dropping of the bottom doors and for complete discharge between the track rails, the combination of car wheels projecting into recesses in the side wing-portions so that the upper wheel flanges as disclosed in the vertical cross-sections of the wheels are buried within the said recesses, and deeply recessed wheel hoods over the tops of the wheels, and the inside walls of the said hoods extending substantially to the upright plane of the adjacent outside edges of the drop doors.

5. In a four-wheel drop-bottom coal mining or similar rail car with a lading body having a central portion and side wing-portions, and with stationary lading bottoms to the side wing-portions, which bottoms are sloped for the discharge of the lading through openings made by the dropping of the bottom doors and for complete discharge between standard track rails, the combination of car wheels projecting into the said side wing-portions of the lading body, and deeply recessed wheel hood-coverings over the tops of the wheels, the said hood-coverings being sloped so as not to prevent the discharge of the lading through the dropped bottom doors, together with stiff endwise lading body supporting members outside the wheels, and axle spindles associated with the said endwise members and supporting them.

6. In a four-wheel drop-bottom coal mining or similar car with a lading body having a central portion and side wing-portions, and with stationary lading bottoms to the

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side wing-portions, which bottoms are sloped for the discharge of the lading through openings made by the dropping of the bottom doors and for complete discharge between the track rails, the combination of car wheels projecting into recesses in the side wing-portions so that the upper wheel flanges as disclosed in a vertical cross-section of the wheels are buried within the said recesses, and deeply recessed wheel hoods over the tops of the wheels, and the inside walls of the said hoods extending substantially to the upright plane of the adjacent outside edges of the drop doors, together with stiff endwise lading body supporting members outside the wheels, and axle spindles associated with the said endwise members and supporting them.

7. In a four-wheel drop-bottom coal mining or similar rail car with a lading body having a central portion and side wing-portions, and with stationary lading bottoms to the side wing-portions, which bottoms are sloped for the discharge of the lading through openings made by the dropping of the bottom doors and for complete discharge between standard track rails, the combination of car wheels projecting into the said side wing-portions of the lading body, and deeply recessed wheel hood-coverings over the tops of the wheels, the said hood-coverings being sloped so as not to prevent the discharge of the lading through the dropped bottom doors, and the said bottom doors extending transversely substantially the full width that will still permit of working clearances between the doors and the insides of the adjacent wheel flanges and track rails.

8. In a four-wheel drop-bottom coal mining or similar rail car with a lading body having a central portion and side wing-portions, and with stationary lading bottoms to the side wing-portions, which bottoms are sloped for the discharge of the lading through openings made by the dropping of the bottom doors and for complete discharge between the track rails, the combination of car wheels projecting into the said side wing-portions of the lading body, and deeply recessed wheel hood-coverings over the tops of the wheels, the said hood-coverings being sloped so as not to prevent the discharge of the lading through the dropped bottom doors, and the inside walls of the wheel hood-coverings extending substantially to the upright plane of the adjacent outside edges of the drop doors and the said bottom doors extending transversely substantially the full width that will still permit of working clearances between the doors and the insides of the adjacent wheel flanges and track rails.

9. In a four-wheel drop-bottom coal mining or similar rail car with a lading body having a central portion and side wing-portions, and with stationary lading bottoms to

the side wing-portions, which bottoms are sloped for the discharge of the lading through openings made by the dropping of the bottom doors and for complete discharge between standard track rails, the combination of car wheels projecting into the said side wing-portions of the lading body, and deeply recessed wheel hood-coverings over the tops of the wheels, the said hood-coverings being sloped so as not to prevent the discharge of the lading through the dropped bottom doors, together with stiff endwise lading body supporting members outside the wheels, and axle spindles associated with the said endwise members and supporting them, and the said bottom doors extending transversely substantially the full width that will still permit of working clearances between the doors and the insides of the adjacent wheel flanges and track rails.

10. In a four-wheel drop-bottom coal mining or similar rail car with a lading body having a central portion and side wing-portions and with stationary lading bottoms to the side wing-portions, which bottoms are sloped for the discharge of the lading through openings made by the dropping of the bottom doors and for discharge between the track rails, the combination of car wheels projecting into the said side wing-portions of the lading body, and deeply recessed wheel hood-coverings over the tops of the wheels, the said hood-coverings being sloped so as not to prevent the discharge of the lading through the dropped bottom doors, and the plane of the said sloping bottoms of the side wing-portions cutting through the upright cross-sectional edge-line of the adjacent car wheels substantially outside the track-gauge line, the hood-coverings having the inside walls thereof disposed approximately in the vertical planes of the side edges of the discharge openings.

11. In a four-wheel drop-bottom coal mining or similar rail car with a lading body having a central portion and side wing-portions, and with stationary lading bottoms to the side wing-portions, which bottoms are sloped for the discharge of the lading through openings made by the dropping of the bottom doors and for complete discharge between the track rails, the combination of car wheel projecting into the said side wing-portions of the lading body, and deeply recessed wheel hood-coverings over the tops of the wheels, the said hood-coverings being sloped so as not to prevent the discharge of the lading through the dropped bottom doors, together with stiff endwise lading body supporting members outside the wheels, and axle spindles associated with the said endwise members and supporting them, and the plane of the said sloping bottoms of the side wing-portions cutting through the upright cross-sectional edge-line of the adjacent car

wheels substantially outside the track-gauge line.

12. In a four-wheel drop-bottom coal mining or similar rail car with a lading body having a central portion and side wing-portions, and with stationary lading bottoms to the side wing-portions, which bottoms are sloped for the discharge of the lading through openings made by the dropping of the bottom doors and for discharge between the track rails, the combination of car wheels projecting into the said side wing-portions of the lading body, and deeply recessed wheel hood-coverings over the tops of the wheels, the said hood-coverings being sloped so as not to prevent the discharge of the lading through the dropped bottom doors, and the edges of the said drop doors approaching to within less than five inches of the upright planes of the adjacent track-gauge lines.

13. In a four-wheel drop-bottom coal mining or similar rail car with a lading body having a central portion and side wing-portions, and with stationary lading bottoms to the side wing-portions, which bottoms are sloped for the discharge of the lading through openings made by the dropping of the bottom doors and for complete discharge between the track rails, the combination of car wheels projecting into the said side wing-portions of the lading body, and deeply recessed wheel hood-coverings over the tops of the wheels, the said hood-coverings being sloped so as not to prevent the discharge of the lading through the dropped bottom doors, together with stiff endwise lading body supporting members outside the wheels, and axle spindles associated with the said endwise members and supporting them, and the edges of the said drop doors approaching to within less than five inches of the upright planes of the adjacent track-gauge lines.

14. In a four-wheel drop-bottom coal mining or similar rail car with a lading body having a central portion and side wing-portions, and with lading bottoms to the side wing-portions, which bottoms are sloped for the discharge of the lading through openings made by the dropping of the bottom doors and for discharge between the track rails, the combination of car wheels projecting into the said side wing-portions of the lading body, and deeply recessed wheel hood-coverings over the tops of the wheels, the said hood-coverings being sloped so as not to prevent the discharge of the lading through the dropped bottom doors, and having the inside walls thereof approximately in the vertical planes of the side edges of the discharge openings.

15. In a four-wheel drop-bottom coal mining or similar rail car with a lading body having a central portion and side wing-portions, and with lading bottoms to the side wing-portions, which bottoms are sloped for

the discharge of the lading through openings made by the dropping of the bottom doors and for complete discharge between the track rails, the combination of car wheels projecting into the side wing-portions of the lading body, and deeply recessed wheel hood-coverings over the tops of the wheels, the said hood-coverings being sloped so as not to prevent the discharge of the lading through the dropped bottom doors, together with stiff endwise lading body supporting members outside the wheels, and axle spindles associated with the said endwise members and supporting them.

16. In a four-wheel drop-bottom coal mining or similar rail car with a lading body having a central portion and side wing-portions, and with stationary lading bottoms to the side wing-portions, which bottoms are sloped for the discharge of the lading through openings made by the dropping of the bottom doors and for complete discharge between the track rails, the combination of car wheels projecting into the said side wing-portions of the lading body, and deeply recessed wheel hoods formed of separate members that are in rigid secured relationship with the said bottoms of the side wing-portions, and having the inside walls thereof approximately in the vertical planes of the side edges of the discharge openings.

17. In a four-wheel drop-bottom coal mining or similar rail car with a lading body having a central portion and side wing-portions, and with stationary lading bottoms to the side wing-portions, which bottoms are sloped for the discharge of the lading through openings made by the dropping of the bottom doors and for complete discharge between the track rails, the combination of car wheels projecting into the said side wing-portions of the lading body, and deeply recessed wheel hoods formed of separate members that are in rigid secured relationship with the said bottoms of the side wing-portions, and the inside walls of the wheel hoods extending substantially to the upright plane of the adjacent outside edges of the drop doors.

18. In a four-wheel drop-bottom coal mining or similar rail car with a lading body having a central portion and side wing-portions, and with stationary lading bottoms to the side wing-portions, which bottoms are sloped for the discharge of the lading through openings made by the dropping of the bottom doors and for complete discharge between the track rails, the combination of car wheels projecting into the said side wing-portions of the lading body, and deeply recessed wheel hoods formed of separate members that are in rigid secured relationship with the said bottoms of the side wing-portions, and the inside walls of the wheel hoods extending substantially to the upright plane

of the adjacent outside edges of the drop doors, together with stiff endwise lading body supporting members outside the wheels, and axle spindles associated in a supporting relationship with the said endwise members.

19. In a four-wheel drop bottom mine car, the combination of four supporting wheels having peripheral flanges, axles connected with the wheels, a car body carried by the wheels and having flared side walls inclined at an acute angle to a horizontal plane, the plane of each of said walls intersecting the top of the periphery of the car wheel at a point substantially outside of the track-gauge line at the base of the wheel flange, wings forming continuations of the flared portions of the side walls and extending downwardly therefrom defining the edges of a discharge opening in the bottom of the car controlled by a door, and hoods carried by the side walls to enclose the upper portions of the wheels, and having the inner faces thereof approximately in the upright planes of the wings.

20. In a four-wheel drop-bottom mine car, the combination of supporting wheels, a car body carried thereby and having flared side walls terminating in downwardly extending wings at the inner portion thereof defining the edges of a discharge opening in the bottom of the car controlled by a door, said flared portions having openings therein for the car wheels, and hoods enclosing the openings, said hoods having the inner faces thereof in approximately the same upright plane as the wings.

21. In a four-wheel drop-bottom mine car, four supporting wheels arranged for operation on standard gauge track rails, axles carried thereby, supporting bearings carried by the axles on the outer sides of the wheels only, side sill structures carried by the bearings and disposed on the outer side of the wheels, and a lading body having a discharge opening in the bottom thereof arranged for complete discharge of the lading between the standard track rails.

22. In a four-wheel drop-bottom mine car, the combination of four car wheels arranged for operation on standard gauge track rails, axles carried thereby, supporting bearings carried by the axles on the outer sides of the car wheels, metallic side sills carried by the bearings on the outer sides only of the car wheels, end sills extending to points outside the track-gauge line and fixed to the side sills, and a body having flared side walls secured to and supported upon the side sills, said side walls terminating in downwardly extending wings, said wings being entirely free from support by the end sills, tie members for the side walls and fixed thereto and to the side sills, one or more drop bottom doors for closing the bottom of the body and arranged for complete discharge of the lading between

standard track rails, and means for supporting the doors and to release the same for discharge of the contents of the body.

23. In a four-wheel drop-bottom coal mining rail car with a lading body having a central portion and side wing-portions, and with stationary lading bottoms to the side wing-portions extending laterally from longitudinal upright walls, which bottoms are sloped at an angle sufficient for the free discharge by gravity of loose coal through openings made by the dropping of bottom doors and for complete discharge between standard track rails, and supporting frame structure for the side wing-portions, the combination of car wheels projecting into the said side wing-portions of the lading body, and deeply recessed wheel hoods formed of separate members that are in rigid secured relationship with the said bottoms of the side wing-portions, the longitudinal upright walls being located inside the wheels and so close thereto as to provide only working clearance therebetween.

24. In a mine or similar rail car with a lading body having a central portion and side wing-portions, and having stationary lading bottoms to the side wing-portions, said bottoms being sloped for the complete discharge of the lading through openings made by the dropping of the bottom doors and for discharge between main mine track rails, and frame structure supporting said side wing-portions, the combination of car wheels, car axles, a plurality of transversely hinged drop doors, and longitudinal upright walls inside the wheels and spaced from the wheels so as to provide only a working clearance therebetween, said upright walls forming a sealing relationship with the longitudinal sides of the said drop doors.

25. In a mine or similar rail car with a lading body having a central portion and side wing-portions, and having stationary lading bottoms to the side wing-portions, said bottoms being sloped for the complete discharge of the lading through openings made by the dropping of the bottom doors and for discharge between main mine track rails, the combination of car wheels, car axles, a plurality of transversely hinged drop doors, and longitudinal upright walls inside the wheels and spaced from the wheels so as to provide only a working clearance, said upright walls forming a sealing relationship with the longitudinal sides of the said drop doors, said car having load-supporting longitudinal sill-members outside the car wheels.

26. In a mine or similar rail car, the combination of car wheels, car axles, and lading body, a traction truck frame including transverse bumper sill structures at each end of the lading body which are longer than the distance between the rails, hinged drop doors arranged for the complete discharge of the

lading load between the track rails and on both sides of each car axle, and a stationary sloping lading body wing-bottom extending transversely from inside a track rail to a point outside the rail and the said bottom being supported at least in part outside said track rail by the extension of the bumper sills.

27. In a four-wheel drop bottom coal mining rail car with a lading body having longitudinal upright walls and side wing portions with stationary lading bottoms to the side wing portions, said bottoms extending laterally from the upper portions of the longitudinal upright walls at gravity discharge slopes and lying in planes cutting through the cross sectional edge lines of the wheels outside the track gauge lines for discharge of loose coal by gravity through openings made by the dropping of bottom doors and for discharge between standard track rails, and supporting frame structure for the side wing portions, the combination of drop bottom doors for said body, car wheels projecting into said side wing portions of the lading bottom, and recessed wheel-hood coverings over the tops of the wheels, the longitudinal upright walls being disposed inside the wheels and so close to the wheels as to provide only working clearance therebetween.

28. In a four-wheel drop-bottom coal mining or similar rail car with a lading body having longitudinal upright walls and side wing-portions, and with a stationary lading bottom to each side wing-portion extending laterally from the upper edges of the longitudinally upright walls at an angle of more than thirty-two degrees from the horizontal and in a plane cutting through the cross-sectional edge lines of the adjacent car wheels outside the track gauge line and the said bottoms being adapted to discharge the lading by gravity through openings made by the dropping of bottom doors and for complete discharge between standard track rails, and supporting frame structure for the side wing portions the combination of drop bottom doors for the body, car wheels projecting into said side wing-portions of the lading body, and deeply recessed wheel hood-coverings over the tops of the wheels, said hood-coverings being sloped so as not to prevent the discharge of the lading through the dropped bottom doors, the longitudinal upright walls being disposed inside the wheels and so close thereto as to provide only working clearance therebetween.

29. In a four-wheel drop-bottom coal mining or similar rail car with a lading body having a central portion, longitudinal upright walls and side wing-portions, and with a stationary lading bottom to each side wing-portion extending laterally from the longitudinal upright walls at an angle of more than thirty-two degrees from the horizontal

and in a plane cutting through the edge lines at upright cross sections of the adjacent car wheels outside the track gauge line, and said bottoms being adapted to discharge the lading through openings made by the dropping of the bottom doors and for complete discharge between standard track rails, and supporting the frame structure for the side wing portions, the combination of car wheels projecting so deeply into recesses in the side wing-portions that the upper wheel tread surfaces as disclosed in the vertical cross-sections of the wheels are approximately buried within the said recesses, the longitudinal upright walls being disposed inside the wheels and so close thereto as to provide only working clearance therebetween.

In testimony whereof I have signed my name, in March, in the year one thousand nine hundred and thirty-one.

HENRY H. HUDSON.