Nov. 17, 1931. N. D. VETH 1,832,754

MINE CAR

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Fig. 1.

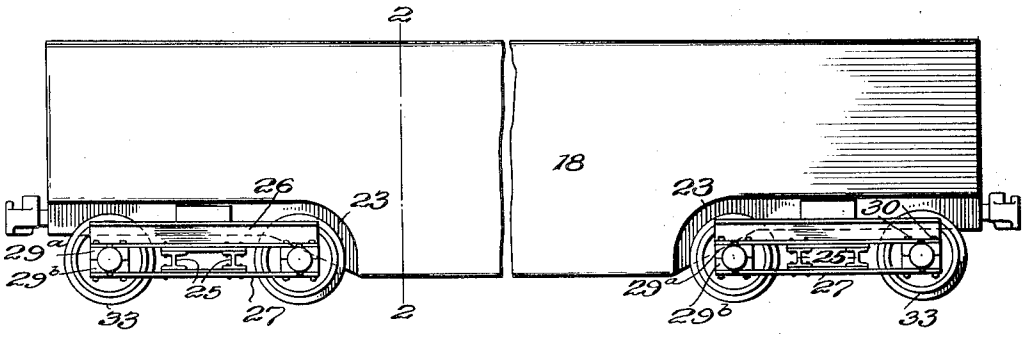


Fig. 2.

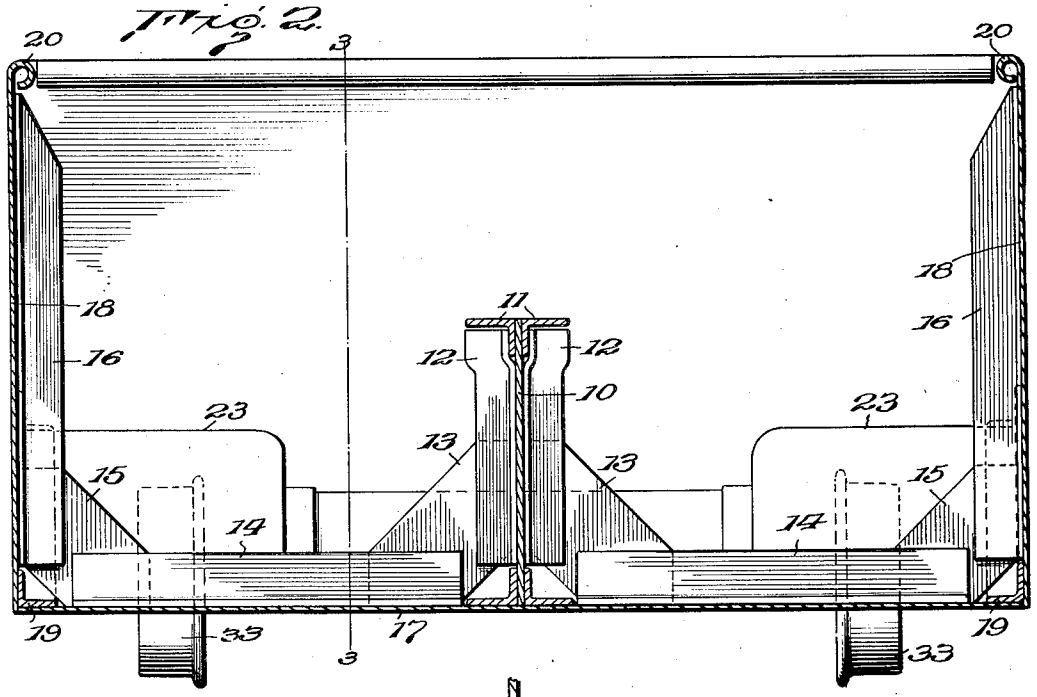
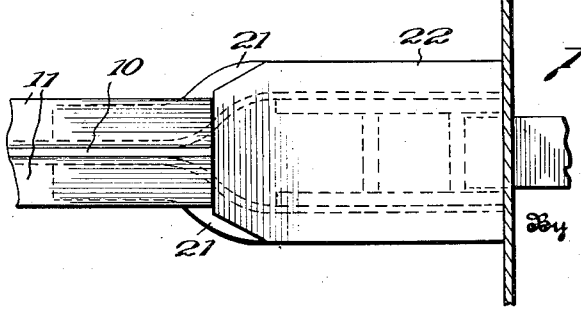


Fig. 7.

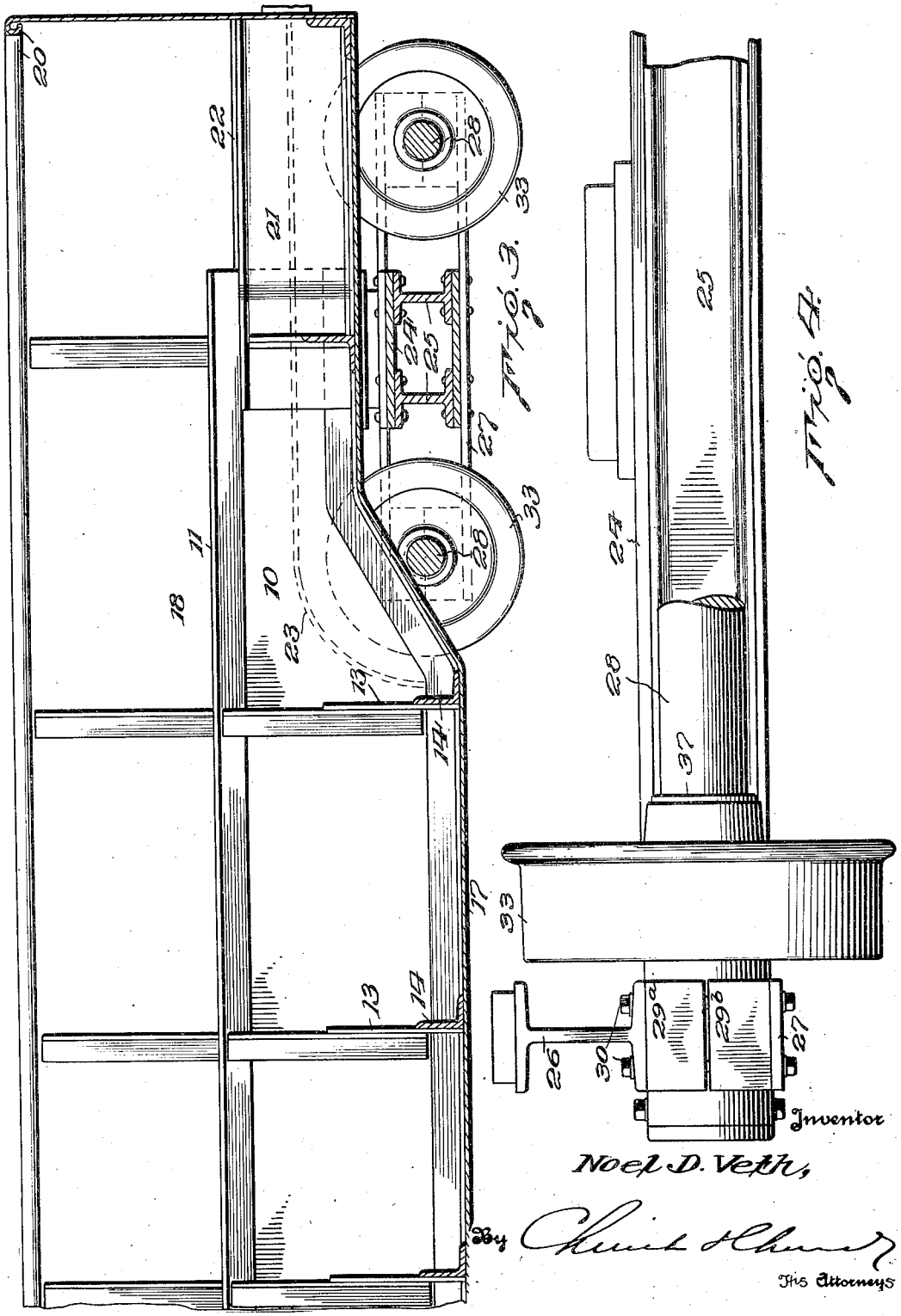


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Fig. 5.

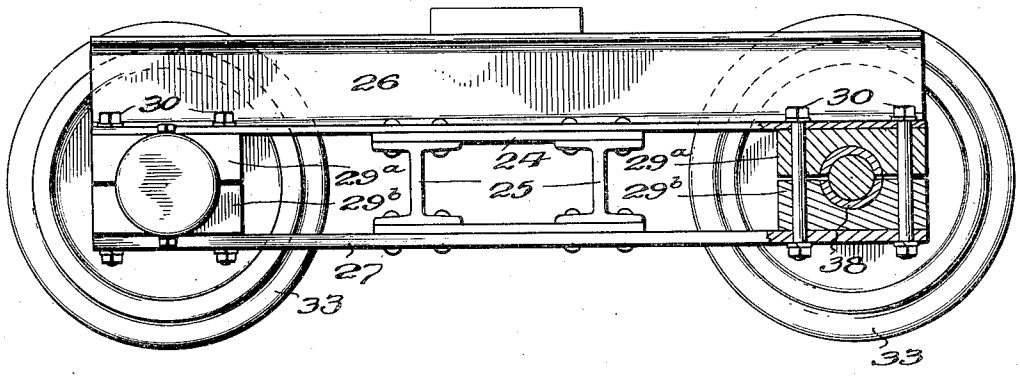
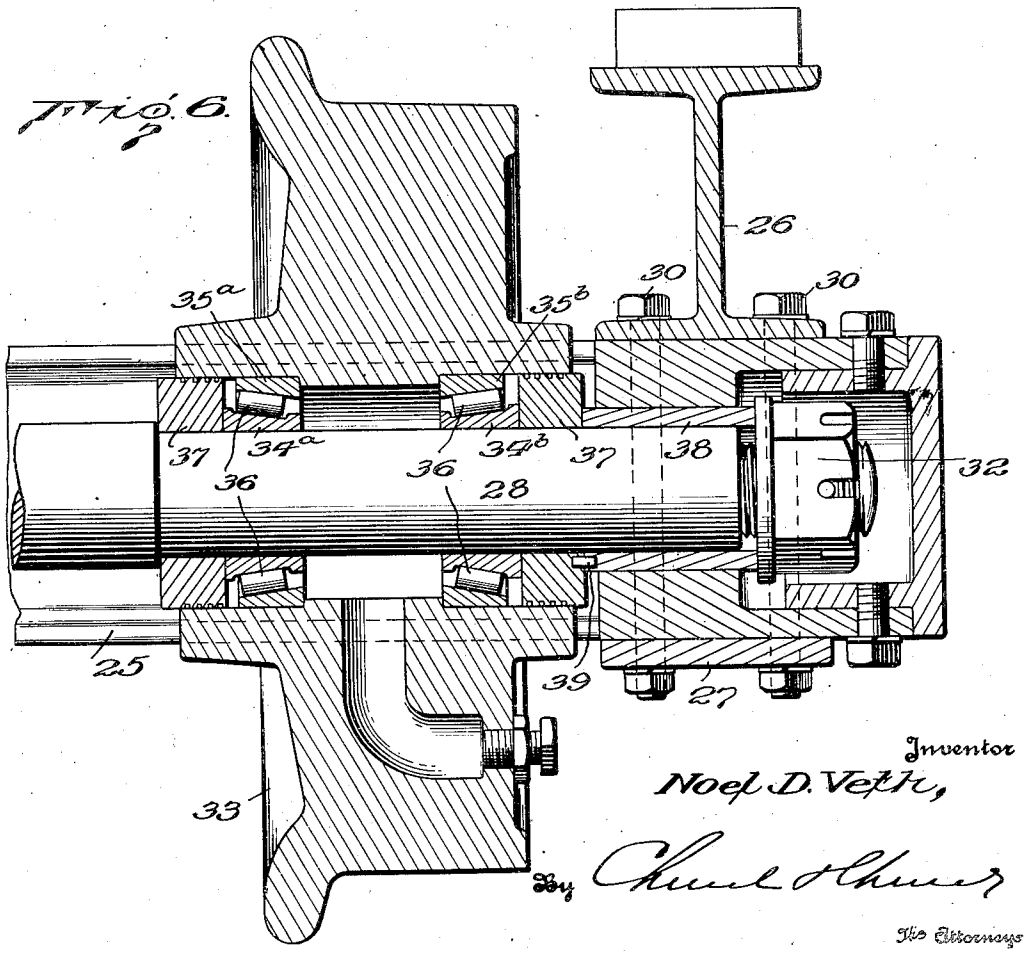


Fig. 6.



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UNITED STATES PATENT OFFICE

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MINE CAR

Application filed October 21, 1930. Serial No. 490,303.

This invention relates to improvements in industrial cars, such as mine cars and quarry cars.

In its broadest aspect, the invention seeks to provide a mine car or other type of industrial car having a maximum volume content while keeping the car within certain limits so far as its over-all dimensions are concerned. For instance, in mining operations, a car must not exceed a certain height and it is also limited as to width. There must also be a certain amount of clearance between the tracks on which it runs and the bottom of the car. In view of these limitations, the invention has for some of its objects, a car wherein the plates or other members constituting the car bottom are themselves located as near the tracks as possible so as to gain the maximum depth within a limited height and wherein, the various supporting and reinforcing elements for the car bottom and sides are all located within the car itself. This not only adds to the depth of the body but also results in an increase of the width of the body while still maintaining necessary clearances at the sides.

A further object of the invention is the provision of a novel form of wheel truck that will permit the car bottom to be located as near as possible to the track.

With these and other objects in view, the invention consists in certain novel details of construction and combinations and arrangements of parts all as will hereinafter be more fully described and the novel features thereof particularly pointed out in the appended claims.

In the accompanying drawings:

Figure 1 is a side elevation of a car embodying the present improvements;

Fig. 2 is a transverse section on the line 2—2 of Fig. 1;

Fig. 3 is a longitudinal section on the line 3—3 of Fig. 2;

Fig. 4 is an end view of one of the wheel trucks;

Fig. 5 is a side view, partly in section of the truck;

Fig. 6 is a section taken axially through one of the wheels; and

Fig. 7 is a detail view of the draft gear chamber.

In accordance with the present invention, the car body is mounted on trucks located at opposite ends of the body. In this way, the central longitudinal portion of the body may be made of a considerably greater depth; it only being required that the end portions of the body be elevated to accommodate the trucks. However, in the present instance, these end portions are of a maximum depth by reason of the fact that the bottoms of said ends are located well below the upper peripheral portions of the wheels. To obtain these results, which give a maximum capacity to a car of limited over-all dimensions, a novel form of truck and wheel mounting are provided and, in conjunction therewith, a novel body construction is utilized in that there are no projecting elements on the sides and bottom of the car. All of these several features serve jointly with one another to gain the desired result, i. e., maximum capacity.

In the preferred construction illustrated, the car body consists essentially of a central longitudinally extending plate member 10 properly reinforced to withstand strains or stresses imposed thereon by reason of the fact that the remainder of the car body is supported therefrom. As shown in Figs. 1 to 3, this plate 10 is reinforced on each side by longitudinal angle irons 11 and longitudinally spaced, vertically disposed angles 12. Secured to each angle 12 is a gusset plate 13 to which is fastened a horizontal, transversely extending angle 14. Secured to the outer ends of the several angles 14 are gusset plates 15 and secured to said gussets are vertically disposed angles 16. The plates constituting the bottom 17 of the body are secured to the angles 14 and secured to the vertical angles 16 are the plates constituting the sides 18 of the car. To further strengthen the construction, angles 19 are placed in the junction points or corners between the bottom and sides, and the upper edges of the sides are rolled inwardly as at 20.

For accommodation of the draft gear, offset channel members 21 are secured to oppo-

site sides of each end of plate 10, the space between each pair of channels being covered by a plate 22 to form a housing for said gear.

As before mentioned, the end portion of the car bottom is slightly elevated. Consequently, the plate 10 is of reduced height or depth at these points as shown in Fig. 3. The end portions of the car bottom are also provided at their sides with wheel housings 23 for accommodation of the wheels because, as will later appear, the car bottom between these housings is located in a plane below the upper peripheral portions of the wheels.

On the under surface of the car bottom, at each end, there is a center plate 24 adapted to be suitably mounted on a wheel truck. Preferably, these trucks are so constructed that the central portions of the car bottom, at the ends, will be as low as possible so that the depending portion of the bottom between the ends will be as close to the ground or tracks as possible, allowing for necessary clearances beneath the car. To this end, each truck comprises a pair of transverse bolster beams 25 on which the center plate is supported. At their ends, these bolster beams 25 are secured between the side members of the truck, said side members preferably taking the form of an I-beam 26 above the bolsters and a tie bar 27 below. Mounted between side members 26, 27 are the axle boxes for wheel axles 28. These boxes are composed of sections 29*a*, 29*b* secured together by bolts 30, the interior of the boxes being large enough to accommodate nuts 32 screwed on the ends of the axles 28. For each wheel 33, there is mounted on the axles a pair of raceways 34*a*, 34*b* and each wheel is provided with raceways 35*a*, 35*b*, the cooperating raceways having interposed between them, anti-friction elements 36. Surrounding the axles and abutting the raceways 34*a* are annular members 37, which are, in turn, engaged by split sleeves 38 surrounding the axles at points between the axle box sections. Annular member 37, is locked in position relative to split sleeve 38, by square key 39; said key engages slot in annular member and slot in split sleeve. The object of said key being to eliminate any possibility of member 37 rotating on axle 28 while car is in motion. With such a construction, the bearings for the wheels are readily adjustable by the nuts 32 on the axles during assembly of the truck. That is, before the axle box sections are clamped together, nuts 32 can be turned and their motion longitudinally of the axle transmitted to the bearings by sleeves 38 after which the sleeve is clamped in its adjusted position by securing the box sections together. After the axle boxes are assembled, the I-beam 26 and tie rod 27 are secured in place. This form of truck, in combination with the novel body construction permits the car ends to be mounted well below the upper peripheral portions of the wheels and the central portion of the car quite close to the tracks. Also, to obtain necessary clearance beneath the car, it will be noted that there are no projecting elements on the exterior surface of the body as all the stiffening members are mounted on the interior. Therefore, in a car of limited overall dimensions, a maximum volume capacity is obtained.

What I claim is:

1. In an industrial or mine car, the combination of a wheel truck at each end comprising bolster beams located in a plane below the upper peripheral portions of the truck wheels, and a car body supported at its ends on said bolster beams with the bottom of car bottom between the two trucks located in a plane below its said end portions.

2. In an industrial or mine car, the combination of a car body with the ends thereof in a plane above its intermediate portion, and a wheel truck supporting the elevated end portions, each truck including a pair of axle boxes at each side of the truck, axles mounted in said boxes, wheels on said axles, longitudinally extending beams secured to the top and bottom surfaces of each pair of boxes, and bolster beams for supporting the car body mounted between the longitudinally extending beams.

3. In an industrial or mine car, the combination of a car body with the ends thereof in a plane above its intermediate portion, and a wheel truck supporting the elevated end portions, each truck including a pair of axle boxes at each side of the truck, axles mounted in said boxes, wheels on said axles, longitudinally extending beams secured to the top and bottom surfaces of each pair of boxes, and bolster beams for supporting the car body mounted between the longitudinally extending beams, said bolster beams being below the upper peripheral portions of said wheels.

4. In an industrial or mine car, the combination of a car body, and a wheel truck at each end of said body, each truck comprising a pair of wheels at each side thereof, axles for said wheels, axle-boxes, longitudinally extending beams secured to said boxes, and transverse bolster beams mounted on the longitudinal beams for supporting the car body with the bottom of said body lying below the upper peripheral portions of said wheels.

5. In an industrial or mine car, the combination of a car body having the end portions of its bottom in a plane above the intermediate portion of said bottom, a wheel truck supporting each end portion, wheels on said trucks, the transverse central portion of the ends of the car bottom lying below the upper peripheral portions of said wheels, and wheel housings at the side of said transverse central portions.

6. In an industrial or mine car, a truck

comprising a pair of axles, wheels on said axles, raceways and antifriction elements interposed between each wheel and its axle, bushings on said axles operatively associated with said raceways, means for adjusting said bushing longitudinal of the axles to adjust said raceways, means for locking said bushings against movement on the axles, and bolster beams supported on said wheels and axles.

7. In an industrial or mine car, a truck comprising a pair of axles, wheels on said axle, raceways and antifriction elements interposed between each wheel and its axle, a bushing on said axles operatively associated with the raceways of each wheel, nuts threaded on the ends of the axles for adjusting the bushings and raceways axially of the axles, means for locking said bushings and raceways against movement, and means for supporting a car body on said axles.

8. In an industrial or mine car, a truck comprising a pair of axles, wheels on said axle, raceways and antifriction elements interposed between each wheel and its axle, a bushing on said axles operatively associated with the raceways of each wheel, nuts threaded on the ends of the axles for adjusting the bushings and raceways axially of the axles, sectional axle boxes on said axles surrounding said bushings, means for clamping said boxes and bushings on the axles, and car body supporting means carried on said axles.

9. A body for industrial cars of the mine car type comprising a vertically disposed, longitudinally extending plate, angle irons secured to and extending longitudinally of said plate at the top and bottom edges thereof, transverse angle irons supported from said longitudinal plate, a car bottom secured to the bottom surfaces of said transverse angle irons, and means connected to said transverse angles for supporting the car body sides and ends, said last mentioned means being located within the car body.

10. A car body for industrial cars comprising a vertically disposed plate extending longitudinally of the body, an angle iron secured to and extending longitudinally of the upper and lower edges of said plate, longitudinally spaced and vertically disposed angle irons secured to said plate, and means for supporting the bottom and sides of the body from the angle irons on said plate.

11. A car body for industrial cars comprising a vertically disposed plate extending longitudinally of the body, an angle iron secured to and extending longitudinally of the upper and lower edges of said plate, longitudinally spaced and vertically disposed angle irons secured to said plate, transverse angle irons supported from said vertically disposed angle irons, car bottom members supported from said transverse angle irons, and car side members supported from said transverse angle irons, all of said angle irons being located within the interior of the car body.

12. A car body for industrial cars comprising a vertically disposed plate extending longitudinally of the body, an angle iron secured to and extending longitudinally of the upper and lower edges of said plate, longitudinally spaced and vertically disposed angle irons secured to said plate, transverse angle irons supported from said vertically disposed angle irons, car bottom members on said transverse angle irons, vertical angle irons attached to the transverse irons, and car side members attached to the last mentioned angle irons.

13. A car body for industrial cars comprising a vertically disposed plate extending longitudinally of the body, longitudinal and vertical angle irons secured to opposite sides of said plate, car bottom and side members supported from said plate and a pair of channel members at each end of said plate, said channel members being offset laterally of the bottom to form a draft gear housing chamber.

14. In an industrial or mine car, a body comprising a vertically disposed plate extending along the longitudinal center of said body, means for supporting the bottom and opposite sides of said body from said plate, a truck supporting each end of said body, and wheels on said trucks.

15. In an industrial or mine car, a body comprising a vertically disposed plate extending along the longtiudinal center of said body, the sides and bottom of said body being supported from said plate, a truck beneath each end of said body and on which said body is mounted, and wheels on said trucks, the peripheries of said wheels projecting above the bottom of said body.

16. In an industrial or mine car, a body comprising a center, longitudinally extending sill, the lower edge of said sill being offset upwardly at each end thereof, a bottom for said body supported from the lower edge of said sill, side members attached to said bottom, trucks supporting the offset end portions of said sill, and wheels on said trucks.

17. In an industrial or mine car, a body comprising a central longitudinally extending sill, angle members projecting laterally from opposite sides of said sill, a bottom for said body supported from said sill and angles, body sides and ends, trucks supporting said body, and wheels on said trucks.

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