Feb. 25, 1936. W. M. SHEEHAN 2,032,186

RAILWAY CAR STRUCTURE

Filed Jan. 5, 1934

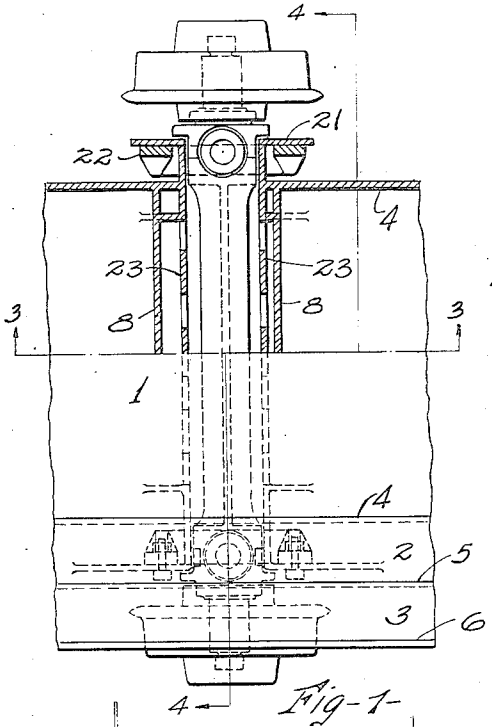


Fig-1-

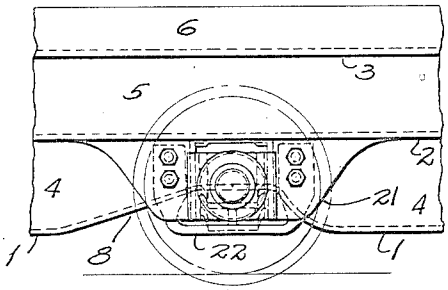


Fig-2-

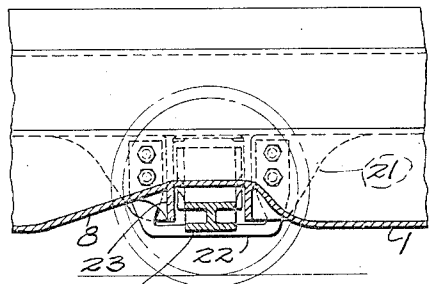


Fig-3-

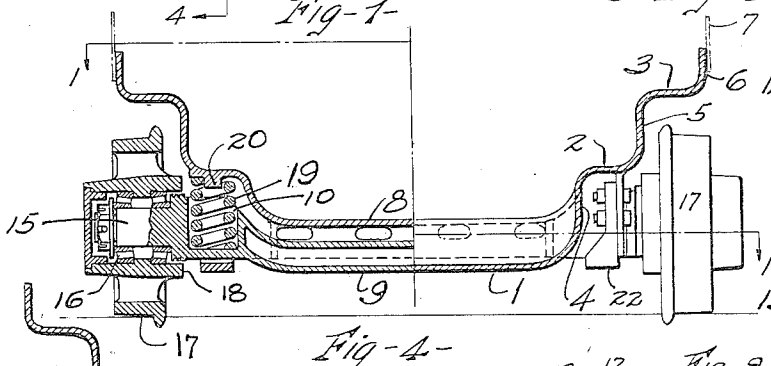


Fig-4-

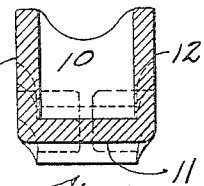


Fig-7-

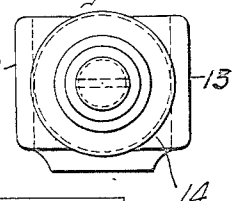


Fig-8-

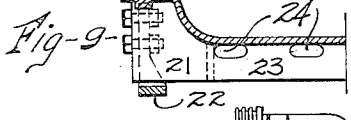


Fig-9-

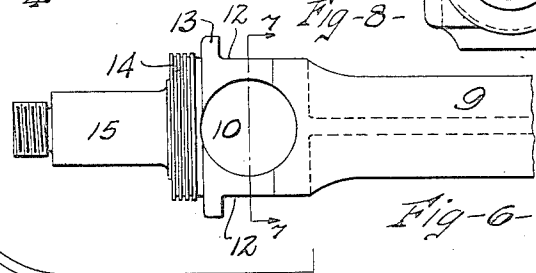


Fig-6-

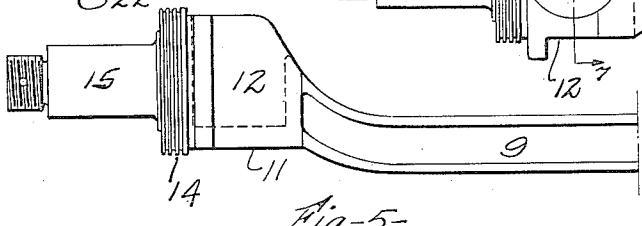


Fig-5-

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RAILWAY CAR STRUCTURE

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Application January 5, 1934, Serial No. 705,304

15 Claims. (Cl. 105—364)

The invention relates to railway rolling stock and is particularly adapted for use in mine car structures in which acute problems are present involving the provision of as large a capacity as possible within given over all dimensions of the car. These dimensions are established by the sizes of tunnels, track clearances, dumping equipment, and other surrounding circumstances, and may not be exceeded. The cubic capacity of the car determines the efficiency of the transportation of coal or other material from the mine and any increase in capacity is of substantial advantage. Furthermore, cars of this type are subjected to hard usage due to the roughness of the tracks and other circumstances, and simple, rugged construction is of advantage.

The main object of the invention is to increase the capacity of a car of the type described by mounting it upon wheel and axle structure in a manner which permits the car floor to closely approach the wheel, axle and rails.

Another object of the invention is to yieldingly support the car body upon the car axles and wheels by simple effective structure which does not substantially affect the capacity of the car or increase its cost.

Other objects of the invention are to exclude dirt from the wheel bearings and to mount the body on springs located very close to the wheels.

These and other detailed objects are attained by the accompanying drawing in which:—

Figure 1 is in part a top view and in part a longitudinal section through a portion of a mine car body showing an axle and pair of wheels mounted thereon. The view is taken on line 1—1 of Figure 4.

Figure 2 is a side elevation of the structure shown in Figure 1.

Figure 3 is a vertical longitudinal section taken on the line 3—3 of Figure 1.

Figure 4 is a vertical transverse section taken on the line 4—4 of Figure 1.

Figure 5 is a side view of one-half of the axle and is drawn on an enlarged scale.

Figure 6 is a top view of the same.

Figure 7 is a vertical transverse section on the line 7—7 of Figure 6.

Figure 8 is an end view of the axle.

Figure 9 is a detail section corresponding to the left hand side of Figure 4 with the axle, spring and wheel removed to more clearly illustrate another feature of the structure.

The main portion of the car body preferably is formed of a one-piece web member comprising a middle floor portion 1, intermediate elevated portions 2 and further elevated side portions 3. These portions are connected by substantially upright sections 4 and 5 and the web terminates in upright sections 6 upon which the upright walls 7 are mounted. The middle floor portion 1 is recessed intermediate its ends as indicated at 8 to clear the middle portion 9 of the axle, which axle portion is of shallow I-shaped section throughout the width of floor portion 1.

Adjacent each side of floor portion 1 the axle curves upwardly and forms an open top box-like structure 10 having bottom wall 11 and flat exterior sides 12. The outer end wall of the member 10 projects at 13 beyond each of the sides 12 and includes a deeply grooved circular periphery 14. A spindle 15 projects from the end wall of structure 10 and mounts a roller bearing assembly 16 upon which the wheel 17 rotates. The interior periphery of the wheel hub 18 fits over the periphery 14 and cooperates with the grooves in the latter to form a dust seal for protecting the roller bearing unit 16.

A coiled spring 19 is seated in box 10 and supports the car body and its load by direct engagement with the elevated portion 2 of the floor, the latter being provided with a boss 20 for positioning the spring.

Pedestal jaws 21 depend from the floor web along each side 12 of the axle and guide the same in its movement. An axle-retaining strap 22 is connected to the pedestal jaws 21 and extends beneath the portion of the axle containing the spring seat or housing.

The floor web is reinforced adjacent the axle by depending ribs 23 which may be perforated at 24 to lighten the structure and to facilitate its manufacture.

Preferably the floor web and axle are each formed of cast metal structure whereby the unique shaping of the parts is readily obtained and all metal may be disposed in a manner to secure the desired result without adding unnecessary weight at points where a great amount of metal is not required.

While the invention is illustrated as applied to a relatively simple mine car structure, it is to be understood that the invention may be used with swivel trucks both of the pedestal type and the side frame type and in other railway car constructions where similar axle, spring and wheel mounting assembly would be practical.

The details of the structure may be modified substantially without departing from the spirit of the invention and the exclusive use of such modifications is contemplated.

I claim:

1. In a railway vehicle axle, an open top housing structure extending substantially throughout the depth of the axle for seating a load supporting spring, and a wheel mounting part adjacent said housing structure.

2. In a railway vehicle axle, a hollow box-like portion forming an open top pocket structure for housing a load supporting spring, the sides of said structure being arranged to engage pedestal jaws, there being a wheel mounting part adjacent said structure.

3. A railway vehicle axle comprising wheel mounting parts, housings for body supporting springs located at substantially the same level as said parts, and vertical side faces located at said level for directly receiving longitudinal forces transmitted to and from the wheels by the vehicle body.

4. A railway vehicle axle including end portions for rotatably mounting supporting wheels, there being parts immediately adjacent and in substantially horizontal alinement with said portions forming housings for body supporting springs and having side walls for directly receiving longitudinal forces transmitted thereto by said body.

5. In a railway vehicle axle, an open top housing structure for receiving and seating a load supporting spring, opposite sides of said structure being arranged to engage pedestal jaws, and a wheel mounting spindle projecting from said structure intermediate said sides and above the spring seat in said structure.

6. A railway vehicle axle comprising an intermediate portion, relatively elevated portions at the ends of said intermediate portion having open top spring receiving chambers extending substantially the entire depth of said elevated portions, and wheel mounting portions extending outwardly from said chambers.

7. A railway vehicle axle comprising an intermediate portion having an I-beam cross section, spring mounting portions of open top box section at the ends of said intermediate portion, and wheel mounting portions of round section extending outwardly from said spring mounting portions.

8. In combination, a railway vehicle axle having an open top box-section with an upright side wall portion having a circular periphery, there being a spindle projecting from said wall portion, a load supporting spring housing in said section, and a wheel mounted on said spindle with its hub extending over said periphery and terminating adjacent to said spring.

9. In a railway vehicle, framing including pedestal jaws, and an axle including wheel mounting parts and portions located between said parts and the middle of the axle slidably engaging said jaws and framing supporting springs housed between oppositely facing pedestal engaging portions of said axle.

10. In a railway vehicle, a body floor having a middle portion and an elevated side portion adjacent thereto, an axle with its intermediate part extending beneath said middle portion with its end portion offset upwardly, to more closely approach said elevated side portion and arranged to mount a vehicle wheel, and a spring seated in the axle near the level of its intermediate part for directly supporting said elevated floor portion.

11. In a railway vehicle, a body floor having a middle portion, an elevated intermediate portion and a still further elevated side portion, an axle extending beneath said floor middle portion and offset upwardly beneath said floor intermediate portion and terminating in a spindle beneath said elevated floor side portion, a spring housed in said axle supporting said intermediate floor portion on said axle and a wheel mounted on said spindle beneath said floor side portion.

12. In a railway vehicle, a floor forming web having depending pedestal jaws, an axle beneath said web having a wheel mounting part and elements slidably engaging said jaws and having a pocket between said elements, a spring housed in said pocket and supporting said web, and a retaining strap secured to said jaws and passing under said axle beneath said pocket.

13. In a railway vehicle axle, a wheel mounting part, and an open top pocket structure extending substantially throughout the depth and width of the axle for housing a load supporting spring.

14. In a railway vehicle, an axle, a wheel mounted thereon, a spring housed in said axle and extending substantially throughout the width and depth of said axle, and a vehicle frame yieldingly supported on said axle by said spring.

15. In a railway vehicle, an axle having wheel mounting spindles at its ends, upwardly opening housings adjacent said spindles and a depressed portion intermediate said housings, springs substantially the same depth as said axle mounted in said housings and extending slightly above the same, and a frame closely paralleling the upper face of said axle with its central part below the level of the tops of said springs and the end portions of said axles and with its side portions resting directly on said springs.

WILLIAM M. SHEEHAN.