United States Patent [19]

Teoli

[11] **3,713,400**

[45] **Jan. 30, 1973**

[54] **RAILWAY CAR**

[76] Inventor: **Anthony Teoli,** 174 Sunderland Avenue, Pointe Claire, Quebec, Canada

[22] Filed: **June 29, 1970**

[21] Appl. No.: **50,807**

[30] **Foreign Application Priority Data**

April 14, 1970 Canada.....080117

[52] **U.S. Cl.**.....**105/406 R,** 105/422, 180/5 A

[51] **Int. Cl.**.....**B61d 17/10,** B61d 15/00

[58] **Field of Search**...180/5 A; 105/358, 360, 406 R, 105/413, 422

[56] **References Cited**

UNITED STATES PATENTS

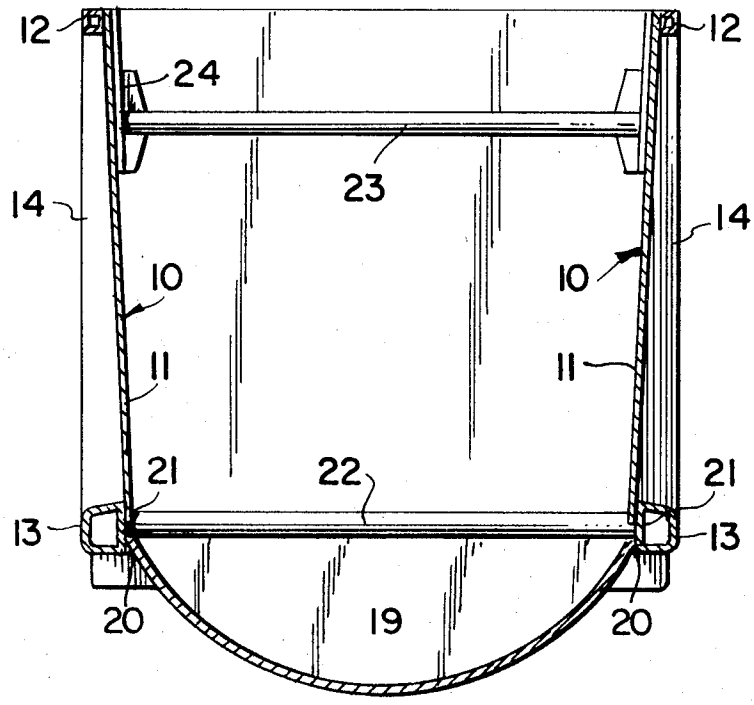
3,240,168	3/1966	Charles et al.	105/406 R
2,078,939	5/1937	Ferguson	105/360
3,475,809	11/1969	Brown	105/358

Primary Examiner—Gerald M. Forlenza
Assistant Examiner—Richard A. Bertsch
Attorney—Smart & Biggar

[57] **ABSTRACT**

A gondola type railway car has a bottom plate of parabolic shape extending down between the wheel assemblies or trucks of the car and free of external and internal reinforcement, giving maximum capacity with minimum car weight.

5 Claims, 2 Drawing Figures



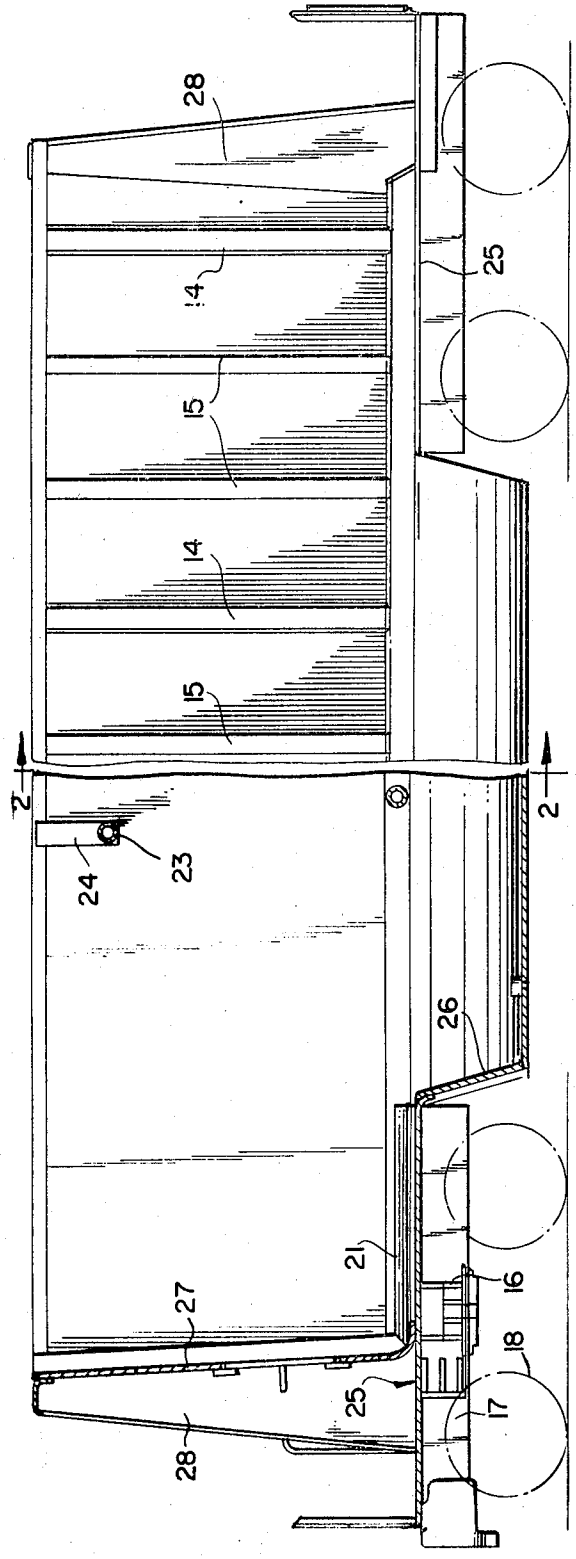


FIG. 1.

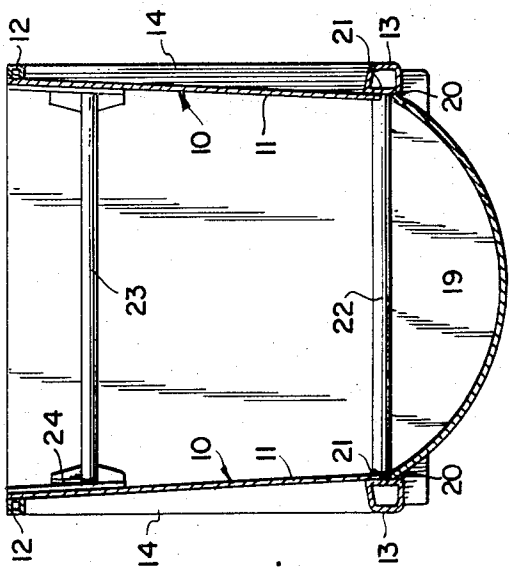


FIG. 2.

INVENTOR
ANTHONY TEOLI
By: Smart & Biggar
ATTORNEYS

RAILWAY CAR

BACKGROUND OF THE INVENTION

This invention relates to railway cars and more particularly to a railway car of the open gondola type in which lading is loaded and unloaded from the open top.

Gondola cars are normally employed to carry bulky materials, such as coal, sand, gravel, steel structures and the like. Such gondola cars usually have a continuous center sill structure extending the length of the car which limits the capacity of the car and produces a relatively high center of gravity in the loaded car as well as increasing the weight of the car.

It is an object of the present invention to provide an open gondola type railway car which does not employ a continuous center sill structure extending the length of the car and has a minimum height center of gravity for the loaded car.

An additional object of this invention is the provision of such a railway car which has a relatively smooth unobstructed interior and is particularly adapted for rotary unloading with a highly effective clean-out of the car.

A further object of this invention is the provision of a gondola type railway car having a maximum volume or capacity within minimum height, length and weight ranges.

Briefly described, the gondola type railway car of the present invention comprises connected sides and ends with an open top, an end stub center sill structure at each end of the car over an associated wheel assembly, and a dropped center portion between the stub center sill structures.

DESCRIPTION OF THE PRIOR ART.

Prior attempts have been made to achieve the objects of the present invention. In U.S. Pat. No. 3,240,168, issued Mar. 15, 1966, to A. F. Charles et al., for example, a gondola car is described which has end stub center sills over wheel assemblies and between the latter a pocket is defined by a trough-shaped plate formed of a plurality of sections welded together and secured to end plates. Transverse stiffeners of channel shape are spaced longitudinally along the plate and follow the outer surface of the plate between the side sills of the car.

SUMMARY OF THE INVENTION

The main difference between the car disclosed in that U.S. patent and a car according to the present invention lies in the use of a parabolic bottom plate rather than the trough-shaped plate. The parabolic plate eliminates the need for external reinforcing such as the transverse stiffeners called for in the aforesaid U.S. patent. When a car according to the present invention is loaded with coal, the pressure of the coal stabilizes the contour of the parabolic plate or sheet. From an engineering point of view the sheet functions very efficiently and does not require reinforcing because it is subjected only to tensile stresses in a modified hoop stress manner. The of the reinforcement at the bottom of the car, of course, makes for a lighter-weight car then hitherto thought possible.

Another feature in a car according to a preferred embodiment of the invention is an obstruction-free interior which permits free-flow of the lading. The side posts and other upper structural members are all located on the outside of the car shell. The sides and ends are tapered, all square corners are rounded, and these features combined with the rounded bottom assure rapid evacuation of the load with little or no residue left in the car.

BRIEF DESCRIPTION OF DRAWINGS

An embodiment of the invention will now be described by way of example, with reference to the accompanying drawings, in which:

FIG. 1 is a side elevation, partly in section and partly broken away, of a gondola car embodying the invention; and

FIG. 2 is a section taken on the line 2—2 of FIG. 1.

DETAILED DESCRIPTION

The car has downwardly converging side panels **10** made of reinforced sheet material **11**, secured at the top to box section side plates **12** and at the bottom to box section side sills **13**. Channel section side posts **14** and stiffeners **15** extend between beams **12** and sills **13**.

At the respective ends of the car the sills **13** are seated upon body bolsters **16** that are united to end stub center sills **17**. Wheels **18** are secured to body bolsters **16** and are adapted to rest upon the car trucks (not shown). Between the trucks a bottom sheet **19** in the form of a parabolic curve is welded, by continuous welding, to protruding flanges **20** and faces **21** of the box section side sills **13**. To prevent lateral movement of the side panels, tubular spacers **22** and **23** are welded, at spaced intervals, to the side sills **13** and to reinforcing members **24** secured adjacent to the top edges of the side panels. The ends of the pocket formed by the parabolic sheet are closed by sloping sheets **26** welded thereto and which terminate at and are secured to shear plates **25**. The respective ends of the car are closed by downwardly converging panels **27** which are secured to the side panels **10** by welding. The said end panels are strengthened by diagonal braces **28**.

The car is provided in known manner with rotary coupling means, which need not be described in detail.

Small, curved plates **29** are welded into the corners where the side panels **10** and end panels **27** meet and where those panels meet the decks **25**.

What I claim as my invention is:

1. An open top gondola railway car comprising,
   a closed bottom,
   a pair of generally vertically extending end panels,
   a pair of generally vertically extending side panels, said bottom, said side panels and said end panels being connected together to form the open top gondola car,
   reinforcing means for reinforcing said side panels, said reinforcing means comprising a pair of side sills extending for the length of the car, one on each side thereof, and stiffener means operatively connected to the sills and extending vertically upwardly therefrom for stiffening the side panels,
   a pair of end stub center sills located one at each end of the car along the longitudinal center line thereof, and each end center sill supporting its respective end of the car, a pair of wheel assemblies located one at each end of the car, each end

stub center sill resting on one of said wheel assemblies,

said bottom including a bottom sheet connected along its longitudinal edges to the bottoms of the side panels, extending downwardly between the wheel assemblies, and being parabolic in shape, taken in a plane transverse to the longitudinal direction of the car, in both its unloaded and its loaded condition,

said bottom sheet being free of external and internal reinforcement, thus permitting its parabolic shape to be stabilized by loads within the car which subject the bottom sheet only to tensile stresses in a modified hoop stress manner,

and means for interconnecting said end stub center sills to said side sills for force transmission therebetween such that end compressive forces exerted on the ends of the gondola car on either end stub center sill in a longitudinal direction of the car are transmitted along the length of the car to the other end stub center sill substantially through said side sills, substantially bypassing said parabolic bottom sheet.

2. A gondola type railway car as claimed in claim 1, wherein said side sills are on the outside of said side panels.

3. A gondola type railway car as claimed in claim 2, said reinforcing means including box section side plates at the tops of said side panels, on the outside thereof, and vertically extending reinforcing members secured to said side sills and said side plates.

4. A gondola type railway car as claimed in claim 3, wherein said end panels are tapered downwardly, said side panels converge downwardly and curved plates are secured in the corners where said end and side panels meet each other and where said side and end panels meet end decks of the said car bottom above said wheel assemblies.

5. A gondola type railway car according to claim 1, wherein said bottom also includes transversely extending end sheets secured to the longitudinal ends of the bottom sheet and connecting the same to the remainder of the said bottom.

* * * * *