W. T. MANNING.

FREIGHT CAR.

APPLICATION FILED NOV. 27, 1915.

1,200,382.

Patented Oct. 3, 1916.

3 SHEETS—SHEET 1.

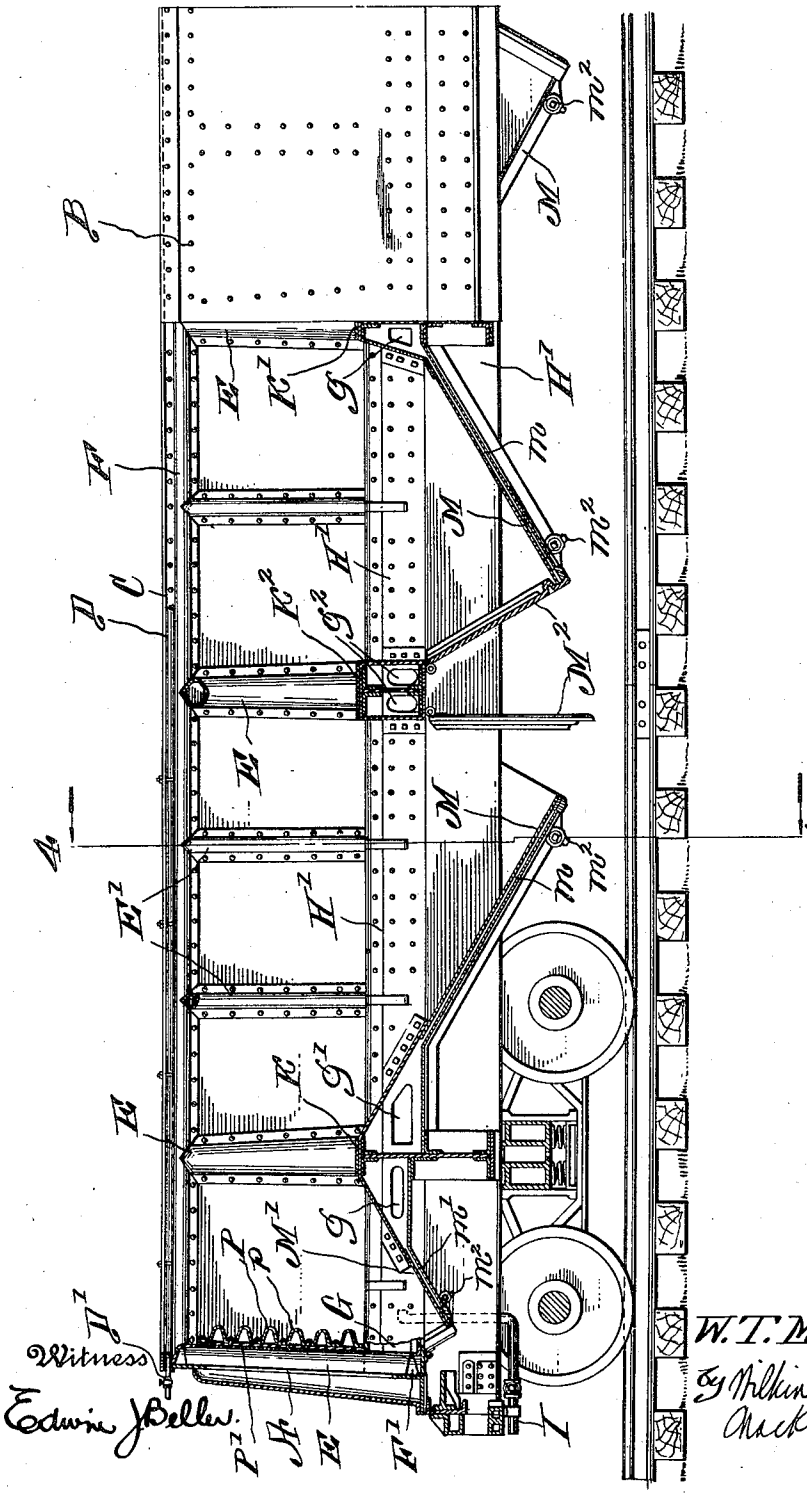


Fig. 1.

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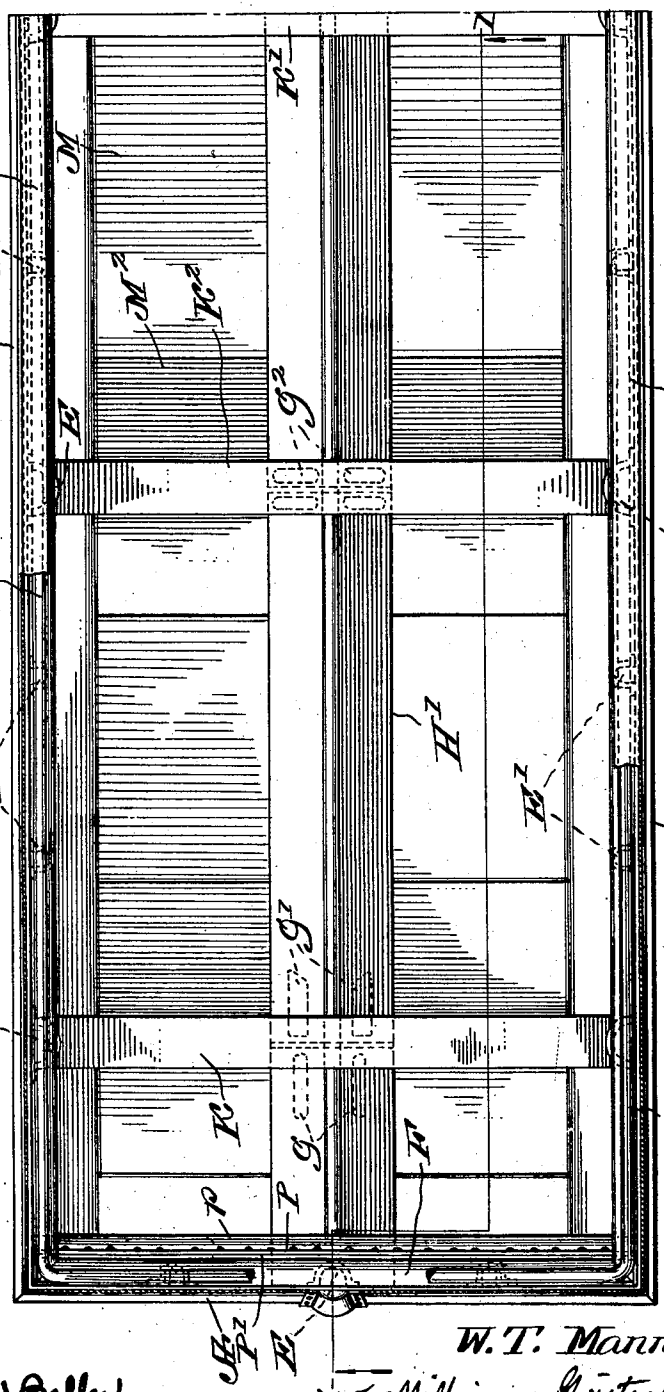


Fig. 2.

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3 SHEETS—SHEET 3.

Fig. 3.

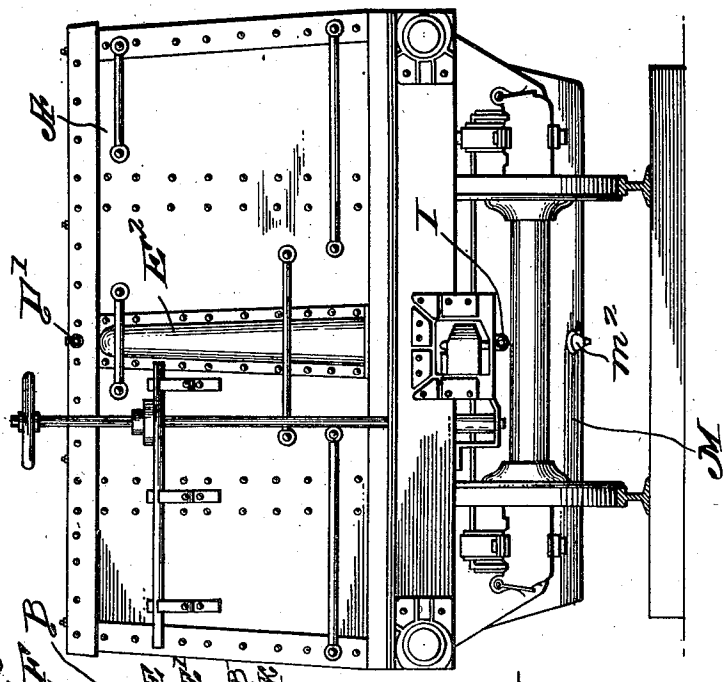
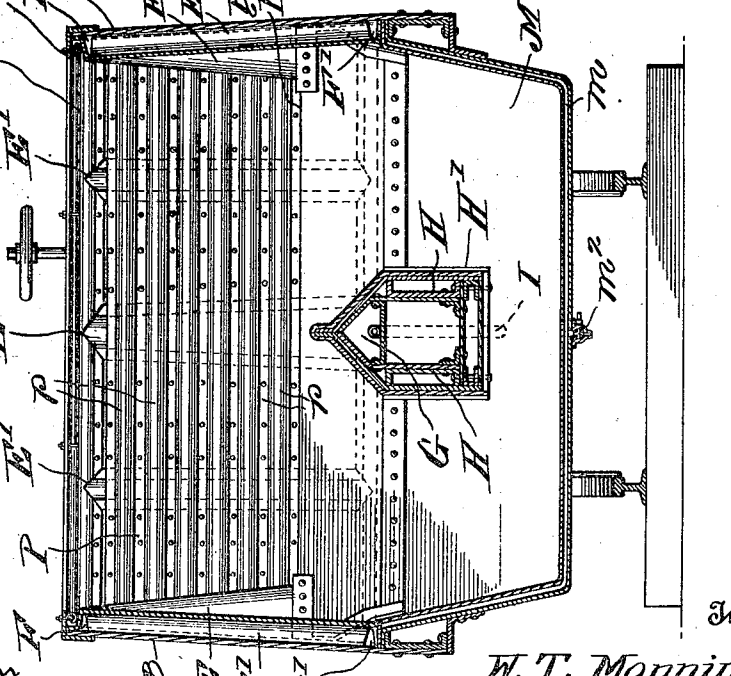


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM T. MANNING, OF GOVANS, MARYLAND.

FREIGHT-CAR.

1,200,382. Specification of Letters Patent. Patented Oct. 3, 1916.

Application filed November 27, 1915. Serial No. 63,808.

To all whom it may concern:

Be it known that I, WILLIAM T. MANNING, a citizen of the United States, residing at Govans, in the county of Baltimore and State of Maryland, have invented certain new and useful Improvements in Freight-Cars; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My present invention relates to improvements in the construction of freight cars, and it consists in providing a car especially adapted to be emptied quickly and cheaply, and also adapted to furnish a reduced resistance to atmospheric pressure on the moving car, and to render the car more immune from injury from side-wipes.

It is well known that in the present types of metal cars, especially the open cars carrying coal and ore, there is a chemical action between the material loaded in the car and the metal sides of the car, causing the formation of cake or scale, which not only eats into the walls of the car, but also renders it difficult to clean said sides, and also prevents the free passage downward of the load in the car when the hoppers are open. This is especially true when the coal or ore is wet, as from rain or snow. The difficulty of unloading the car is enormously increased when the coal or ore after becoming wet is frozen in the car, when it has to be dug out with picks, or thawed out, or both.

According to my invention I provide a form of car body having its ends and sides inclined upward and inward, so as to allow the contents of the car to fall away from the ends and sides thereof readily by gravity, and in order to thaw the contents of the car when frozen, I shift the hollow tubular bracing of the sides of the car from the outside to the interior thereof, and I connect the same to suitable passages provided over the beams and sills, and in the hoppers at the bottom of the car; the whole forming a steam space into which steam may be admitted from the engine, or from any other convenient source of supply. In this way, the already existing parts of the car are utilized, with or without slight modifications, to constitute a steam reservoir into which steam may be turned, and which will effectually heat the material in the interior of the car and quickly thaw out the same when frozen. Incident to removing the tubular bracing from the exterior to the interior of the car, the plane sides of the car do not offer such projecting surfaces to wind pressure when the car is in motion as if this bracing were on the exterior of the car; while at the same time the sloping ends of the car will tend to deflect the air upward when the car is in motion, causing a still further decrease of wind resistance. Furthermore, by having the sides of the car plane there will be no projecting ribs to strike, or to be struck by a train, or objects protruding on adjacent tracks, and the car is less liable to injure or to cause injury from side-wipes, which are a frequent source of trouble in railroading. Furthermore, the shifting of the side braces to the interior of the car will enable the side walls of the car to be spaced farther apart, or the interior of the car body to be widened without increasing the prescribed overall width of the same. This will materially increase the cubical capacity of the car, and thus will enable the car to carry larger loads, or to be decreased in height, if it be desired not to increase the cubical contents of the car. The decrease in height will, of course, lower the center of gravity of the car body and its load. As an incident to the sloping ends and sides of the car body, these may be much more readily kept clean, or cleaned off if used with coal or ore, and the car is thus especially adapted for use with return freight.

As a special feature of the invention I provide hoppers extending entirely across the bottom of the car with doors for opening the same.

My invention is especially intended to cover certain features not claimed in my Patent No. 1,146,728, granted July 13, 1915, and entitled Improvements in freight cars, and also to cover certain improvements on the structure shown in said patent.

My invention will be understood by reference to the accompanying drawings, in which the same parts are indicated by the same reference symbols throughout the several views.

Figure 1 is a sectional elevation of one of the improved cars, part being in elevation and part being in section along the broken line 1—1 of Fig. 2, and looking in the direc-

tion of the arrows; Fig. 2 is a plan view of the car body shown in Fig. 1; Fig. 3 is an end view of the car body shown in Figs. 1 and 2; and Fig. 4 shows a section along the line 4—4 of Fig. 1, and looking in the direction of the arrows.

A—A represent the ends of the car and B—B represent the sides thereof, which ends and sides are inclined slightly inward toward the center of the car, thus forming a slanting structure from which any load in bulk in the car, such as coal, ore, gravel, or the like, would tend to fall away and thus facilitate the unloading of the car, and also facilitate the keeping of the inner walls clean.

The top of the sides and ends of the car is preferably provided with a molding C, broken away in Fig. 2, beneath which I provide a pipe D, see Figs. 1, 2 and 3, having perforations along its bottom so as to permit the blowing in of air or water through the inlet D′, see Figs. 1 and 3, whereby the inside of the walls of the car may be blown or washed free of fine particles of coal dust, ore, or the like.

The sides and ends of the car are provided with a series of internal hollow braces E and E′, and outside of the car an additional brace E^2 may be provided. These braces E and E^2 are preferably tapered upward so as to form knees or stanchions to brace the side and end walls of the car. These braces E and E′ are connected to a series of hollow longitudinal braces F and F′, running longitudinally of the sides of the car body near the top and bottom thereof, and running across the interior of the ends, as shown in Figs. 1 and 4; and the interior of these hollow braces is connected to the interior of the braces F and F′ so as to form a continuous steam passage throughout this hollow bracing as shown in Fig. 1. This continuous steam chamber is connected to a steam chamber G above the car sill H, see Fig. 4, and steam is supplied to this chamber through the pipe I. This chamber G is connected by the openings g and g', see Fig. 1, to the steam passages beneath the cross beams K and K′, which are connected to the knees E, and also by the openings g^2 in the passage beneath the cross beam K^2. The openings g and g' are also connected to the steam spaces m and m', between the double bottoms of the hoppers M and M′, which double bottoms are provided with drain cocks m^2 to carry off the water of condensation. These hoppers are closed by doors M^2 which doors are slotted in their upper central portions and fit snugly against the sides and bottom of the main sill when the door is in the closed position, and leave a free opening under the main sill when the door is in the open position, as shown in Fig. 1. It will be noted that the doors are hinged to the tops of the main sills so as to leave a large opening for the dumping of the contents of the car when the door is allowed to fall to the open position. The controlling of the doors being well known in the art, and being fully described in my Patent No. 1146728, granted July 13, 1915, aforesaid, will not be further described herein.

It will be noted that the large hoppers M in the bottom of the car extend entirely across the car body, and underneath the housing H′ surrounding the main sill H, as shown in Fig. 4. By having these hoppers extending entirely across the car body, and underneath the main sill of the car, when the hopper doors are open the material in the car will not tend to choke in the hopper, as occurs where double series of hoppers are provided, one on each side of the main sill; the space under the main sill permitting coal, ore, or similar material in the car to fall freely inward, thus relieving the congestion at the lower end of the hopper. By turning steam into the continuous steam chamber provided in the bracing of the car, and above the sills and cross beams, as described, if the material of the load is frozen it will be quickly thawed out and can be dumped without the necessity of prying the same out with picks, slice bars, or the like. By having the tops of the cross beams K, K′ and K^2 flat, as shown in Fig. 2, lumber may be loaded into the car without injuring the parts below, and also these cross beams may be used to support a suitable temporary flooring which may be put in the car when the latter is used for transporting various kinds of loads requiring such flooring.

In loading logs, or lumber onto the car, there is apt to be at times considerable end thrust, by which the bracing on the ends of the car might be damaged; and again in coupling up a car so loaded there is apt to be considerable end thrust of the load on the end of the car, and to protect against this I provide buffer plates P, such as shown in Figs. 1, 2 and 4. These buffer plates consist of a plate provided with corrugations p secured to a backing plate P and extending across the end of the car as shown in Figs. 1, 2 and 4. Any other suitable means for protecting the ends of the car against injury of the character described may be adopted if desired.

Various modifications might be made in the herein described construction, and in the combination and arrangement of parts which could be used without departing from the spirit of my invention.

Having thus described my invention what I claim and desire to secure by Letters Patent of the United States is:—

1. A car body provided with a main sill, a hopper having an inclined bottom project-

ing below the bottom of the main sill and extending entirely across the lower portion of the car body, and a door extending across the car body and adapted to close said hopper, said door being cut away in its center to fit the sides and bottom of said main sill when in the closed position, and being provided with hinges extending from each side of the main sill to the sides of the car, substantially as described.

2. A car body provided with a main sill, a series of transversely-disposed hoppers, each hopper having an inclined bottom projecting below the bottom of the main sill and extending entirely across the lower portion of the car body, and a door extending across the car body and adapted to close said hopper, said door being cut away in its center to fit the sides and bottom of said main sill when in the closed position, and being provided with hinges extending from each side of the main sill to the sides of the car, substantially as described.

3. A car body having a longitudinal main sill, a series of hoppers extending entirely across the car body and projecting below said main sill, and doors transversely disposed of the car and closing said hoppers, said car body being provided with hollow bracing mounted on the inside thereof, and including hollow knees tapering upward and outward, and longitudinal hollow braces, the hollow spaces of said bracing being connected together to form a continuous heating chamber, with means for supplying steam to said chamber, substantially as described.

4. A car body having a longitudinal main sill, and a series of hoppers extending entirely across the car body and projecting below said main sill, the said hoppers being provided with a double bottom with a steam chamber therein, and with doors transversely disposed of the car and closing said hoppers, said car body being provided with hollow bracing mounted on the inside thereof, and including hollow knees tapering upward and outward, and longitudinal hollow braces, the hollow spaces of said bracing and in said hopper bottoms being connected together to form a continuous heating chamber, with means for supplying steam to said chamber, substantially as described.

5. A car body having a longitudinal main sill, a series of hoppers extending entirely across the car body and projecting below said main sill, and doors transversely disposed of the car and closing said hoppers, said car body being provided with hollow bracing mounted on the inside thereof, the hollow spaces of said bracing being connected together to form a continuous heating chamber, with means for supplying steam to said chamber, and buffer plates each comprising a corrugated plate extending transversely across the end of the car and protecting the bracing thereof, substantially as described.

6. A car body having a longitudinal main sill, a series of hoppers extending entirely across the car body and projecting below said main sill, and doors transversely disposed of the car and closing said hoppers, said car body being provided with hollow bracing mounted on the inside thereof, and including hollow knees tapering upward and outward, and longitudinal hollow braces, the hollow spaces of said bracing being connected together to form a continuous heating chamber, with means for supplying steam to said chamber, and buffer plates each comprising a corrugated plate extending transversely across the end of the car and protecting the bracing thereof, substantially as described.

7. A car body having a longitudinal main sill, and a series of hoppers extending entirely across the car body and projecting below said main sill, the said hoppers being provided with a double bottom with a steam chamber therein, and with doors transversely disposed of the car and closing said hoppers, said car body being provided with hollow bracing mounted on the inside thereof, the hollow spaces of said bracing and in said hopper bottoms being connected together to form a continuous steam chamber, with means for supplying steam to said chamber, and buffer plates each comprising a corrugated plate extending transversely across the end of the car and protecting the bracing thereof, substantially as described.

8. A car body having a longitudinal main sill, and a series of hoppers extending entirely across the car body and projecting below said main sill, the said hoppers being provided with a double bottom with a steam chamber therein, and with doors transversely disposed of the car and closing said hoppers, said car body being provided with hollow bracing mounted on the inside thereof, and including hollow knees tapering upward and outward, and longitudinal hollow braces, the hollow spaces of said bracing and in said hopper bottoms being connected together to form a continuous heating chamber, with means for supplying steam to said chamber, and buffer plates each comprising a corrugated plate extending transversely across the end of the car and protecting the bracing thereof, substantially as described.

9. A car body provided with hollow bracing mounted on the inside thereof, the hollow spaces of said bracing being connected together to form a continuous heating chamber, with means for supplying steam to said chamber, and buffer plates each comprising a corrugated plate extending transversely across the end of the car and protecting the bracing thereof, substantially as described.

10. A car body provided with hollow bracing mounted on the inside thereof, and including hollow knees tapering upward and outward, and longitudinal hollow braces, the hollow spaces of said bracing being connected together to form a continuous heating chamber, with means for supplying steam to said chamber, substantially as described.

11. A car body provided with hollow bracing mounted on the inside thereof, and including hollow knees tapering upward and outward, and longitudinal hollow braces, the hollow spaces of said bracing being connected together to form a continuous heating chamber, with means for supplying steam to said chamber, and buffer plates each comprising a corrugated plate extending transversely across the end of the car and protecting the bracing thereof, substantially as described.

In testimony whereof, I affix my signature.

WILLIAM T. MANNING.