June 26, 1962 R. S. WARNTZ 3,040,679

TUBULAR CENTER SILL FOR COVERED HOPPER AND LIKE CARS

Filed July 27, 1961

FIG. 1.

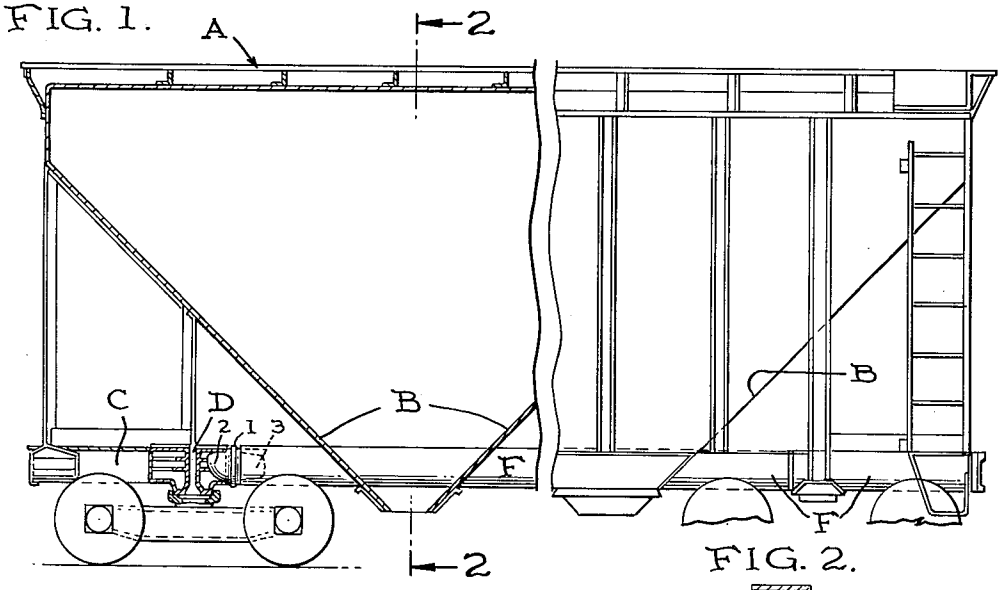
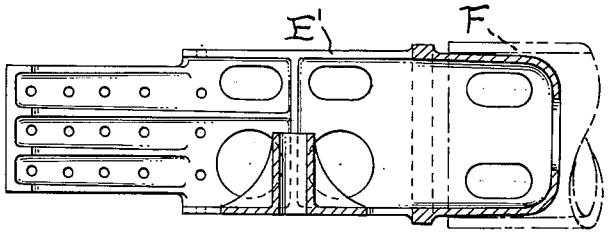
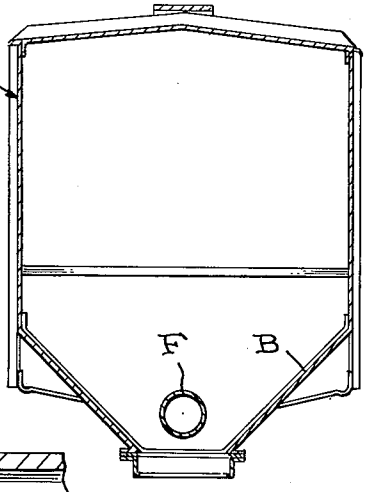


FIG. 2.

FIG. 4.





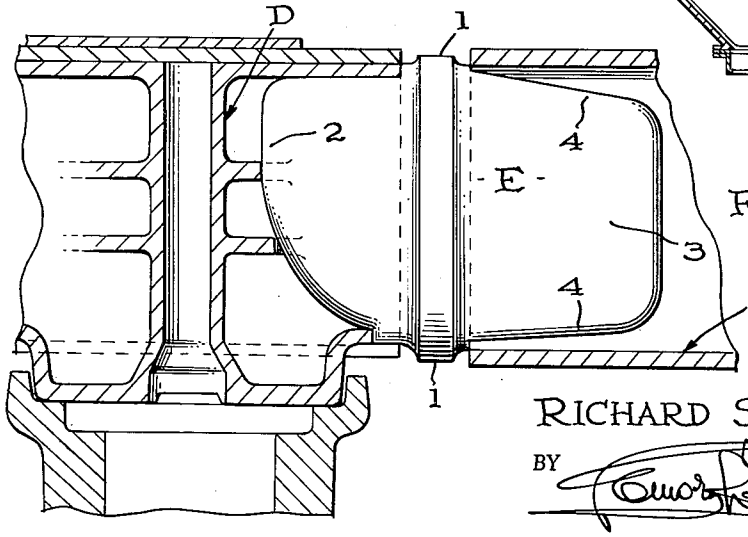


FIG. 3.

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TUBULAR CENTER SILL FOR COVERED HOPPER AND LIKE CARS

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This invention relates to hopper cars and the like and more particularly to an improvement in the center sill structure.

Cars used for bulk loading, especially with foods or chemicals, must be free of pockets, ledges, seams and the like which would interfere with unloading, cleaning, and inspection. This is necessary because cars may be used to transport different commodities in one direction then the other, and are therefore required to be cleaned before reloading. Any material accumulating in inaccessible pockets, etc., could easily contaminate the new lading.

In conventional car construction where a center still of the usual AAR Z section is used and which extends through the hoppers, it is necessary to provide a variety of shed plates, baffles, and covers to allow the lading to clear properly from the car, and where the sills pass from the outside to the inside of the hoppers, additional collars must be provided to form leak-proof joints and smooth surfaces. All of this adds material and labor and greatly increases the cost of the car, and, at the same time, creates many places, crevices, and welded or fastened joints, all of which are potential collectors of contaminants and which render more difficult the cleaning and inspection of car interiors.

Accordingly, one of the objects of the present invention is to provide a center sill which will automatically shed cargo material. For example, the sill may be of tubular, elliptical, or similar cross-sectional shape, devoid of welds, ledges, baffles, and other parts thereby providing an unbroken surface which will not hinder the flow of material and obviating points for contaminants to collect, and which will greatly facilitate cleaning and inspection.

A further object of the invention is to provide suitable transition means for supporting the tubular or like sill while at the same time accommodating draft gear and the like.

With the above and other objects in view, as will more readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination and arrangement of parts, hereinafter more fully described, illustrated and claimed.

A preferred embodiment of the invention is shown in the accompanying drawings in which:

FIGURE 1 is a longitudinal cross-section view illustrating application of the invention.

FIGURE 2 is a cross-sectional, taken on line 2—2 of FIGURE 1.

FIGURE 3 is an enlarged vertical sectional view illustrating the manner in which the tubular sill may be adapted to the bolster center filler of cars of standard specification.

FIGURE 4 is a detail view of a combined center filler and bolster support.

Similar reference characters designate like parts in the several views.

Referring to FIGURE 1, it will be seen that the freight car A is provided with hoppers B and the usual draft gear pockets C outwardly of the bolster center filler D.

Each bolster center filler is incorporated in the car structure in accordance with a standard practice, and instead of being connected with a full conventional AAR sill, has its otherwise partial center sill portion formed with a socket intended to receive suitable transition member E for supporting the improved center sill F.

As usual, the bolster is the entire lateral structure, and the bolster center filler is a part of this structure. Therefore, the transition member may be a part of either. Thus, the bolster structure may be modified, or, alternatively only the center filler casting may be changed.

Where the transition member E is in the form of a separate casting, it has a medial portion 1 of greater diameter than the opposite end portions.

For example, one end of the casting E may be provided with a profile 2 in the form of an arc and a tangent, intended to fit within the standard conventional center filler D. In this form, it may be handled by a crane so that its top cantilevering edge readily abuts with the top of the filler socket or cavity while its lower edge clears the bottom of the cavity to freely seat within. The opposite end of the transition means is provided with a reduced frusto-conical nub portion 3, longitudinally tapered as shown at 4, to easily slide to a wedging fit within the tubular center sill F. Thereafter, the parts may be welded together.

As will be apparent from FIG. 3, when the center sill F is telescoped over the tapered portion 3 there is provided a stable and solid support at each end of the car.

The preferable construction shown in FIG. 4 may include transition member E' as part of bolster center filler C in which case the portion toward the end of the car (to the left in FIGURE 3) remains standard shape and contour. The opposite end of casting E is modified to coincide with the interior contour of the tubular sill. In this form of construction the transition from standard sill to tubular sill takes place beyond the zone of couplers, draft gear and bolster structure therefor all of these items with the exception of the modified center filler may remain as standard AAR practice.

The tubular design of the sill is well able to perform the functions of a conventional sill with comparable economy and with no sacrifice of strength or rigidity. It may extend the entire length of the car, or by means of transition members it may extend only through the hopper sections and join with sections of conventional sill for standard types of draft gear and coupler attachments.

Thus, it will now be seen that the present invention proposes the use of a tubular, elliptical, or similarly shaped center sill member which would be devoid of welds, ledges, baffles, and additional parts. The single, unbroken surface would not hinder the flow of material; would not provide points for contaminants to collect; and it would be ideally suited to facilitate cleaning and inspection.

Interior coatings or linings may be more easily applied, will adhere better, and will more easily produce the unbroken coating which is so highly desirable and necessary when this type of interior treatment is desired.

I claim:

1. In a hopper car, the combination comprising, a car frame, hopper compartments above the frame and including downwardly converging front, rear, and side walls terminating in an opening disposed below the plane of the car frame and discharging at the center of the car, and a tubular center sill carried by the frame and extending through the said front and rear walls in the area between the frame and said opening to be completely surrounded by the lading.

2. In a hopper car, the combination according to claim 1 wherein the frame includes a bolster having a center filler provided with a socket portion, and a transition member having opposite end portions respectively, to fit within the center filler and the related end of the tubular center sill.

3. In a hopper car, the combination according to claim

2, wherein the transition member has a medially enlarged portion flanked on one side by a cantilever portion and on the other side by a substantially frusto-conical hub portion having telescopic wedging engagement with the tubular center sill.

4. In a hopper car, the combination according to claim 2, wherein the transition member and center filler are cast integral with each other.

References Cited in the file of this patent

UNITED STATES PATENTS

1,173,118	O'Neill et al.	Feb. 22, 1916
1,955,838	Shafer	Apr. 24, 1934
2,299,421	Essl	Oct. 20, 1942
2,305,518	Dean	Dec. 15, 1942
2,519,320	Meldrum	Aug. 15, 1950