United States Patent [19]

Fiegl

[11] **3,834,774**

[45] **Sept. 10, 1974**

[54] **CENTER PLATE BEARING**

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[22] Filed: **June 27, 1973**

[21] Appl. No.: **374,194**

[52] **U.S. Cl.** ..... **308/137,** 105/199 C

[51] **Int. Cl.** **B61f 5/16,** F16c 17/04, F16c 17/12

[58] **Field of Search** ..... 105/199 C, 199 CB; 308/137

[56] **References Cited**

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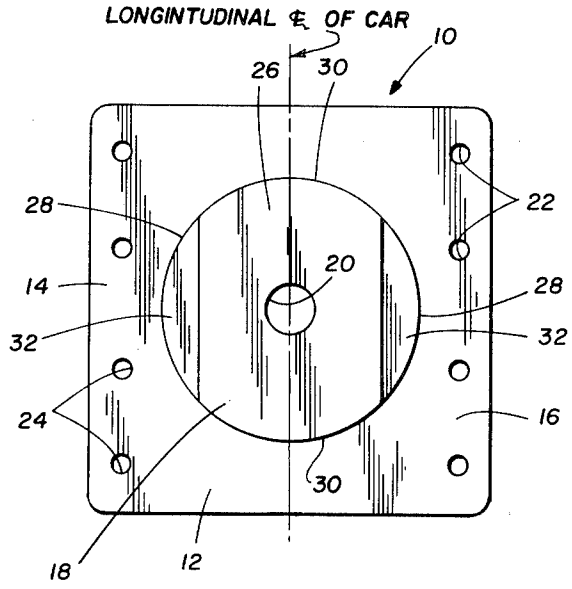
[57] **ABSTRACT**

A center plate for use with a railroad car body bolster center sill assembly having a wear indicator on the circular boss portion in the form of a longitudinal recess extending from front to rear on each circumferential side thereof. The recess is of a cross section to cause the inner edge to remain spaced from the circumferential edge during the complete indicated wear life of the center plate to prevent an increase in the load concentration factor during lateral roll action.

6 Claims, 4 Drawing Figures



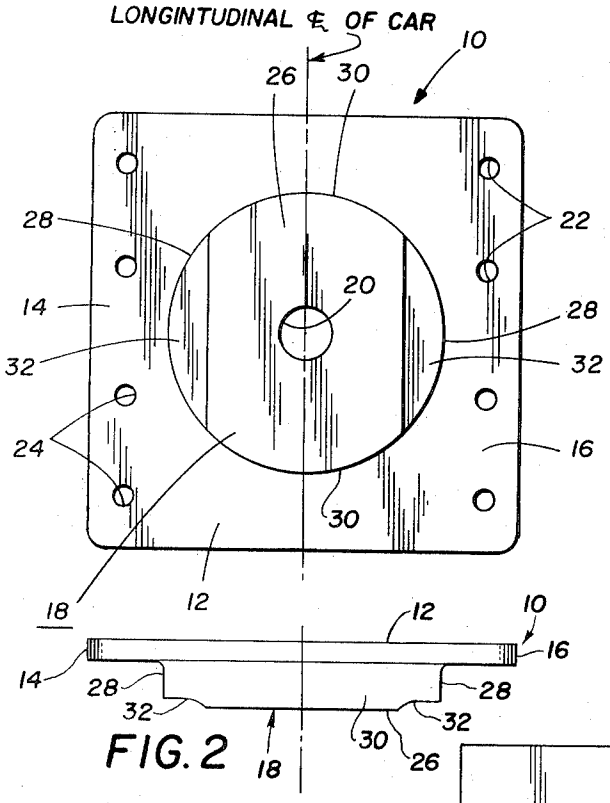
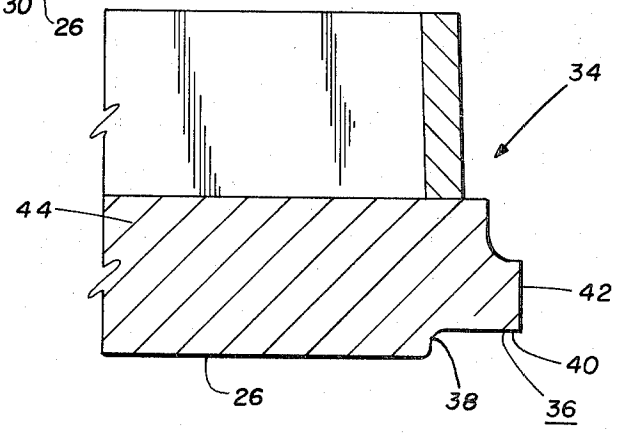


FIG. 1

FIG. 2

FIG. 3



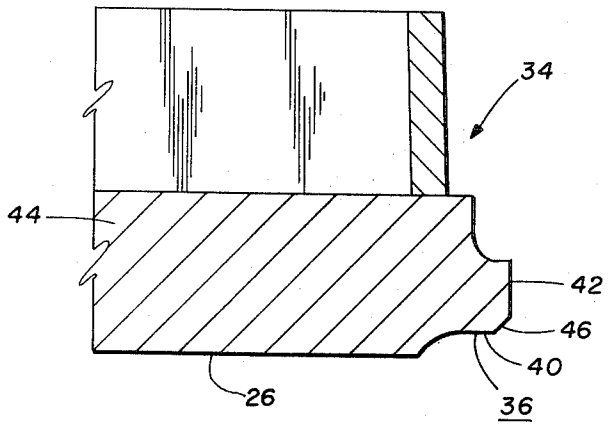


FIG. 4

CENTER PLATE BEARING

It is conventional that the entire freight car weight is carried on two circular center plates secured to two body bolsters and which engage two mating female bowls on cooperating truck bolsters. As a consequence, the center plates and truck bolster bowls must endure not only the weight of car and lading distributed over their engaging surfaces under standing conditions, but also the shifting concentration and dynamic augment of these loads with associated wear encountered under rolling in-service conditions. In accordance with the prior art, a preferred construction has been the combination of a fabricated or cast steel center filler with or without draft lugs, a through bottom cover plate and a separate center plate bolted or welded to the bottom cover plate. This permits easy removal of the center plate when it has become worn or cracked and over the years has been found to provide a center plate life-expectancy of about 5 to 10 years. A problem has been in determining when a center plate has worn sufficiently to repair it or justify a replacement. Generally, according to prior practice, the railraod cars were elevated off the truck bolsters and inspectors went beneath them to measure the amount of wear on each center plate. It would be must less troublesome and safer if an inspector would be able to determine center plate wear visually and exterior to the railroad car underframe.

Accordingly, it is an object of the present invention to provide a wear indicator in a center plate assembly.

Another object is to prevent the development of a higher level of load concentration, under roll conditions, due to wear on the lower surface of the center plate.

In accordance with the present invention, there is provided a center plate having a base portion and a circular boss projecting downwardly therefrom. The boss contains a bearing surface spaced from the base, circumferential opposed side walls and circumferential opposed end walls. The circular boss contains a longitudinal recess along the side walls between the end walls where the side walls normally join the bearing surface.

Thus, an inspector knowing the initial depth of the recess from the bearing surface can merely glance at the center plate to determine how much bearing surface remains, the time for repair or replacement being when the recessed portion is completely eliminated through wear. In addition, with this construction, when the car body rocks, the contact between the mating portions of the center plate and truck bolster center bowl is maintained at the same line throughout the life of the plate. Lower stress levels in the center plate and extended body bolster and truck bolster life are the results of maintaining this line contact back from the edge of the center plate.

FIG. 1 is a bottom view and FIG. 2 is an elevation view of one type of center plate incorporating the features of the present invention;

FIGS. 3 and 4 are partial elevation views of another type of center plate containing different embodiments of the present invention.

Referring to FIG. 1, there is shown one type of center plate 10 for a railroad car such as a house boxcar. The boxcar body (not shown) overlies the body bolster-

center sill structure (not shown) and the center plate is mounted on the underside of this bolster-sill structure to support the car body on the car truck. The center plate is an integral member, preferably formed of cast steel, and includes a generally square, flat base portion 12 formed to define mounting or bolting flanges 14 and 16 along the side edges thereof and having a central circular boss 18 extending from the lower face thereof. A transverse hole 20 extending through the plate centrally of the boss 18 is provided for accommodating a king pin extending upwardly through the truck center plate to maintain vertical alignment of the boss and mating bowl of a truck center plate.

The mounting flanges 14 and 16 are defined by mounting faces on the upper face of the center plate which are preferably machined surfaces. Longitudinally spaced bolt holes 22 and 24 are provided in each mounting flange. The center plate then is designed to be bolted to the support flanges of the center sill through the immediate structure of the body bolster cover plate, with the center plate supporting the assembly at the center sill flanges apart from any auxiliary sill structure.

The circular boss 18 has a bearing surface 26 spaced downwardly from and parallel to the base portion. It contains circumferential side walls 28 normally in alignment with the center line of the railroad car and circumferential end walls 30 normally in alignment with the center line of the body bolster of the car. These circumferential walls connect the bearing surface 26 to the base 12. The bearing surface 26 contains a longitudinal recess 32 along the side walls between the end walls where the side walls normally join the bearing surface.

FIGS. 3 and 4 illustrate another type of center plate 34 designed to be welded within a pocket in the center sill. These FIGS. illustrate more clearly the design of the longitudinal recess. In FIG. 3, the recess 36 is cleft-like wherein the vertical surface 38 thereof meets the horizontal surface 40 and the bearing surface 26, by means of small radii at about a right angle and the horizontal surface 40 meets the side wall 42 of the boss 44 at a similar right angle.

In FIGS. 4, the horizontal surface 40 of the recess 36 joins the bearing surface 26 by the medium of a larger radius than shown in FIG. 3, thereby eliminating the vertical wall and the horizontal surface joins with the side wall 42 of the boss 44 at a beveled surface 46. All three configurations provide good line contact for the center plate.

It is intended that the foregoing description and drawings be construed as illustrative and not in limitation of the invention.

Having thus described the invention in detail and with sufficient particularity as to enable those skilled in the art to practice it, what is desired to have protected by Letters Patent is set forth in the following claims.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A center plate for use with a railroad car body bolster center sill assembly comprising a horizontal base portion, and a circular boss projecting downwardly therefrom; said boss having a bearing surface spaced downwardly from and parallel to said base and vertical side walls which form circumferential side walls normally in alignment with the center line of the railroad

car and circumferential end walls normally in alignment with the center line of the body bolster connecting said bearing surface to said base; and bearing surface and vertical side walls containing spaced parallel longitudinal recesses, having a substantial amount of surface parallel to and spaced a designated amount upward from said bearing surface along said side walls between the end walls, the intersection of the recesses and bearing surface forming a bearing line, on the bearing surface, parallel to the center line of the car.

2. A center plate according to claim **1** in which the longitudinal recesses are characterized as having a generally vertical surface substantially parallel to the side walls of the boss and a generally horizontal surface substantially parallel to the bearing surface.

3. A center plate according to claim **2** in which the horizontal surface of the recesses and the side walls of the boss form a common edge that is beveled.

4. A center plate according to claim **2** in which the horizontal surface of the recesses and the side walls of the boss form a common edge that is convex.

5. A center plate according to claim **2** in which the horizontal surfaces of the recesses and the bearing surface of said boss form a common edge through a concave radius.

6. A center plate according to claim **2** in which the horizontal surface of the recesses and the vertical surface of the recesses form a common edge that is concave.

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