March 7, 1933. J. R. ALCOTT 1,900,682

METHOD OF RECLAIMING CAR BOLSTERS

Filed Nov. 13, 1929

Fig. 1.

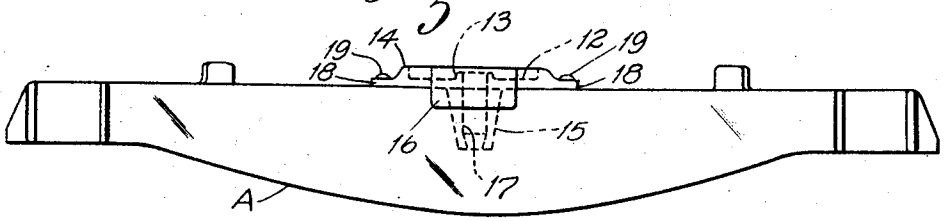


Fig. 2.

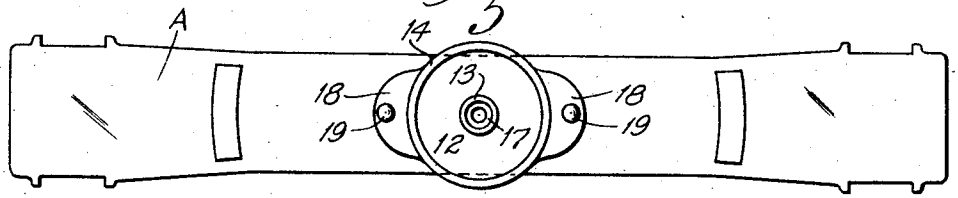


Fig. 3.

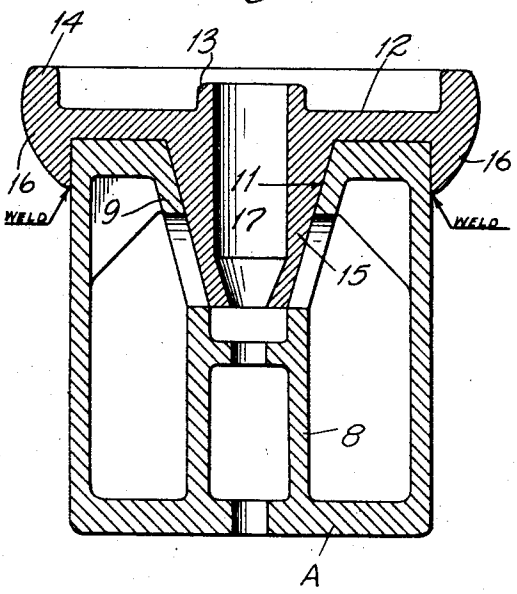
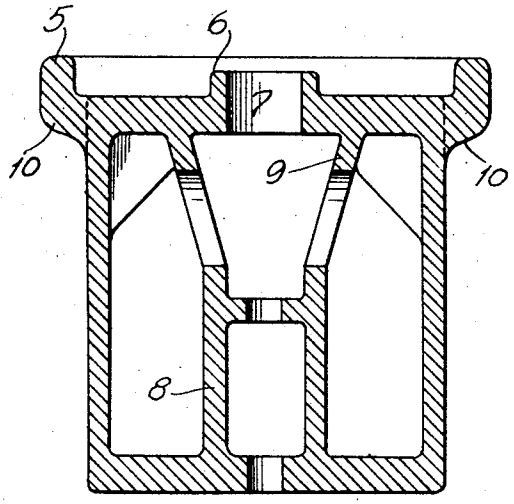


Fig. 4.



INVENTOR:
J. R. ALCOTT.

BY Albert J. McCauley

ATTORNEY.

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UNITED STATES PATENT OFFICE

JAMES R. ALCOTT, OF MADISON, ILLINOIS, ASSIGNOR OF ONE-HALF TO STEADMAN O. TAYLOR, OF RICHMOND HEIGHTS, MISSOURI

METHOD OF RECLAIMING CAR BOLSTERS

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This invention relates to methods of reclaiming car bolsters, one of the objects being to reclaim cast metal bolsters having worn or multilated center bearings integral therewith. Another object is to produce a car bolster having a strong and simple center plate securely interlocked therewith, without unduly weakening the bolster structure.

Prior to this invention, cast steel bolsters with integral center bearings have been used very extensively, and when the center bearings are worn or mutilated to such an extent that it appears unsafe to use the bolsters, they are discarded. As a result of this practice, numerous expensive bolsters have been replaced by new ones, when the old bolsters might have remained in service for a long time if the defective center bearings were replaced in a satisfactory manner.

However, this involves the problem of making repairs at a center bearing formed integral with the bolster at a point where a high degree of strength is required to withstand the severe service shocks, and so far as I am aware, I am the first to devise any plan for reclaiming the old cast metal bolsters having defective center bearings. I will hereafter show how such defective center bearings can be replaced by strong and simple center plates securely united with the bolster casting.

In the preferred form of the invention, the defective center bearing is destroyed to provide a relatively smooth seat at the top of the bolster, and a separate center plate is mounted on this seat. The king bolt opening is preferably enlarged, and the separate center plate is preferably provided with a tubular extension to receive the king bolt. This tubular extension is inserted into the enlarged opening to serve as a renewal of any defective element at the king bolt opening, and said extension also serves as a means for interlocking the new center plate with the cast metal bolster. In this form of the invention, the king bolt opening is enlarged without destroying the reinforcing elements immediately below the center bearing, and the tubular extension on the new center plate is preferably interlocked with said reinforcing elements.

With the foregoing and other objects in view, the invention comprises the novel method hereinafter more specifically described and illustrated in the accompanying drawing, wherein is shown one form of the invention. However, it is to be understood that the invention comprehends changes, variations and modifications within the scope of the claims hereunto appended.

Fig. 1 is a side elevation of a truck bolster embodying the features of this invention.

Fig. 2 is a top view of the bolster.

Fig. 3 is a transverse section, on a larger scale, taken through the center of the bolster and showing the separate center plate.

Fig. 4 is a view similar to Fig. 3 showing the center bearing integral with the bolster, this being the bearing which is removed when defective and replaced by the separate center plate shown in Figures 1, 2 and 3.

A designates a bolster in the form of a hollow box girder made of a single casting, usually cast steel. When the casting is formed, it includes a center bearing produced by the top wall of the bolster and annular ribs 5 and 6 integral with said top wall, as shown in Fig. 4, the usual opening 7 being formed in the casting to receive a king bolt. The casting is reinforced at the center by means of suitable webs, or ribs, formed integral with the bolster, as suggested at 8 and 9 in Fig. 4. However, the central reinforcement differs in different bolsters, and the invention is not limited to details of this feature, except as specified in the claims.

The external diameter of the center bearing is usually larger than the width of the bolster, so the original casting (Fig. 4) usually includes metal at 10 extending from the annular bearing member 5 to the sides of the bolster.

When the integral center bearing shown by Fig. 4 becomes defective by being worn, broken, or otherwise mutilated, the bolster may be reclaimed by the method hereafter described, instead of being discarded.

In reclaiming the bolster, the annular bearing members 5 and 6 are destroyed.

They may be burned, chipped or ground from the bolster, and the same is true of the metal at 10 which connects the extended portions of the bearing member 5 to the sides of the bolster. This provides a smooth seat for the center plate hereafter described.

The king bolt opening 7 (Fig. 4) is enlarged to remove the annular bearing member 6 with a circular portion of the top wall of the bolster, thereby exposing the flaring reinforcing elements 9, and at the same time providing a large tapering seat 11 (Fig. 3) extending downwardly from the top face of the bolster. This tapering seat preferably includes the wall of the enlarged opening and the flaring reinforcing elements 9.

The separate center plate shown by Figures 1, 2 and 3 comprises a web 12 mounted on the relatively smooth seat at the location of the original center bearing; annular bearing members 13 and 14 extending upwardly from said web 12, a central tubular member 15 extending downwardly from said web, and lugs 16 extending downwardly from the overhanging portion of the center plate and engaging the sides of the bolster.

The central tubular member is provided with an elongated vertical passageway 17, registering with the annular member 13, to receive the king bolt. The outer face of this long tubular member 15 is tapered to conform to the seat 11, and it is located on said seat to provide a strong interlocking connection which securely united the center plate with the bolster. The lugs 16, at opposite sides of the center plate, contact with opposite sides of the bolster to co-operate with the central member 15 in preventing horizontal displacement of the center plate.

As a further safeguard, the lugs 16 may be welded to the sides of the bolster, as indicated in Fig. 3, and the center plate may be provided with wings 18 to receive rivets 19 which pass through the top wall of the bolster.

However, the severe horizontal thrusts due to stopping and starting the car are transmitted through the lugs 16 and the central tubular member 15 which are firmly seated on parts of the bolster well adapted to withstand such shocks. Moreover, the tubular member 15 is so long that the center plate is not likely to be accidentally removed by a vertical displacement, even if the welded connections and the rivets should become defective. The lugs 16 also serve as means to prevent rotary displacement of the center plate.

The several elements of the center plate are formed integral with each other. This center plate locates the center bearing at a relatively high elevation, the added height being equal to the thickness of the web 12 which forms the bottom of the center bearing. However, this can be readily compensated for by adjustments in the truck, or other parts of the car structure, and the web 12 provides an additional reinforcing element at the center of the bolster, where the king bolt opening was enlarged.

The reinforcing webs 9 are not mutilated, so the only weakening of the old bolster lies in the removal of a relatively small circular central portion of the top wall of the bolster, and this is more than compensated for by the new center plate with its strong web 12 forming a bridge across the top of the bolster. Moreover, the lugs 16 at the sides of this new center plate are preferably relatively large, and this adds strength to the bolster structure.

A further advantage is gained by renewing the frictional wearing surface between the old bearing members 5 and 6 of the original bolster. This old surface is worn by the severe frictional contact with the upper center bearing (not shown), and the resultant weakness at the center of the old bolster casting is compensated for by the new center plate which is applied over this worn surface.

I claim:

1. The method of reclaiming cast metal car bolsters having mutilated center bearings provided with annular bearing members formed integral with and projecting from the cast bolsters, which comprises destroying the annular projecting portions of the mutilated center bearing to provide a seat for a center plate, and then securing a separate center plate on said seat.

2. The method of reclaiming cast metal car bolsters having mutilated center bearings provided with annular bearing members formed integral with and projecting from the cast bolsters, which comprises destroying the annular projecting portions of the mutilated center bearing to provide a seat for a center plate, then placing a separate center plate over said seat, and interlocking said separate center plate with the cast metal bolster.

3. The method of reclaiming cast metal car bolsters having mutilated center bearings provided with annular bearing members formed integral with and projecting from the cast bolsters, which comprises destroying the annular projecting portions of the mutilated center bearing to provide a seat for a center plate and enlarging the king bolt opening at the center of said seat, then placing over said seat a separate center plate having a tubular extension to receive the king bolt, and locating said tubular extension in said enlarged opening.

4. The method of reclaiming cast metal car bolsters having mutilated center bearings provided with annular bearing members projecting from and integral with their top walls and integral renforcing webs below the center bearings, said method comprising the steps of removing the annular projecting por-

tions of the mutilated center bearings to provide a seat for a center plate, enlarging the king bolt opening without removing said integral reinforcing webs, then placing over said seat a separate center plate having a tubular extension to receive the king bolt, and inserting said tubular extension into the enlarged king bolt opening.

In testimony that I claim the foregoing I hereunto affix my signature.

JAMES R. ALCOTT.