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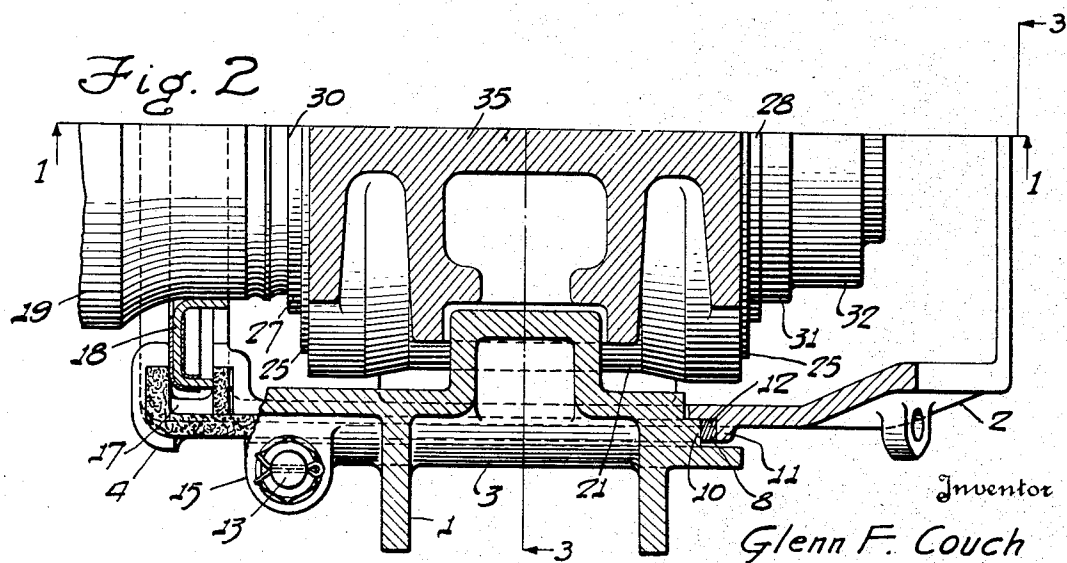
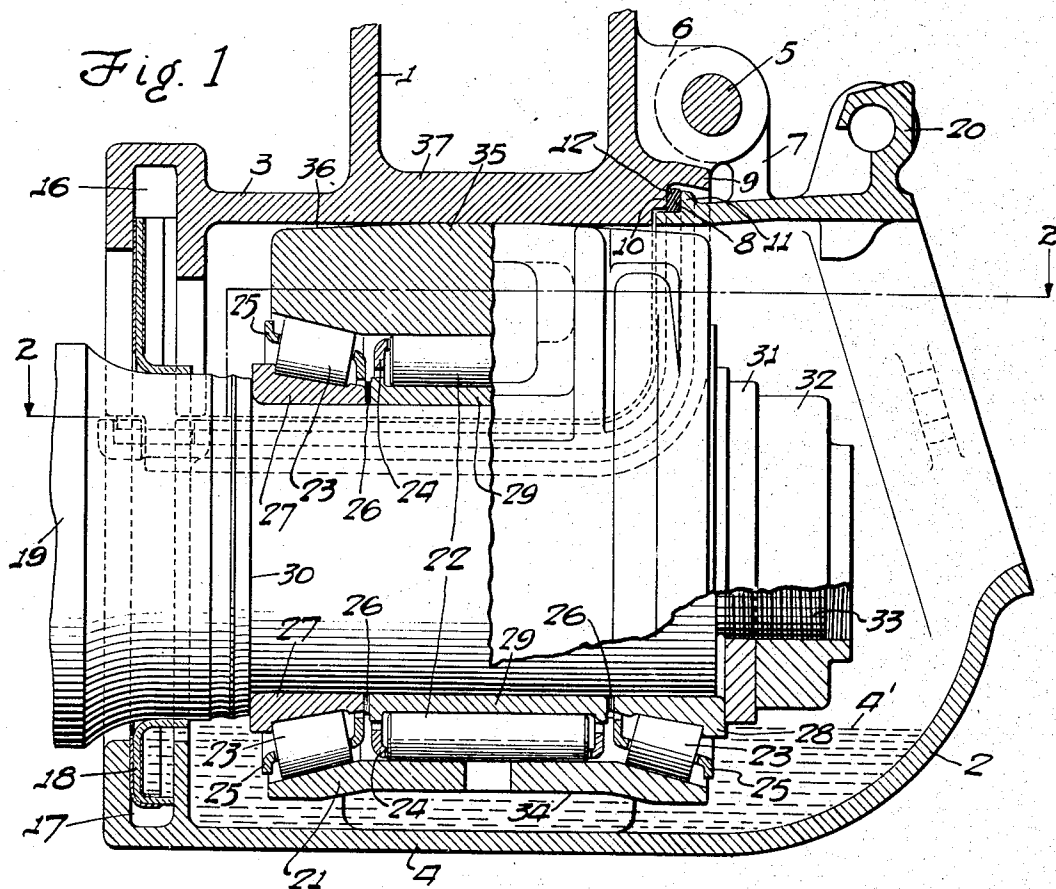
G. F. COUCH

2,090,975

RAILWAY TRUCK

Filed Sept. 18, 1933

3 Sheets-Sheet 1



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Fig. 3

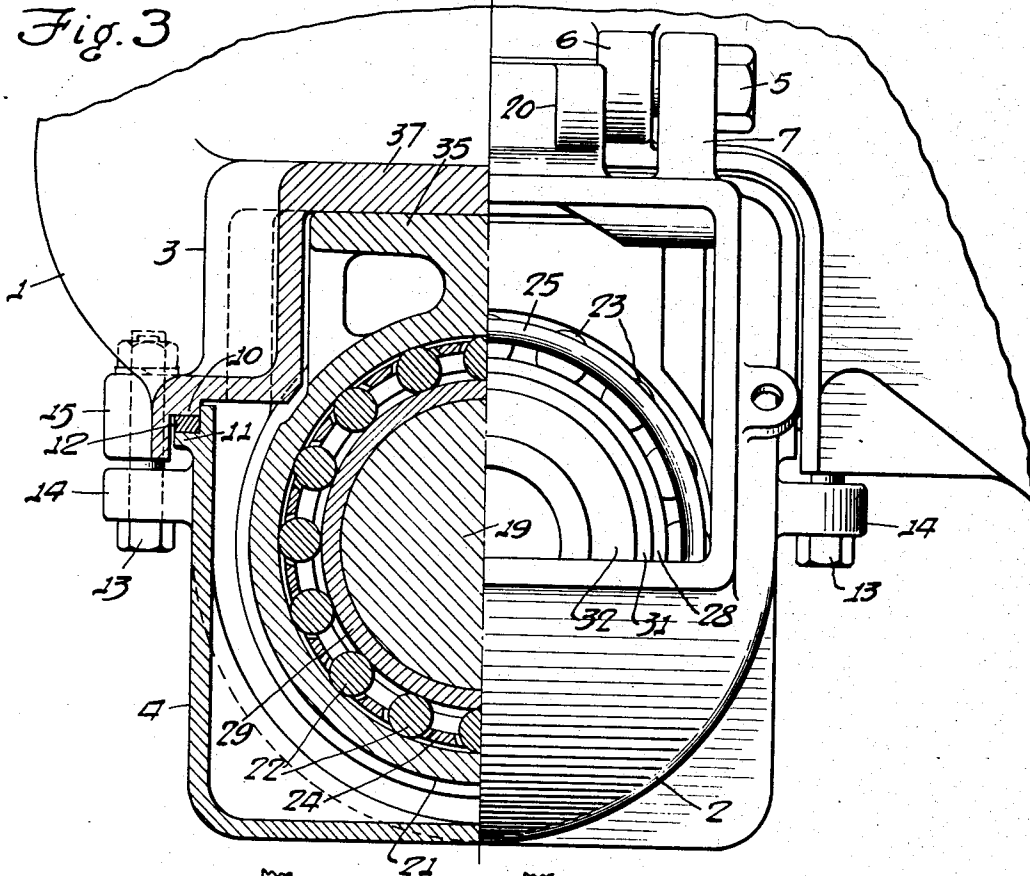
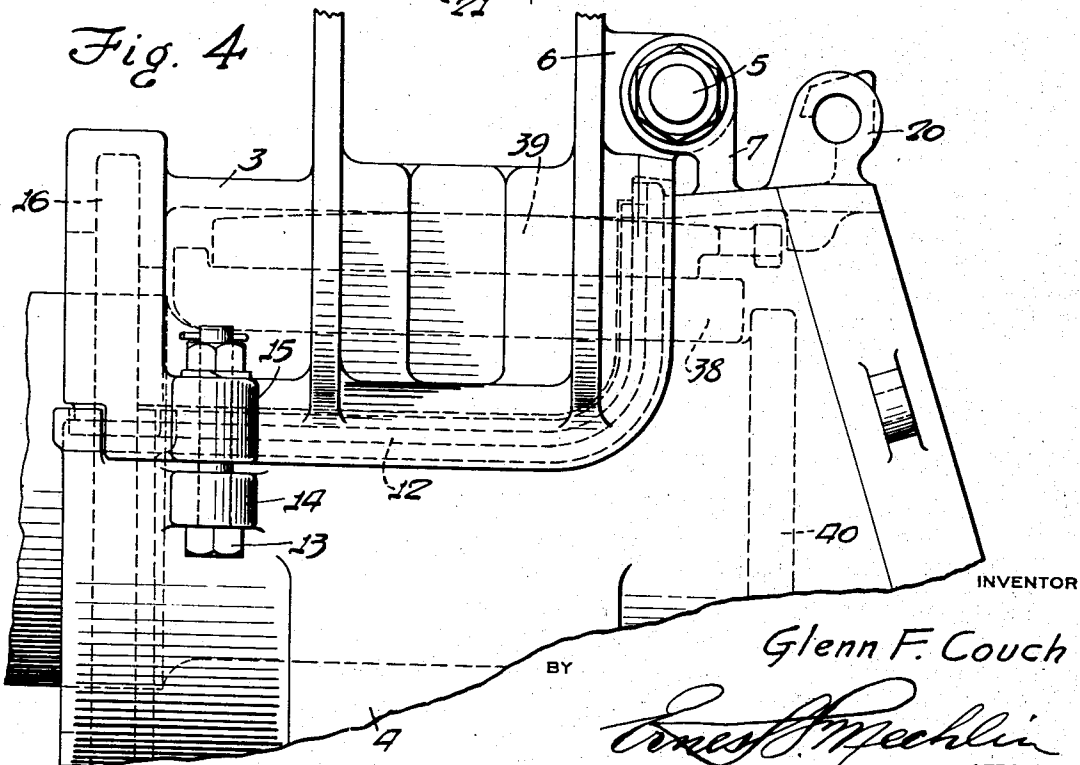


Fig. 4



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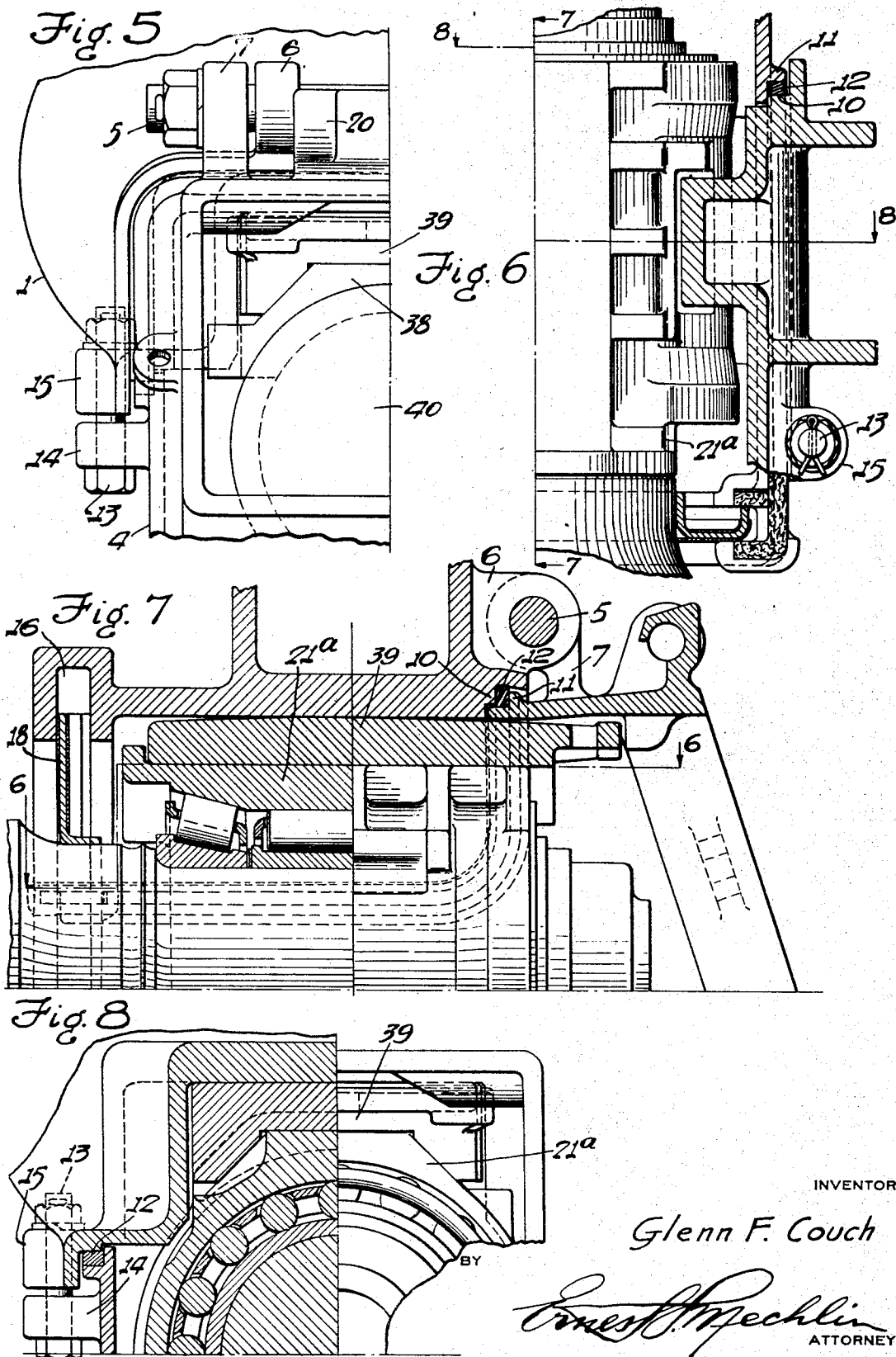
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RAILWAY TRUCK

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3 Sheets-Sheet 3



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## UNITED STATES PATENT OFFICE

2,090,975

## RAILWAY TRUCK

Glenn F. Couch, Rochester, N. Y., assignor to  
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Application September 18, 1933, Serial No. 689,978

13 Claims. (Cl. 105—219)

This invention relates to side frames for rail-  
way trucks and, more particularly, to such  
frames in which each journal box at each end  
of a frame comprises a portion formed integral  
with, or rigidly connected thereto, and a movable  
portion which can be opened or moved to an in-  
operative position to enlarge the journal-receiv-  
ing opening of the box sufficiently for receiving  
a journal and assembled roller bearing.

The principal object of my invention, gener-  
ally considered, is to provide a truck side frame  
with journal boxes associated therewith, each  
box being in two pieces, the upper and rearward  
piece being rigidly or integrally connected with  
the frame, and the outer and lower portion of  
which is movably connected to said frame in  
order that it may swing downwardly to enlarge  
the journal-receiving opening sufficiently for the  
reception and withdrawal of the journal when  
assembled with a roller bearing, which bearing  
is replaceable by a standard wedge and brass, if  
desired.

Another object of my invention is the provi-  
sion of a side frame with what may be consid-  
ered as "semi-integral" journal boxes permitting  
the alternative use of standard brasses and  
wedges or special roller bearing assemblies.

A further object of my invention is the provi-  
sion of a side frame and journal box combina-  
tion which is normally adapted for use with  
roller bearings, but which provides for the emer-  
gency application of a standard brass and wedge  
in each box.

A still further object of my invention is the  
provision of a special roller bearing assembly  
adapted for use with railway vehicle journals.

Other objects and advantages of the invention  
relating to the particular arrangement and con-  
struction of the various parts will become ap-  
parent as the description proceeds.

Referring to the drawings illustrating my in-  
vention:—

Figure 1 is a vertical longitudinal sectional  
form on the line 1—1 of Figure 2 of a portion  
of a railway vehicle side frame and associated  
journal box embodying my invention, and show-  
ing a journal and roller bearing assembly re-  
ceived in said box, said assembly being shown  
partly in side elevation.

Figure 2 is a fragmentary horizontal sectional  
view on the line 2—2 of Figure 1, looking in the  
direction of the arrows.

Figure 3 is a fragmentary side elevational view  
of the side frame and associated box illustrated  
in Figures 1 and 2, said view being partly in sec-

tion on the line 3—3 of Figure 2, looking in the  
direction of the arrows.

Figure 4 is a fragmentary end elevational view  
of the frame and box shown in Figure 3, the  
arrangement, however, being converted by re-  
moving the roller bearing assembly and substi-  
tuting a standard brass and wedge.

Figure 5 is a fragmentary side elevational view  
of the side frame and converted box and journal  
assembly shown in Figure 4.

Figure 6 is a fragmentary horizontal sectional  
view on the line 6—6 of Figure 7, and showing  
an embodiment corresponding generally with that  
of Figures 1, 2 and 3, except that the outer roller  
bearing element or race is separate from the  
wedge portion or that engaging the roof of  
the box and shown assembled with a standard  
wedge.

Figure 7 is a vertical sectional view on the  
line 7—7 of Figure 6, looking in the direction of  
the arrows, a portion of the roller bearing as-  
sembly being shown in elevation.

Figure 8 is a fragmentary transverse sectional  
view on the line 8—8 of Figure 6, looking in the  
direction of the arrows.

Referring to the drawings in detail, like parts  
being designated by like reference characters,  
and first considering the embodiment of my in-  
vention illustrated in Figures 1, 2 and 3, there  
is shown a portion of a side frame 1 provided  
with a journal box 2 at each end thereof. In  
the present embodiment, the upper and inner  
or rearward portion 3 of each box is formed in-  
tegral with the frame, while the outer and lower  
portion 4, which is adapted to hold lubricant 4'  
to the level approximately indicated, and in  
which is provided the access opening normally  
closed by an associated lid (not shown), is sep-  
arable from the portion 3 and the frame 1 and  
pivotally mounted on the latter as by means of a  
pin or bolt 5 passing through outstanding lugs 6  
on the frame and upstanding lugs 7 on the outer  
and lower portion 4 of the journal box 2.

The joint 8 between the portions 3 and 4 of  
each box desirably extends from approximately  
beneath the pivot means 5 downwardly toward  
but not to the axis of the box where it curves and  
then extends generally horizontally and rear-  
wardly so that the upper and rearward or inner  
portions of the box merely comprise less than  
half of the box side walls and the inner or rear-  
ward portion of the box roof and the correspond-  
ing portion of the dust guard well. The vertical,  
curved and horizontal portions comprising the  
joint between the sections 3 and 4 of the box

are desirably shielded by extensions 9 from the integral portion 3 of the box and overlying the movable portion 4 thereof. The adjacent portions underneath or inwardly of the extension 9 desirably comprise spaced shoulder portions 10 and 11 between which resilient packing means 12 is desirably provided to form a tight joint between the box sections. The packing 12 may be of felt, or the like, compressed between the shoulders 10 and 11 when the portion 4 of the box is moved to its final assembled position.

When in assembled and closed position, the movable portion 4 of the box is desirably retained in place by means of upright or vertical bolts, or other retaining means 13 extending through outstanding lugs 14 on the lower portion 4 of the box and 15 on the upper or integral portion 3 thereof. The box sections are desirably provided with complementary portions 16 and 17 of a dust guard well which are adapted to receive a dust guard 18 of desired construction. Inasmuch as the portions 16 and 17 of the dust guard well are separable upon downward and outward swinging of the box section 4, no upper or lower opening to the well need be provided for the reception of the dust guard which may be inserted when the box is opened to receive the journal 19 with which it is assembled. The box 2 may, of course, be provided with the usual lid hinge lug 20 to which may be pivoted the desired form of lid (not shown) normally engaging the lid-seating face and closing the access opening.

In the present embodiment of my invention, the journal 19 is shown associated with a roller bearing assembly 21, said assembly comprising cylindrical rollers 22 and conical rollers 23, the series of rollers 22 and the associated cage 24 having, desirably on both sides, rollers 23 and cages 25. The inner races or bearing bushings 40 for the rollers desirably abut one another or are separated by liners 26, as illustrated, and the bushings or cones 27 and 28, separated by the bushing 29, are desirably held in place on the journal against the shoulder 30 by means of a washer 31 and nut 32 threadably engaging the reduced end portion 33 of the journal 19. The bushing 29 desirably has outstanding annular edge flanges or ribs for maintaining the rollers 22 in place thereon. Locking means of any desired character, for example, such as described and claimed in my co-pending application, Serial No. 406,424, filed November 11, 1929, may be used to prevent undesired loosening of the nut.

The interior of the journal box 2 is made sufficiently large to receive the roller bearing even when assembled with the outer element 34 which, in the present embodiment, comprises an upper integral wedge portion 35, the upper surface of which is desirably crowned, as indicated at 36, so that it may equalize on the lower surface of the upper wall or roof 37 of the box like a standard wedge. Said outer element 34 also provides bearing means for all of the rollers, both cylindrical and conical, so that it must be assembled on the journal before the application of the outer conical rollers 23 and their inner races or cones 28, as after the cones 28 are secured in position the outer race 34 is held assembled with the rollers, as will be clear from a consideration of Figure 1.

The dust guard 18 and the roller bearing assembly 21, including the securing nut 32, are assembled on the journal 19 before it is inserted in the box 2. The box is then opened, if not already in that position, by swinging the lower portion 4 downwardly and outwardly about the

pivot 5 so as to allow insertion of the journal and assembled parts, whereupon said lower portion is swung upwardly to the position shown in Figure 1 and secured in place by the bolts 13.

Referring now to the embodiment of my invention illustrated in Figures 4 and 5, a construction is there shown which is identical with that of Figures 1, 2 and 3, except that the arrangement has been converted by replacing the roller bearing assembly 21 with a standard brass 38 and standard wedge 39 and replacing the special journal 19 with a standard journal 40. The adaptability of my novel form of box for such conversion is very desirable on account of the possibility of having to replace a defective roller bearing assembly at a point where only standard brasses, wedges and axles are available. On account of the fact that the combined thickness of a standard brass and wedge is less than that shown for my assembled roller bearing 21 above the journal, a lowering of the associated box with respect to the journal results, which lowering is too slight to be of material consequence.

Referring now to the embodiment of my invention illustrated in Figures 6, 7, and 8, a construction is illustrated which is identical with that of Figures 1, 2 and 3, except that a more nearly symmetrical roller bearing assembly 21<sup>a</sup> is provided by omitting an integral portion which functions as a wedge like the portion 35 of the embodiment of Figures 1, 2 and 3, and employing it instead with a standard wedge 39. The assembly of the present embodiment may be identical with that of the embodiment of Figures 1, 2 and 3, except that the employment of the wedge 39 limits movement of the roller bearing assembly in the box to a greater extent than such movement would be limited by the arrangement illustrated in Figures 1, 2 and 3.

From the foregoing description, taken in connection with the accompanying drawings, it will be seen that I have devised a journal box construction providing for enlargement of the rear or journal-receiving opening to an extent sufficient to receive a journal when assembled with a complete roller bearing device, while at the same time providing that such a device may be replaced by a standard wedge and brass without altering the box, avoiding breaking the lid-seating face of the box, and carrying a relatively short joint between the box sections at a relatively high level to minimize loss of lubricant. It will, therefore, be seen that my arrangement allows for the employment of the roller bearing assembly, while at the same time allowing for the substitution of a standard journal, brass and wedge, if desired for any reason.

Although preferred embodiments of my invention have been illustrated, it will be understood that modifications may be made within the spirit and scope of the appended claims.

I claim:—

1. A truck side frame provided with journal boxes at the ends thereof, each box having an access opening defined by a lid-seating face the upper inner portion of said box being formed integral with the frame, and the outer and lower portion, comprising the entire lid-seating face of the access opening, supported from the frame by pivotal means extending parallel thereto.

2. A truck side frame provided with journal boxes at the ends, each of said boxes having an access opening defined by a lid seating face, an upper inner section of said box being formed integral with the frame, the remainder of each

box, including the entire lid-seating face of the access opening, being pivotally mounted on the front face of said frame to swing about an axis parallel thereto, and resilient packing means sealing the joint between the sections of said box.

3. A truck side frame and journal boxes each having an access opening the top and inner portions of said journal boxes being cast integral therewith and the outer and lower portions of said boxes, including the entire portions defining the access openings, swingably mounted with respect thereto in order to provide for enlargement of the rear entrance to each box sufficiently to receive a journal and associated roller bearing assembly.

4. In combination, a journal box having an access opening therein, a journal therein, anti-friction inner bearings mounted on said journal, anti-friction means engaging said bearings, and an outer anti-friction bearing engaging said anti-friction means, said outer bearing engaging the upper wall of said box, said box being formed in two parts pivoted together so as to allow for sufficient enlargement of the journal receiving opening for application and removal of the anti-friction bearing assembly while not affecting the access opening and a lid pivoted to said box and adapted to normally close said access opening.

5. A truck side frame provided with journal boxes at the ends thereof, said boxes each having an access opening defined by a lid-seating face and formed with upper and inner portions only integral with the ends of said frame, and outer and lower portions, including the entire lid-seating face portion of each box, movably supported from said frame in order to provide for enlarging the journal receiving openings.

6. A truck side frame provided with journal boxes at the ends thereof, said boxes each having an upper outer portion carrying a lid and formed in two parts, an upper part rigid with the frame and a lower part, including the upper outer portion carrying the box lid, adapted for movement away from said upper part, and packing means forming an oil-tight joint between said parts when in operative position.

7. In combination, a journal box having an access opening defined by a lid-seating face, a journal therein, anti-friction bearing means mounted on said journal, and a standard wedge disposed between the inner surface of the journal box roof and said anti-friction means, said box being formed in two parts, one of which includes the entire lid-seating face, pivoted together to allow for application and removal of said bearing means.

8. In combination, a journal box, a journal therein, roller bearing means mounted on said journal and comprising an outer element adapt-

ed to function as a journal box wedge, said journal box being formed in two parts movable away from one another so as to enlarge the journal receiving opening and permit the withdrawal of said anti-friction bearing means and the substitution of a standard journal, brass and wedge.

9. A journal box with an access opening defined by a lid-seating face and comprising an upper part rigid with an associated side frame and a lower part, including the entire lid-seating face, pivotally connected with respect to said upper part about an axis extending substantially parallel to said frame, the joint between said parts being shielded by a flange on said upper part overlying shoulders on said upper and lower parts, and resilient packing means disposed between said shoulders to form an oil-tight joint.

10. In combination with a railway vehicle journal box formed in two parts movable away from one another so as to enlarge the journal receiving opening and permit the application of bearing means, one of said parts having an access opening defined by a lid-seating face and a pivoted lid normally adapted to close said opening, a roller and bearing assembly associated therewith.

11. A truck side frame with the top and inner portions of journal boxes cast integral therewith and the outer and lower portions of said boxes swingably mounted with respect thereto, journals in said boxes, anti-friction bearing assemblies mounted on said journals and with outer elements engaging the upper walls of said boxes, and the swingable mountings of the outer and lower portions of said boxes allowing for enlargement thereof sufficiently for application and removal of the anti-friction bearing assemblies.

12. A truck side frame provided with journal boxes at the ends thereof, said boxes having access openings and formed with upper and inner portions only integral with the ends of the frame and outer and lower portions, including the portions fully defining the access openings, movably supported from said frame in order to provide for enlarging the journal-receiving openings, journals received in said boxes, anti-friction bearing means mounted on said journals, and standard wedges disposed between the lower surfaces of those portions of the boxes integral with the frame and said anti-friction means.

13. A truck side frame provided with journal boxes at the ends thereof, each box being formed by an upper portion integral with the side frame and a lower portion pivotally secured to the side frame, the entire joint between said portions being above the horizontal plane of the medial line of an associated journal.

GLENN F. COUCH.