

June 26, 1934.

P. W. DIETER

1,964,341

JOURNAL BOX

Filed Sept. 12, 1930

2 Sheets-Sheet 1

Fig. 1.

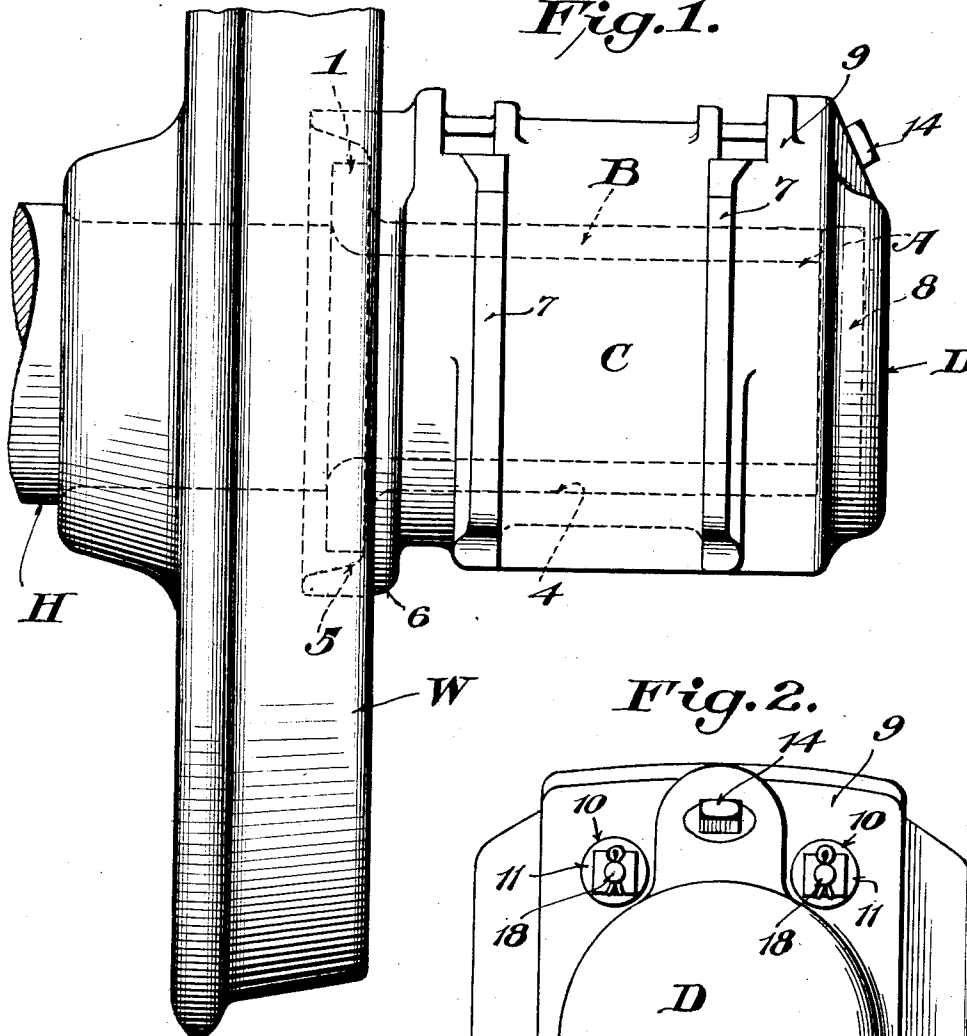


Fig. 2.

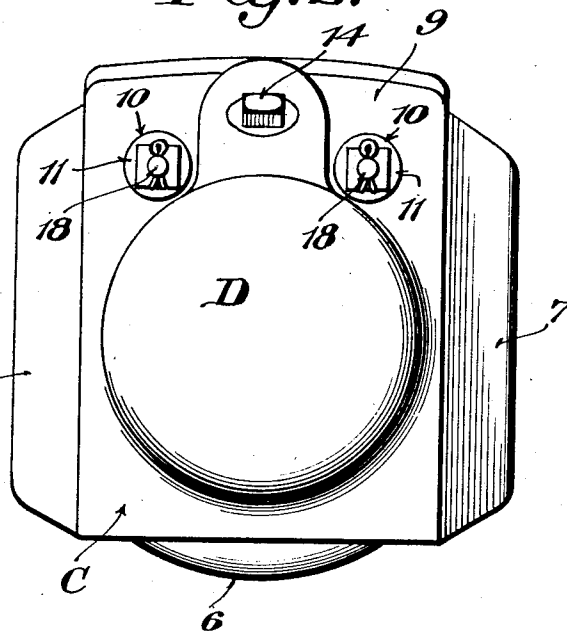
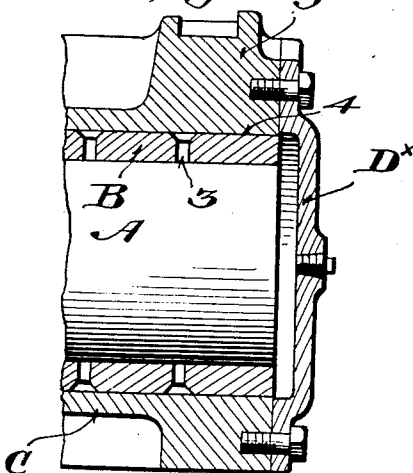


Fig. 6.



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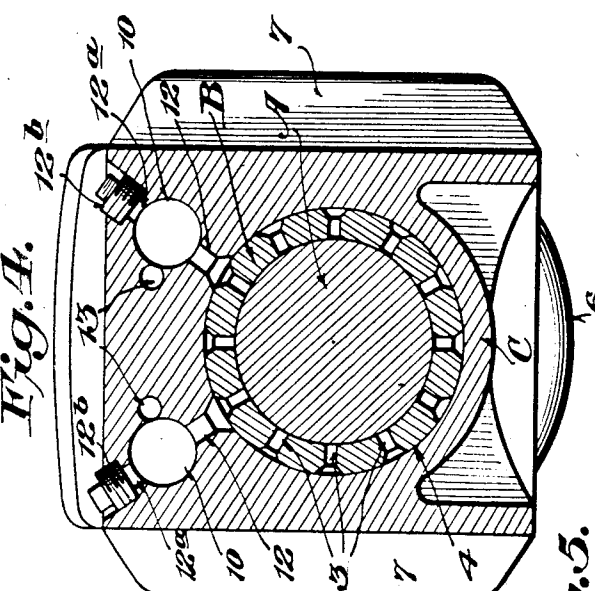
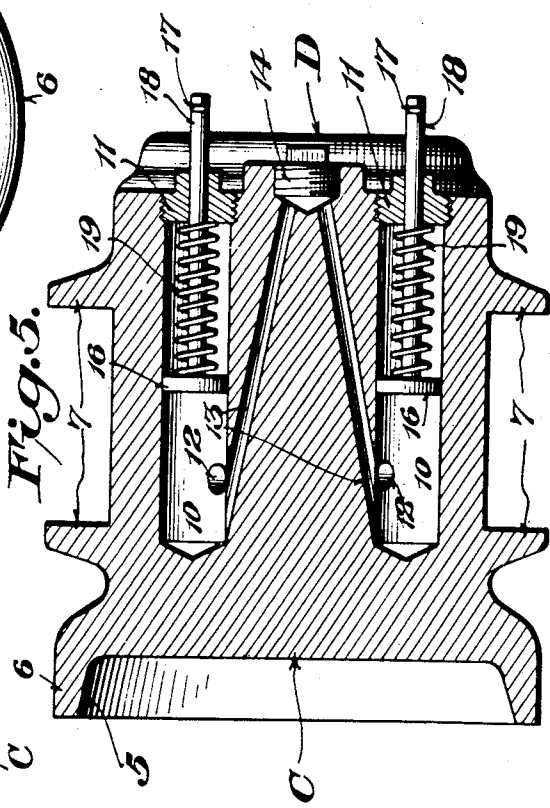
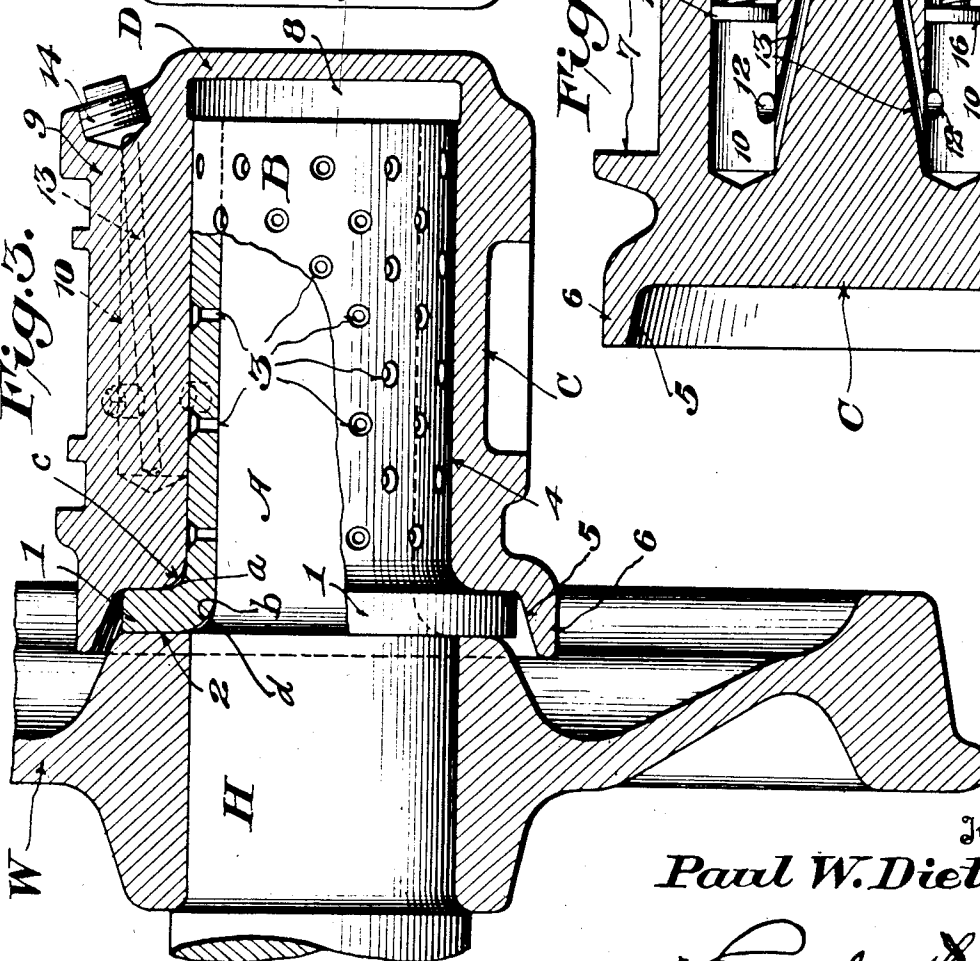
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JOURNAL BOX

Filed Sept. 12, 1930

2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

1,964,341

JOURNAL BOX

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Application September 12, 1930, Serial No. 481,538

1 Claim. (Cl. 308—81)

This invention relates to journal boxes for railway cars, locomotives and the like, and more particularly to an improvement in constructions of the type which use a grease or heavy oil as a lubricant.

To that end the invention includes a journal bearing of the type including an annular bushing or sleeve adapted to fit over the axle and an integral box structure for completely encasing and surrounding the bushing and the end of the axle. Accordingly, a distinctive feature of the present invention resides in the provision of a two piece journal box construction consisting of a freely rotatable bushing and a one piece box or casing sleeved thereover. A feature of the one piece box or sleeve is that it eliminates the so-called cap or lid customarily used on journal boxes, thereby not only dispensing with this separate element as a part of the box but, at the same time, providing for a complete closure at the outer end of the axle which will positively prevent the ingress of dirt, dust, water or other foreign matter.

With the above and other objects in view which 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 and practical embodiment of the invention is shown in the accompanying drawings in which:—

Figure 1 is a side elevation of the improved journal box construction.

Figure 2 is an end elevation of the improved journal box construction.

Figure 3 is a vertical longitudinal sectional view thereof.

Figure 4 is a vertical transverse cross sectional view.

Figure 5 is a horizontal cross sectional view of the construction shown in Figure 4.

Figure 6 is a detail sectional view showing an embodiment of the invention wherein a demountable end cap D^x may be used in connection with the casing.

Similar reference characters designate corresponding parts throughout the several figures of the drawings.

The present invention involves a carrying forward of the idea of the rotatable bushing type of journal box and relates to improvements of special importance from both a manufacturing and assembling standpoint which materially increases the efficiency not only of these factors but also

improves the performance and service of this type of bearing. That is to say, because of the reduction in the number of parts used, and since the journal end of the axle is more effectually protected, the features of the invention which contribute to these results are of much practical benefit to original installation conditions as well as subsequent maintenance.

In its broadest aspect the invention contemplates provision of a two piece construction for journal boxes where such boxes are used in connection with standard truck frames now in use, and, furthermore, involves only a two piece construction for a combined truck frame and journal box structure when embodied in integral frames as required in accordance with future standardized truck practice on all railroads. Thus, it will be apparent that the present invention is adaptable to a wide range of use and will effectually function under all service conditions, requiring less attention and giving greater efficiency than boxes of the type now generally in use.

Referring to the drawings, the journal end A of the axle having the wheel W mounted on the portion H thereof is adapted to receive an integral one piece bushing B. This bushing is provided at the wheel end thereof with an integral hub liner which is in the form of a flange offset laterally from the body of the bushing and in operation engages the side face 2 of the wheel hub so that as the wheel turns a rotating movement will be imparted to the bushing in addition to the tractive effect of the journal portion A of the axle on the inside of the bushing. The bushing B is provided throughout its circumference with a plurality of radially disposed openings 3 which are adapted to act as pockets for receiving and holding lubricant and also conducting the same (usually a hard grease) to the journal portion of the axle when in use. A feature of practical importance in connection with the bushing B and the hub liner 1 is that of striking the inner and outer fillets *a* and *b* between the bushing sleeve and the liner flange 1 on such a radius that there is a clearance between these fillets and the adjacent corners or fillers *c* and *d* respectively of the casing or box and of the axle. These clearances at these points prevent binding of the parts and also provide additional pockets for lubricant with the result of preventing overheating and insuring the easy floating movement of the bushing at all times.

The sleeve-like cylindrical one-piece bushing B is adapted to receive thereon a one-piece casing or journal box C cast as an integral unit and has

the interior bushing receiving bore or recess 4 which is closed at one end by the solid end wall D. The open end is flared outwardly as indicated at 5 to provide a dust guard flange or skirt 6 adapted to surround and overhang the flanged portion of the bushing B which forms the hub liner 1 when the casing or box C is assembled on the bushing as shown in Figure 3. The outer side walls of the casing or box C are provided with the usual pedestal guides 7 for fitting the box or casing C in truck frames of the type now used on old equipment so that the box or casing C is readily adaptable to truck constructions of types now in use. While of course the preferable, and particularly claimed construction is to have the casing or journal box C cast with an integral outer end wall B thereby best subserving the intent and purpose of the invention, nevertheless in some cases where more ready inspection is desired a demountable end cap D^x may be bolted or otherwise firmly secured to the one-piece casing, as a closure for its outer side. This is shown in Fig. 6 of the drawings.

Referring further to the journal box or casing C it is pointed out that the outer wall D forms a complete and effective closure for the outer end of the axle A, and when the casing or box is assembled on the bushing and axle as shown in Figure 3, there is provided a grease pocket 8 between the inner surface of the wall D and the end of the axle and the bushing. This pocket is, of course, only practical in connection with a closed end wall D since it provides for the effectual packing of grease at the end of the axle and bushing throughout the full diameter of the bore 4 thereby providing a sealed and thoroughly protected grease supply chamber at the outer end of the journal. The grease in this chamber, under the relative longitudinal movement occurring between the axle and the casing or box, due to the side movement of these parts under travelling conditions, will tend to force grease between the bearing faces of the bushing, axle, and casing without the necessity of utilizing any accessories at the end of the axle or on the casing for obtaining this extruding action of the grease.

The casing or box C is provided with suitable lubricating feeding means, one form of which is illustrated in the drawings wherein it will be observed that one of the walls 9 are provided with suitable lubricant storage chambers 10—10 having the closure plugs 11—11 at their outer ends while their inner ends communicate with the lubricant distributing passages 12 for supplying lubricant from the chambers 10 to the openings 3 of the bushing B and the pocket 8. The chambers 10 may be fitted with any suitable means for filling the same, and in the example shown each chamber is provided with a filling passage 13

which communicates with the chamber at its inner or rear end while the outer ends of said passages lead to a common opening 14 which may be provided with a cap or plug 15. When this plug is removed the passages 13—13 may be supplied with grease or other lubricant from any well known pressure greasing system in use today, and, for the purpose of indicating the quantity of lubricant in the chambers 10, the same may be provided with suitable tell-tale or indicator devices of any desired type. An example of the latter means is shown in the drawings in the form of plungers 16 which are pressed in contact with the lubricant by springs 17 while the stems 18 carried by said plungers project through the plugs 11 a greater or less distance according to the amount of lubricant in the chambers 10—10. It will also be observed that the chambers 10 are provided with the radially disposed passages 12^a and closure plugs 12^b which are aligned with the lubricant feeding openings 12. The plugs 12^b are located on an exposed face or wall of the casing so that if desired a pressure grease feed connection may be connected at a point in line with the feed openings 12, or, the openings or passages 12^a may be utilized for the insertion of a cleaning tool in the event that the feed passage 12 should become fouled and prevent the proper feeding of grease from the chambers 10 to the bushing under the influence of the spring pressed plungers 16.

Without further description it is thought that the features and advantages of the invention will be readily apparent to those skilled in the art, and it will of course be understood that changes in the form, proportion and minor details of construction may be resorted to, without departing from the spirit of the invention and scope of the appended claim.

I claim:

In a journal box of the class described, the combination with the journal box casing having a side wall and a closed outer end wall, of means accessible from said closed outer end wall for supplying lubricant to the bearing, said means comprising a pocket formed in said side wall of the casing and communicating at its inner end with the bearing, a plug removably engaging the outer end wall and located at the outer end of said pocket, a spring pressed plunger operating in the pocket and having a tell-tale stem portion projecting through the plug to be visible for inspection at the outer end of the box, and a filling passage also formed in the same wall of the box as the pocket and communicating at its inner end with the pocket, and a removable filler plug located at the outer face of the box for removably closing the inlet end to said filling passage.

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