May 9, 1933. J. D. HERR ET AL 1,907,808

JOURNAL BOX FOR RAILWAY EQUIPMENT

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Fig. 1.

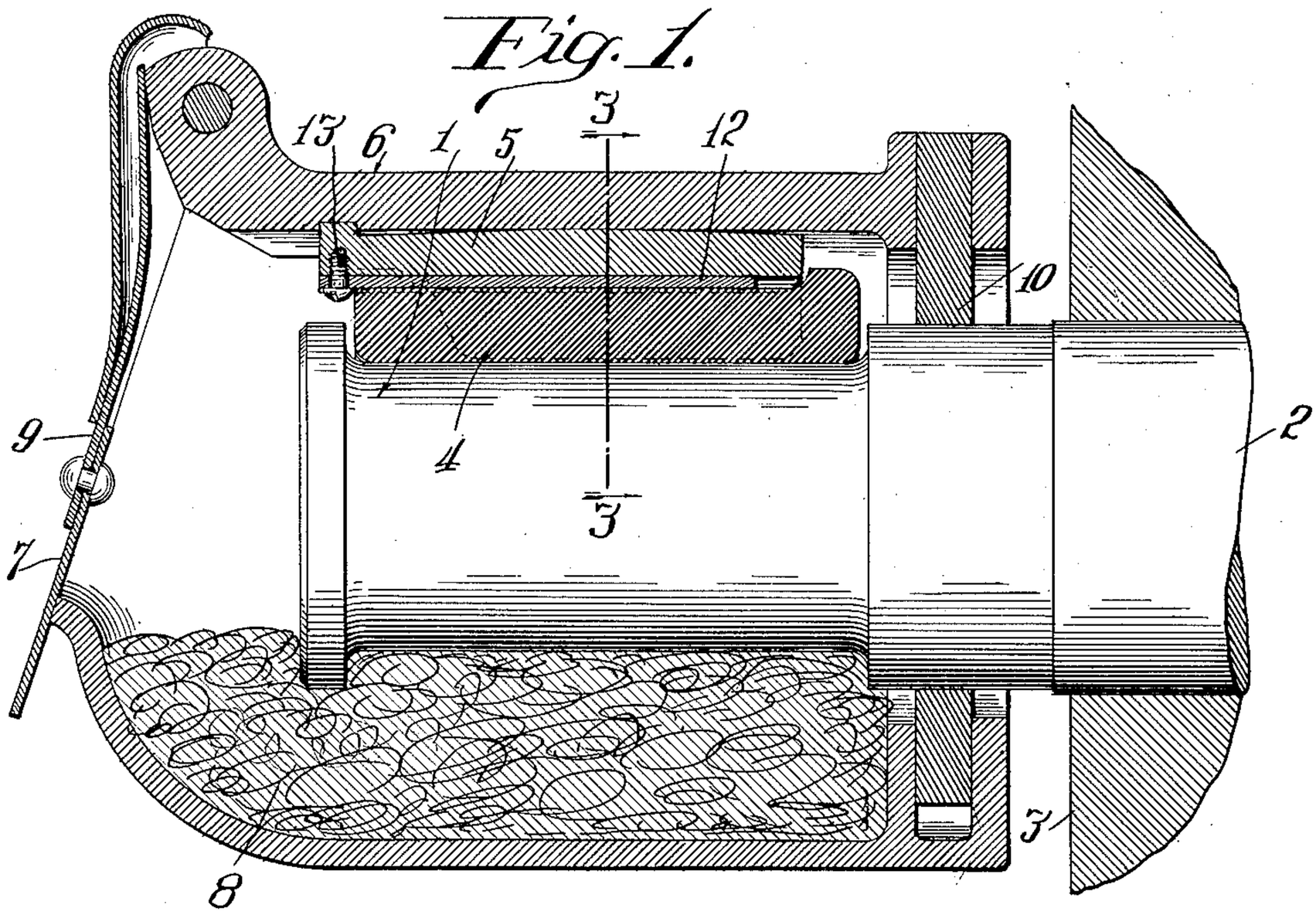

Fig. 2.

Fig. 3.

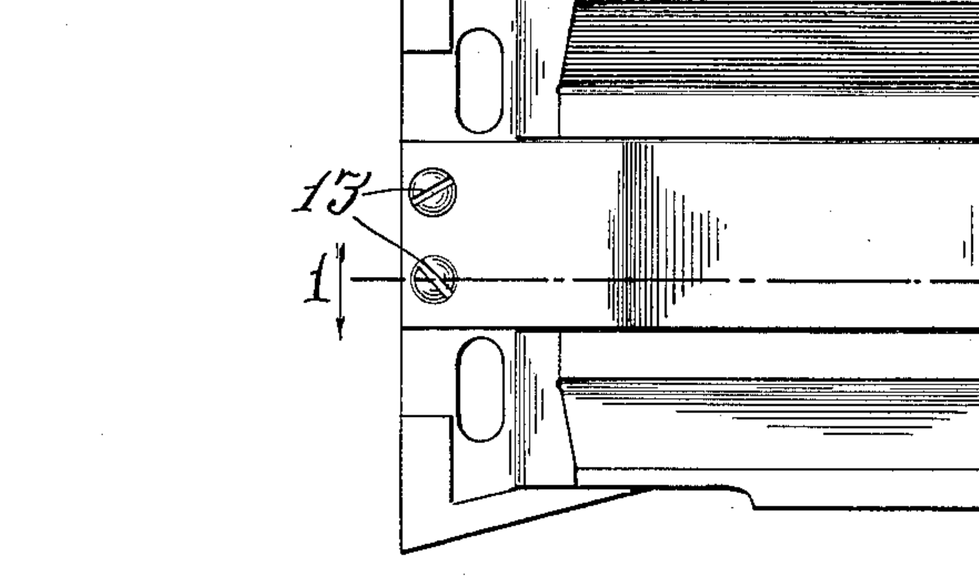

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Fig. 4.

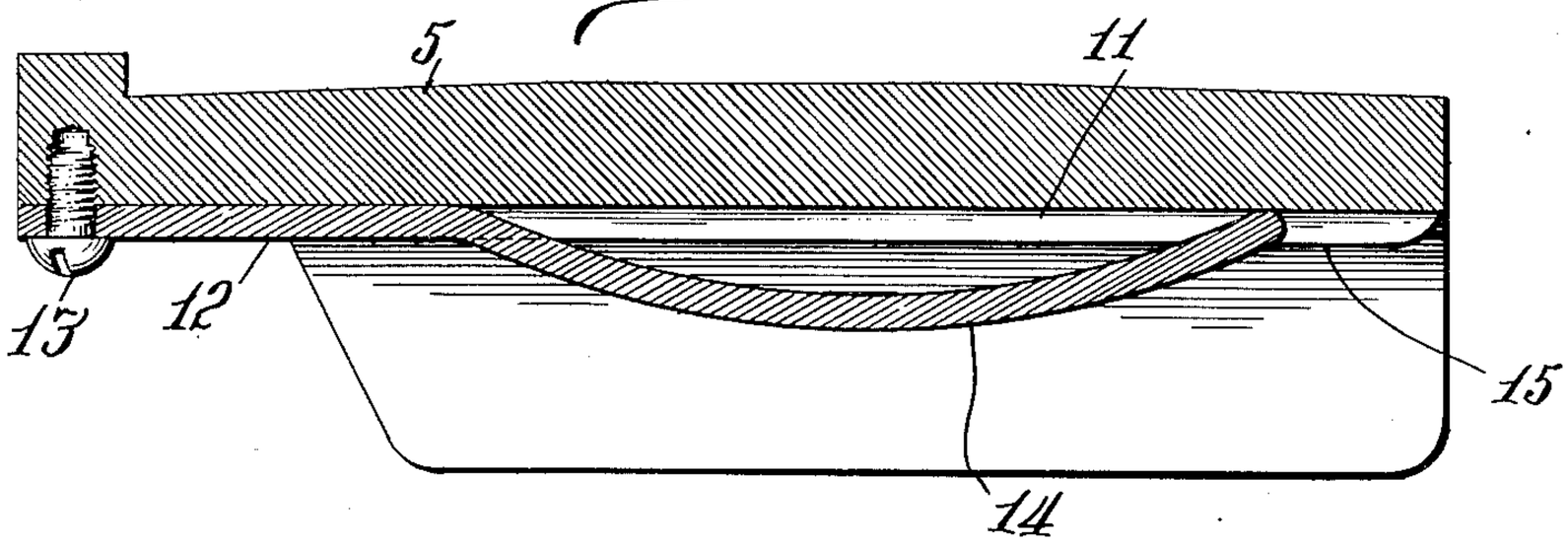


Fig. 5.

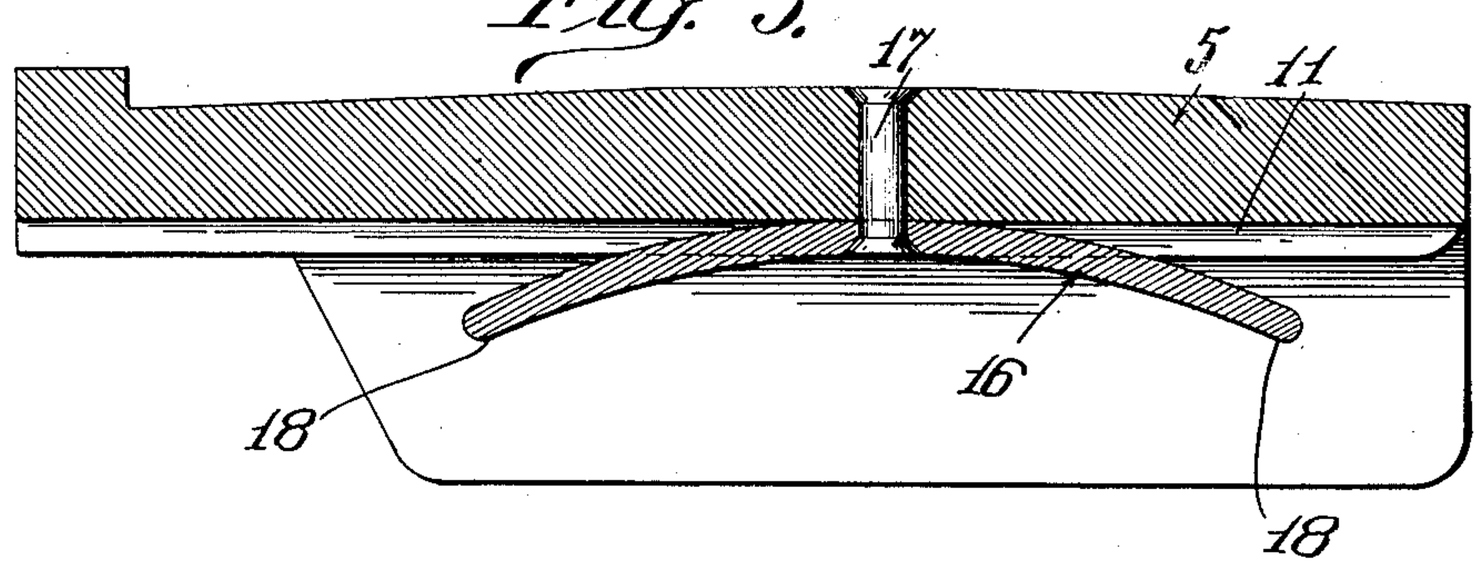
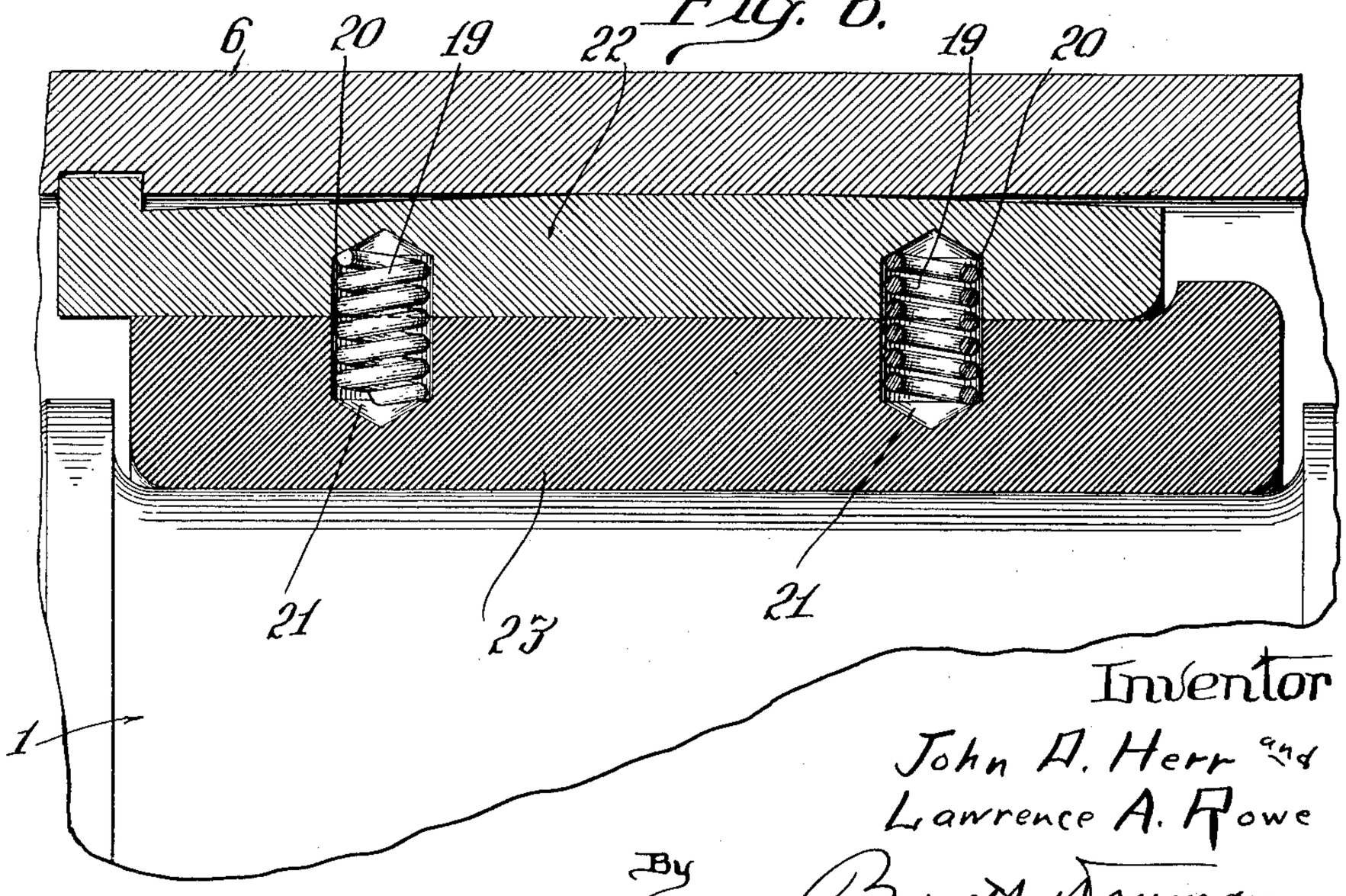


Fig. 6.



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UNITED STATES PATENT OFFICE

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JOURNAL BOX FOR RAILWAY EQUIPMENT

Application filed July 26, 1929. Serial No. 381,273.

This invention relates to certain new and useful improvements in journal bearings for railway rolling stock and more particularly to what may be termed a "spring wedge" for holding the brass journal bearing in place upon the journal of the axle at all times and under all conditions, in steam railroad or electric railway equipment. The invention is applicable for use on either engines, railway cars, motors, or other similar equipment.

The particular purpose of this improvement is to provide means for holding down the brass bearing so that it will not leave the journal while the equipment is passing over railroad crossings, rough tracks, due to a poorly maintained condition, or tracks made rough by heaving as occurs during freezing weather.

As is well known, the journal is lubricated by providing a mass of lubricant carrying waste, within the journal box which engages the lower exposed portion of the journal and maintains a film of oil thereon which is carried up between the journal and the brass supported thereby. Due to the sticky condition of the lubricant, there is a tendency for fuzz, lint, threads or other ingredients of the journal packing to be carried up by the oil film on the journal, these materials being ordinarily scraped off the journal by the lower edge of the bearing brass. In case the brass temporarily leaves the journal when passing over rough spots in the track, at which time it is momentarily relieved of the weight of the parts normally supported thereby, some of these ingredients in the packing material may be carried up underneath the bearing and on top of the journal, thus causing excessive beating of the journal, and many times resulting in serious trouble, such as melted bearing linings, cut journals, etc.

The present invention relates to a means for holding the journal brass in engagement with the journal at all times and under all conditions, so that no opportunity is given for the foreign materials to be drawn up between the brass and journal. Also, as long as the brass bearing does not leave the journal, there is less tendency to break down the oil film between the brass and the journal, which might be caused by the severe impact as the bearing returns to its place after having left the journal. There is also less tendency to crack the babbitt linings of the brass bearing due to this same impact.

In general, the object of this invention is accomplished by interposing an expansible member or members between the brass and one of the elements supported thereby. In the preferred form, a spring is mounted in the lower surface of the journal box wedge and normally compressed, flexed or otherwise placed under tension when the wedge is supported on the bearing brass. If, for any reason, the supported elements tend to be thrown up and leave the journal, this spring will expand and force the brass downwardly away from the wedge, thus holding the brass in constant engagement with the journal of the axle.

The general object of this invention is to provide an improved means for holding the brass in constant engagement with the journal, as briefly described hereinabove, and as set forth more in detail in the specifications which follow.

Another object is to provide an improved form of spring wedge for use in journal boxes.

Other objects and advantages of this invention will be more apparent from the following detailed description of certain approved forms of apparatus adapted to carry out the principles of this invention.

In the accompanying drawings:

Fig. 1 is a longitudinal vertical section through a car journal bearing equipped with a preferred form of this invention, the spring wedge being shown in vertical section, taken substantially on the line 1—1 of Fig. 2.

Fig. 2 is a bottom plan view of the wedge.

Fig. 3 is a transverse vertical section, taken substantially on the line 3—3 of Fig. 1.

Fig. 4 is a longitudinal vertical section through the improved wedge when removed from the journal bearing.

Fig. 5 is a view similar to Fig. 4 showing a modified form of the invention.

Fig. 6 is a longitudinal vertical section through a portion of a car journal bearing equipped with another modified form of this invention.

Referring first to Figs. 1 to 4 inclusive, the reference character 1 indicates the journal at the end of axle 2, supported by wheels 3. The bearing brass 4 rests on journal 1 and supports the wedge 5, by means of which the brass is held in position within the journal box 6, which supports the car structure. At 8 is indicated the mass of oil-carrying waste which is inserted in box 6 through door 7, and 10 is the usual dust-guard at the rear of the box. All of these parts may be of the usual standard construction with the exception of the wedge 5, which is modified as hereinafter described.

The central bottom surface of wedge 5 is formed with a longitudinally extending open slot or channel 11 adapted to receive a flat plate spring 12 which is anchored at its forward end to the wedge, beyond the brass-engaging surface of the wedge, in any suitable manner, as by means of the screws 13 herein shown. The central portion of spring 12 is bowed downwardly, as indicated at 14 in Fig. 4. When the wedge is in position over the brass 4, the bowed portion 14 of spring 12 will be compressed upwardly into the channel 11, as indicated in Figs. 1 and 3, so that the portions 15 of the lower surface of the wedge at the sides of channel 11 rest directly upon the upper surface of the bearing brass 4. The spring 12 need not be of great size or strength, since it does not normally support any of the parts. It need only be strong enough to force the brass 4 and wedge 5 apart when these members are thrown upwardly and relieved of the weight of the members normally supported thereby.

When the passage over some rough portion of the track tends to momentarily throw the brass 4, wedge 5, and parts supported thereby upwardly away from the journal 1, the spring 12 will expand and tend to return to its normal bowed condition, shown in Fig. 4, thereby pressing the brass 4 downwardly against journal 1. Consequently, as the other supported members are thrown upwardly, the brass 4 will be held down in engagement with the journal. As the wedge 5 and other supported members return to normal position, the spring 12 will again be compressed into the channel 11.

In the modification shown in Fig. 5, the bowed spring 16 is secured at its central portion to the wedge 5 within the channel 11, as by means of the rivets 17 or equivalent fastening devices. The two end portions 18 of spring 16 tend to spring downwardly to the position shown in Fig. 5, although the spring will normally be flattened out within channel 11 when supported on the bearing brass.

In the modification shown in Fig. 6, coiled springs 19 are housed in mating recesses or pockets 20 and 21 formed in the lower surface of wedge 22 and upper surface of brass 23, respectively. These springs will normally be under compression and tend to force the brass 23 downwardly, as in the modifications first described.

These spring devices, in any of the forms hereinabove described by way of example, not only tend to hold the brass in constant engagement with the journal, but also tend to hold the wedge firmly in engagement with the journal box, thus decreasing the probability of the journal brass or the wedge hopping out of place, during the passage over irregularities in the track.

As an alternative construction, the spring devices might be designed to work between the upper surface of the wedge and the under side of the journal box top, thus holding both the wedge and the brass down as the equipment passes over irregularities in the track. This latter construction has the disadvantage that the wedge may escape from the retaining lugs within the journal box. It is preferred to place the springs between the wedge and brass, as in the example here shown.

It is to be understood that the brass and journal do not ordinarily separate for any great distance, when this improved spring wedge is not used, and the springs 14 and 16 would not completely expand to the positions shown in Figs. 4 and 5, but will remain under considerable compression at all times. The brass 4 is thus held in constant engagement with the journal 1, thereby maintaining the oil film intact and preventing injury to the engaging surfaces of the brass and journal, either through the impact caused by the return of the brass to operative position or due to foreign substances which would be carried up between the brass and journal when these parts have momentarily separated. Also, when the brakes are applied too suddenly, there is a tendency for the wedge and brass to tip forwardly about the journal and this improved spring wedge tends to hold the brass down in its proper position at such times.

While this invention is particularly applicable to the bearings of railway rolling stock, such as railway cars and locomotives, it may also be applied to hold in position any journal bearing member which does not completely surround the journal so as to be locked in position, and which is subject to jolts or forces that might tend to dislodge it from its proper operative position. The term "brass" as used in the claims which follow is intended to cover any such bearing element.

We claim:

1. In journal bearings, a journal box wedge adapted to normally rest directly upon a bearing brass and formed with a channel in its lower brass-engaging surface, and a bowed plate spring secured to the wedge and adapted to be compressed within the channel when the wedge is supported on a bearing brass.

2. In journal bearings, a journal box wedge adapted to normally rest directly upon a bearing brass and formed with a channel in its lower brass-engaging surface, and a plate spring fitting within the channel and having a downwardly bowed central portion, one end of the spring being secured to the wedge, the bowed portion of the spring being flattened out within the channel when engaged with the bearing brass on which the wedge is supported.

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