April 30, 1935. J. O. WILSON ET AL 1,999,268

RAILWAY JOURNAL PROTECTOR

Filed Oct. 15, 1932 2 Sheets-Sheet 1

Fig. 1.

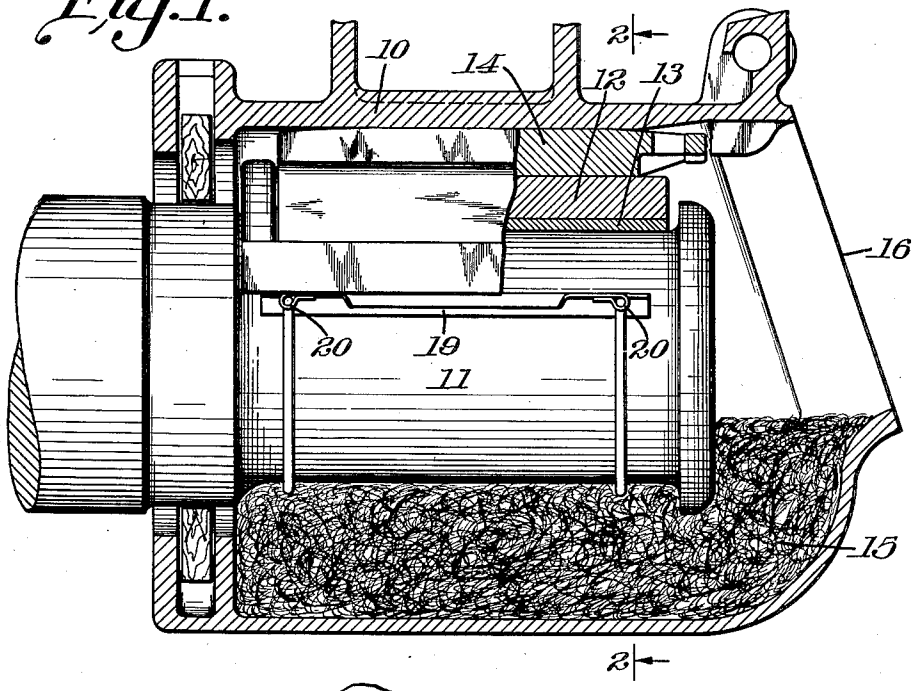
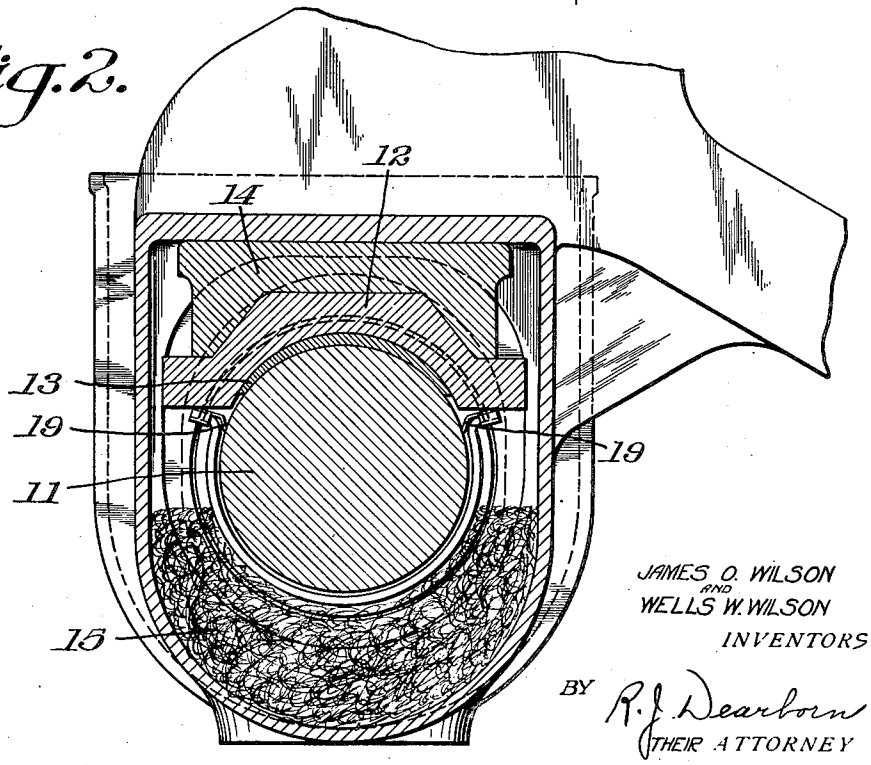



Fig. 2.




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Fig. 3.

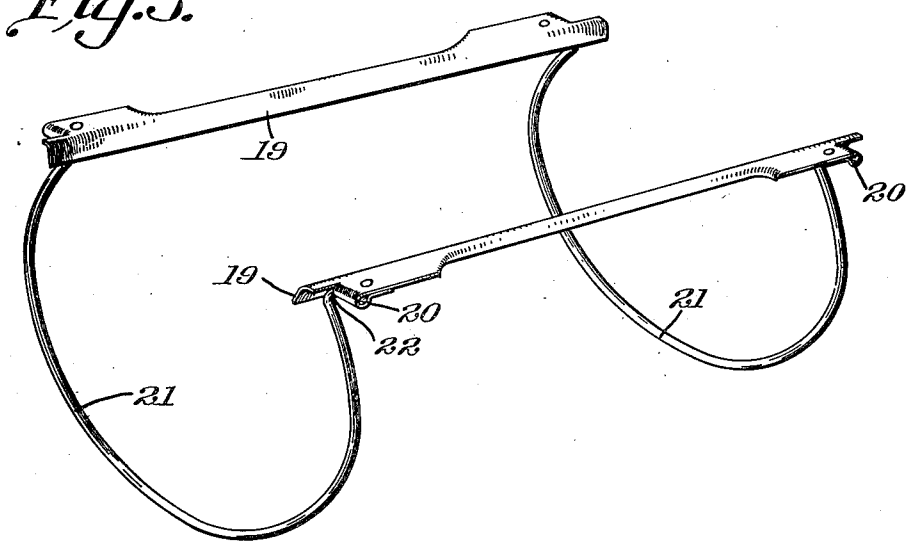
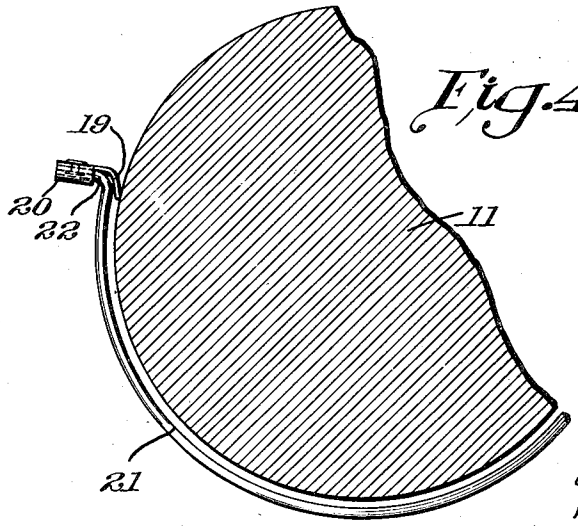



Fig. 4.




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1,999,268

# UNITED STATES PATENT OFFICE

1,999,268

## RAILWAY JOURNAL PROTECTOR

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Application October 15, 1932, Serial No. 637,886

2 Claims. (Cl. 308—89)

This invention relates to improvements in railway car journal protectors. More particularly the invention relates to a device adapted for use in connection with a railway car journal which comprises substantially spaced scraper-like blades longitudinally disposed along the opposite sides of the journal and lying in a plane above the central axis thereof. The scrapers are held in close contact with the journal by means of resilient members which partly encircle the journal.

Railway car journals are commonly lubricated by packing the car journal box with oil soaked waste. A sufficient quantity of this waste is used to contact the lower surface of the journal. In this manner the lower portion of the journal is continually wetted by lubricant which is transmitted to it from the oil soaked waste.

Under certain unfavorable conditions met with in operation, the oil soaked waste may be picked up bodily by the rotating journal and, being carried upwardly, becomes wedged between the journal and the journal bearing. Such a condition is spoken of by those skilled in the art as a "waste grab".

Highly undesirable conditions result from a "waste grab". The lubricant with which the waste is soaked is squeezed out by the combined actions of the journal and the journal bearing and, by the continued friction between the dried waste and the journal, sufficient heat may be generated to cause the waste to ignite. Simultaneously with the wedging of the waste between the journal and the journal bearing, the journal may be thrown out of alignment so that it no longer properly contacts the bearing. This results in localized high bearing pressures, deformation of the babbit with which the journal bearing is faced and abrasion of the surface of the journal. Hot boxes constitute a frequent cause of difficulty in the operation of trains, resulting frequently in a serious delay of train movements. The majority of such failures can be prevented by the elimination of "waste grab".

Various means have been devised for this purpose but thus far they have either involved extensive alterations to the journal box or to the various parts thereof, or required actual connection to the journal box or to one or more of its composite parts. This has been avoided by the device embodied in the present invention which may be fitted about the journal in a few seconds and which is not attached or connected in any manner to either the journal box or to any of the parts composing the journal box assembly. It is of simple construction but, despite simplicity of the structure, it is designed to give unlimited service with little or no attention after having been placed in position. By its use, "waste grabs" are prevented and the journal is at all times efficiently lubricated.

Other objects, features and advantages of the invention will appear from the following description:

Fig. 1 is a side view partly in section of a journal box showing a journal and other composite parts mounted therein and a protective device illustrative of the present invention in operative position about the journal.

Fig. 2 is a sectional view taken on the line 2—2 of Fig. 1.

Fig. 3 is an enlarged perspective view of the journal protector.

Fig. 4 is an enlarged sectional view of a portion of the journal with a portion of the protective device in operative position.

Referring more specifically to the drawings, 10 designates a journal box of a type now widely in use. A journal 11 is suitably positioned within the journal box. The journal is contacted on its upper side by a journal bearing 12 which is fitted with a facing 13 of an anti-friction metal or alloy. The bearing 12 is maintained in position above the journal 11 and in contact therewith by means of the wedge or key 14. The bottom of the journal box is packed with a mass 15 of oil soaked waste which is introduced into the box through an opening 16. The function of this oil soaked waste is to keep the working surfaces of the journal properly wetted with lubricant and under normal operating conditions the waste is positioned as shown in Fig. 1.

The present invention embodies a device which serves under all working conditions to prevent the waste from working between the journal bearing 12 and the journal 11. This device consists of a skeleton framework which partly encircles the journal 11 throughout the greater portion of its length within the box 10 and which is maintained in position by the inherent springiness or resiliency of the structure. More specifically the framework consists of two metal scrapers or blades 19 adapted to contact with the opposite sides of the journal 11 and which may be angularly shaped and formed or provided at or near their ends with eyes 20. These scrapers are connected together at their ends by means of resilient members or spring clips 21, preferably made of heavy gauge spring wire and designed to encircle and engage more than 180° of the jour-

nal, and to closely follow the circumference thereof. These clips are provided at their ends with hooks 22 formed by ending outwardly a portion of the material used in their fabrication. The framework is assembled by causing the hooks 22 of the clips 21 to engage with the eyes 20 of the scrapers 19. When assembled, the framework presents the general appearance shown in Fig. 3.

The scrapers or blades are preferably formed from angular-shaped sheet metal. The scraper blades therefore consist of two sides which meet at an angle. The inner side of each scraper is adapted, when in operative position, to project inwardly and downwardly into contact with the surface of the journal, while the second or upper side of the scraper assumes a substantially horizontal position and contacts the lower surface of the journal bearing. Near or at the ends of the upper side of the scraper are formed the eyes, the function of which has been hereinbefore described. In certain types of railway car journal boxes, shoulders are provided in the sides of the structure which would normally prevent the proper positioning of the device embodied in the present invention. In order to obviate this difficulty, a certain portion of the upper side of the scraper blade is reduced in width to permit the blade to accommodate the projecting shoulders within journal boxes constructed in this manner.

Any suitable metals or alloys may be used in the formation of the device. In actual practice, the springs have been formed from the usual well known spring steel while the scraper blades have been fabricated from steel which is readily workable and which has the added quality of being highly resistant to wear. This includes such steels as may be heat treated after fabrication or which may be subjected to special hardening treatments such as nitriding.

In operation, the protective device encircles more than 180° of the journal and, because of its inherent springiness, causes the scraper blades to firmly contact opposite sides of the journal in a plane above the axis of the journal and in a longitudinally yieldable position. Any waste that is picked up by the rotation of the journal is wiped off from the face of the journal by the scraping or wiping action of the blades. Because of the construction of the device, this action is identically the same whether the journal is rotating in a clockwise or a counter-clockwise direction. The device is so designed that normally the upper portions of the scraper blades contact the lower face of the journal bearing. Since there is little play between the clips and the journal, it is under no circumstances possible for the scrapers to become wedged under the journal bearing in cases where the bearing is jarred up from the journal. It is quite obvious, therefore, that the efficiency of the device is not affected by any abnormal conditions resulting from vibration or jarring of the members.

Obviously many modifications and variations of the invention, as hereinbefore set forth, may be made without departing from the spirit and scope thereof, and therefore only such limitations should be imposed as are indicated in the appended claims.

We claim:

1. In combination with a railway car journal box, a journal and a journal bearing, a readily removable frame partly surrounding the journal, said frame comprising angular-shaped scrapers disposed parallel to the journal on opposite sides thereof and in a plane above the axis of the journal, each of the scrapers having two sides which are angularly disposed to each other, the inner side projecting downwardly and inwardly into contact with the journal, the other side being disposed parallel to the lower surface of the journal bearing and in contact therewith, eyes formed at or near the ends of the scrapers, and resilient means adapted to yieldably encompass the journal and having their opposite ends hingedly mounted in the eyes at the ends of the scrapers to support the latter in a longitudinally yieldable position against the journal.

2. In combination with a railway car journal box, a journal and a journal bearing, a readily removable frame partly surrounding the journal, said frame comprising angular-shaped scrapers disposed parallel to the journal on opposite sides thereof and in a plane above the axis of the journal, each of the scrapers having two sides which are angularly disposed to each other, the inner side projecting downwardly and inwardly into contact with the journal, the other side being disposed parallel to the lower surface of the journal bearing and in contact therewith, eyes formed at or near the ends of the scrapers, and resilient means adapted to yieldably encompass more than 180 degrees of the journal, said means having their opposite ends hingedly mounted in the eyes at the ends of the scrapers to support the latter in a longitudinally yieldable position against the journal.

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