(No Model.)

W. BARR.

DUST GUARD FOR CAR AXLE BOXES.

No. 483,524. Patented Oct. 4, 1892.

Fig. 1.

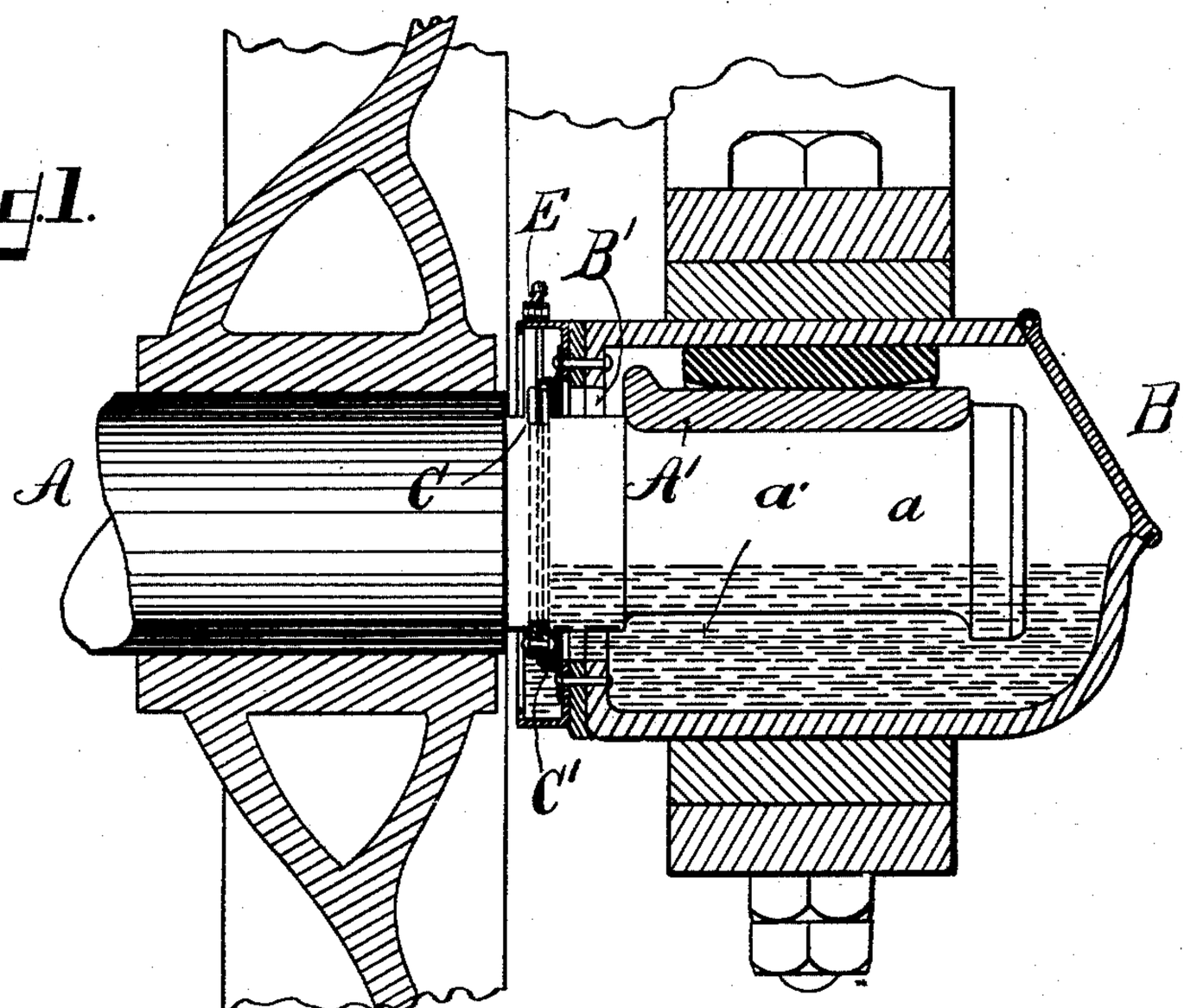


Fig. 2.

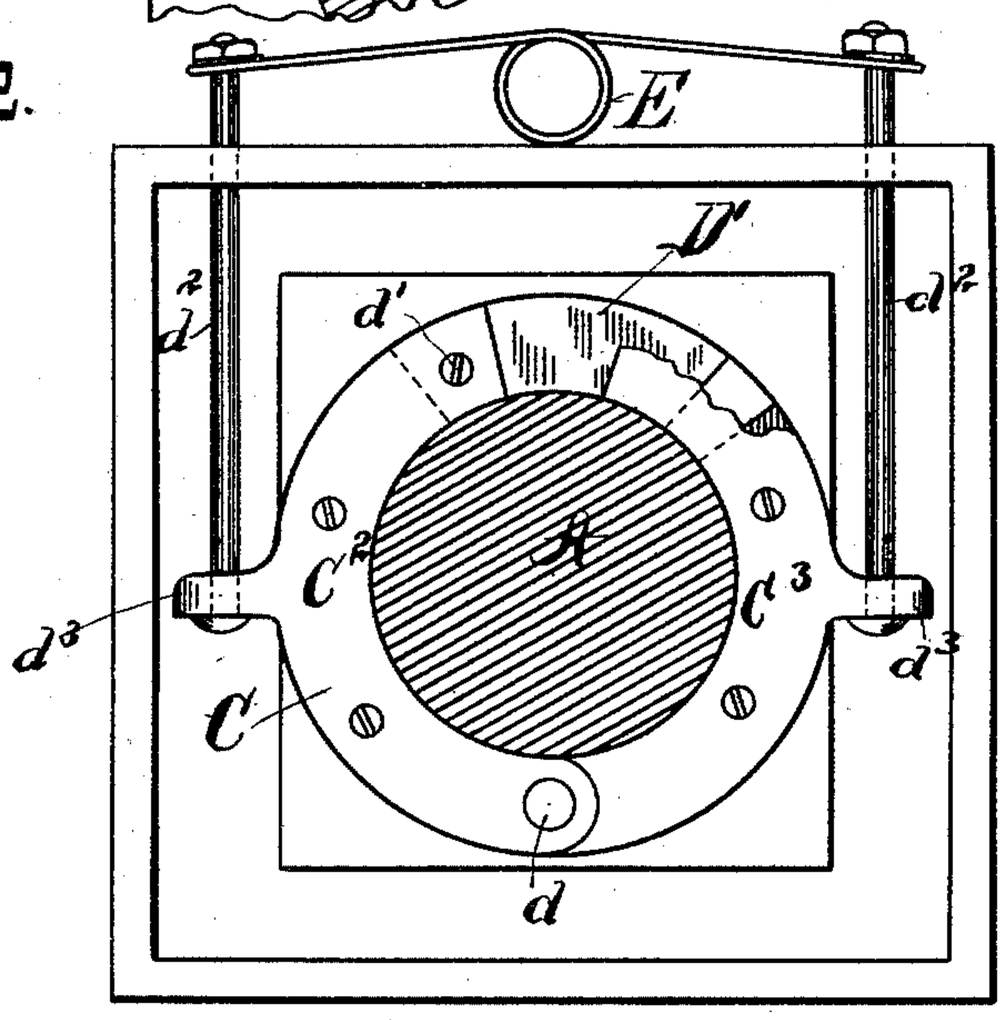
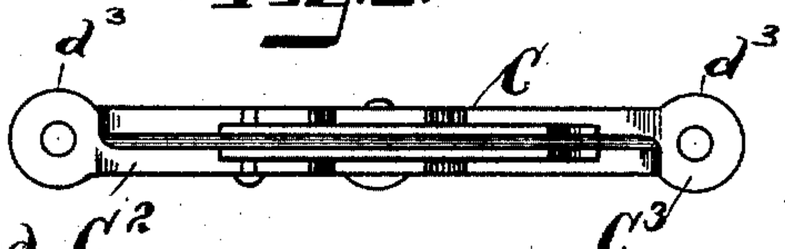


Fig. 3.



WITNESSES
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UNITED STATES PATENT OFFICE.

WILLIAM BARR, OF DETROIT, MICHIGAN.

DUST-GUARD FOR CAR-AXLE BOXES.

SPECIFICATION forming part of Letters Patent No. 483,524, dated October 4, 1892.

Application filed October 22, 1891. Serial No. 409,464. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM BARR, a citizen of Great Britain, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Dust-Guards for Car-Axle Boxes; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

The invention relates to a combined dust-guard and oil-receptacle for car-axle boxes, and has for its special object the provision of means for preventing the dust getting into the box and the oil escaping from it.

In the construction of axle-boxes provision has to be made for the natural movements of the axle in the box and bearings. The endwise movement—such as is forced onto the axle when the train or car is carried around a curve—is necessary from the ordinary wear of the brasses and of the axle. The vertical movement is necessary to provide for raising the box sufficiently to permit the brasses to be removed and to be replaced when worn. For these reasons it is impossible to make a dust or oil tight joint where the axle passes through the inner end of the axle-box. As the space left under the axle must be sufficient to allow the box to be raised at least three-quarters of an inch to remove the brasses, it is manifest that it is impossible to fill the box with oil up to and around the axle, as it will in that case necessarily run out underneath the axle. In my construction I provide the axle-box of the usual form, with the necessary space above described, and then provide inside of the box a dust and oil tight ring in which the axle revolves, and connect this ring with the edges of the opening of the box by any flexible material capable of holding oil and excluding dust, preferably of leather. I also design to make this metal ring in which the axle revolves automatically adjustable, so as to take up the wear and always maintain an oil-tight joint. Through this construction I am enabled to fill the box with oil up to and around the lower part of the axle, so that it runs in oil and is not dependent alone on capillary attraction, as in the case of the use of waste in the bottom of the box. The desirability of a construction that will prevent the oil from running out is in the fact that if the oil is preserved in the box a better quality of oil may be used and the working parts longer preserved. Efforts have been made to provide dust-guards; but I am not aware that any construction has ever been used that successfully provided for retaining the oil in the box.

In the drawings, Figure 1 is a vertical section of the box and the axle with my dust and oil guard attached, also showing the wheel broken away. Fig. 2 is a view of the inner end of the box, showing a sectional ring and means for taking up the wear on the ring. Fig. 3 is a view showing the additional piece inserted in the top of the ring.

In the several figures, A is the axle, and B the axle-box, each the same as ordinarily employed.

A′ is the brass forming the journal-bearing for the axle and, as is common in such constructions, fits an annular groove or channel *a* in the axle. This brass is supported inside of the box in the upper part, and the weight of the car comes on top of the box and ultimately on the brass. To remove this brass for the purpose of renewing it, it is necessary to jack up the box, so as to remove the weight from the axle, and elevate the box and the car a sufficient distance above the axle to permit the brass to be lifted out of the annular groove or channel in the axle. It is this movement that necessitates the enlargement of the opening B′ through the inside of the axle-box. In addition to this necessary vertical movement to remove the brasses, the axle also is permitted an endwise movement, and such movement is increased by the wear of the brasses or of the axle, and provision must be made for a relative longitudinal movement between the box and the axle. I leave this opening B′ as in the ordinary construction, but provide an annular ring C around the axle inside of the box, preferably working in an annular groove or channel in the axle and provided with suitable packing material to make an oil-tight joint with the axle. Between this ring and the inner edge of the opening described in the axle-box I provide a flexible hood C′, preferably of leather and sufficiently full to permit of any possible

movement that may take place between the box and the axle, either vertical or horizontal, as the case may be. I contemplate the use in this connection of a ring adapted to automatically take up the wear and do not limit myself to any particular construction in this regard. This ring may be made in two sections, pivoted, preferably, at the bottom and provided with means for contracting the sections at the upper portion, so as to always keep the bearing of the ring close up to the axle and form an oil-tight joint. This construction I specially show and describe; but the ring may be made of a helix and adapted to draw itself onto the axle, or a ring may be placed on the axle and revolved with it and having a beveled outer face, and a ring beveled on the interior, revolving on the beveled face of the ring attached to the axle, may be attached to the hood and the oil-tight joint provided by forcing these beveled rings together.

Various other constructions may be used, my invention being the employment of a ring provided to take up the wear and preserve an oil-tight joint.

In the construction shown in Figs. 1, 2, and 3, C^2 C^3 are the sections of a ring pivoted at the bottom underneath the axle at *d*. These sections at the upper end are separated a sufficient distance to permit them to approach one another to compensate for wear, and are bifurcated at their upper portion to permit of an additional section D′ to be inserted between the bifurcated portions. This additional piece may be pivoted to one section, as at *d′*, or it may be supported in its place altogether by the hood, to which it is attached. The hood itself is attached to these sections of the ring either by riveting to the outside or by fitting in a groove around the circumference of the ring, but should be so attached to the ring as to form an oil-tight joint therewith.

To provide for holding the sections of the ring up against the axle close at the bottom and forcing it in from the sides, I employ bolts d^2, engaged with lugs d^3 on the respective sections of the ring and passing up through the top of the box and there engaged with the spring E, the action of which is to draw the bolts upward and hold the ring close against the bottom of the axle, and at the same time tend to throw the sections of the ring inward toward one another and embrace the axle. This construction provides for keeping the connection between the axle and the ring at the bottom oil-tight, so that the box may be filled up to and around the axle with oil without its being permitted to run out and waste. The level of the oil is shown in Fig. 1 at *a′*.

What I claim is—

1. A dust-guard for railway axle-boxes, consisting of a hood of flexible material engaged with the edges of the opening in the inner end of the axle-box and provided with a metal ring in which the axle revolves, said ring provided with means for automatically taking up the wear and maintaining an oil-tight joint with said axle, substantially as described.

2. A dust-guard for railway axle-boxes, consisting of a hood of flexible material engaged with the edges of the opening in the inner end of the box and provided with a spring-ring embracing the axle, adapted to keep an oil-tight joint with said axle, substantially as described.

3. A dust-guard for railway axle-boxes, consisting of a hood of flexible material engaged with the edges of the opening in the inner end of the box and provided with a sectional ring having a joint below the axle, and means for drawing the section up against said axle and together to take up the wear, substantially as described.

4. A dust-guard for railway axle-boxes, consisting of a hood of flexible material engaged with the edges of the opening in the inner end of the box and provided with a sectional ring having a joint below the axle, and rods d^2, engaged with the sections of the ring, said rods supported on springs, whereby the wear on said sectional ring is taken up, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses.

WILLIAM BARR.

Witnesses:
O. M. GRIER,
EFFIE I. CROFT.