C. B. HARRIS.

Car Axle-Box.

No. 206,564. Patented July 30, 1878.

Fig 1.

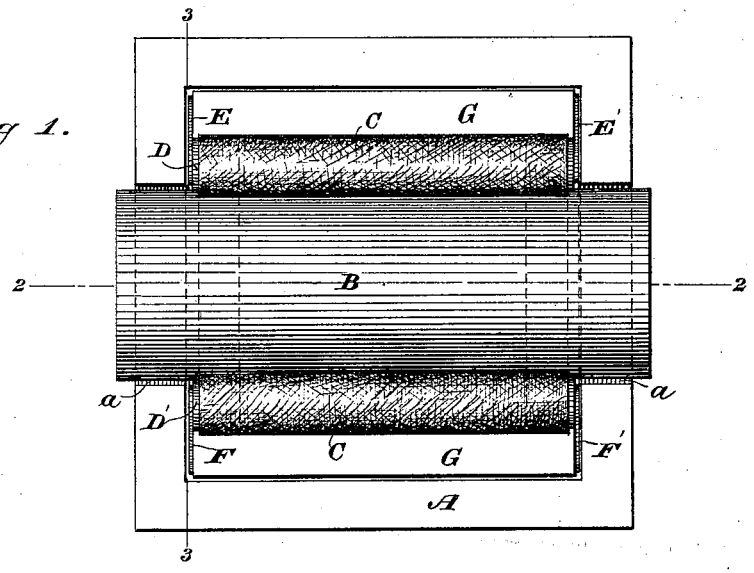


Fig 2.

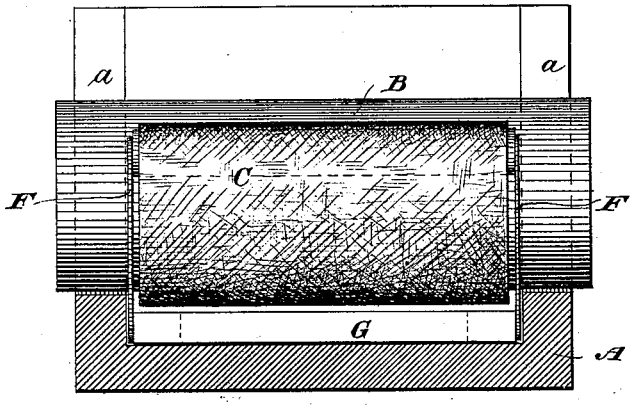
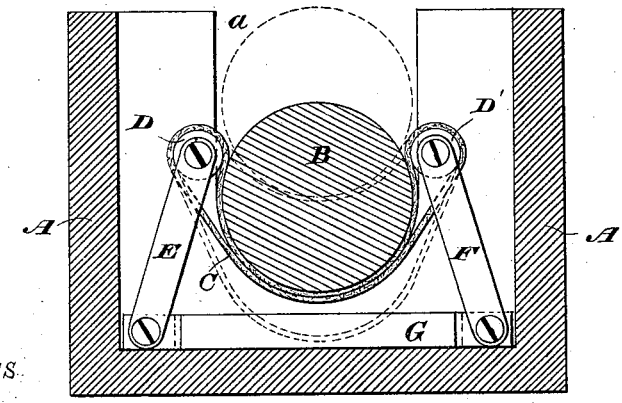


Fig 3.



WITNESSES.

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UNITED STATES PATENT OFFICE.

CHARLES B. HARRIS, OF NEW YORK, N. Y.

IMPROVEMENT IN CAR-AXLE BOXES.

Specification forming part of Letters Patent No. **206,564**, dated July 30, 1878; application filed July 8, 1878.

To all whom it may concern:

Be it known that I, CHARLES B. HARRIS, of the city, county, and State of New York, have invented certain new and useful Improvements in Car-Axle Boxes and Lubricators, of which the following is a specification:

My invention relates to improvements in car-axle boxes of that class which are provided with wells or receptacles for oil or liquid lubricant, and means for supplying the lubricating substances to the axle-journals by absorption or capillary attraction.

My object mainly is to provide a lubricant-conveyer or device for supplying the oil to the axle-journal and bearing which will be self-adjusting to the journal, so as always to properly supply a sufficient amount of oil from the well or reservoir to the journal, and will remove any surplus oil therefrom; and my improvements consist in novel organizations of parts, and in combinations of devices hereinafter first fully described, and then specifically designated by the claims.

In the accompanying drawings, which show so much only of a car-axle box and its lubricator attachments as are deemed necessary to illustrate the improvements claimed, Figure 1 is a plan or top view; Fig. 2, a view, partly in elevation and partly in longitudinal section, in the plane of the line 2 2 of Fig. 1, the oil-well only being in section; Fig. 3, a transverse section on the line 3 3 of Fig. 1.

A box frame or well, A, constituting a receptacle for the oil or suitable liquid lubricant, is slotted or formed with openings *a a* at its ends to allow play to the axle-journal B.

Suitable bearings or brasses, covers, and all the usual and necessary parts of and attachments or connections to complete car-axle boxes are provided, as usual.

Packings are secured upon the journal outside of the well, so as to fit closely against its ends and prevent the escape of oil from the well by way of the journal-openings *a a*, as well as guard against the admission of grit, &c., to the oil. Heavy or thick felt washers, or other packing of a size sufficiently large to cover the openings throughout all the movements of the axle, may be employed, as usual, for this purpose.

The lubricant is supplied to the journal from the bottom or lower portion of the well, or from other oil-holder if the well is omitted, by a conveyer of suitable absorbent material, preferably felt, which is self-adjusting to the journal. This conveyer consists of an endless band, C, passing around rollers D D′, at the sides of and parallel with the journal B. These rollers are mounted so as to turn freely in hinged arms or inwardly-inclined pivoted uprights E E′ F F′, which automatically move the rollers and those portions of the belt which envelop them on their inner sides toward the journal, and thus keep the lubricant-conveyer in contact with the journal in whatever position it may be within the range of its movement in the car-axle box.

The inwardly-inclined roller-carrying and belt-supporting arms are pivoted at their lower ends to a frame or support, G, loosely fitting in and resting upon the bottom of the oil receptacle or well. This belt-frame, as shown by the drawings, is of a skeleton and rectangular form, with the inclined arms pivoted to its four corners.

Instead of a specially-provided oil-well or box-frame the endless lubricant-conveyer and its carrying-frame G may be placed in any suitable ordinary axle-box having provision for the oil.

In all the figures of the drawings the journal B is shown in the lowest position it can ever assume, with the belt stretched taut. By the dotted lines, Fig. 3, the journal is shown in a higher position, and in about its position relatively to the other parts usually occupied. The degree of play of the journal is immaterial, however, so long as it does not descend sufficiently low to injuriously stretch the band or ascend so high as to clear the rollers and belt.

From the foregoing description it will be seen that the natural tendency of the inclined arms to rock inward, to cause the capillary conveyer-apron to conform to the journal, is aided by the weight of the rollers and of the apron. This movement toward the center insures the constant contact of the apron and journal, and the ascending oil carried up by the porous apron is regularly supplied to the journal, and all surplus lubricant, grit, &c., is wiped from the journal. An ample amount of

oil adheres to the journal to be carried by it to the brass or bearing and thoroughly lubricate the surfaces in contact. A small amount of oil is thus made to most thoroughly lubricate the journal, and waste is prevented. A portion of the conveyer at the under side or bottom part of the apron depending from the rollers is always in the oil, whatever the position of the journal. The revolution of the axle, together with the motion of the car, causes the apron to change its position, and insures the wiping of the journal and the supply of fresh oil. At all times the upper side of the apron bears against the journal, and partially envelops it between the rollers, being pressed by them against the journal upon opposite sides and above its bottom. The rollers are always above the oil in the well or receptacle, and the apron between them is forced to sag downward to conform to the periphery of the lower part of the journal.

Springs might be employed to force the arms toward the journal, if desired; but I have found them unnecessary. When employed they increase friction between the apron and journal and promote wear of the apron.

I claim as of my own invention—

1. The hereinbefore-described self-adjusting lubricant-conveyer for car-axle boxes, consisting of the endless apron bearing against the opposite sides of the journal, above the level of the oil-supply, partially enveloping the journal at bottom, yieldingly supported and partially submerged at its under side in the lubricant.

2. The combination, substantially as hereinbefore set forth, of the journal, the endless apron, and the self-adjusting rollers around which the apron passes at opposite sides of the journal, above its bottom, whereby the upper side of the apron is pressed up to the journal, above the level of the oil in the reservoir, and the lower portion of the apron depends from the rollers into the oil, as described.

3. The combination, substantially as hereinbefore set forth, of the frame, the hinged arms carried thereby, the rollers, and the endless apron.

4. The combination of the oil-well or box-frame, the journal, and the self-adjusting lubricating endless apron, yieldingly supported at the opposite sides of the journal and loosely depending beneath the journal into the oil.

5. The combination of the oil-well, the journal, the inwardly-inclined arms, the frame loosely fitting in the oil-well, and having the arms pivoted to it, the rollers supported in the arms, and the lubricant-conveyer, these members being constructed and operating substantially as hereinbefore set forth.

In testimony whereof I have hereunto subscribed my name.

CHARLES B. HARRIS.

Witnesses:

WM. B. HOLLINGSHEAD,

JACOB DU BOIS.