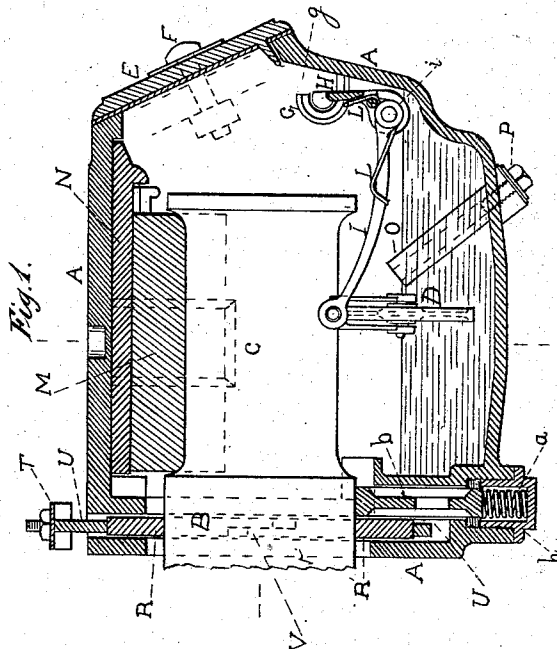
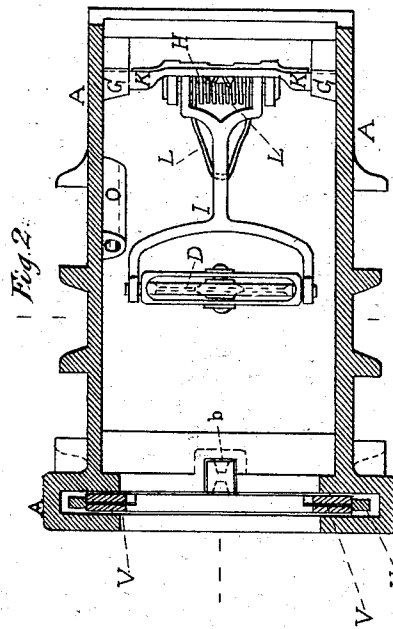
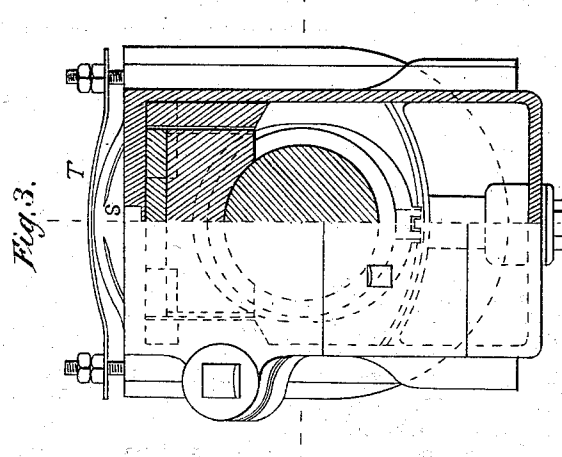
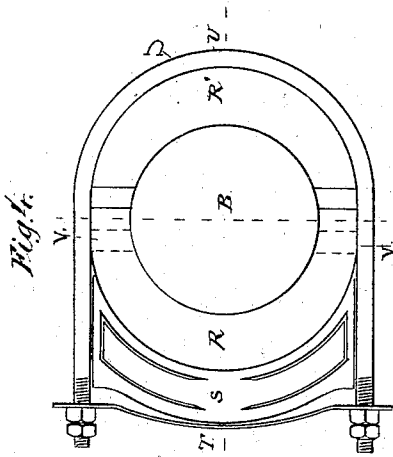


J. S. SANSON.
Car-Axle Boxes.

No. 154,194.

Patented Aug. 18, 1874.



Witnesses.

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UNITED STATES PATENT OFFICE.

JOHN S. SANSON, OF NEW YORK, N. Y., ASSIGNOR TO SANSON'S CAR-AXLE LUBRICATING COMPANY, OF SAME PLACE.

IMPROVEMENT IN CAR-AXLE BOXES.

Specification forming part of Letters Patent No. **154,191**, dated August 18, 1874; application filed June 30, 1874.

To all whom it may concern:

Be it known that I, JOHN S. SANSON, of the city, county, and State of New York, have invented certain Improvements in Boxes, and in Devices for Lubricating Journals, which are more especially intended for car-axle boxes, but may be applied to other journals and bearings.

My invention relates more particularly to the devices for lubricating the axle, and for preventing a waste of the lubricating material, and it is more closely defined in the following specification and description, and in the appended claims, reference being had to the drawings, which represent the improvements applied to a car-axle box.

In these, Figure 1 is a vertical section of the box, showing the end of the axle. Fig. 2 is a horizontal section, with the axle withdrawn. Fig. 3 is a front elevation of the box, a portion being cut away to show some of the interior devices; and Fig. 4 is a view of the packing devices.

A is a box, formed, shaped, and constructed, for the most part, like a common car-axle box. B represents the axle, having a portion, C, reduced in size for the bearings. D is a lubricating-wheel, such as is shown in Letters Patent which were issued to me on the 2d January, 1872, and reissued on the 23d of April of the same year. E is the cover of the box, through which the oil or other lubricating material is introduced, secured, as usual, by the bolts F. G G represent two curved or hooked bearings on the side of the box, in which is hung the yoke H by its arms or lugs K K. This yoke is jointed, by the pivot i, to the arm I, from which is hung, in swinging bearings, as in my former patent, the wheel D. The spring L L L tends to bring the yoke H and arm I together, thus forcing the wheel up against the axle B C, and securing the yoke H firmly in the curved bearings G, so that it may not be jarred out through the slots g. When, however, it is desired to remove the wheel and its bearings, for the purpose of cleaning or otherwise, it can be done by pressing the yoke H back toward the end of the box until the lugs K can be raised through the slots g, and the

whole device, including the wheel, may then be removed from the box through the cover E. M is the ordinary bearing for the axle, secured in place by the draw-piece N, and O is a tube leading through the bottom of the box, where it is closed by the screw-plug P. This tube is for the purpose of drawing off the oil in case the box should be overfilled.

This form of lubricator is, in practice, not found to be economical, owing to the great waste of oil which escapes through the back of the box, between the axle and the sides of the hole through which it is introduced. To remedy this a packing-ring, washer, or collar has been placed around the axle at this point, with the intention of making a tight joint, through which the oil could not pass.

The form of packing devices which I have used is shown in detail at Fig. 4. The rear wall of the box is made double, as shown by the sectional views, Figs. 1 and 2, and in the mortise thus made are placed two half-rings, R R', which are intended to embrace the axle closely, being compelled to do so by the wire U and the rigid flat bar T, between which and the upper half-ring is placed the bearing-piece S. The screw-nuts on the ends of the wire U force the bar T and bearing-piece S onto the ring R, forcing the latter onto the axle, and at the same time drawing up the wire U and the packing-ring R' onto the lower half of the axle. The proximate ends of the ring are rabbeted so as to slip past each other, as shown at V, Figs. 1, 2, and 4, and thus allow themselves to be fed down to each other as the inner sides become worn. The screw-nuts are adjusted so as to bring the packing-ring into exactly the proper degree of bearing upon the axle, and, when the ring becomes worn, should be readjusted.

In previous devices of this kind, where a spring has been used to force the packing onto the axle, the spring has the effect of perpetually keeping the ring in actual contact with the axle, and with some degree of pressure, which is not wanted.

In my arrangement, if the axle is packed too tightly in the first place it will quickly wear to a correct bearing, as I find by experi-

ment, and will after that wear slowly, and can then be kept at such bearing by the nuts. I thus find that a very great advantage is in practice gained by dispensing with a spring.

In practice, however, it is found that these and all other packing devices permit a large waste of oil, and from a series of experiments I have reached the conclusion that it is practically impossible to make an oil-tight joint at this point. Any device therefore which pretends to accomplish this by a ring which surrounds the axle in a line parallel to its revolution, is useless as an oil-saving device, although of service in keeping dust and dirt from the box. My experiments have further shown me that the desired effect can be gained by scraping the oil from the axle—that is, by presenting to the axle an edge at right angles to the line of its revolution, *i. e.*, parallel with the axle itself. The device which I use is then a “scraper.”

In the lower part of the box, just inside of the packing, I make a tube leading through the bottom of the box, and closed by a screw-cap, *h*. In this screw-cap is a spring, *a*, which supports a scraper, *b*, Figs. 1 and 2, and presses against the under side of the axle. Its effect is that as the axle revolves, any oil which after being fed onto the axle by the wheel *D* is spread along the axle as far as the scraper *b*, will be removed by the latter and run down its sides onto the tube, from whence it passes back to the oil-chamber over the inner wall and shelf, which are lower than the outer wall at rear of the box, or runs back into the oil-chamber through perforations in the tube, which holds the scraper. In this way no oil is allowed to travel along the axle as far as the packing, and consequently now escapes through the latter. The screw-cap *h* can also be removed for the purposes of cleaning the scraper when necessary, and by means of it the latter can be fed up to the axle as it wears

off, and the tension of the spring can be regulated.

Instead of at the bottom, the scraper might be placed at the side or top of the axle; but the first position will be found the most advantageous, as the oil will more readily run away from the axle when once removed by the scraper.

With this device the oil is practically prevented from ever reaching the packing, and the loss from wasted oil is practically inconsiderable. It will be found useful not only where the lubricating wheel or other device, by means of which oil is fed from a reservoir onto the axle, is used, but also where a packing of “waste” saturated with oil is used as a lubricant.

The scraper and packing pieces may be constructed of wood, metal, or rubber, or any elastic or semi-elastic substance of sufficient hardness to withstand the wear, hardness and elasticity being the essential qualities, and that substance being best for the purpose which best combines these qualities.

What I claim, and desire to secure by Letters Patent, is—

1. The scraper *b*, constructed and applied substantially as and for the purpose described.

2. The combination of the scraper *b*, the spring *a*, and the screw-cap *h*, as set forth.

3. The slotted bearings *G* and yoke *K H*, in combination with the spring *L* and wheel-carrying arm *I*, substantially as described.

4. The overflow-tube *O*, in combination with the axle-box used as an oil-reservoir, as set forth.

5. The adjustable springless packing device consisting of the rigid bar *T*, screw-rod *V*, and the semicircular packing-pieces *R R'*, all combined as set forth.

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