(No Model.)

T. SAUNDERS.

CAR AXLE-LUBRICATOR.

No. 403,448. Patented May 14, 1889.

Fig. 1.

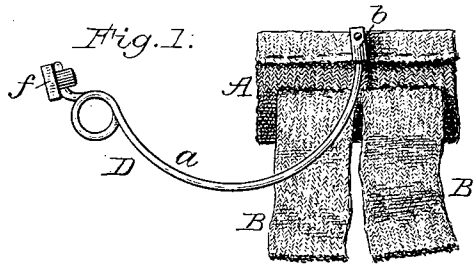


Fig. 2.

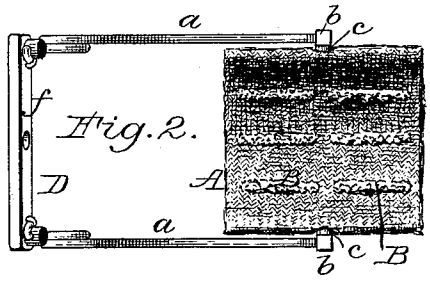


Fig. 3.

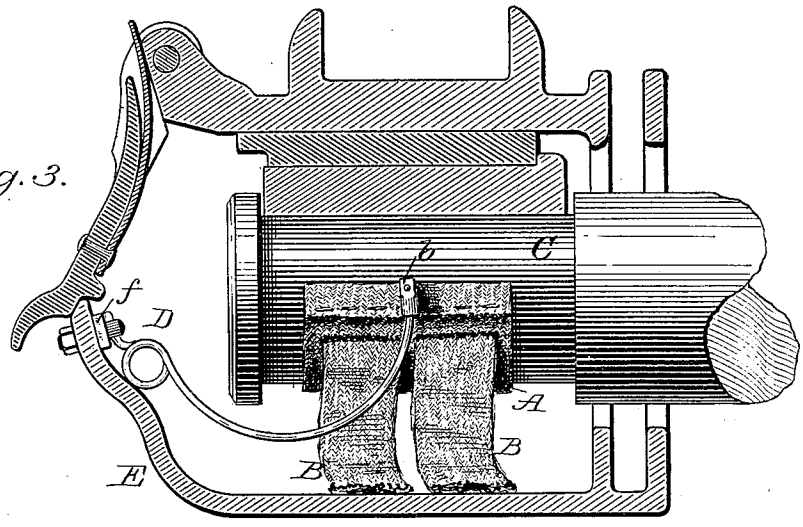


Fig. 4.

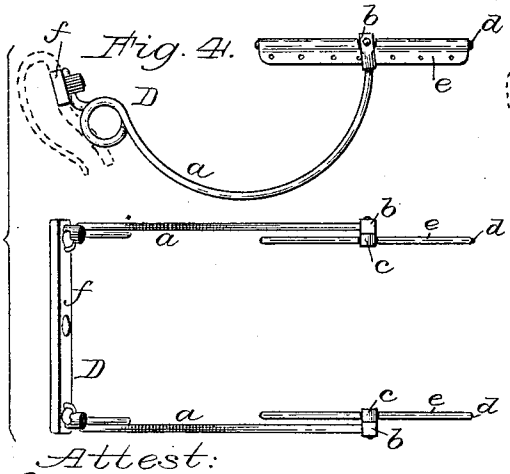
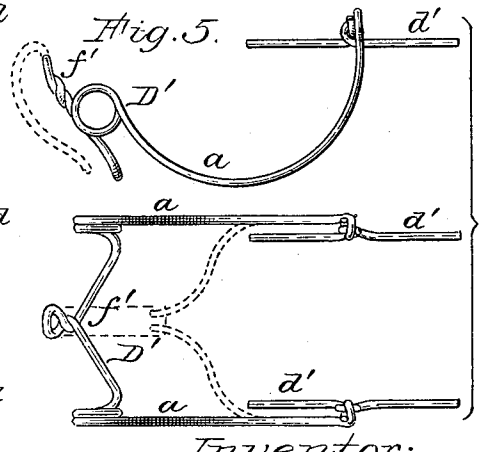


Fig. 5.



Attest:

Philip F. Larner.

Howell Battle

Inventor:

Theodore Saunders.

By Wm. C. Wood Attorney

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

THEODORE SAUNDERS, OF DANBURY, CONNECTICUT, ASSIGNOR TO THE SAUNDERS CAR AXLE LUBRICATOR COMPANY, OF SAME PLACE.

CAR-AXLE LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 403,448, dated May 14, 1889.

Application filed January 10, 1889. Serial No. 296,014. (No model.)

To all whom it may concern:

Be it known that I, THEODORE SAUNDERS, of Danbury, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Car-Axle Lubricators; and I do hereby declare that the following specification, taken in connection with the drawings furnished and forming a part of the same, is a clear, true, and complete description of my invention.

My said improvements relate to that particular variety of car-axle lubricators which were devised by me and disclosed in my application for Letters Patent filed June 23, 1888, Serial No. 277,961. The characteristic feature of said lubricators is a flexible pad provided with pendent wicks and suspended between side supports, which maintain said pad in proper contact with the under side of an axle. As heretofore constructed by me, said side supports have had their bearings upon the bottom of an axle-box; but I have now so devised said supports that they are in substance spring brackets or arms projecting from a suitable base, which is adapted to be secured to or mounted upon the front end of an axle-box below its door or opening, so that the lubricator may be readily applied to and removed from an axle-box, and also so that the proper relations between the pad and the journal may be readily secured and maintained by specially simple modes of adjustment. In my said lubricators as formerly constructed the flexible pads were connected at their ends throughout their length directly with the side supports; but now I have pivoted the pad centrally at its ends to side supports, which affords a desirable self-adjusting capacity of the pad with relation to the longitudinal surface of the journal.

Prior car-axle lubricators have contained supporting devices for pads or wicks or cotton waste, which have embodied spring-actuated frames carrying other frames pivoted thereto, and said other frames have either directly carried the absorbent material or rollers or blocks between which and the axle-journal the absorbent material was tightly interposed. None of these prior devices known to me is capable of use with suspended pads in accordance with my invention, first, because in each instance said prior devices pinch or compress the absorbent material between the axle-journal and the underlying supporting-surfaces—a mode of operation which I have specially sought to avoid; secondly, because in none of said prior devices having parallel supports for the pad are said supports separated by a space wider than the diameter of an axle-journal, and hence said supports are incapable of being connected with the ends of a pad and of holding the pad in a suspended position between them and in light contact with the entire under side of a journal; thirdly, because in such of said prior devices as have arms to which said parallel pad-supports are pivoted the parallel supports are coupled together to form a rigid frame, and the arms to which said frame is pivoted are connected together to form a second rigid frame, which, as a whole, is actuated by a spring, and hence said parallel supports on which the pad or waste is directly mounted have no pivotal action independent of each other, and the same is true of the two arms on which they are mounted, whereas in my apparatus the pad is pivoted at its ends, or, in other words, is directly connected at its two ends to parallel supports, which are separately pivoted upon arms which are independently resilient, thus providing for a complete self-adjusting capacity of exceeding delicacy, the importance of which will be apparent in view of the fact that in my lubricator the pad is supported by its two ends only and is held against the entire under side of the journal by springs, and that all force exerted by the springs beyond what is necessary to bear the weight of the pad, its pendent wicks, and the oil therein is exerted as tensile strain on the wick, and as this should be reduced to a minimum, so as not to impair its oil-lifting capacity, as well as to avoid undue wear, the complete and self-adjusting capacity of the wick with relation to the journal is a matter of material consequence, and this is amply provided for by me in the side arms, which are independently resilient, and in the immediate parallel pad-supports, which are separately pivoted to their respective spring-arms.

To more particularly describe my inven-

tion, I will refer to the accompanying drawings, in which—

Figures 1 and 2 illustrate one of my improved lubricators in side and top views. Fig. 3 illustrates the same as when applied to an axle-box, the latter being shown in longitudinal vertical section and containing an axle-journal. Fig. 4, in side and top views, illustrates the metallic portion of the lubricator without the pad and wicks and detached from the axle-box. Fig. 5, in side and top views, illustrates the metallic portion of my lubricator constructed in one of its simplest forms.

Referring to Figs. 1 to 3, inclusive, it is to be understood that the pad A and the pendent wicks B, having their upper ends projecting through the pad, are as before devised by me, and said pad is also suspended beneath the axle-journal C and maintained in light contact therewith, as with my original lubricators.

The pad-supporting bracket D embodies the main novel features of my improvements; but its combination with the pad constitutes one novel feature, in that the latter is not only suspended between appropriate portions of said structure, but it is also pivoted and so suspended at two centrally-opposite points that the pad is always free to evenly adjust itself to the longitudinal surface of the journal. As shown in Figs. 1 to 4, inclusive, the pad-bracket D has two curved spring-arms, *a*, side by side, and separated by a space greater than the diameter of the axle-journal with which it is to be used. The free ends of each of these arms occupy sockets *b*, which are pivoted to a small block, *c*, transversely bored to receive a wire, *d*, embraced by a folded strip, *e*, of thin sheet metal, over which an overlapped portion of one end of the pad A is secured, as clearly indicated. These arms *a*, at their fixed ends, are provided with a spring-coil, and are adapted to be secured to the front side of a journal-box, E, below the usual covered opening therein, by which access to its interior is afforded, and this particular adaptation may be widely varied as to construction without departure from my invention, it being only essential that said arms should constitute resilient or yielding portions of a pad-supporting bracket mounted at and upon said front end of the box, and projecting inwardly, so as to hold the pad in contact with the journal—as, for instance, said arms at their fixed ends are to be sometimes provided with screw-threads and nuts to enable them to be properly mounted on the end of the journal-box by means of holes therein, and such arrangement embodies certain valuable portions of my invention, although I prefer to have the arms connected together at their fixed ends to enable them to be mounted by the use of one hole in the axle-box, or even without any such hole at all, as will be hereinafter explained. In Figs. 1, 2, 3, and 4 I show a base-plate, *f*, to which the two arms are firmly secured, and said plate has a hole therein for the reception of a bolt for securing it in place.

Instead of a bolt, a strong spring-hook will serve as a reliable retaining device. As indicated in dotted lines in Fig. 4, the hook is adapted to pinch the end of the box below its edge at the opening, and therefore it will, by engaging with the outer and inner surfaces of the box, securely confine the pad-bracket in position, and with such boxes as have the well-known spring-lids the latter will also serve to hold the hook securely in place, and for enabling the lids to be tightly closed the edge of the box should be slightly recessed or grooved to receive the spring.

In Fig. 5 I show a pad-supporting bracket, D′, in a simple and inexpensive form. In this instance a single piece of suitable wire is bent so as to afford a base at *f′*, which is an equivalent of the plate *f*, and it has a broad full bearing for contact with the box-surface on which it is to be mounted, and the wire is also bent so as to afford a suitable eye or hole for the reception of a securing-bolt; or, instead of having the bolt, the wire may be branched and bent, as indicated in dotted lines, to afford the spring-hooks before referred to. At each of the free ends of the arms *a* the wire is bent to afford eyes, in which the pad-wires *d′* are suspended, each of these having an eye which occupies an arm-eye, thus providing for the desired pivotal connection of the pad with said arms. This pad-supporting bracket can be produced at such comparatively low cost as will fully warrant its use on freight and coal cars in view of the perfect and economical lubrication afforded in the use of the pad and wicks.

It will be readily obvious that, while two yielding or spring arms are essential at the points of connection of the bracket with the pad, it is a matter of little consequence for said arms to maintain their separate character all the way between the pad and the front end of the box, so long as each is independently capable of yielding, and hence I obtain good results when the arms are separated to afford sufficient length to properly hold the suspended pad, and are merged together into or secured to one spring-arm, extended to the front end of the axle-box and adapted to be secured thereto, as indicated in dotted lines in the top view of Fig. 5.

It will be seen that the pad and the wicks, even when charged with oil, will have so little weight that they will require but little strength in the spring-arms for supporting them, and that said arms may be readily bent and adjusted by hand for varying the location of the pad with reference to the journal, and also for securing the desirable degree of pressure between the end of the pad and journal, and, still further, that the lubricators may be readily applied and removed, and also, still further, that the pivoting of the pad to the arms, as shown, enables the pad at front and rear to self-adjust itself to the longitudinal sur-

face of the journal, and to thereby maintain uniform relations therewith; and it is to be understood that I deem this novel feature to be of value regardless of the form and arrangement of the side supporting-arms.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a car-axle lubricator, the combination of the suspended lubricating-pad, the wicks pendent therefrom, and a pair of independently-resilient side supports, to which the ends of said pad are centrally pivoted, said pad being suspended between said supports, substantially as described.

2. The combination, substantially as hereinbefore described, of a bracket having two independently-resilient arms and adapted to be mounted upon the front end of a car-axle journal-box and to project inwardly therefrom, and a lubricating-pad which is suspended between said arms and provided with pendent wicks, and is pivotally connected at its end to said two arms for maintaining it in position for contact with an axle-journal.

3. The combination, substantially as hereinbefore described, of a car-axle box, a suspended lubricating-pad having pendent wicks, and a pad-supporting bracket which is mounted upon and extends inwardly from the front end of said box, and which at its inner end has two arms, upon and between which said pad is suspended and to which the ends of the pad are separately pivoted.

THEODORE SAUNDERS.

Witnesses:

GEORGE B. BENJAMIN, Jr.,

HENRY O. RYDER.