STEVENSON & HAMMER.

Car-Axle Box.

No. 34,704. Patented Mar. 18, 1862.

Fig. 1.

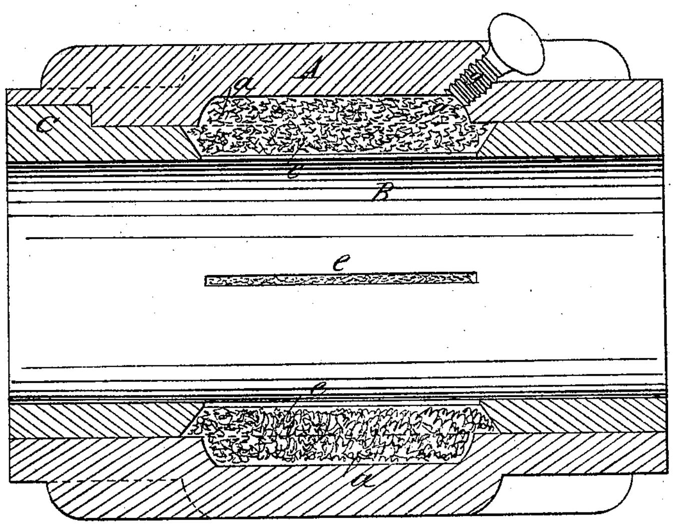
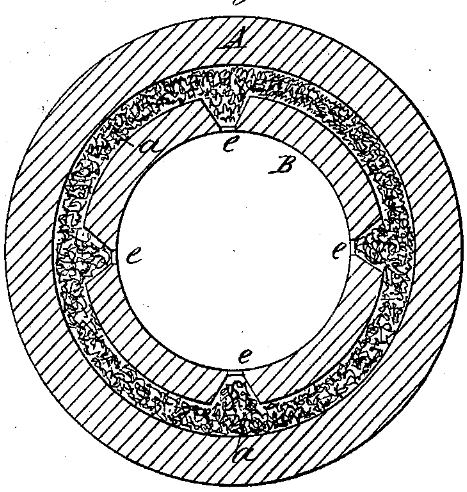


Fig. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

JAMES F. STEVENSON AND THEODORE B. HAMMER, OF McKEESPORT, PENNSYLVANIA.

IMPROVEMENT IN MODE OF LUBRICATING AXLES.

Specification forming part of Letters Patent No. **34,704**, dated March 18, 1862.

To all whom it may concern:

Be it known that we, JAMES F. STEVENSON and THEODORE B. HAMMER, both of McKeesport, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Lubricating Car-Axle and other Journal Bearings; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a longitudinal section of our invention. Fig. 2 is a transverse section of the same.

Similar letters of reference indicate corresponding parts in the two figures.

This invention relates to an improved lubricating device, designed more especially for coal-car and other axles on which the wheels are loosely fitted and which, carrying heavy burdens, are subject to rapid wear.

The invention consists in casting the hub of the wheel with a chambered recess on the inside extending about one-quarter the length of the same on either side of the center and having the axle-box which fits within said hub furnished with channels extending longitudinally thereof and opposite to the chambered recess in the hub to admit oil therefrom to the axle-bearing at a point near the middle and allowing the oil to work toward the ends of the box, thus making sure of keeping the axle thoroughly lubricated as long as any oil remains in the reservoir or chambered recess and at the same time effectually guarding against any oil escaping otherwise than at the ends of the axle-box after it has been used for lubricating, as will be hereinafter fully explained.

To enable others skilled in the art to fully understand and construct our invention, we will proceed to describe it.

A represents the hub of a cast-iron wheel, such as are used on coal-cars and fitted to revolve on the axles thereof. This hub is cast with a hole passing through it longitudinally, and concentric therewith a chambered recess *a*, which extends about one-quarter the length of the hub on either side of the middle and terminates at each end in a square shoulder.

B is the axle-box in which the axle revolves. Said box is made of cast-iron and chilled, or it may be of any other suitable metal or composition, and is cast of a size to snugly fit the hole in the hub of the wheel with a little driving or forcing after the sand and roughness are removed from its surface, which may be done by grinding or with a file in the usual manner. This box B is cast and chilled on a polished mandrel of the exact size of the axle desired for it to run on, so as not to require any finishing after it is taken from the mold to adapt it to use other than removing the rough barb at each end, which can be done in the manner before mentioned. On the periphery and at the back end of this box is formed a V-shaped projection *c*, which when the box is driven into the hub fits a corresponding recess formed therein and thereby prevents any independent movement of the two parts.

On the periphery of the axle-box and extending longitudinally thereof and through the box are two or more channels *e*, which are formed at points equidistant apart around the periphery and terminate at each end at a point opposite the ends of the chambered recess in the hub. These channels are made largest on the outer surface of the box and have downwardly-converging sides and ends, forming at the bottom a mere slit. Instead of these channels the box may be perforated and effect the same result, though perhaps not as well. The chambered recess *a* when the box is fitted in the hub of the wheel is filled with wool, cotton, or other suitable fibrous material and forms a reservoir for the oil, which is introduced therein through an opening *d*, afterward closed by a thumb-screw *g*. The fibrous material filling the channels in the box conducts the oil slowly to the axle, whence it is diffused by the motion of the wheel over the entire surface of the journal, keeping it constantly lubricated, and at the same time the oil, thickening as it reaches the ends of the box, prevents any from escaping thereat and running to waste, a most serious objection to all lubricating devices which admit the oil to the axle at a point near one end of the hub.

The above-described lubricating device is equally applicable to lubricating the axles of wheels in which the box and hub are cast all in one, the form of the reservoir and chan-

nels and mode of operation being the same in both cases. An advantage in having the axle-box made separate from the hub obtains in that it can be replaced by others after it is worn out and the wheel thus made much more durable than when the box and hub are cast both in one or solid.

The invention is applicable to all wheels and pulleys which run loosely on their axles or shafts.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

The hub A, chambered recess *a*, channels *e*, and thumb-screw *g*, when combined and arranged to operate in the manner and for the purpose set forth.

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