O. L. SMITH.

CAR AXLE-BOX.

No. 184,670. Patented Nov. 21, 1876.

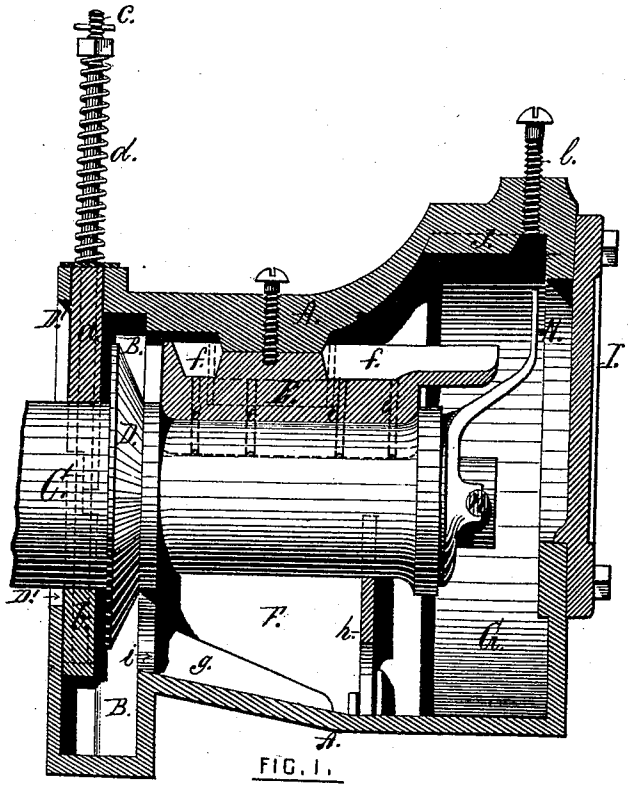

FIG. 1.

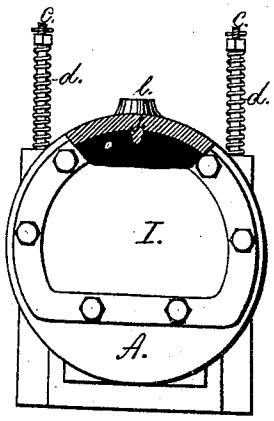

FIG. 2.

WITNESSES.

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IMPROVEMENT IN CAR-AXLE BOXES.

Specification forming part of Letters Patent No. **184,670**, dated November 21, 1876; application filed May 24, 1876.

To all whom it may concern:

Be it known that I, OLNEY L. SMITH, of the city and county of Providence, State of Rhode Island, have invented certain new and useful Improvements in Car-Axle Journal-Boxes; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

Figure 1 is a longitudinal section of the box through the central line of the axle, showing the manner in which the oil is supplied to the journal, and also the manner in which the waste of oil and the admission of dust to the journal are prevented. Fig. 2 is a front view of the box partly in section.

This invention relates to that class of lubricators for car-axles which elevate the oil by means of an attachment secured to the rotating axle, to the top of the brass over the axle, where it is allowed to flow through holes provided in the brass to the bearing on the axle, to lubricate such bearing, and consists in the novel arrangement of the parts so that the requisite quantity of oil will be delivered to the brass and distributed over the bearings of the axle, and all waste of oil and entrance of dust are prevented, as will be more fully set forth hereinafter.

The shell of the car-axle journal-box A A in the drawings is provided at its rear end with an annular chamber, B B, provided with an opening, D′. The axle C is provided with a collar, D, and the hole D′ is of such diameter that the collar D may pass through the same; but the center of the hole D′ is not on a line with the center of the axle, but is placed as high as possible, and allow the axle with the collar to enter the box and also keep the lower edge below the axle when the whole is in its proper place. By this arrangement the oil is not liable to leak out of the hole through which the axle and collar are entered into the box. The annular chamber B is extended below the box proper, and thus forms a receptacle in which the heavier metallic particles are retained and prevented from entering the main oil-reservoir. Behind this collar D is a rectangular space, in which a packing, consisting of two parts, *a* and *b*, slides, and which is kept in position against the axle by two bolts, *c c*, in connection with the spiral springs *d d*. The two parts *a* and *b* are arranged to lap one over the other so as to make a joint impervious to oil or dust, and arranged to allow for the wearing of the parts on the axle. The collar D being placed on the axle and revolving with the same, receiving all the oil and throwing it outward into the annular space, will also, if no provision is made to prevent it, draw, by this centrifugal force, air and dust through the hole surrounding the axle, and throw the same into the space B, and by this force expel oil from the box and throw the same against the wheel, as is the case in all boxes provided with revolving collars or other devices. The packing *a b* prevents both the admission of air and dust, and the waste of oil against the wheels, and thus insures economy in oil, and cleanliness.

The journal-bearing E has a number of channels, *e e e e*, connected at the top with a reservoir, *f f*, through which oil is supplied to the bearing. At the bottom of the shell or box are two partitions, *g g*, one on each side of the opening *i*, by which the oil from the annular space B flows into the oil-reservoir G. The space F below the axle is divided or separated from the oil well or reservoir by the loose partition *h*, and this space F is arranged so as to be readily filled with curled hair or other packing, which packing or filtering material is thus kept in place, and cannot enter the oil-well G, in which the oil is placed, and to which the filtered oil is returned. N is the arm secured to the axle by a pin passing through the axle, which, as the axle revolves with it, throws the oil at every revolution against the lip J at the top of the box, from which it drops into the reservoir *f f*, and from thence is conveyed to the journal, the brass bearing having a projection for receiving the oil extending beneath the lip J, the oil passing to the sides instead of the top of the journal by the channels *e e e e*, which are made tangent thereto.

A copious lubrication is thus supplied when the train is moving at full speed, and a correspondingly-less supply when the speed diminishes. By removing the cover I the whole interior is exposed to view without the necessity of removing any of its parts. An aperture at the top, closed with the plug *l*, may be

used for filling the well with oil. Practical use has demonstrated that this improved car-axle journal-box will at all times thoroughly lubricate the bearing of the axle, and not waste a particle of oil at the highest speed. The journal-box is simple in construction, and can be readily applied to existing railroad-cars.

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

1. In a car-axle box, the shell A, having the rectangular space B depressed below the main portion of the shell, and arranged to receive the collar D and packing *a b*, substantially as and for the purpose described.

2. In combination with an axle, having a shrunk or welded collar at the rear end of the journal, an axle-box, having its rear opening enlarged to admit said collar, and with said opening arranged eccentric to and higher than said axle when in place.

3. The combination, with the collar D, of the packing *a b*, made in two parts, and arranged substantially as described, to exclude the dust and prevent the waste of oil, as and for the purpose specified.

4. The shell A, having the rectangular space B extending below the shell, the opening *i*, the oil-well G, and the removable partition *h*, arranged in relation to each other substantially as and for the purpose described.

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Witnesses:

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