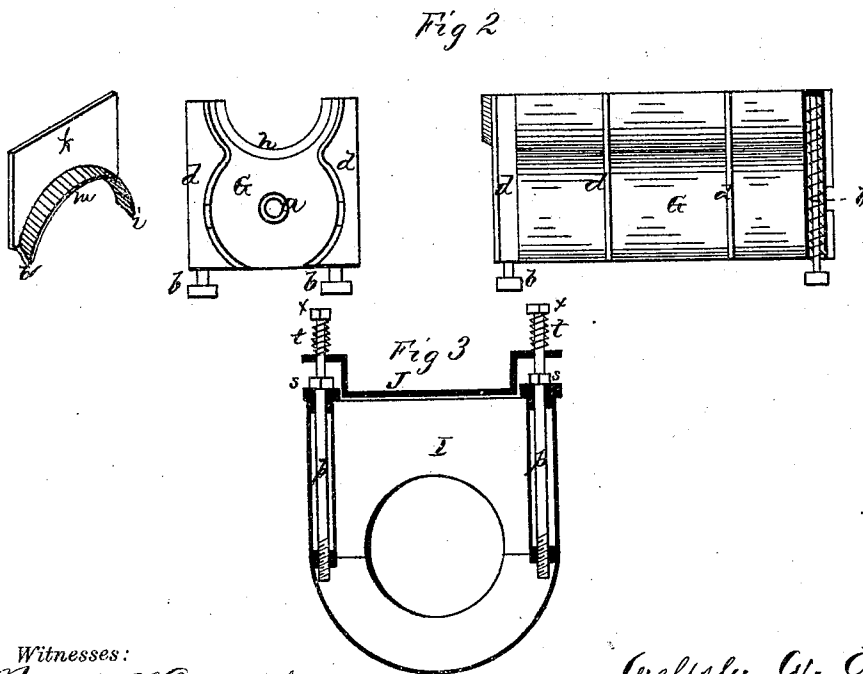
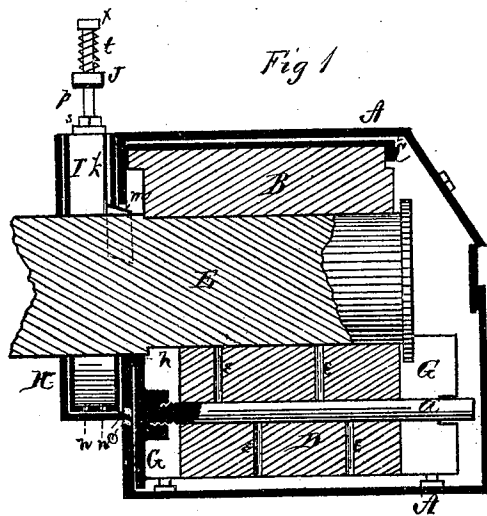


W. W. CRANE.
Car-Axle Boxes.

No. 138,794.

Patented May 13, 1873.



Witnesses:
Frank L. Curand
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per
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UNITED STATES PATENT OFFICE.

WELLSLY W. CRANE, OF AUBURN, NEW YORK.

IMPROVEMENT IN CAR-AXLE BOXES.

Specification forming part of Letters Patent No. **138,794**, dated May 13, 1873; application filed April 12, 1873.

To all whom it may concern:

Be it known that I, WELLSLY W. CRANE, of Auburn, in the county of Cayuga and in the State of New York, have invented certain new and useful Improvements in Car-Axle Lubricator; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon making a part of this specification.

The nature of my invention consists in the construction and arrangement of a self-lubricating car-axle box, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a longitudinal vertical section of my axle-box, and Figs. 2 and 3 are detached views of certain parts thereof.

A represents the shell of my box which is made substantially in the same manner as the axle-boxes now ordinarily used, with the exception that it is about one inch and a half deeper. This is done for the following reason: On curves one side of the track is about six inches higher than the other side; and hence while the cars are passing around such curve one end of a ten-inch box is raised about one inch than the other, and as a consequence the oil will all flow to the lower end and flush out. But by making the box as much deeper, as above stated, the oil will have room to flow to either end without reaching above the lower edge of the axle-hole, and therefore will not leak through. The front side of the box or shell A has two openings, closed oil-tight, by suitable plates and packing. B represents the bearing-block, and C the step plate, as ordinarily used above the axle E. Below the axle is a plain roller, D, revolving upon a spindle, *a*, within a casing or shield, G, which is supported by spring posts *b b* or other suitable means, on the bottom of the box A, so as to hold the roller D close up to and against the axle E. The shield G is open at the top, bottom, and front end, and the spindle *a* is firmly secured in the rear end of the shield, as

shown in Fig. 1. On the outside of the shield are vertical flanges *d d*, which prevent the splashing of the oil from end to end of the box as the car jolts. When the car is in motion the roller D is rapidly revolved on its spindle by the friction of the axle E, and draws the oil up with it to lubricate the axle. The tendency of the roller would, however, be to throw the oil outward by the centrifugal action; but the shield surrounding the sides of the roller and the sides of the shield extending up a short distance on the sides of the axle, prevents this outward motion of the oil, and causes the oil to run up on the axle in a perfect continuous sheet, the roller acting as a pump drawing the oil up on one side, and delivering it to the axle. *ee* are small passages radially through the roller D to lubricate the spindle *a*. At the rear end of the shield G is an inclined semicircular lip or spout, *h*, which extends under the axle through the axle opening in the rear end of the box A, as shown in Fig. 1. On this end of the axle-box is formed or attached a casing, H, which is open at the top, and in the same is inserted a box, I, having a hole through it of the same or nearly the same size as the axle which passes through it. This box I is provided on top of the axle with a plate, *k*, having an inclined semicircular lip, *m*, extending inward through the axle-opening into the box A, and at both ends of this lip are wings *i* extending downward on the sides of the axle. The box I is to be packed with cork or some suitable fibrous material, and answers two very important purposes. It is a perfect dust-protector, as the packing around the axle prevents the dust from passing in, and as the box vibrates with the axle and moves with it when the bearing-block B wears, it also in connection with the lips *h* and *m* prevents the oil from leaking out around the axle. As the oil passes around the axle and comes against the rear end of the box A the greatest part of it is carried down by the lip *m* and its wings *i*, and then by the lip *h* down into the bottom of the axle-box A. Any oil that may leak through is taken up by the packing in the box I and soaks through said packing, and then through holes *n* in the bottom of said box I, and through passages *o* down into the axle-box again.

The packing-box I is made in two parts, as shown in Fig. 3, connected by bolts *p p*, so that they can readily be removed when necessary by unscrewing said bolts without removing the axle-box or in any way disturbing the car or axle. The bolts *p p* are held by nuts *s s*, and extend a suitable distance above said nuts with a plate, J, slipped over the upper ends of the bolts to hold the packing down, said plate being forced downward by springs *t t* on the bolts held by nuts *x x*.

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

1. In combination with a box, A, provided with an extension, H, the removable packing-box I made in two parts, connected by the bolts *p p*, and covered by the plate J, all substantially as and for the purposes herein set forth.

2. The combination of the plate *k* with its inclined semicircular lip *m* and pointed ends *i i*, with the removable box I, substantially as and for the purposes herein set forth.

3. The shield G inclosing the roller D extended above the top of the same and around the lower portion of the axle, and having exterior vertical flanges *d d*, inclined flange *h*, and spring-feet *b b*, substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 9th day of April, 1873.

WELLSLY W. CRANE.

Witnesses:

A. N. MARR,
C. L. EVERT.