

H. G. THOMPSON.

Car Axle-Box.

No. 112,513

Patented Mar. 7, 1871.

Fig. 1.

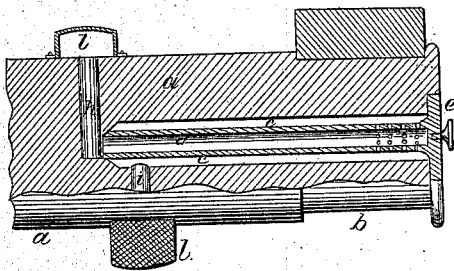


Fig. 2.

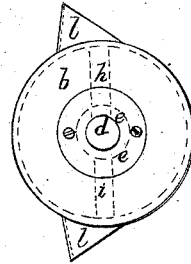
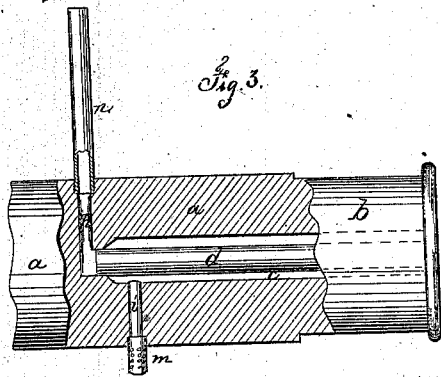


Fig. 3.



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# United States Patent Office.

HENRY G. THOMPSON, OF MILFORD, CONNECTICUT.

Letters Patent No. 112,513, dated March 7, 1871.

## IMPROVEMENT IN DEVICES FOR COOLING JOURNALS OF RAILWAY CARS.

The Schedule referred to in these Letters Patent and making part of the same.

### *To all whom it may concern:*

Be it known that I, HENRY G. THOMPSON, of Milford, in the county of New Haven and State of Connecticut, have invented an Improvement in Cooling the Journals of Railroad-Car Axles; and the following is declared to be a correct description of the same.

Efforts have heretofore been made to prevent the accumulation of frictional heat in railroad-car axles by means of a current of air circulating through the hollow axle, an opening being provided at the outer end, and there being lateral discharge-openings in the axle between the bearings.

In axles that are thus fitted the oil that is employed for lubricating is liable to be splashed into the hollow axle, or else work into the same by capillary attraction, and the dust in the current of air, adhering to the oily surface, forms a coating that intervenes between the metal and the current of air to prevent heat being conveyed away by the air, and the opening becomes more or less filled with the accumulation of dust.

My invention is made for cooling the journal by a current of air, and at the same time entirely excluding grease from the hole in the axle.

I make use of a tube within the hollow axle, said tube being perforated near the outer end, and the inner end connecting with a lateral opening through the axle; and a second opening is provided through the axle, communicating with the space around this tube, so that a circulation of air can be maintained through the hollow journal without any opening from the journal into the oil-box, thereby effectually excluding any oil or grease from the hollow journal.

In the drawing—

Figure 1 is partial section of a car-axle made with my improvement;

Figure 2 is an end view of said axle; and

Figure 3 is a partial longitudinal of an axle, illustrating my improvement in a modified form.

The axle *a* is of any usual character, with a journal, *b*, either inside or outside of the wheel. I have shown axles that are adapted to the reception of wheels inside of the journals.

The axle is made hollow by a hole, *c*, bored or formed in the center of the same, and within this is a thin

sheet-metal tube, *d*, the sectional area of which is about half the sectional area of the hole *c*.

As a convenient means of holding this tube *d* in place it is shown as attached at the outer end to the cap *e*, that is secured firmly to the end of the journal by screws, and the inner end of this tube *d* enters a reduced portion at the end of the hole *c* and there connects with the lateral opening *h*.

The lateral opening *i* communicates with the hole *c*, and the tube *d* is perforated or formed with slits or holes near the outer end, so that a current of air will circulate through the axle and journal, passing along in the hole *c* and returning through the tube *d* to the opening *h*, or the reverse, and there is nothing of oil or grease that can get into the air-tubes; hence the air will circulate freely and there will not be any deposit of dust to obstruct the air in keeping the journal cool.

The lateral openings *h i* are to be provided with any suitable appendages to aid the operation to be performed; they may be covered with hoods *ll*, with a wire-gauze over their mouths, as seen in figs. 1 and 2, so that one hood will act as an injector and the other as an exhaust, and these operations will be transposed when the direction of revolution of the axle is reversed.

In fig. 3, I have shown a screen, *m*, on the lateral opening *i*, and a tube, *n*, upon the opening *h*, so that the centrifugal action will produce a circulation out of the tube *n* and draw the air through the tube *m*, hole *i*, and tube *d*, to keep the journal cool, as aforesaid.

A long, narrow division-plate, fitting the hole *c* and extending from its inner end to near the cap *e*, may take the place of the tube *d*, the air circulating along on one side of such division and returning on the other.

I claim as my invention—

The tube *d* or division in the hollow journal or axle, combined with the lateral openings *h i*, to effect a circulation of atmospheric air through the hollow journal to convey away frictional heat, substantially as set forth.

Signed by me this 20th day of December, 1870.

Witnesses: HENRY G. THOMPSON.

GEO. D. WALKER,  
GEO. T. PINCKNEY.