D. MATTHEW.

Car-Axle Box.

No. 19,095. Patented Jan. 12, 1858.

Fig. 2.

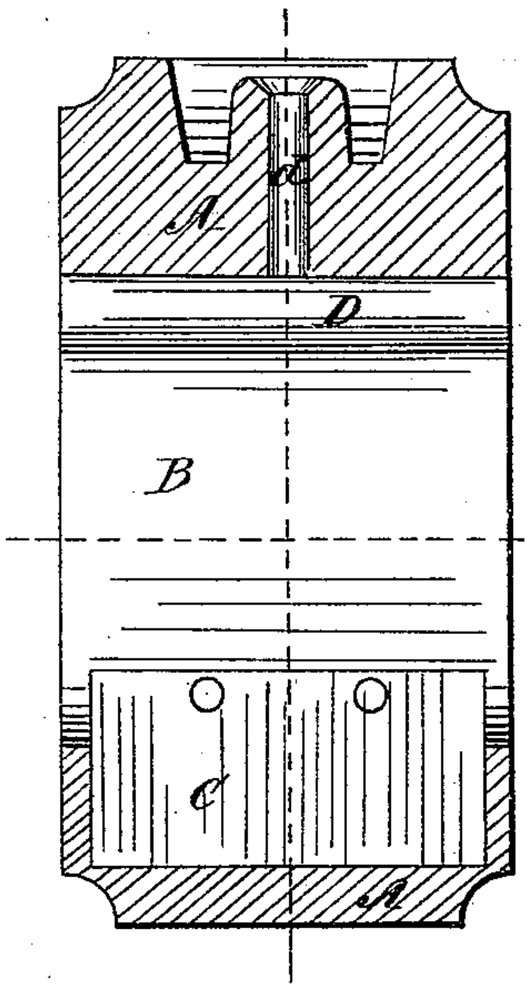


Fig. 3.

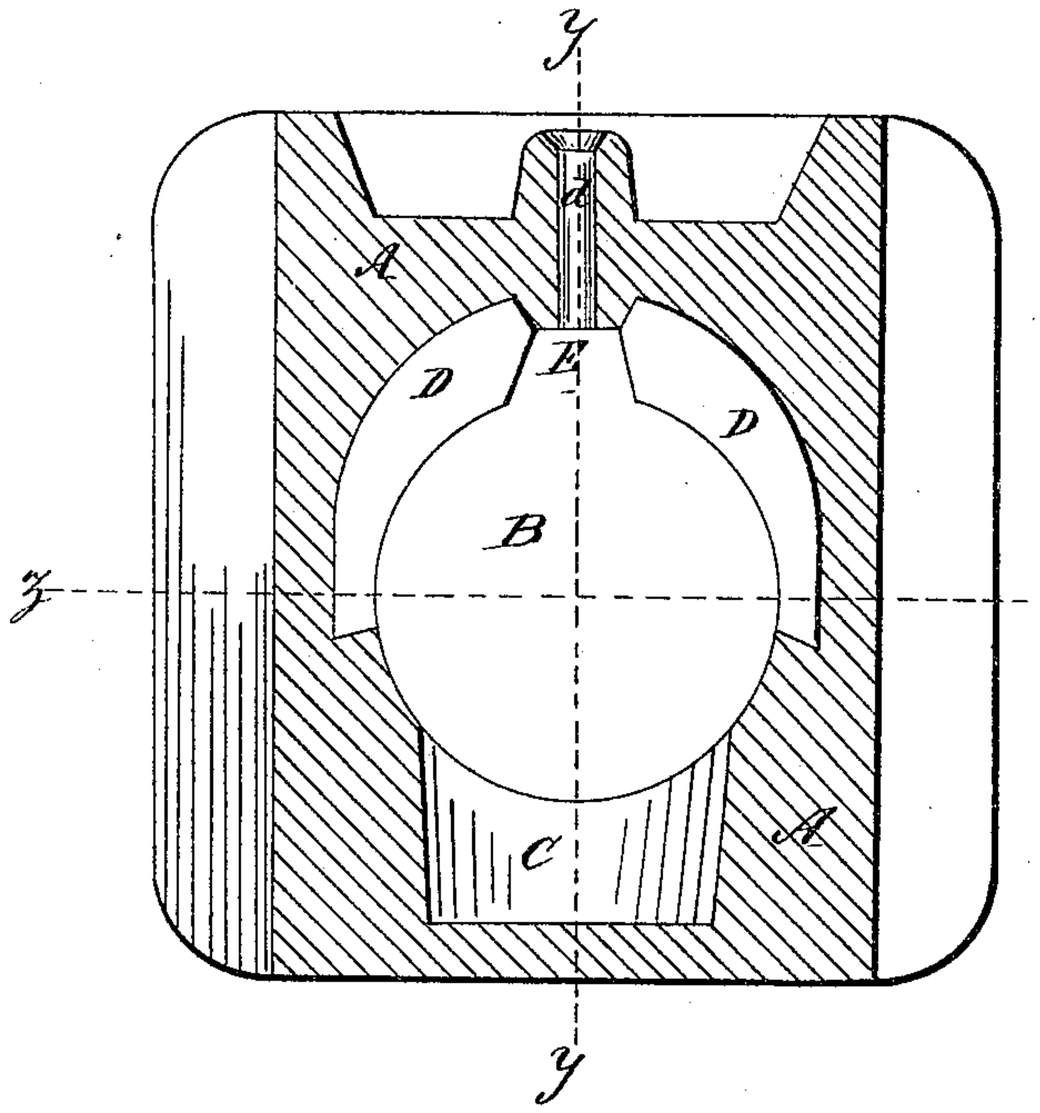
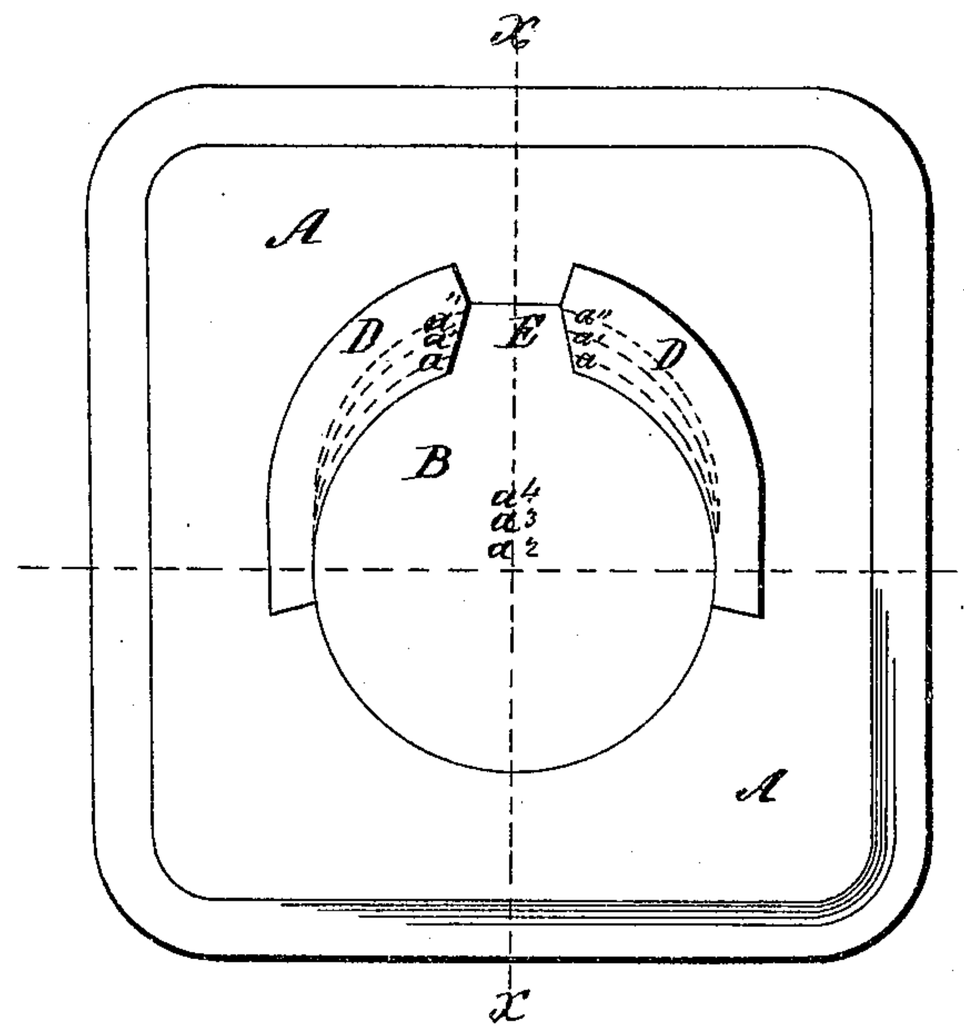


Fig. 1.



UNITED STATES PATENT OFFICE.

DAVID MATTHEW, OF PHILADELPHIA, PENNSYLVANIA.

RAILROAD-CAR BOX.

Specification of Letters Patent No. 19,095, dated January 12, 1858.

To all whom it may concern:

Be it known that I, DAVID MATTHEW, of Philadelphia, county of Philadelphia, in the State of Pennsylvania, have invented a new and useful Improvement in Railroad-Car or Driving-Axle Boxes; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

The nature of my invention consists in a certain improvement in the bearings in journal boxes for the purpose of preventing the horizontal wear, to be hereinafter more fully explained.

To enable others skilled in the art to make and use my invention I shall proceed to describe its construction and operation, reference being had to the accompanying drawings forming part of this specification, in which similar letters in the different figures indicate like parts and in which—

Figure 1 is a side elevation; Fig. 2, a vertical section at *x*—*x* Fig. 1; Fig. 3, a transverse section at right angles to section Fig. 2.

A is the box, B the hole through which the journal passes, C the oil cellar, D, D, the bearings of brass, *d* the oil cup, E a slot cut entirely through the brass and extending the whole thickness of the box.

It is a well known fact that in locomotives, where the horizontal strain is greater than the vertical pressure, the box will wear more horizontally than in any other direction, or in other words it wears more in the direction of the greater pressure. To obviate the injurious effects resulting from the wearing of an oblong hole whose greatest diameter is the horizontal one, I so graduate the bearing surface to the pressure that it shall increase or diminish with corresponding increase or diminution of pressure, or if there is any disproportion let the irregularity be in favor of pressure. To do this I cut away the upper portion of the bearing surface—cutting the metal completely through in both directions. The direct effect of this it will be readily seen, is that the bearing instead of wearing in the direction of the greater pressure or horizontally, will wear with the less pressure viz. vertically. By proportioning the size of the slot E to the degree of downward pressure relative to the lateral or horizontal, the wear may be made to assume any direction between the two mentioned. The direction of the wear is shown in Fig. 1 by the eccentric circles *a a′ a″* drawn with the centers a^2 a^3 a^4 respectively.

It will be observed that the brasses D reach below the center or line of center of the shaft.

The directions of strain are shown by the red lines at right angles—*y*—*y* and *z*—*z* Fig. 3.

I am well aware that it is common to use a slot in journal bearings, for purposes in connection with lubrication, but they have no such effect as mine, and I do not wish to be mistaken as using a mere modification of such a slot or crease, or as claiming any such arrangement or device, but

What I do claim as my invention and desire to secure by Letters Patent is:—

The peculiar construction of journal box having a longitudinal slot or opening so proportioned to the relative vertical and horizontal strains as to produce the results substantially as herein set forth.

In testimony whereof I have hereunto set my hand and seal this fifth day of November 1857.

DAVID MATTHEW. [L. S.]

Witnesses:

WESLEY BRAINERD,

CHARLES D. FREEMAN.