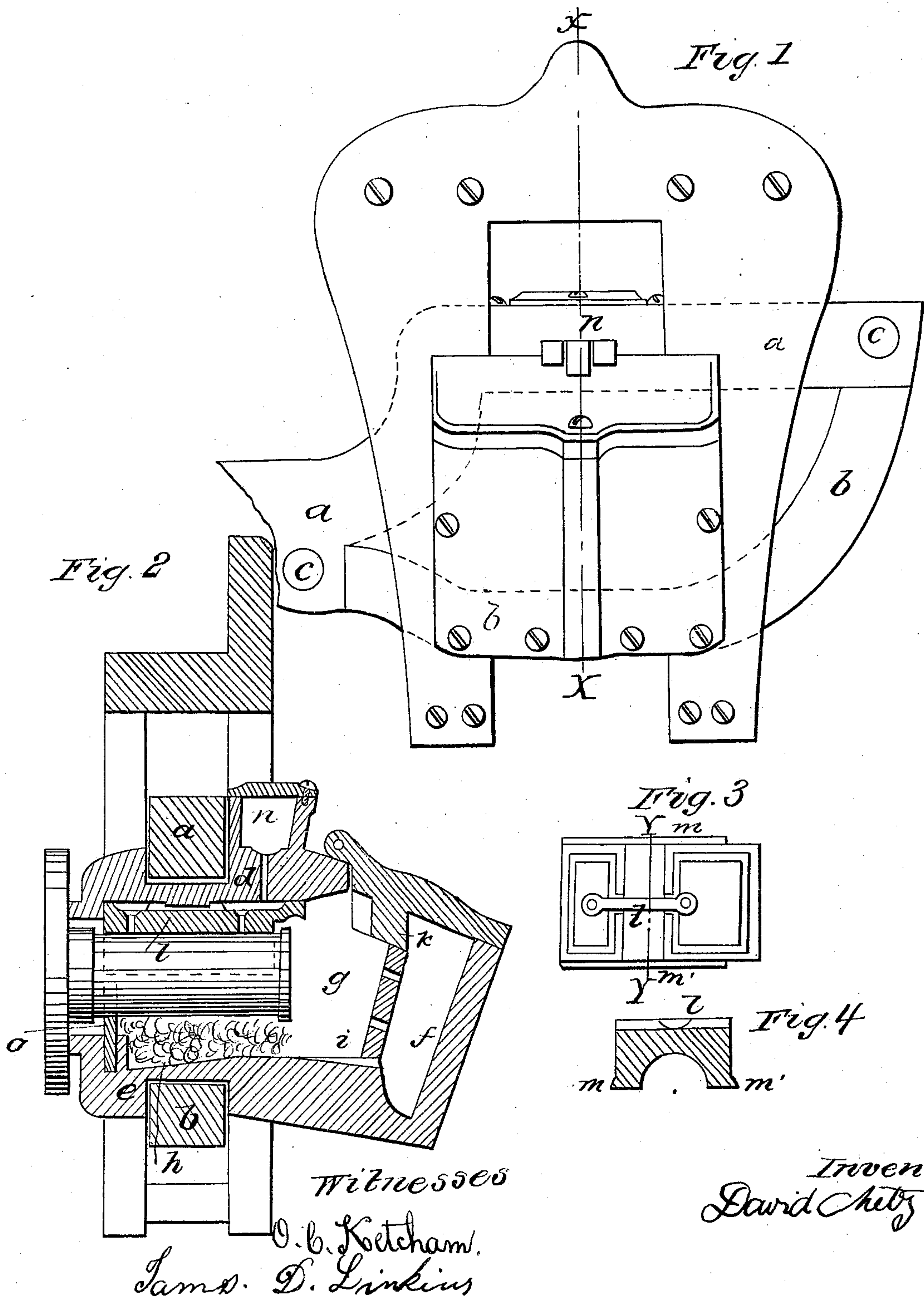


D. METZ.
Car-Axle Box.

No. 96,337.

Patented Nov. 2, 1869.



United States Patent Office.

DAVID METZ, OF WASHINGTON, DISTRICT OF COLUMBIA.

Letters Patent No. 96,337, dated November 2, 1869.

IMPROVED AXLE-BOX.

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, DAVID METZ, of Washington city, in the District of Columbia, have invented certain new and useful Improvements in Axle-Boxes for Railroad-Cars, and an improved Method of Attaching the same; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, and the letters of reference marked thereon, making part of this specification, in which—

Figure 1 is a perspective view of my improved axle-box, showing its mode of attachment.

Figure 2 is a vertical section of the same, taken through the line *x x*, fig. 1.

Figure 3 is a perspective view of the top of the bearing.

Figure 4 is a transverse section of the same, taken through the line *y y*, fig. 3.

The object of my invention is to provide a means of overcoming the difficulties heretofore experienced by reason of the packing becoming dry, whereby the journal becomes heated, and also to provide a more ready manner of attaching and detaching the axle-box; and

It consists in the combination of parts hereinafter described.

Boxes, as heretofore constructed, are held within the pedestal by means of flanges on the sides, the equalizing-beam resting merely on the top of the box.

These flanges are entirely omitted in my invention, and the equalizing-beam is lengthened, so as to project through the pedestal, the end being mortised to receive the tenon of a clamp which passes under the box, through the pedestal, and is fastened again to the equalizing-beam by tenon and mortised ears, with key-bolt, or in any other effective manner.

The equalizing-beam and clamp are secured in grooves or slots in the top and bottom of the axle-box, holding the box firmly within the pedestal, and permitting free up-and-down play; without lateral wobbling. The shape of the clamp must be varied when required for six-wheeled trucks.

The axle-box has two compartments. The inner compartment, in which the journal revolves, and which contains the bearing-piece and packing, has perforations in the ends and sides, through which the oil from the outer compartment or reservoir can freely flow in upon the journal and packing, keeping the latter thoroughly saturated.

The rear of the bottom of this inner box is so inclined and hollowed as to hold the packing always in place under the journal, and prevent its working forward. The anterior portion of the bottom is inclined in the opposite direction, and channelled, permitting the oil or lubricating-material not absorbed by the packing to fall back into the reservoir.

The opening for the insertion of the journal in the back of the box is fitted with a segment of a ring of India rubber, inserted in a groove, and pressing tightly against the bottom and sides of the journal to prevent the oozing out or waste of oil.

The box is closed by a hinged lid, fastened by a screw-bolt and nut, or in any other manner, and having on its under side a projection, so fitted as to cover and close at the same time the inner compartment or packing-box.

The bearing-piece differs from that in general use in having a groove to connect the two cells, so that the melted tallow, instead of running over the sides and ends only on the packing, will pass through the openings directly upon the upper part of the journal should it become heated. It is fitted level upon its upper surface, and held in place by means of a slot and corresponding projection upon the under surface of the top of the axle-box. It has also flanges on the lower edges to prevent its becoming tightly wedged against the sides of the box when crushed or broken by accident.

By my method of attachment, the time and labor now necessary to remove or replace a defective axle-box by raising the car and truck, with jack-screws, high enough for the bottom of the pedestal to clear the box and journal, are entirely saved. Any block or pry which will support the weight of the car and truck and raise the equalizing-beam high enough to clear the groove in the top, will permit the prompt and easy removal of the whole box from the journal and pedestal without trouble, expense, or necessity of removing the car from the track.

The equalizing-beam *a a*, fig. 1, should be made to fit the sides of the pedestal, and lengthened to permit the attaching of a clamp, *b b*, by means of tenon and mortise, with bolt, or in any other secure manner.

This clamp is so shaped as to pass through the pedestal, under the box, being fastened to the equalizing-beam at the two points marked *c c*, fig. 1, by means of bolts or screws.

The equalizing-beam *a* rests in a groove, *d*, fig. 2, upon the top of the box, and the clamp in a similar groove, *e*, fig. 2, in the bottom. By this means, the box is held securely in place within the pedestal, and full perpendicular play, with free action of the springs, is allowed, while the lateral wobbling, productive of irregular wear and breakage, is wholly prevented.

The outer compartment of the packing-box *f*, fig. 2, is a reservoir for lubricating-material.

The inner compartment, *g*, fig. 2, is perforated in the ends and sides to allow of a free circulation of the oil through the packing to the journal and bearing.

The inclination and grooving *h*, fig. 2, of the bottom of this box effectually holds the packing in its proper

position, and prevents its working forward and depriving the journal of the necessary lubrication.

The opposite inclination, *i*, fig. 2, and channelling of the forward portion of the bottom of this box, allows surplus oil, not absorbed by the packing, to fall back into the reservoir *f*. The rounding of a curve or any unevenness of the railroad-track causing one wheel to rise higher than the other, causes a flow of oil from the reservoir into the packing-box, keeping the packing constantly well saturated, and while the reverse motion is doing the same for the opposite journal, the surplus or unabsorbed oil falls back into the reservoir. This alternate rising and falling of the wheels keep up such a constant circulation of oil as to make it almost impossible that the journals should become heated.

The projection of the hinged lid is shown at *k*, fig. 2. This projection serves as the lid to close the inner compartment *g*, or packing-box.

The segment of India rubber, closing the orifice for the journal against the waste of oil, is seen at *o*, fig. 2. This segment of India rubber may be easily inserted in its groove by the hand from the front of the box. Its elasticity, constantly pressing against the journal resting upon it, keeps the orifice tightly closed; and even when the bearings have become worn or crushed, it still presses upward against the journal, and prevents the loss of oil. The upper part of the orifice is kept closed by the weight of the car and truck.

The groove in the bearing-piece is shown at *l*, figs. 2, 3, 4, and the flanges at *m m'*, fig. 4.

The tallow from the box *n*, fig. 2, falling into the cells of the bearing-piece, is conveyed by means of the groove from one cell to the other, and passes directly through the openings in the bearing upon the upper part of the journal. Heating of the journal will cause

this tallow to melt and run down upon the bearing and journal.

The object of the flanges *m m'* is to obviate the difficulty now experienced in removing a bearing that has broken and become jammed against the sides of the box, frequently requiring to be cut out with a cold chisel. The insertion of a chisel or bar above the flange will enable the workman to press together the sides of the bearing, and remove it without difficulty or loss of time.

By a square or level fitting of the bearing-piece, the tallow is prevented falling over the sides or ends of the bearing, and its full benefit secured by a direct application to the parts upon which it is required. The axle-box is so constructed that the tallow-box may be omitted altogether, if not desired.

What I claim as of my invention, and desire to secure by Letters Patent, is—

1. The clamp *b* and prolonged equalizing-beam *a*, arranged as described, and for the purpose of holding the axle-box within the pedestal, as set forth.

2. The packing-box *g*, with perforations for the passage of lubricating-material, within an exterior box or reservoir for holding oil, said packing-box having also a grooved, inclined, and channelled bottom, *h i*, constructed and arranged as described, and for the purposes set forth.

3. The projection *k* or double lid, for closing the whole box at the same time, constructed as described.

4. Constructing the bearing with a groove, connecting the tallow-cells, and with flanges *m m'*, arranged as described, and for the purposes set forth.

DAVID METZ.

Witnesses:

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