J. ELDER.

CAR-AXLE BOX.

No. 187,835. Patented Feb. 27, 1877.

Fig. 1.

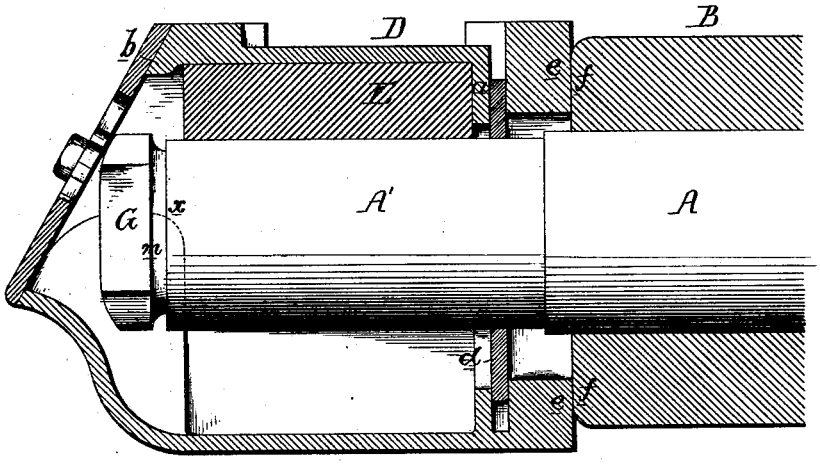


Fig. 3.

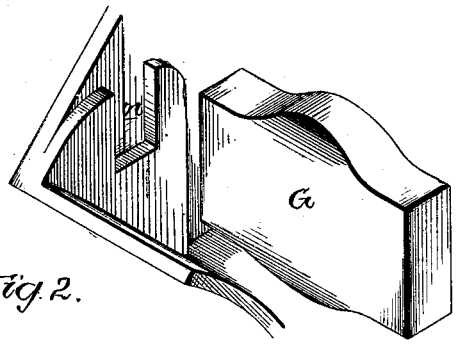
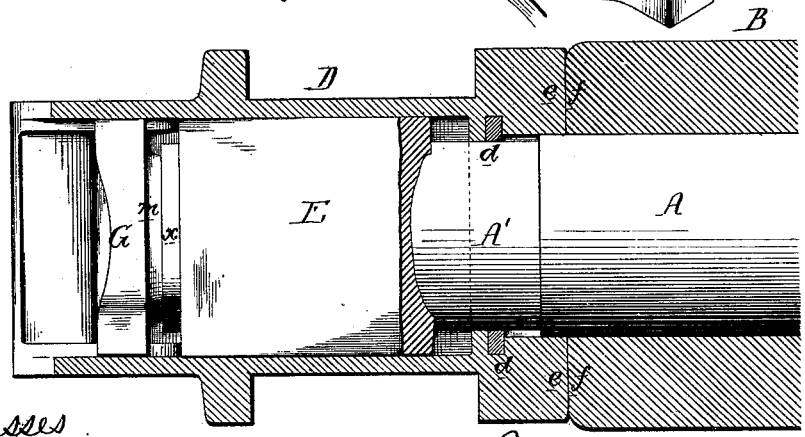


Fig. 2.



Witnesses.

John M. Deemer

Harry Smith.

Joseph Elder
by his Attorneys.
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N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE

JOSEPH ELDER, OF BEARDSTOWN, ILLINOIS, ASSIGNOR OF ONE-HALF HIS RIGHT TO PULASKI FARWELL, OF SAME PLACE.

IMPROVEMENT IN CAR-AXLE BOXES.

Specification forming part of Letters Patent No. **187,835**, dated February 27, 1877; application filed August 9, 1876.

To all whom it may concern:

Be it known that I, JOSEPH ELDER, of Beardstown, Cass county, Illinois, have invented a Combined Car-Axle Box, Axle, and Car-Wheel, of which the following is a specification:

The main objects of my invention are to relieve the bearing of an axle-box from end wear, to obtain a journal of larger diameter than usual without increasing the size or cost of the axle, and to distribute throughout the box the strain imparted by the end play of the axle.

In the accompanying drawing, Figure 1 is a vertical section of my improved axle-box, axle, and part of the hub of a car-wheel; Fig. 2, a sectional plan; and Fig. 3, a perspective view, illustrating part of my invention.

A represents a portion of that part of the axle to which the hub B of the car-wheel is secured, and A′ is the journal, which terminates abruptly at *x*, without the usual collar. The journal A′, instead of being reduced in diameter, so as to form a collar at the inner end for limiting the end play of the axle, is but very slightly reduced—sufficiently only to permit the easy fitting of the wheels to the axle without wounding the journals. D is the axle-box, which is constructed for adaptation to the hangers in the usual manner, and is provided with a detachable bearing, E, confined longitudinally between the inner end *a* of the interior of the box and a lip, *b*, at the front of the same. The box is provided with the usual dust-excluder *d*, and a bearing, *e*, is formed at the thickened rear of the box for the end *f* of the hub B of the car-wheel, the latter taking the place of the usual shoulder formed on the axle.

Two prominent advantages are attained by this arrangement: first, the bearing E is not subjected to the usual end wear, and is, consequently, more durable; and, second, a journal of larger diameter than usual is obtained, while the cost is less than that of an axle with collars, owing to the fact that the tedious and expensive turning and fitting operations are dispensed with. The collarless axle is more durable than one of an ordinary character, for it is well known that the larger the bearing the greater will be the durability of both journal and bearing.

The use of the usual keys or wedges for causing the bearing-block E to fit into the recess between the collars on the axle, after being slipped into place, is thus dispensed with, and a corresponding increase of thickness thus imparted to the bearing E, which gives an increased wearing-surface, and enables the blocks E to be used for a longer time than usual without change.

The rear of the box presents an extended bearing-surface for the end of the hub of the wheel; but as the bearing-surfaces are exposed, they are liable to wear. Hence, I relieve them from a portion of the friction to which they are subjected when the end strain of the axle is imparted to the box, by causing the extreme collarless end of the journal to bear against a projection, *m*, on the transverse bar G, the ends of which are so adapted to pockets in opposite sides of the box that it can be removed and withdrawn through the usual opening in front of the said box when the replacing of a worn bar with a new one becomes advisable.

The bar may be cast with its projecting portion *m* in a chill; or this portion may be case-hardened, to render it more durable.

There is this further advantage in combining the end bearing for the hub of the wheel with the bearing for the end of the axle—that the strain due to the end play of the axle is not imparted to the box at one end only of the same, but at two points, so that the strain is more evenly distributed throughout the box, and imparts a more direct strain to the hangers than when the box is struck at one end only.

I claim as my invention—

1. The combination of an axle-box, having at its rear a bearing, with the end of the car-wheel hub, a collarless journal, A′, and a bearing, E, relieved from all end strain.

2. The combination of the box, having a rear end bearing for the hub of a car-wheel, with a bearing for the collarless end of the axle.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOSEPH ELDER.

Witnesses:

HERMAN MOESSNER,

HARRY SMITH.