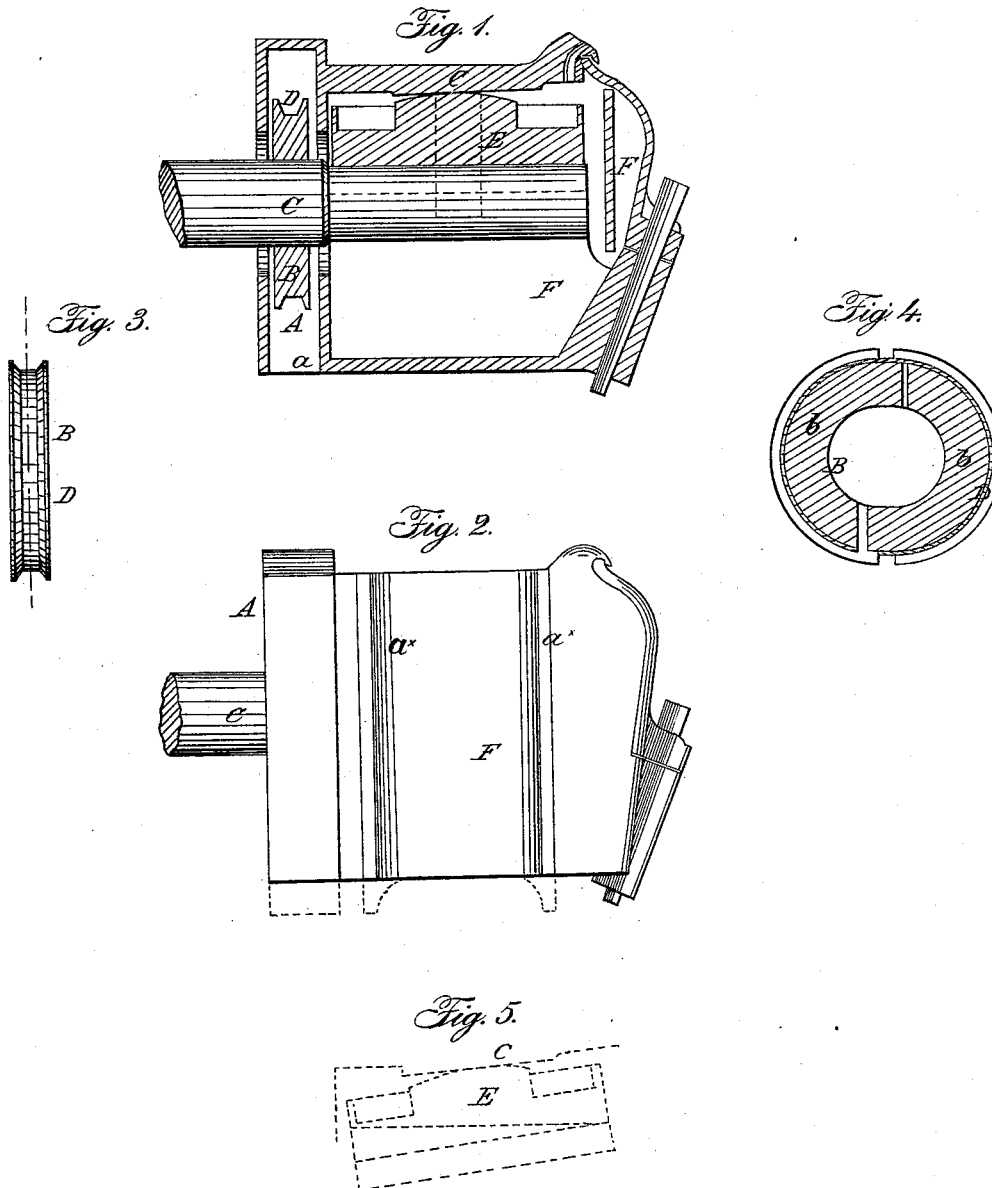


J. STEPHENSON.

Car-Axle Box.

No. 49,005.

Patented July 25, 1865.



Witnesses:

Theo Fusch

Wm Frewer

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attys

# UNITED STATES PATENT OFFICE.

JOHN STEPHENSON, OF NEW YORK, N. Y.

## IMPROVED AXLE-BOX.

Specification forming part of Letters Patent No. 49,005, dated July 25, 1865.

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

Be it known that I, JOHN STEPHENSON, in the city, county, and State of New York, have invented a new and Improved Axle-Box; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a longitudinal vertical section of my invention; Fig. 2, a side view of the same, with a portion of plan outline; Fig. 3, a detached edge view of a yielding or self-adjusting collar pertaining to the same; Fig. 4, a side view of the same; Fig. 5, a diagram showing the operation or adjustment of the bearing produced by wear.

Similar letters of reference indicate like parts.

The object of this invention is to obtain an axle-box for car-axles which will afford greater facilities for repairs than usual, and which will promote the durability of the box and of the parts connected therewith.

The bearings and journals of railroad-car axles are worn more rapidly toward the shoulder in consequence of the presence of some foreign substances entering at the aperture through which the journal passes into the box. Many contrivances have been devised to prevent such entrance, most of which are complicated, requiring attention and adjustment and resulting in but partial success. My invention, it is believed, is superior on account of being simple, self-regulating, and more efficient.

I have at the rear of the axle-box a chamber, A, provided with an opening, *a*, which I prefer to have at the bottom. In this chamber I place a yielding or self-adjusting collar, B, raised to a proper height, and through which the axle C passes in its entrance into the box. The collar may be constructed of a ring of metal or other suitable material, composed of two or more parts, *b*, the ends of which may fit together by what may be termed a "mortise and tenon," so as to form close joints, but sliding ones. The exterior of the parts is grooved to receive a circular elastic band or spring, D, which has a tendency to keep the ends of the parts in contact, or pressed toward each other, and consequently to keep the collar closely fitted on the axle, so as to move with it and

serve as a gate or hindrance within the chamber, effectually preventing the entrance of mud or foreign substances into the axle-box.

I would remark that I do not confine myself to the precise method of constructing the yielding collar, as described. If an elastic substance be used—such as india-rubber, for instance—the collar may be in one piece of annular form and fitted on the axle, or it may be composed of an elastic metal ring cut or divided so as to yield or give and fit snugly to the axle. The presence of dust and grit at the shoulder end of journal causes the abrasion of journal and bearing more rapidly at that locality, and consequently discomposes the relationship of the parts of axle-box and pedestal. This is alleviated somewhat by the practice of frequently reversing the ends of the bearing, which tends to equalize the wear. This reversing of the bearing is attended with considerable trouble and consumption of time, requiring the car-body to be raised sufficient to separate the box out of the pedestal, or, as is the case with some of the patented boxes, requiring other manipulations which are rarely performed by the employes of a road. My improvement does away with all manipulations of this kind.

The place of contact of the bearing E with the roof of the axle-box F is formed of longitudinally-diverging segmental surfaces, or, in other words, the top of bearing is curved longitudinally, or the under surface, *c*, of the roof of the axle-box is curved, or both may be curved. In Fig. 1 the top of the bearing is represented with a curved surface and the under side of the roof of the axle-box with a plane surface. From the above description it will be perceived that as the bearing is faster worn away at one end the depression of that end changes farther off the place of contact of the bearing with the roof of box, thus relieving the pressure at the wearing part and consequently diminishing the wear. This will be fully understood by referring to Fig. 5, in which a bearing is shown considerably worn at one end. The bearing is retained in its locality by the sides and rear of box and check-plate F in front.

When repairs are necessary the check-plate is removed, and the slightest elevation of the car releases the bearing and permits it to be withdrawn.

Axle-boxes and pedestals are worn out by the rapid abrasion of the parts in contact, occasioned by the incessant vertical motion to which they are subjected. I promote durability in this respect by increasing the number of surfaces in contact, and effect this end by having the chamber A extend beyond the sides of the axle-box, so as to form, in connection with the usual flanges,  $a^* a^*$ , three chafing-guides at each side of the box. (See Fig. 2.)

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

1. The combination of the yielding or self-

adjusting collar B with the chamber A, at the rear of the axle-box, and the axle C, the collar being fitted on and controlled by the axle and all arranged substantially as and for the purpose set forth.

2. The method of confining the bearing in the box in order to provide for the facility of its extraction, as set forth.

JOHN STEPHENSON.

Witnesses:

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