

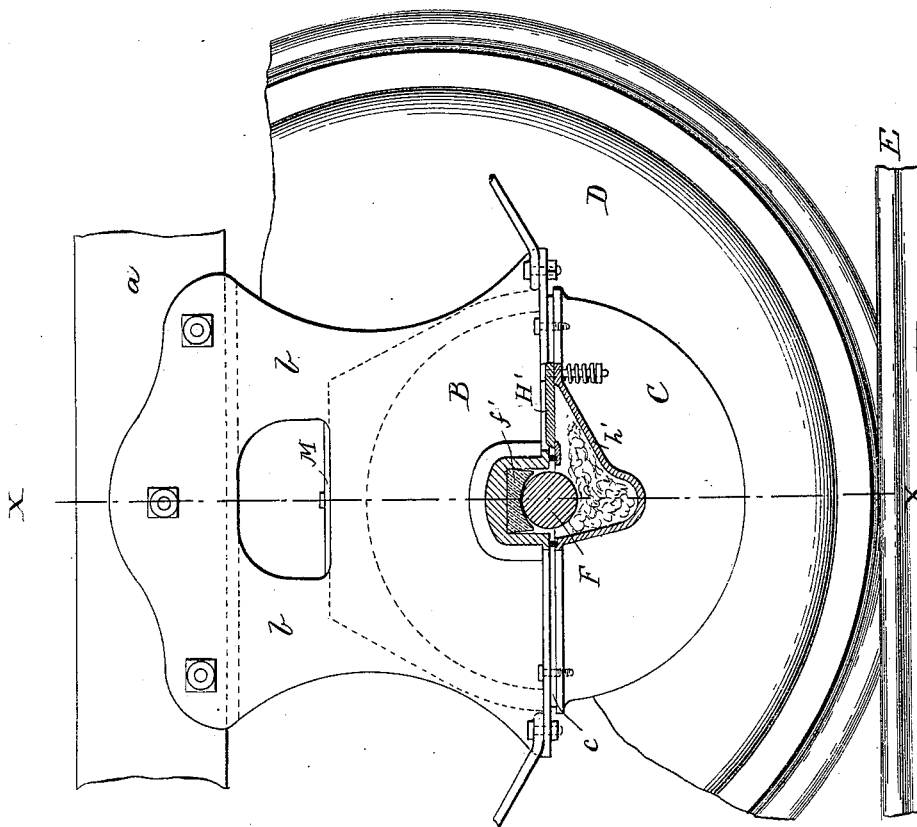
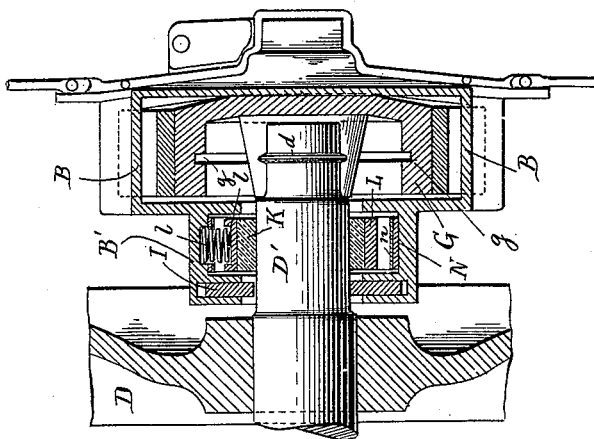
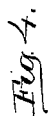
(No Model.)

2 Sheets—Sheet 1.

C. B. EMERY & C. BRIGHAM.
ANTI FRICTION DEVICE FOR CAR AXLES.

No. 419,428.

Patented Jan. 14, 1890.



witnesses
M. Jackson
Lennie Martson

Inventors.
Charles B. Emery and Charles Brigham
by Wm. H. Andrei, their atty.

(No Model.)

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Fig. 2.

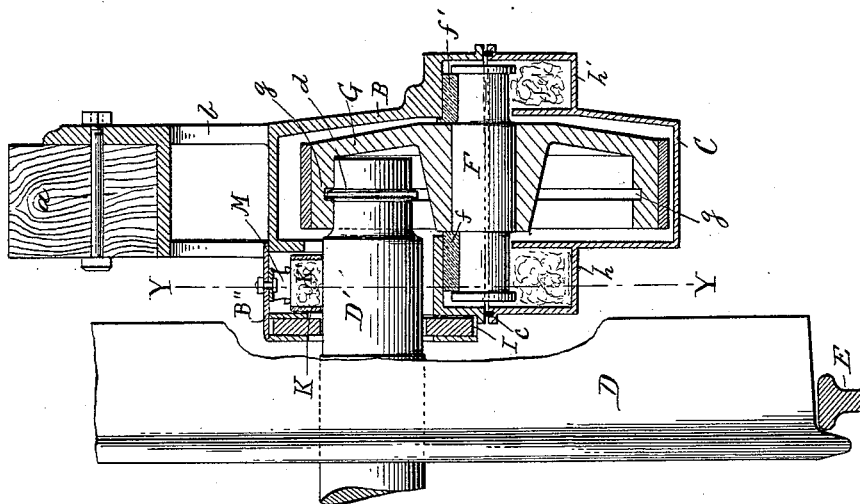
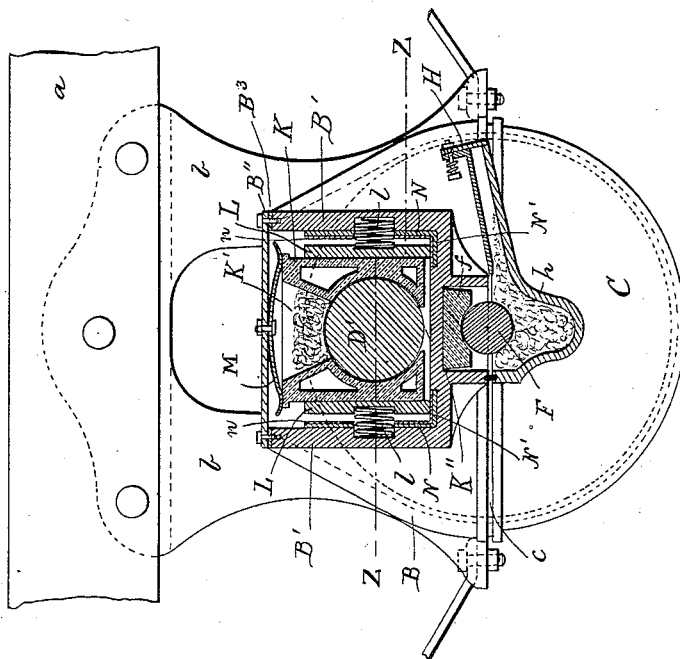


Fig. 3.



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UNITED STATES PATENT OFFICE.

CHARLES B. EMERY, OF BOSTON, AND CHARLES BRIGHAM, OF WATERTOWN,
MASSACHUSETTS.

ANTI-FRICTION DEVICE FOR CAR-AXLES.

SPECIFICATION forming part of Letters Patent No. 419,428, dated January 14, 1890.

Application filed June 10, 1889. Serial No. 313,770. (No model.)

To all whom it may concern:

Be it known that we, CHARLES B. EMERY, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, and CHARLES BRIGHAM, a citizen of the United States, residing at Watertown, in the county of Middlesex and State of Massachusetts, have jointly invented new and useful Improvements in Anti-Friction Devices for Car-Axles, of which the following, taken in connection with the accompanying drawings, is a specification.

This invention relates to improvements on the patent granted February 9, 1875, No. 159,656, to Charles B. Emery and S. W. Emery, for an anti-friction device for car-axles; and it is carried out as follows, reference being had to the accompanying drawings, where—

Figure 1 represents a front elevation of the device, showing the front oil-box in section. Fig. 2 represents a vertical section on the line X X, shown in Fig. 1. Fig. 3 represents a cross-section on the line Y Y, shown in Fig. 2; and Fig. 4 represents a section on the line Z Z, shown in Fig. 3.

Similar letters refer to similar parts wherever they occur on the different parts of the drawings.

In the drawings, *a* represents one of the sills of a steam-railroad-car truck, to which is firmly secured the bearing bracket or jaws *b*, in one piece with which is cast the hollow box *B*, to the under side of which is secured the cover *C* by means of suitable fastening bolts, as shown. Said cover serves to inclose the anti-friction device, so as to exclude dirt and dust from the working parts.

c is a rubber or elastic packing interposed between the abutting edges of the box *B* and cover *C*, said packing having, preferably, its lower edge resting in a groove in the cover *C*, as shown in Fig. 2.

D represents the flanged car-wheel, and *D'* its axle, as usual.

F represents the rail for the wheel *D*.

Within the hollow box *B* is journaled in bearings or boxes *f* and *f'* the shaft *F*, to which the flanged anti-friction wheel *G* is secured. The said anti-friction wheel *G* is supported and rolls on the axle *D'* in a manner

similar to that shown and described in the above-mentioned patent and for the same purpose.

The axle *D'* is provided near its end with a beveled annular ring *d*, adapted to enter the groove *g* on the interior of the flange of the anti-friction wheel *G*, for the purpose of preventing a lateral motion of the wheel *G* relative to the axle *D'*, and thus holding said parts in their proper relative positions.

h and *h'* are oil and waste boxes, respectively, for the inner and outer ends of the anti-friction wheel-shaft *F*, which boxes are preferably cast in one piece with the dust-cover *C* and provided with the respective spring-pressed or hinged covers *H* and *H'*, as shown.

I is a leather ring or washer surrounding the axle *D'* at the back of the hollow box *B*, as shown in Fig. 2, which ring is held in place within a groove or recess in the rear part of said hollow box *B*, and serves for the purpose of excluding dust and dirt from the interior of the said box, as well for preventing waste of the lubricant used on the axle.

K is a shell, preferably made of brass or composition, which surrounds the axle *D'*, as shown in Figs. 2, 3, and 4, said shell having an oil and waste receptacle *K'* in its upper end and having an opening *K''* preferably in its lower end, as shown in Fig. 3. Chips or bars *L L* are held against opposite ends of the shell *K* by the influence of springs *ll*, having their ends resting in recesses made in said chips or bars *L L* and recesses made on the interior of the shell-chamber *B'*, which forms a rear extension and part of the main box *B*, as shown in Figs. 2, 3, and 4.

The chamber *B'* is closed at the top by means of the detachable cover *B''*, provided with a suitable elastic packing *B³*, for the purpose of excluding dust and dirt at the place where the said cover is secured to said chamber.

M is a metal spring interposed between the under side of the cover *B''* and top of shell *K*, for the purpose of holding the said shell *K* in its proper position on the axle *D'*.

The object of the side springs *ll* is for the purpose of preventing vibrations and shocks

to the car-axle D', especially on the application of the brakes, or when the car is suddenly started or stopped.

In addition to the end springs *l l*, above mentioned, we locate, between the chips *L L* and the inside of the chamber B', elastic rubber springs *N N*, covered with metal plates *n n*, as shown in Figs. 3 and 4, said plates being secured in a suitable manner to said rubber springs, the latter being preferably held in positions shown in Figs. 3 and 4 by means of their lower right-angled ends or feet *N' N'*, inserted in corresponding recesses in the bottom of the chamber B', as shown in Fig. 3.

In case of a sudden jar or shock to the car—for instance, when the brakes are applied quickly, or from other causes—and if one of the springs *l* should then be compressed sufficiently to allow the chip *L* to come in contact with its metal plate *n* any further motion of the chip in the same direction will cause the rubber spring *N* to be compressed, thus still further preventing vibrations and shock to the axle and its connections.

The invention is shown in the drawings as applicable to steam-cars, with the jaws *b* secured to the sill *a* of a truck supported on yielding springs, as is common in devices of this kind; but the invention is equally applicable to horse-cars, electric cars, or similar vehicles, in which the bearings for the axles are arranged to yield against springs located between such bearings and the sills or framework of the car, or in any other desired manner, without departing from the essence of our invention.

Having thus fully described the nature, construction, and operation of our invention, we wish to secure by Letters Patent and claim—

1. The axle D', having the annular ring *d*,

combined with the flanged anti-friction wheel G, journaled in bearings, as described, and having on its interior the groove *g*, adapted to receive the said axle-ring, substantially as and for the purpose set forth.

2. The axle D' and the flanged anti-friction wheel G, journaled in bearings, as described, combined with the inclosing-box B and the cover C, having front and rear oil and waste boxes *h' h*, and covers *H' H*, substantially as and for the purpose set forth.

3. The axle D' and the flanged anti-friction wheel G, journaled in bearings, as described, and the inclosing-box B, combined with the shell K, journaled on the axle and adapted to yield vertically and laterally relative to said inclosing-box, substantially as and for the purpose set forth.

4. The axle D' and the flanged anti-friction wheel G, journaled in bearings, as described, and the inclosing-box B, combined with the yielding shell K, the metal chips or bars *L L*, and springs *l l*, substantially as and for the purpose set forth.

5. The axle D' and the flanged anti-friction wheel G, journaled in bearings, as described, and the inclosing-box B, combined with the yielding shell K, the metal chips or bars *L L*, with their springs *l l*, and auxiliary rubber springs *N N*, with their plates *n n*, substantially as and for the purpose set forth.

In testimony whereof we have signed our names to this specification, in the presence of two subscribing witnesses, on this 11th day of May, A. D. 1889.

CHARLES B. EMERY.
CHARLES BRIGHAM.

Witnesses:

ALBAN ANDRÉN,
J. HERBERT EMERY.