

(No Model.)

H. M. JOHNSON.  
CAR AXLE BOX.

No. 408,880.

Patented Aug. 13, 1889.

Fig. 1.

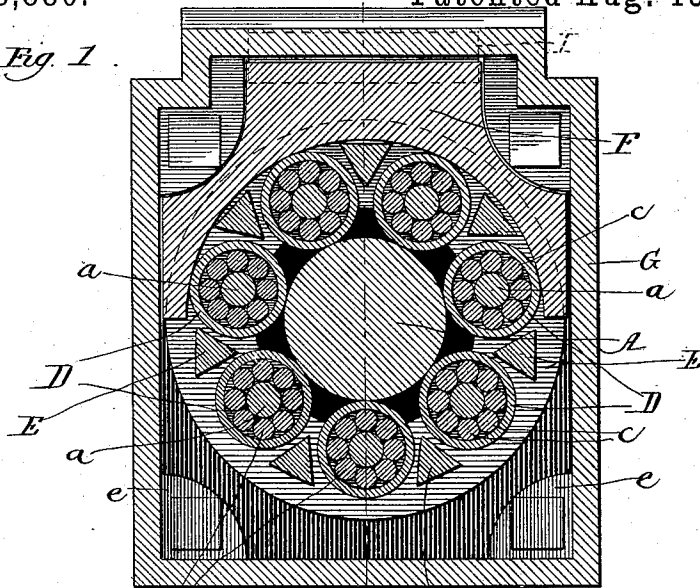


Fig. 2.

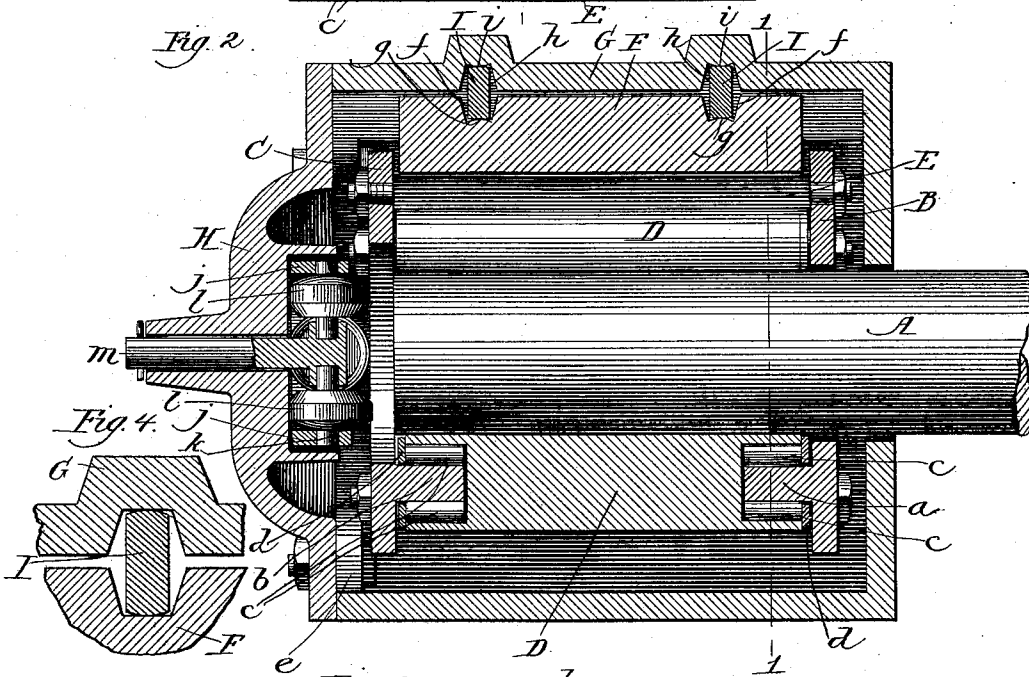


Fig. 3.

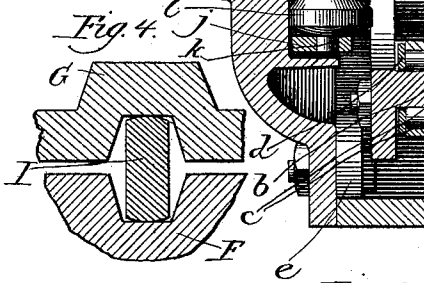
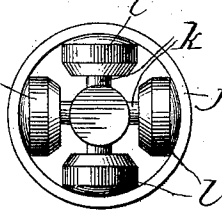


Fig. 4.



Witnesses:

Albert H. Adams.

Harry T. Jones.

Inventor:

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# UNITED STATES PATENT OFFICE.

HARLEY M. JOHNSON, OF CHICAGO, ILLINOIS.

## CAR-AXLE BOX.

SPECIFICATION forming part of Letters Patent No. 408,880, dated August 13, 1889.

Application filed December 10, 1888. Serial No. 293,203. (No model.)

*To all whom it may concern:*

Be it known that I, HARLEY M. JOHNSON, residing at Chicago, in the county of Cook and State of Illinois, and a citizen of the United States, have invented a new and useful Improvement in Car-Axle Boxes, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical cross-section at line 1 of Fig. 2, looking to the left. Fig. 2 is a longitudinal section, some parts being in elevation. Fig. 3 is a detail showing in elevation the end-thrust rollers and the ring within which they are mounted. Fig. 4 represents a modification and is enlarged.

My improvement relates to that class of car-axle boxes which are designed to be used without lubrication.

The leading objects of my invention are to provide improved devices for reducing the friction, to provide improved devices which permit transverse motion, and to provide improved devices for receiving the end-thrust of the axle, which I accomplish as illustrated in the drawings, and hereinafter described.

Those things which I claim as new will be pointed out in the claims.

In the drawings, A represents an axle.

B is a metal ring through which the axle A passes.

*a* are studs projecting from the inside of the ring B, of which, as shown, there are seven.

C is another ring similar to B, except that the central opening is a little larger than the opening in B. This ring C is provided with studs *b*, corresponding with the studs *a*.

*c* are small rollers which surround the studs *a* and *b*.

D are friction-rollers, the ends of which are recessed to receive the studs *a* *b* and the rollers *c*.

*d* are friction-washers which receive a part of the friction, which otherwise would come wholly upon the rollers D and *c* and the rings B and C.

E are tie-rods which hold the rings B C in place.

F is a journal-bearing which rests upon a part of the rollers D.

G is a casing; it is provided with lugs or ears *e*.

H is a cap or cover secured to the casing by means of bolts, which pass through the cap and through the ears *e*.

In the top of the bearing F there are two transverse recesses or channels *f*, the side walls of which are angular. The bottom *g* of each of these recesses is circular. The casing G is also provided with two recesses or channels *h*, similar to the recesses *f*, and the tops *i* of these recesses are also circular.

I are two rectangular pieces of metal located in the recesses or channels *f* *h*, and in contact with the bottoms and tops of the recesses or channels. The bottoms of the recesses or channels *f* are made upon circles the diameters of which are somewhat greater than the longest part of the pieces I, (seen in Fig. 2,) and the tops *i* of the channels *h* are formed in the same manner. By using the pieces I, in connection with the recesses constructed as described, if the parts have any transverse movement the tendency will be to return to their normal position.

*j* is a metal ring, in which are secured short shafts *k*, on which rollers *l* are placed.

*m* is a shaft located in a long bearing in the cap or cover H, and connected at its inner end with the short shafts *k*.

In use the axle A is liable to have some end movement, and if the end of the axle comes in contact with these rollers *l* there will be but little friction. By providing the ends of the roller D with recesses and using the studs *a* *b* and the rollers *c*, located in the ends of the rollers D, as described, the friction will be materially reduced.

In Fig. 4 I have shown a modification in which the bottoms of the recesses *f* are flat, and the tops of the recesses *h* are also flat, and the tops and bottoms of the pieces I are curved, the result in operation of these parts being precisely the same as before described.

The tie-rods E are triangular instead of round, as usual, and thereby they are greatly strengthened and better adapted to hold the rings which they connect permanently in their proper position.

The journal-bearing F only extends over a part of the rollers, terminating a little above the center of the rings B C, below which point there is no boxing or bearing, so that any dust or dirt which accumulates can fall to the

bottom of the casing and will not be retained among the rollers. This is a desirable feature of construction.

The rings B C are of such size that the journal-bearing F is located between them, and they serve the purpose of holding such bearing in position.

What I claim as new, and desire to secure by Letters Patent, is as follows:

10 1. The rollers D, having recesses in their ends, in combination with the rings B C, provided with studs *a b*, and the rollers *c*, substantially as and for the purposes specified.

15 2. The rollers D, having recesses in their ends, in combination with the rings B C, provided with studs *a b*, rollers *c*, and washers *d*, substantially as and for the purposes specified.

3. A journal-bearing, as F, provided with recesses or channels *f*, in combination with a casing, as G, provided with recesses or channels *h*, and rectangular pieces, as I, located in said channels, and having circular bearings, which permit a rocking movement of said pieces I, whereby if there be any transverse movement of the bearing F the tendency will be to return it to the normal position, substantially as and for the purposes specified.

4. In a journal-box, a casing, as G, and a cover, as H, in combination with a ring *j*, shafts *k*, rollers *l*, and shaft *m*, substantially as and for the purposes specified.

HARLEY M. JOHNSON.

Witnesses:

ALBERT H. ADAMS,

HARRY T. JONES.