R. R. CARPENTER.

CAR-AXLE BOX.

No. 194,411. Patented Aug. 21, 1877.

Fig. 1.

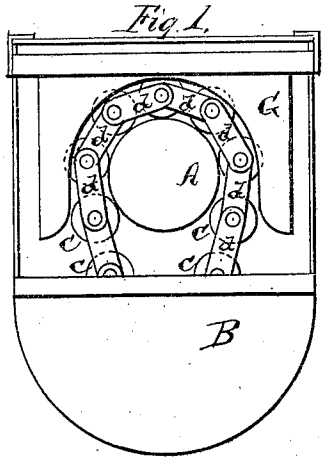


Fig. 2.

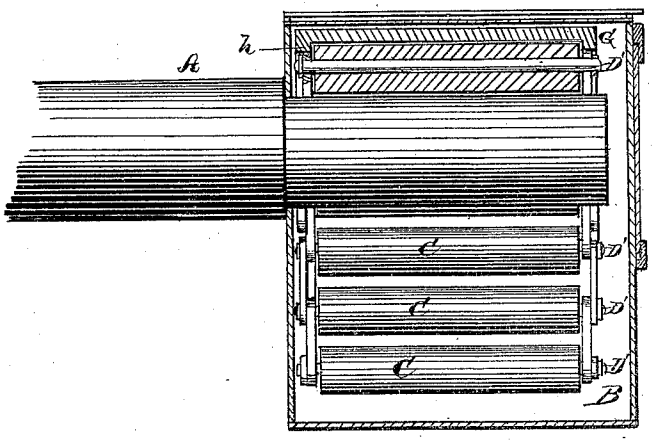


Fig. 3.

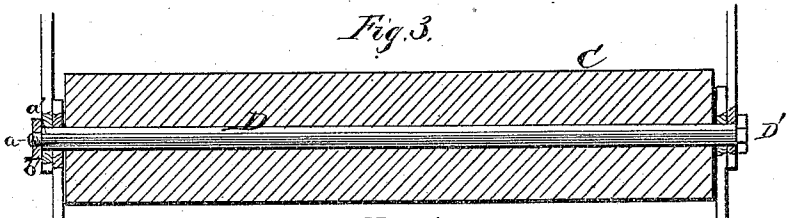
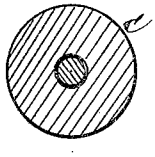


Fig. 4.



Witnesses:
H. C. MacArthur.
C. L. Crest.

Inventor.
R. R. Carpenter.
per
J. H. Alexander & Elliott,
Attorneys.

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

RALPH R. CARPENTER, OF TIPPECANOE CITY, OHIO.

IMPROVEMENT IN CAR-AXLE BOXES.

Specification forming part of Letters Patent No. **194,411**, dated August 21, 1877; application filed July 17, 1877.

To all whom it may concern:

Be it known that I, RALPH R. CARPENTER, of Tippecanoe City, in the county of Miami and State of Ohio, have invented certain new and useful Improvements in Car-Axle Boxes; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

My invention relates to self-lubricating car-axle journal-boxes; and it consists in the construction of an endless roller-chain, with a flanged concave box above the rollers, said rollers carrying up the oil to the top of the journal, and at the same time answering the purpose of anti-friction rollers to reduce the friction, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is an end view of my invention. Fig. 2 is a longitudinal vertical section of the same. Figs. 3 and 4 are enlarged detailed views of one of the rollers.

A represents a car-axle operating in the oil-box B. Around the axle or journal is placed an elongated hanging endless chain, composed of a series of smooth cylindrical rollers, C C, working on top of the journal. Each roller C is formed with a central longitudinal bore for the passage of a rod or shaft, D, and the ends of said rods or shafts are connected by means of links *d d*, forming an endless roller-chain, which hangs around the journal down into the oil in the box B.

Each rod D is at one end provided with a head, D′, and at the other end is formed a screw, *a*, and a shoulder or offset, *a′*, and a nut, *b*, is screwed on the screw *a*, against the shoulder *a′*, to hold the parts firmly together, and yet without causing the roller C to bind on the links *d d*. By this construction the roller has a bearing its entire length on the rod or shaft, and turns thereon, thus preventing any wear on the links, which otherwise soon wear so much as to elongate the holes in them, and cause the rollers either to separate or come close together.

Above the rollers is a concave circular box, G, rounding on the inside and square on the top. This box has at each end a flange, *h*, as shown, for holding the rollers in position on the journal.

When the car-axle rotates the rollers C are carried up with it, forming a rolling bearing for the journal, thereby reducing the friction; and at the same time these rollers C carry up oil from the bottom of the box B to the journal A as the elongated roller-chain dips down into the oil-box below the journal.

I am well aware that elongated endless roller-chains have been used in car-axle journal-boxes; but in such cases as known to me the rollers have been formed with projecting journals which rotate in the links which connect the rollers. This has been found objectionable, because the journals would soon wear the links so as to elongate the holes in them, and this would cause the roller, at times to separate, and at other times to come too close together.

By my invention this difficulty is obviated, as the rollers turn on the rods or shafts passing through them, and hence cannot wear the links, and as a consequence the rollers always remain at the same distances from each other. This also prevents the links from breaking, which is liable to occur where the holes get to be enlarged and allow play of the rollers.

I am also aware that an endless roller-chain tightly surrounding the journal, and composed of cylindrical rollers turning upon central rods, and the rods connected by links, is not new; but in such case the chain is not elongated, and does not dip down into an oil-box.

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

The elongated hanging endless roller-chain,

composed of the hollow cylindrical rollers C, the shafts or rods D passing through them, and the links *d* connecting the rods, in combination with a journal-box extended below the axle to form an oil-reservoir, the journal and concave top box, substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

RALPH R. CARPENTER.

Witnesses:
W. C. McARTHUR,
FRANK GALT.