

(No Model.)

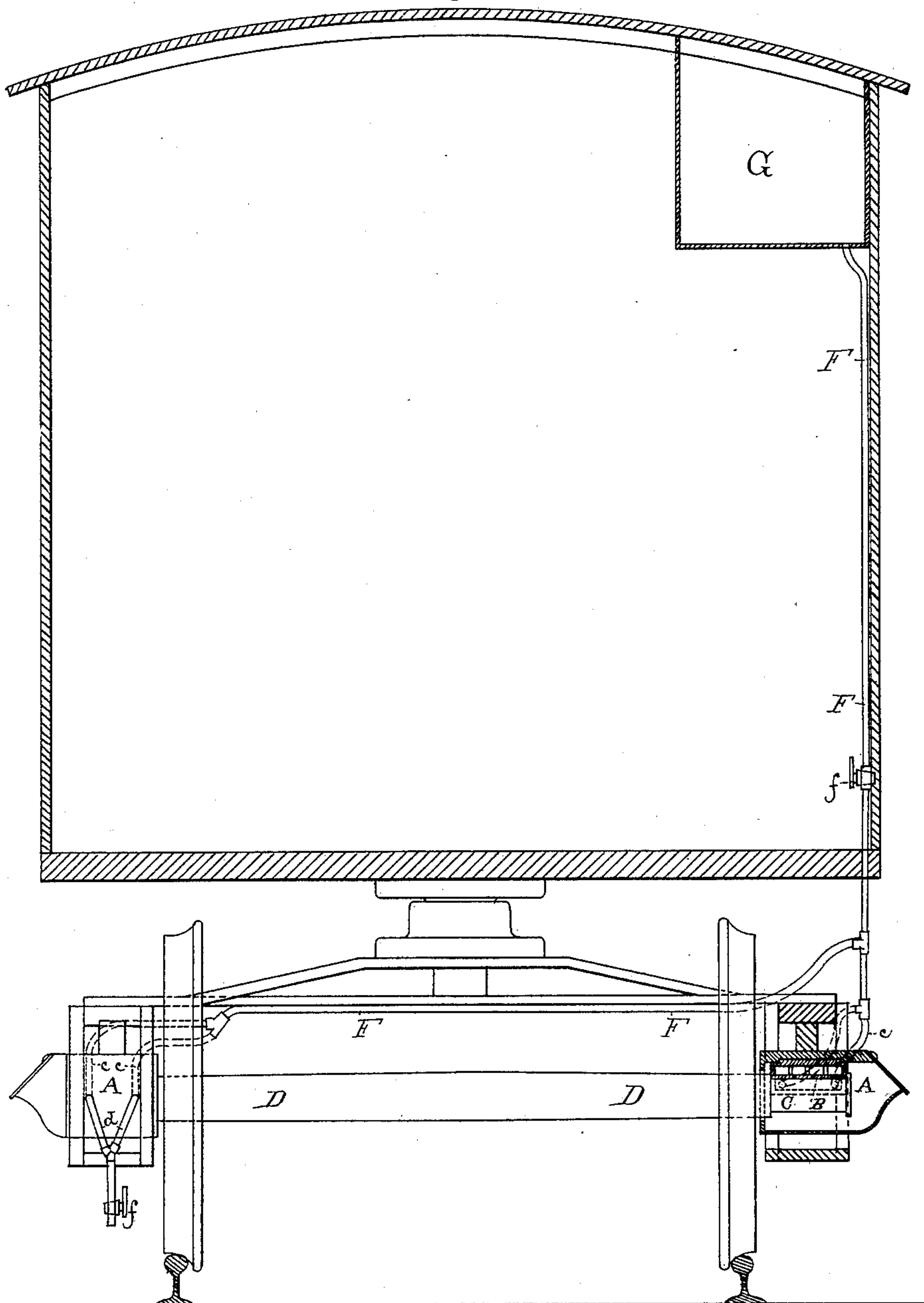
2 Sheets—Sheet 1.

C. MENDENHALL.

CAR AXLE BOX.

No. 358,872.

*Fig. 1.* Patented Mar. 8, 1887.



WITNESSES:

*Gunvald As.*  
*John H. Fishen*

INVENTOR

*Carlton Mendenhall*

BY

*James A. Whitney*

ATTORNEY

(No Model.)

2 Sheets—Sheet 2.

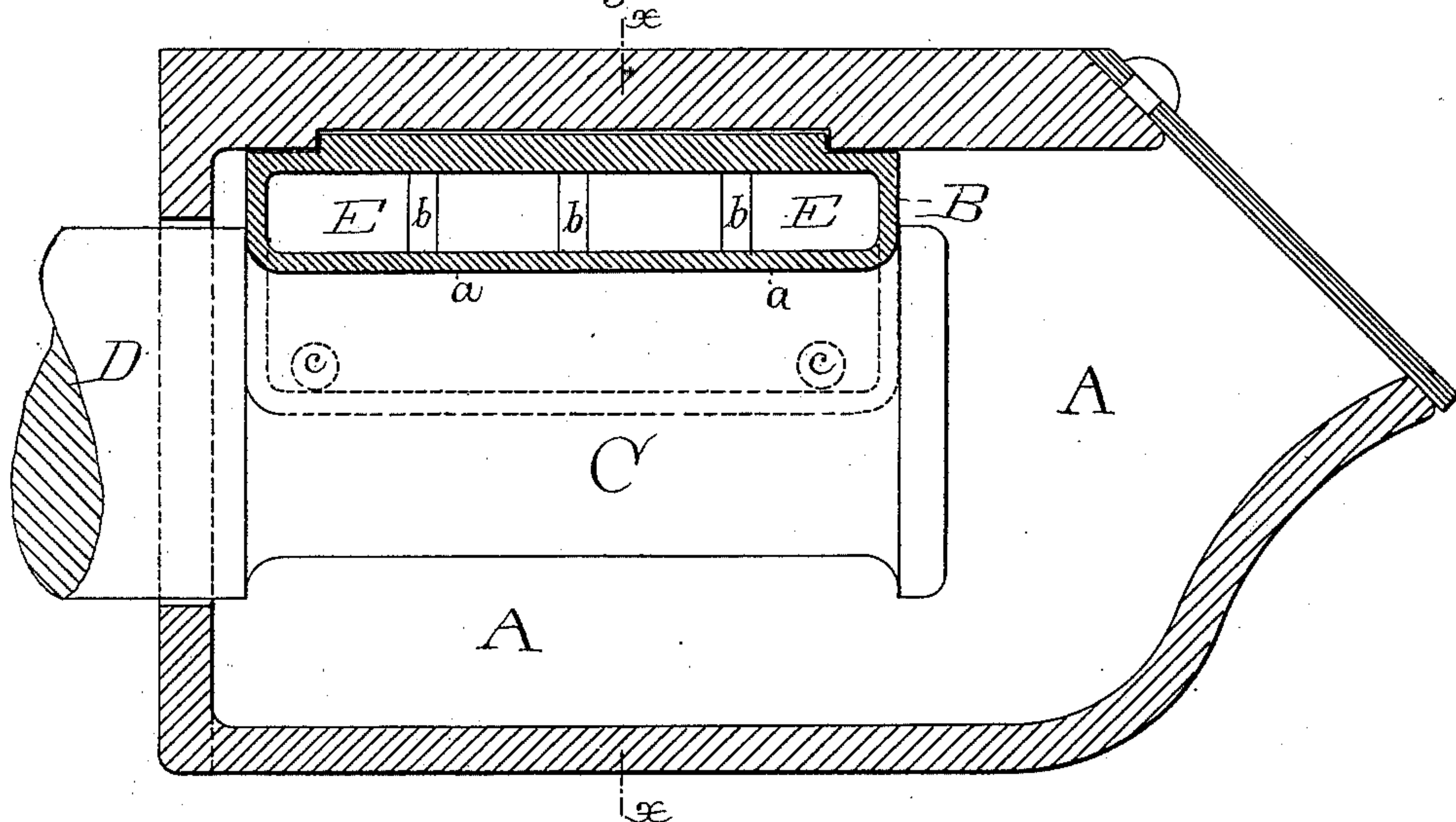
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CAR AXLE BOX.

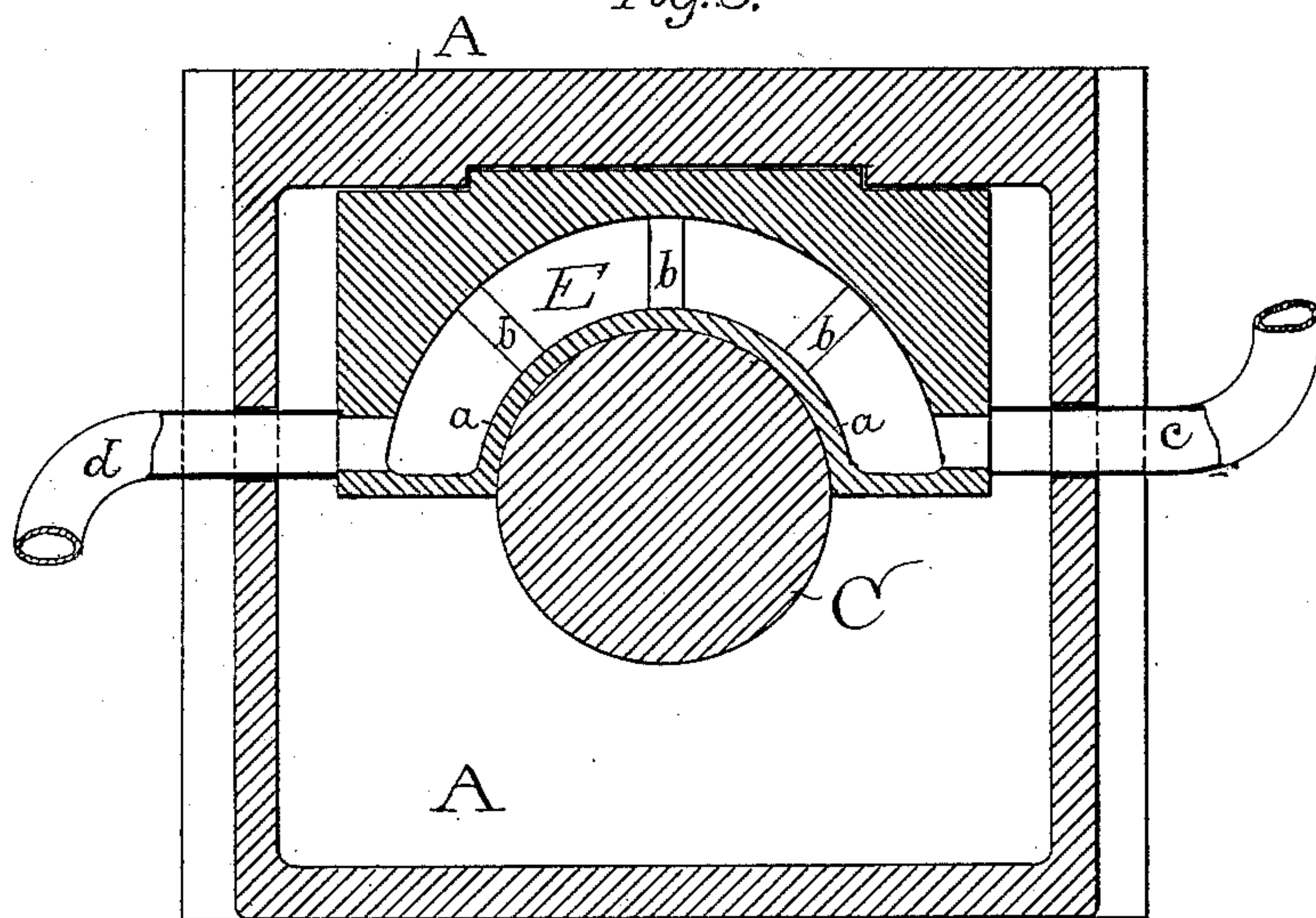
No. 358,872.

Patented Mar. 8, 1887.

Fig. 2.



*Fig. 3.*



WITNESSES:

Gunnwald As.  
John H. Fishey

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# UNITED STATES PATENT OFFICE.

CARLETON MENDENHALL, OF BROOKLYN, NEW YORK, ASSIGNOR OF ONE-FOURTH TO PHILIP DELANO, OF SAME PLACE.

## CAR-AXLE BOX.

SPECIFICATION forming part of Letters Patent No. 358,872, dated March 8, 1887.

Application filed July 9, 1884. Renewed February 3, 1887. Serial No. 226,429. (No model.)

*To all whom it may concern:*

Be it known that I, CARLETON MENDENHALL, of Brooklyn, in the county of Kings and State of New York, have invented certain  
5 Improvements in Railway Axle Boxes and Journals, of which the following is a specification.

It is well known that the ordinary axle-box is liable to become hot from the friction of the  
10 journal therein when the latter is run for any considerable length of time, and that for this reason there is a great waste of lubricating material, a rapid deterioration of the journal and box, a waste of power, and in many cases  
15 great danger of setting fire to the car from the ignition of the lubricating material by the high heat generated in the box, as aforesaid.

The object of my invention is to avoid these dangers and drawbacks by providing means  
20 for maintaining the journal and its box constantly at a low temperature; and my invention comprises certain novel combinations of parts, whereby said objects are secured.

Figure 1 is a vertical transverse sectional  
25 view of a railway-car provided with my said invention. Fig. 2 is a longitudinal vertical sectional view, and Fig. 3 a vertical transverse sectional view, on a larger scale, of certain parts or elements of the combinations included in  
30 my said invention, said parts or elements not being so fully shown in Fig. 1.

A is the shell of the journal-box. B is the box itself, placed upon the journal or bearing C of the axle D. The relative arrangement of  
35 these parts with reference to each other, to the truck or wheeled portion of the car, and to the body or platform of the car need not differ materially from that of the corresponding parts of an ordinary car.

The box B is hollowed or internally chambered—that is to say, it is constructed with a chamber, E, the inner side of which is substantially concentric with the bearing-surface of the box—in other words, with the journal  
45 or bearing C placed therein, and is separated from said journal or bearing by a thin shell or plate-like wall, *a*. In order that this inner portion or wall, *a*, of the box may be suitably stiffened, radial braces *b* extend from said wall

*a* to the opposite side of the chamber, as shown 50 in Figs. 2 and 3. At one side or part the chamber E is provided with one or more inlet pipes or passages, *c*, and at another side or part, preferably opposite, is provided with one or more outlet pipes or passages, *d*. The inlet 55 and outlet pipes or passages, one or both, may be provided with cocks *f*, to regulate the quantity or velocity of the water or other fluid passed into or through the chamber E, as hereinafter more fully set forth. 60

The inlet or inlets *c* of the box are connected by a pipe or hose, F, with a tank or reservoir, G, so placed that the liquid contents of the tank or reservoir G may be caused to pass into the chamber E, and thence out therefrom 65 through the outlet or outlets *d*. Of course the several boxes for the several wheels of the car may connect with and be supplied from one and the same tank or reservoir.

The tank G is supplied with water at ordinary or at any suitably low temperature, or with any appropriate refrigerating or cooling fluid. The water or other fluid enters and passes through the chamber E, being separated from the wearing-surface of the box and from 75 the journal or bearing by the relatively-thin wall *a*, substantially concentric with the adjacent upper half of the journal. The heat generated from the rotation of the journal in the box passes as fast as generated from the journal and from the wearing-surface of the box 80 through the shell or plate-like wall *a*, and, being absorbed by the water or cooling-fluid passing through the chamber E, is carried off thereby, so that the journal and box are both 85 prevented from becoming heated, and all the mischievous results of heating are thereby effectually avoided.

I am aware that it has heretofore been proposed to cool railway-journals by a circulation 90 of water through narrow pipe-like channels formed in the journal-box; but such devices are devoid of the shell or plate-like inner wall, *a*, hereinbefore described as a peculiarly advantageous element in my said invention, and 95 which enables my said invention to remove the heat from the journal with greater rapidity and certainty than has heretofore been found

practicable, and which insures the retention of a lower and harmless temperature in the journal and journal-box.

5 So far as concerns the internally-chambered box B having an inner plate-like wall, *a*, which is substantially concentric with the bearing, and inlet pipes or passages for the transmis-  
10 sion of water through the chamber of the box, considered as a separate and distinct device, the same is shown and duly claimed in my separate and distinct application for Letters Patent filed May 27, 1884, Serial No. 133,626,  
15 and therefore this my present application herein is not intended to cover or claim, and does not cover or claim, said box B so constructed as a separate and distinct device; but  
What I claim as my invention is—

The combination of the internally-chambered box B, constructed with a thin shell or plate-like inner wall, *a*, substantially concentric with 20 the bearing-surface of the said box, inlet and outlet pipes or passages for the transmission of water through the said box and upon and across the inner surface of the wall *a*, regulating cock or cocks *f*, journal or bearing C of a 25 car-axle, a tank or reservoir, G, pipe or hose F, and shell A, all substantially as and for the purpose herein set forth.

CARLETON MENDENHALL.

Witnesses:

JOHN H. FISHER,  
GUNVALD AAR.