G. R. MENEELY.

Car-Axle Journal-Bearing.

No. 216,285. Patented June 10, 1879.

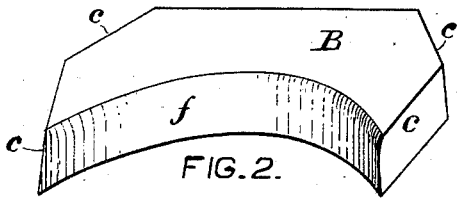

FIG. 2.

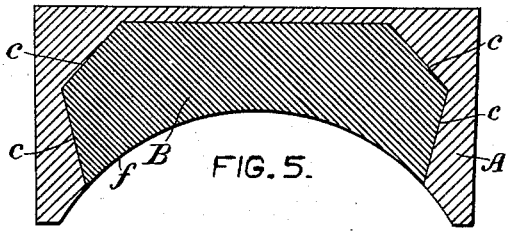

FIG. 5.

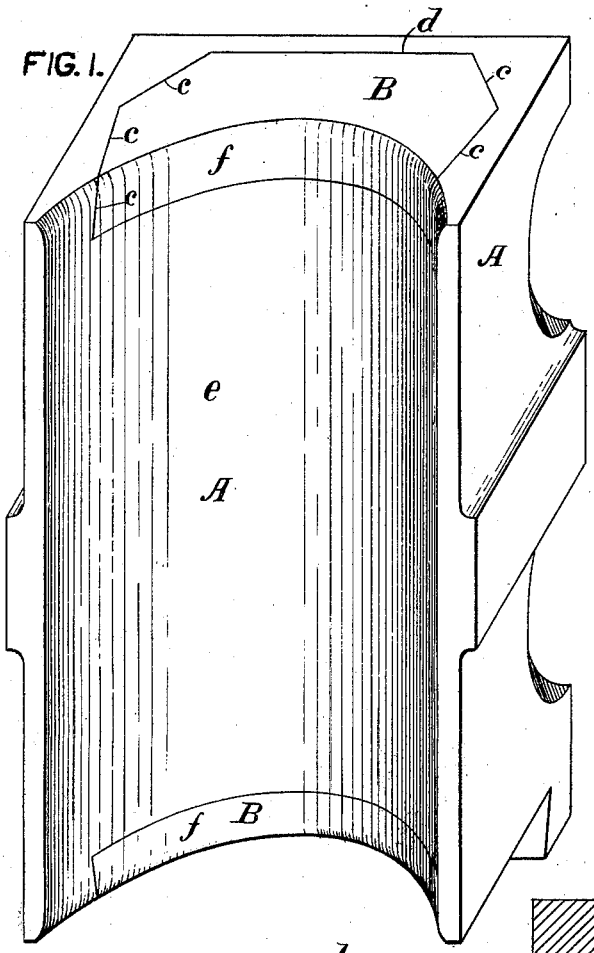

FIG. 1.

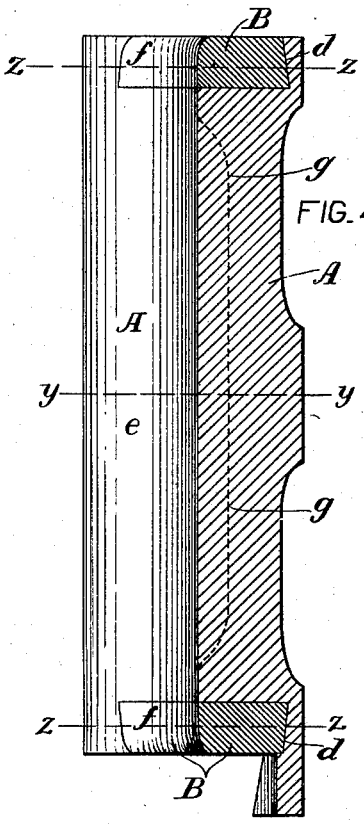

FIG. 4.

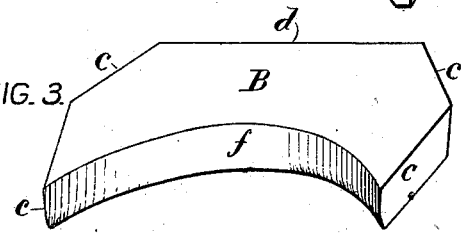

FIG. 3.

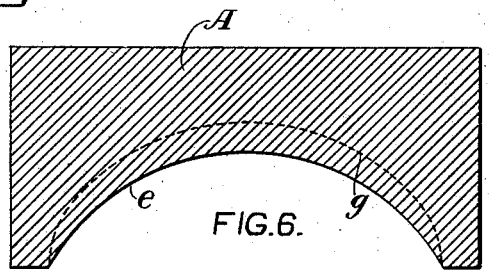

FIG. 6.

WITNESSES:

James N. Slade.
James T. Goodfellow

INVENTOR:

Geo. R. Meneely.

UNITED STATES PATENT OFFICE

GEORGE R. MENEELY, OF ALBANY, NEW YORK.

IMPROVEMENT IN CAR-AXLE-JOURNAL BEARINGS.

Specification forming part of Letters Patent No. **216,285**, dated June 10, 1879; application filed March 5, 1879.

To all whom it may concern:

Be it known that I, GEORGE R. MENEELY, of the city of Albany, in the county of Albany and State of New York, have invented a new and useful Improvement in Journal-Boxes for Railroad-Car Axles and other purposes, and of which the following is a specification, reference being had to the accompanying drawings.

A journal-box on the journal of a common railroad-car axle must generally have a little endwise movement on the journal lengthwise of the latter and between the shoulder and collar at the ends of the journal, and the end parts of journal-boxes on the journals of car-axles are commonly subject to much faster and greater wear than the intermediate portions, mainly or largely because of the very heavy endwise thrust and pressure of the journal-boxes against the shoulders and collars on the ends of the journals in heavily-loaded cars running along railroad curves and uneven rails. Consequently, on the axles of cars that run on crooked and rough railroads the ordinary journal-boxes in common use are often worn away so very fast at the ends by bearing and being thrust endwise against the collars and shoulders at the ends of the journals on the axles as to thereby soon render the journal-boxes unfit for further use, although the intermediate portions of the same are worn only a very little.

To cheaply lessen the aforesaid defect is the primary object of this invention, which consists of a journal-box having its main body and back portion in one piece of tough brass or bronze, for strength, and to resist wear from the body of the journal, and two end pieces only of bell-metal or bronze, harder and more durable than the body and back portion, to resist end wear from the thrusting and bearing of the ends of the journal-box against the shoulder and collar on the ends of the journal, the said end pieces being permanently secured or united to and with the said body and back portion of the journal-box by casting the metal of the body and back portion in a molten state upon the said end pieces in a mold.

In the drawings, Figure 1 represents one of these improved journal-boxes, and Figs. 2 and 3 the two end pieces of the same before being united to the body and back thereof. Fig. 4 shows a central longitudinal section of the same journal-box; Fig. 5, a transverse section thereof at the line *z z* in Fig. 4, and Fig. 6 a section of the same at the line *y y*.

The body and back portion, A, of the journal-box consists of one cast piece of tough brass or bronze of any suitable kind and quality commonly used for journal-boxes. B B are the two end pieces which are cast of bell-metal, or any suitable bronze, which is harder and more durable in resisting wear and end-thrust against the collar and shoulder at the ends of the journal on the axle than the metal of the said body and back portion.

In making this journal-box the two end pieces, B B, are cast first, and, when hard and either cold, warm, or hot, and with or without being coated or partly coated with tin, solder, or suitable flux, are properly placed in and against the ends of the mold prepared for casting the body and back portion, A, upon the end pieces. Then the molten metal for the body and back portion is poured into the mold, and therein brazes or fuses into or embraces the contiguous portions of the surfaces of the two end pieces, B B, and thereby firmly and permanently secures or unites the latter to the said body and back portion.

In this journal-box the end pieces, B B, are to be of any suitable thickness, and with or without lugs or projections on the surfaces covered by the body and back portion, A, and can extend either entirely or partly across or over the ends of the body and back portion when the end pieces are firmly united by fusion with the body and back portion in casting the latter upon them. I, however, commonly prefer to have the end pieces, B B, of less length or of less length and width than the ends of the journal-box, and with the ends *c c*, or the ends *c c* and tops *d*, of the said end pieces beveled or inclined or otherwise shaped, so that in casting the body and back of the journal-box the metal thereof in the mold shall tightly embrace, and thereby, when hard, firmly and permanently secure and unite the end pieces to the body and back portion,

whether the metal of the latter in casting shall or shall not be firmly brazed or welded to the metal of the end pieces.

In this improved journal-box its inner face may or may not be at first coated with a thin layer of lead or other suitable yielding anti-friction metal, as in journal-boxes heretofore used. The whole inner face, *e*, of the body and back portion, A, is commonly made flush with the inner surfaces, *f*, of the end pieces, B, as shown in full lines in the drawings, but can have in its middle part a recess (indicated by dotted lines at *g* in Figs. 4 and 6) to be filled with soft anti-friction metal, such as has been heretofore employed in lining journal-boxes.

Journal-boxes have been sometimes heretofore made with the outer-end parts, which bear upon the journal and against the collar and shoulder at the ends thereof, wholly or in part of anti-friction metal which was softer than the back, body, and middle journal-bearing portion of the box, and which softer end-bearing parts could not resist being soon battered and worn away by the heavy end-thrusts to which journal-boxes are subjected in use on the car-axles of many railroads. On the contrary, in my present improved journal-box, it is essential that the two end-bearing parts, B B, shall be harder and more durable, to resist end-thrust and wear, than the back and body, A.

The journal-box of this invention is an important improvement, in some respects, upon the one described in my United States Patent No. 133,472, dated November 26, 1872. The journal-box of that patent has the bell-metal or hard bronze lining extending the whole length from end to end of the journal-box, so that it is no more capable of resisting end thrusts and wear at the end parts of its journal-bearing surface than at the middle or intervening portion thereof, although the journal-box, when in use on a car-axle, is subject to end-thrusts and to far greater friction and wearing action at the ends than at the intervening portion of its journal-bearing surface. That defect is largely overcome, and the wearing out of the ends and the intervening portion of the bearing-surface is greatly equalized in my present improved journal-box, in which only the end parts, B B, are of hard bronze or bell-metal, which is harder and more durable, to resist end-thrusts and wear, than the tough bronze or brass metal of the intermediate and other portions of the journal-box.

The journal-box of this invention is also essentially different from any heretofore devised with end pieces composed of one and the same piece and quality of bronze with the back of the box, and intended to resist the wear of the axle-collars, and thereby protect the body portion, composed of metal that is softer and has less strength than the metal of the back and end pieces: First, because in my present journal-box the end pieces, B B, are of bell-metal or bronze which is of a different quality from and harder and more durable to resist wear and thrusts from the collars on a car-axle than the bronze or brass of the back of the box; second, because the back of my present journal-box is composed of brass or bronze which is stronger and less easily broken than the hard bronze or bell-metal composing the end pieces, B B; third, because the back and body A of the box are composed of one and the same piece and quality of tough bronze or brass, while the end pieces, B B, are of harder bronze or bell-metal, whereby greater strength and resistance to end wear are secured in the box than if the back and end pieces were of one and the same piece and quality of bronze and the body of less strong and softer metal.

I do not herein claim the method of uniting the end pieces to the back and body by casting the metal of the latter in a molten state upon the former.

What I claim as my invention is—

A journal-box having the back and body portion, A, composed of one and the same piece and quality of tough bronze or brass, and the end pieces, B B, of bell-metal or bronze which is harder and more durable to resist wear than the brass or bronze of the said back and body portion, and united thereto, substantially as described.

In testimony whereof I hereunto set my hand in the presence of two subscribing witnesses this 1st day of March, 1879.

GEO. R. MENEELY.

Witnesses:
JAMES H. SLADE,
JAMES T. GOODFELLOW.