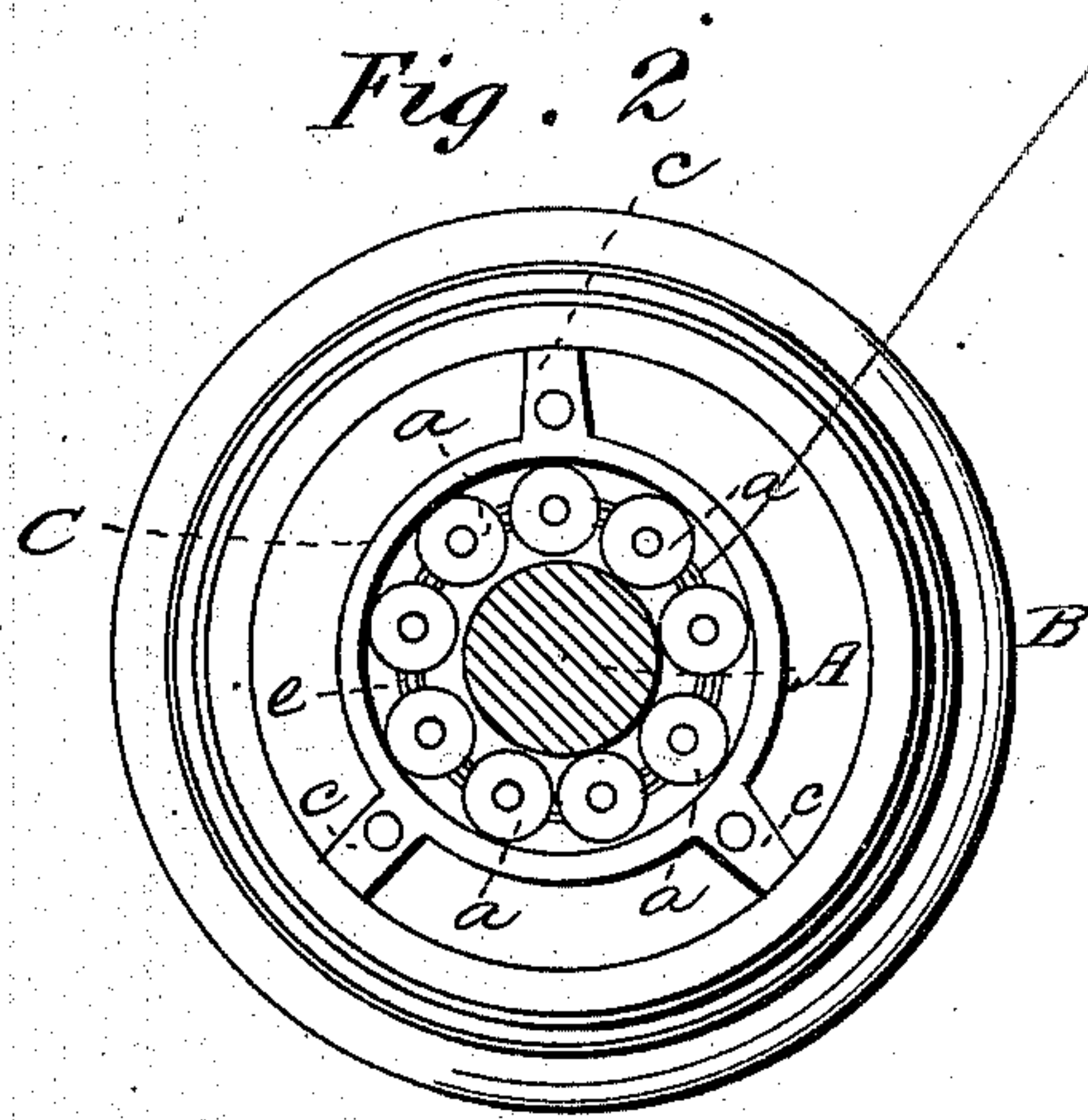
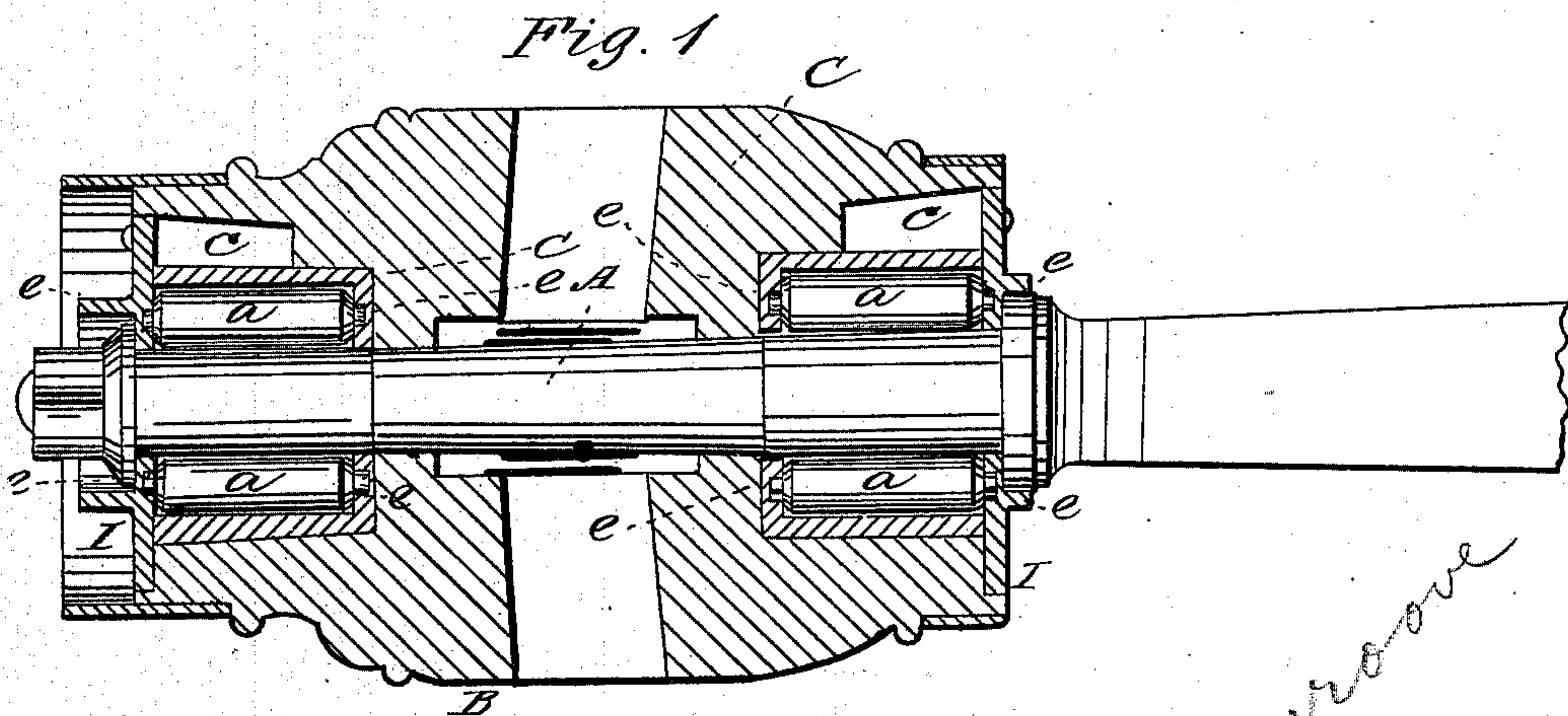


W. P. ELAM.

Axle Box.

No. 95,098.

Patented Sept. 21, 1869.



groove

Witnesses:
L. Haller.
Phil. T. Dodge.

Inventor:
W. P. Elam
by Dodge & Munroe
his attys

UNITED STATES PATENT OFFICE.

W. P. ELAM, OF PETERSBURG, ILLINOIS.

IMPROVEMENT IN CARRIAGE-WHEELS.

Specification forming part of Letters Patent No. 95,098, dated September 21, 1869.

To all whom it may concern:

Be it known that I, W. P. ELAM, of Petersburg, in the county of Menard and State of Illinois, have invented certain new and useful Improvements in Carriage-Wheels; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, and to the letters of reference marked thereon, like letters indicating like parts wherever they occur.

To enable others skilled in the art to construct and use my invention, I will proceed to describe it.

My invention relates to carriages and similar vehicles; and it consists in a novel manner of constructing the boxes and arranging therein friction-rollers in the hubs of the wheels, as hereinafter more fully explained.

Figure 1 is a longitudinal section of a hub with my improvements applied, and Fig. 2 is a transverse section of the same on the line *x* of Fig. 1.

Many plans have heretofore been devised for applying friction-rollers to the bearings of wheels and journals of various kinds; but the manner of applying them has been such that but few have been brought into practical use.

The object of my present invention is to construct a box for wagon-hubs in such a manner that it, with friction-rollers inside, may be inserted in a hub, the same as an ordinary box now is, and the rollers be so arranged that they will not get displaced or drop out when the wheel is taken off the axle.

In constructing my improved device I first cast a box, C, of sufficient size to receive a series of rollers, *a*, and leave space at their center for the arm *A* of the axle. This box C is made with an annular flange at its inner end, with a central opening large enough for the axle *A* to pass through, and with two or more radial flanges or lugs, *c*, on its exterior, as shown in Figs. 1 and 2. This box C is made in the form of a cup, with its outer end open to the full size of its diameter; and I secure to this open end an annular plate, I, which also has a hole at its center for the axle to pass through, this plate I being of sufficient diameter to reach to the outer edge of the lugs or ribs *c*, as shown in Fig. 1; or, if preferred, the

box C may be cast with the flange I solid on it, instead of being made separate, and fastened together by screws. I make an annular groove, *e*, in the inner face of each end of the box C, as shown in Fig. 1, and I make the rollers *a* with small journals at each end to fit loosely in these grooves, so that when the rollers are inserted with their journals resting in the grooves, and the plate I is secured to the box C, the rollers, while being loose and free to revolve, are held securely therein and prevented from falling out or getting displaced. The grooves *e* should be made of such a size that when the axle is inserted the weight does not come upon the journals *e* of the rollers at all, but rests on the body of the rollers underneath the axle. When thus arranged it will be seen that while the axle bears on the rollers below those above will be lifted free from the upper side of the axle by their journals resting in the grooves *e*, as represented in Fig. 1. The rollers *a* will, of course, be made very small, so as not to occupy too much space, and they may be made of hardened steel, or any other suitable material.

The boxes thus made can be inserted in hubs just the same as the ordinary boxes now are, and they can be manufactured and furnished to the trade the same as any other style of box is. By this means I am enabled to produce a very complete and efficient device for the purpose intended, and one which, when thus applied, will greatly reduce the friction on the axle.

I am aware that friction-rollers have been used in a great variety of ways in journal-boxes, and that they have been shown applied to a wagon-hub journaled in loose rings, and therefore I do not claim such a device; but,

Having thus described my invention, what I claim is—

A box for wagon-hubs consisting of the case C, having the flanges *c* and the plate I, both having an annular groove, *e*, on their inner face, with the journaled rollers *a* mounted therein, all constructed and arranged as set forth.

W. P. ELAM.

Witnesses:

W. W. EWING,
EDWARD LANING.