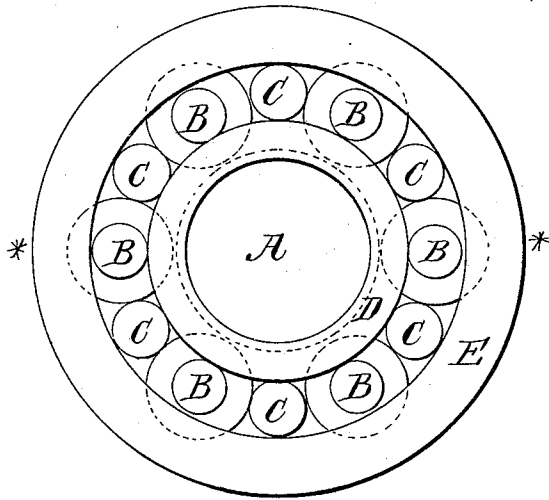
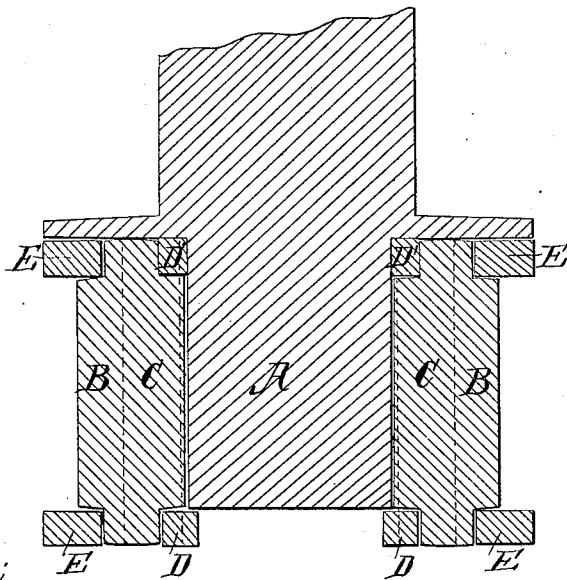


*J. P. Kenyon,*  
*Anti-Friction Roller,*  
*N<sup>o</sup> 39,932.                      Patented Sep. 15, 1863.*

*Fig: 1.*



*Fig: 2.*



*Witnesses;*  
*John Gibbs*  
*William Archer*

*Inventor;*  
*James P. Kenyon.*

# UNITED STATES PATENT OFFICE.

JAMES P. KENYON, OF BROOKLYN, NEW YORK.

## IMPROVEMENT IN JOURNAL-BOXES.

Specification forming part of Letters Patent No. 39,932, dated September 15, 1863; antedated February 2, 1863.

*To all whom it may concern:*

Be it known that I, JAMES P. KENYON, of Brooklyn, in the county of Kings, in the State of New York, have invented a new and Improved Journal-Box; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The design of the invention herewith submitted is the practical annihilation of all friction produced by the rubbing or sliding of surfaces in mechanical or vehicular journals, and at the same time to secure a strength to the appliances having that end for their object which shall be equal to any strain to which they may be subjected in use. In order to accomplish the first of these desiderata it was obviously essential to avoid a "center," as commonly understood—that is, a journal, a hub, or rollers so revolving in relation to fixed parts that a rubbing of surfaces must accompany their motions.

The present applicant is not aware that the entirely non-rubbing character indicated has ever before been given to a journal-box.

Figure 1 is an end view, and Fig. 2 is a longitudinal section, in the line of \*\*, Fig. 1, similar letters referring to the same parts in each drawing.

A, Fig. 1, is the axle or journal, the circumference of which is indicated by the dotted circle. B B B B B are the large rollers, the inner sides of which work in contact with the axle A, while the outer sides roll on the inner surface of the box or shell, their ends having a reduced diameter, as shown. C C C C C are the small or separating rollers to distribute and keep apart B B B B B. D' D' D D, Fig. 2, are rings on which the small rollers C C C C C ride, and are intended to prevent the falling of said rollers toward the shaft in case of wear, and also to obviate the wedging, biting, and destruction that might in such case ensue. E E E E, Fig. 2, are the outer or confining rings, embracing the ends of C C C C C and preventing their spread outward. The ends of the large rollers B B B B B are sufficiently reduced in diameter to keep them out of contact with the rings D' D' D D and E E E E. The shell of the box will be enlarged at the

ends, so as to conform to the rollers B B and rings E E E E, as seen in Fig. 2, with an inner diameter a little larger than that of said rings, in order that the peripheral part of the latter may be always clear of the box, while the ring D' D', Fig. 2, will have an inner diameter a little larger than the shaft or axle, so that it may revolve out of contact therewith.

The above devices have reference to the friction due to the gravity of the load. The "end strain," or the contrivances to obviate the friction consequent upon the vibration of the load, will form the subject-matter of a distinct application.

The operation of the parts described above would be as follows: Supposing the axle A to be revolving—say, from left to right—the motion of the large rollers B B B B B will be in the opposite direction, imparting to the small rollers C C C C C a motion again reversed, the latter in their turn rolling on the rings D' D' D D and E E E E. It will be seen that, as the large rollers are free to roll on the axle, and the small rollers on them and the rings, while the latter have a free motion out of contact with anything else the entire action will be unaccompanied by any appreciable rubbing-friction. The position of the rollers C C C C C may be changed from the outside to the inside of a line drawn from center to center of the large ones without in the least affecting my device of the confining-rings with the supplementary supporting-rings; but such an arrangement would injuriously reverse the functions of the rings, and be less satisfactory in other respects; also, the principle of the confining-rings, with their accompanying but not essential auxiliaries, the supporting-rings, all as aforesaid, may be embodied in several other ways, but most feasibly by a plate placed intermediately between the roller ends and the end coverings of the box, and so recessed on its face as to receive and confine the separating-rollers in the same manner as the inner and outer rings perform those offices; but there are objections to this equivalent (chiefly connected with the end strain) which have enforced my preference of the rings as described.

I do not claim a journal-box furnished with rollers, as that is a feature common to a num-

ber of inventions which have sought to reduce friction by a multiplication of centers and rubbing parts, and which have uniformly broken down from their complication and fragility; but

What I claim as my invention, and desire to secure by Letters Patent, is—  
The employment of the rings E E E and

D' D' D D to confine and support the rollers C C C C C C in position, as shown, or any other device substantially the same.

JAMES P. KENYON.

Witnesses:

JOHN GIBBS,

WILLIAM ARCHER.