

R. W. SMITH.

Improvement in Anti-Friction Journal Boxes.

Fig.1. No. 129,256. Patented July 16, 1872.

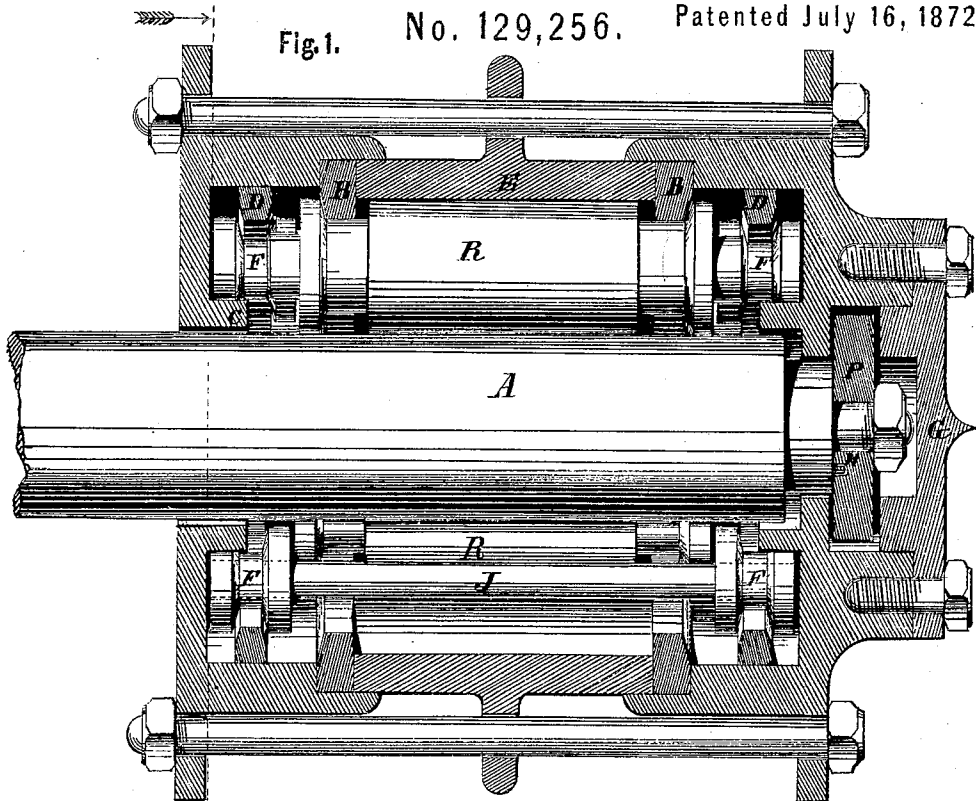
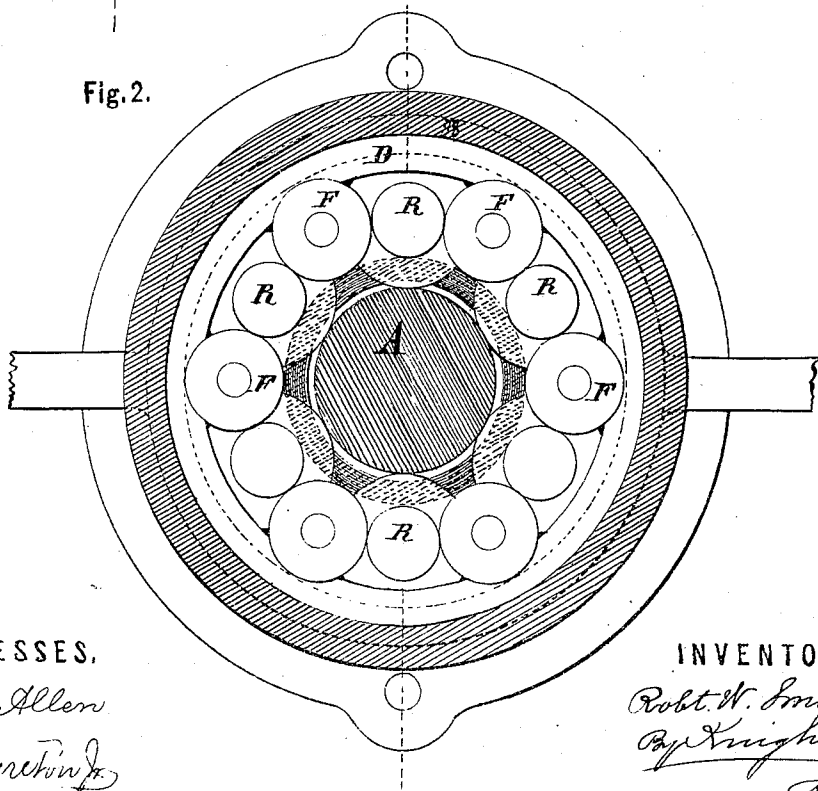


Fig.2.



WITNESSES.

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INVENTOR.

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# UNITED STATES PATENT OFFICE.

ROBERT W. SMITH, OF TOLEDO, OHIO.

## IMPROVEMENT IN ANTI-FRICTION JOURNAL-BOXES.

Specification forming part of Letters Patent No. 129,256, dated July 16, 1872.

### SPECIFICATION.

*To all whom it may concern:*

Be it known that I, ROBERT W. SMITH, of Toledo, in the county of Lucas and State of Ohio, have invented a new and Improved Mode of Preventing Friction in Journal-Boxes; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon making a part of this specification.

Figure 1 is a longitudinal and Fig. 2 a transverse section at  $x x$  of a journal-box illustrating my invention.

This invention is designed to obviate, to a greater extent than ever before attained, the constant friction incident to a revolving journal. The box is cylindrical, its inner circumference cast or turned to a perfect circular surface, its diameter exceeding the diameter of the journal sufficiently to allow five or more anti-friction rollers, placed equidistant from each other, resting upon the surface of and propelled by the revolving journal, to roll without friction, around the wall or inner circumference of journal-box. These rollers, while revolving in the opposite direction from journal revolutions, are carried around the inner circumference of journal-box in the same direction taken by the journal, thus obviating the roller friction necessary to overcome or counteract the momentum engendered by two sets of rollers, the outer set traveling in the opposite direction from the journal or propelling power. The space or distance between main rollers is preserved by revolving equalizers running on trunnions formed on end of main rollers, also on stationary circular way, attached to end of journal-box, and kept in place by revolving guide-ring or collar passing around entire circle. The main rollers are further held in place, and lateral or end movement prevented, by stationary circular guide-rings or collars attached to inner circumference of journal-box, and projecting into grooves cast in rollers to receive them.

In accompanying drawing, A represents a journal of a shaft or axle; and E, a cylindrical journal-box; B, stationary circular guide-ring or collar, to prevent end movement of main rollers;

C, stationary circular "way," for equalizers to run on; D, revolving guide-ring or collar for holding equalizers in place; F, equalizers; G, end of journal-box, holding friction-plate in place; R, anti-friction or main rollers; P, circular friction-plate or flange, fastened to end of journal by means of set-screw; H, safety-dowel, to prevent friction-plate from turning on end of journal; J, revolving-shaft, to which equalizers are attached. There being no sliding friction, no lubricant is required.

The main rollers R R are turned down or reduced in diameter at their ends, and the intermediate rollers F F are enlarged, which reduces the speed of the latter and consequent wear. It will be seen also by my construction that the separating-rollers F F are only in contact with the main rollers at their ends, which are connected by the rods or axis J J of the separating-rollers, and that the rods J J are not in contact with the main rollers, which arrangement materially diminishes the friction of the parts.

The above description will enable others skilled in the art to make and use my invention.

I claim as my invention—

1. The stationary guide-ring B, in combination with the main rollers R R, to prevent end motion of the latter, substantially as described.
2. The stationary guide-ring B, in combination with the head or end of the box, to clamp said ring, substantially as described.
3. The separating-rollers F F, enlarged at their ends, and connected by rods or axes J J, in combination with the main rollers, as and for the purposes set forth.
4. The separating-rollers F F, enlarged at their ends, said ends being connected by axes J J, not in contact with the main rollers, in combination with the traveling-ring D, as and for the purpose set forth.
5. The stationary guide-ring B and main rollers R R, in combination with the intermediate rollers F F and traveling-ring D, substantially as set forth.

R. W. SMITH. [L. S.]

Witnesses:

IRWIN I. MILLARD,  
R. M. MCKEE.