A. W. HALL & M. E. DAYTON.

Improvement in Anti-Friction Journals.

No. 124,573. Patented March 12, 1872.

Fig. 1.

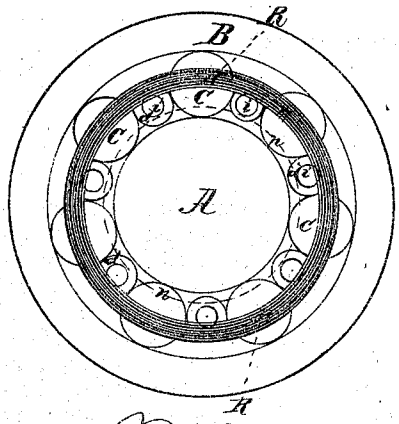


Fig. 2.

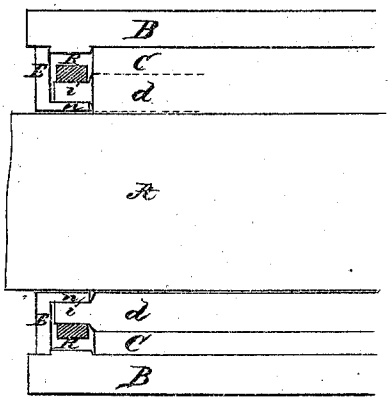


Fig. 3.

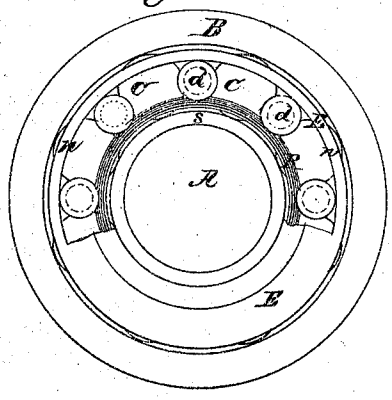


Fig. 4.

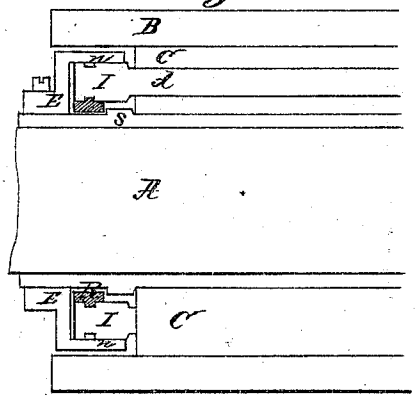


Fig. 5.

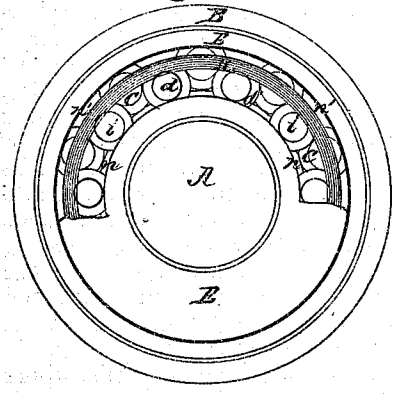
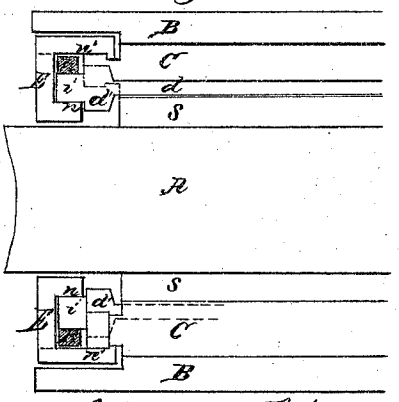


Fig. 6.



Witnesses.
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Henry P. Stark

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UNITED STATES PATENT OFFICE.

ALEXANDER W. HALL, OF ADRIAN, OHIO, AND MELVILLE E. DAYTON, OF SYRACUSE, NEW YORK.

IMPROVEMENT IN ANTI-FRICTION JOURNALS.

Specification forming part of Letters Patent No. 124,573, dated March 12, 1872.

SPECIFICATION.

We, ALEXANDER W. HALL, of Adrian, Seneca county, Ohio, and MELVILLE E. DAYTON, of Syracuse, Onondaga county, New York, have invented certain Improvements in Anti-Friction Bearings for Journals, of which the following is a specification:

Reference is made to United States Letters Patent No. 115,602, dated June 6, 1871, issued to the within-named ALEX. W. HALL. It is therein proposed to maintain separating-rollers *d d* between bearing-rollers C C by means of a circular bearing or track, *n n*. It was also proposed to make *d d* large enough to fill the spaces between C C when placed within the line of their centers *k k*, from which it was expected that *d d* would not pass outward between C C. It was also provided that if, from inaccuracy of construction or wear, *d d* should be or become sufficiently small to pass outward between C C, they should be arrested by the outer wall *r r*, forming, with *n n*, the groove *f*. It is found difficult in practice to construct the rollers *d d* so accurately that they will not pass outward between C C, and that their motion against *r r*, when they do pass outward against *r r*, materially wear the journals *i i*, reduced upon their ends. To obviate this difficulty, and to secure other advantages, among which is the placing of the separating-rollers *d d* in any desirable position between bearing-rollers C C, is the object of this invention, which we will now proceed to describe, reference being had to the accompanying drawing.

In the several figures like letters refer to like parts.

A is a journal or axle, B the box or hub. C C are bearing-rollers placed around the journal and within the box. *d d* are separating-rollers, smaller than C C, and placed between them to prevent contact of surfaces moving in opposite directions. *i i*, in Figs. 1 and 2, reduced ends of *d d*. E E are end plates, or equivalents, having the circular bearing or track *n n* attached, and held in position by contact with box B. The journals or reduced ends *i i* upon *d d* rest and roll upon this circular track *n n*, and are held by it at any desirable distance from the journal A. In connection with this circular track, and to prevent the passage outward of the separating-rollers *d d*, we use the free ring R R, encircling the journals *i i*, and carried about as impelled by the outer points of their circumference, which alone are in contact with it. In Figs. 3 and 4 the end plate is held in position by the axle, and the circular track *n n* attached to it encircles the ends I I of the separating-rollers *d d*. If E E be fast to the axle and revolves with it, in order that separating-rollers *d d* may roll between C C and their ends I I upon *n n* without slip, we construct I I larger than the body of the rollers *d d*, and in the following proportion: Fig. 4, diameter A′ is to diameter of circular track *n n* as diameter *d′* is to diameter I. To prevent the passage of the separating-rollers *d d* inward between C C, and, in combination with *n n*, to maintain *d d* in any desirable position between C C, we use the free ring R R, Figs. 3 and 4, which, placed within the ends I I of *d d*, holds them out against *n n*. In Figs. 5 and 6 the end plate E E has two circular tracks attached, *n n* and *n′ n′*, and is not in contact with either the box or axle. It is shown in these figures as riding by *n′ n′* on the ends of the bearing-rollers C C, and supporting by *n n* the separating-rollers *d d*. In order that there shall be no slipping of parts in contact, the ends *i i* of *d d*, in contact with *n n*, are made smaller than *d d* where they touch C C, in the following proportion—to wit: (Fig. 6) *d′* is to *i* as diameter *n′* is to diameter *n*. The relation of these two circular tracks may be reversed, *n n* being placed in contact with C C, and *n′ n′* guiding the separating-rollers. The free ring R R, if used at all, will in the first case be placed, as in Figs. 5 and 6, without the ends of the rollers *d d*, and in the second case within them. In Figs. 3, 4, and 6, S is a sleeve surrounding the axle, believed to be desirable for some forms and applications of our devices, and necessary for some, as, for example, the form described by Figs. 5 and 6.

The use of short end rollers or balls, where applicable, in connection with the various devices described, instead of rollers extending through from end to end, is regarded as equivalent to such rollers.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

In combination with a series of main rollers, C, and separating-rollers *d*, arranged substantially as herein described, and with a flanged end piece, E, we claim a free ring, R, in contact only with the ends of the separating-rollers, said ring and the flange of the plate E forming a channel, in which the rollers *d* are guided, substantially as and for the purposes set forth.

ALEX. W. HALL.
MELVILLE E. DAYTON.

Witnesses:
ALEX. M'KINSTRY, Jr.,
HENRY P. STARK.