M. C. Forrist,

Anti-Friction Roller.

No. 2,364. Patented Nov. 16, 1841.

Fig 4

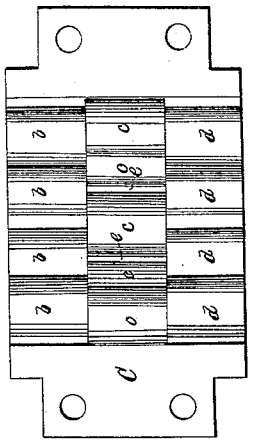


Fig 3

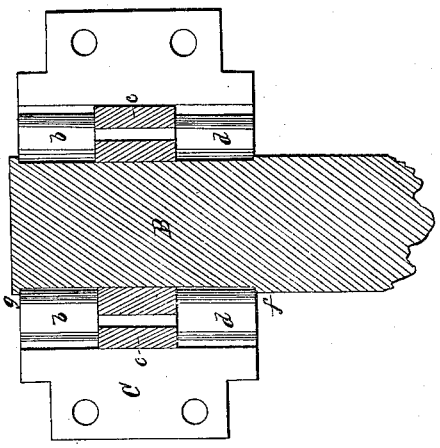


Fig 1

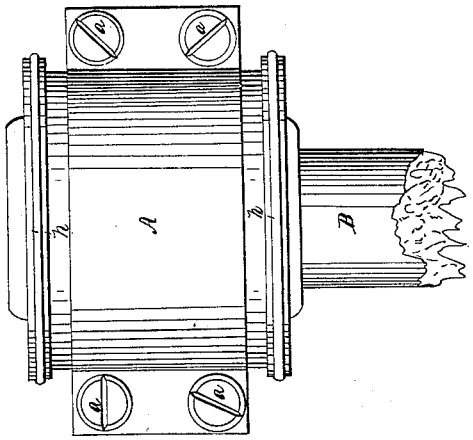
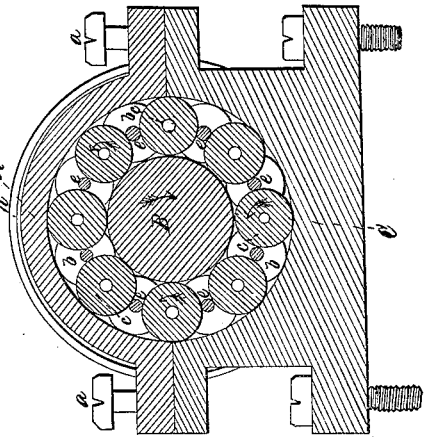


Fig 2.



AM. PHOTO-LITHO. CO. N.Y. (OSBORNE'S PROCESS)

UNITED STATES PATENT OFFICE.

MARTIN C. FORRIST, OF FOXBOROUGH, MASSACHUSETTS.

MANNER OF APPLYING FRICTION-ROLLERS TO GUDGEONS.

Specification of Letters Patent No. 2,364, dated November 16, 1841.

To all whom it may concern:

Be it known that I, MARTIN C. FORRIST, of Foxborough, in the county of Norfolk and State of Massachusetts, have invented new and useful improvements in gudgeons or in the method of supporting the ends or journals of shafts, &c., during their revolutions, so as to relieve the friction occasioned by the same, and that the following is a full and exact description of the same, reference being had to the accompanying drawings, which will be hereinafter described and which, taken in connection herewith, form my specification.

In said specification I have set forth, in my own words, the principles of my said invention, by which it may be distinguished from others of a like character, and such parts or combinations therein as I claim and for which I solicit an exclusive property for fourteen years, to be secured to me by Letters Patent.

Figure 1 is a plan of my apparatus. Fig. 2 is a cross vertical section, and Fig. 3 an horizontal section, Fig. 4 being a detailed view with the upper part A of the box, the journal B and rollers above the same, removed.

My improvements are fitted or arranged in an ordinary box A, C, consisting of the two parts A and C, confined together by screws *a*, *a*, *a*, *a*, or in any other proper manner.

b, *b*, *b*, &c., *c*, *c*, *c*, &c., *d*, *d*, *d*, &c., represent three sets of rollers, arranged entirely around the journal B, their surfaces coming in contact with the exterior surface of the journal, and the interior surface of the box A C. Each of these rollers has a cylindrical hole bored through the center, and in the holes of the outer sets *b*, *b*,—*d*, *d*, the ends of the rods or small rollers *e*, *e*, *e*, &c., are fitted and play loosely, the center parts of these rods passing between the rolls of the center set *c*, *c*, *c*, and keeping them apart from each other.

From the above arrangement it will be seen that when the journal revolves the main or larger size rollers *b*, *c*, *d*, will be revolved in the direction denoted by the red arrows in Fig. 2, while the smaller rollers *e*, *e*, being in contact with those of the center set, will be moved in a contrary direction, which greatly diminishes the friction between said rollers turning on each other. It will likewise be seen by inspection of Figs. 2, 4, that all the main rollers are effectually kept apart from each other, the only surfaces that come in contact being those of the small rods or rollers with those of the center set, which peculiar arrangement also contributes to the production of the above mentioned result of reducing friction. Again, it should be observed that where only two common friction rollers are used, the journal, resting on the same, acts as a wedge, tending to separate the same, and consequently binding and producing considerable friction. This difficulty is relieved by my improvements, by having the outer sets of rollers placed opposite the spaces between those of the center set, so that, where the journal would settle between the spaces, (were there but one set), it is prevented by the above described disposition of the rollers.

The systems of rollers are kept in place by grooving the journal a little, so as to form two shoulders *f*, *g*, one at each end of the box as shown in Fig. 3. Caps *h*, *h*, are also screwed or otherwise properly secured to the sides of the box A, C.

Having thus described my improvements I shall claim as my invention:

Arranging three sets of friction rollers about the journal of a shaft, or between the exterior of the journal and the interior of the box, and separating said rollers from each other, by means of small rods or rollers, having loose bearings in each of the two outer sets, the whole being constructed and operating substantially in the manner and for the purpose above set forth.

In testimony that the foregoing is a true description of my said invention I have hereto set my signature this fourth day of September in the year eighteen hundred and forty one.

MARTIN C. FORRIST.

Witnesses:

R. H. EDDY,

EZRA LINCOLN, JR.