(No Model.)

A. J. Q. KNOWLTON.

ROLLER BUSHING FOR SHEAVES

No. 594,357. Patented Nov. 23, 1897.

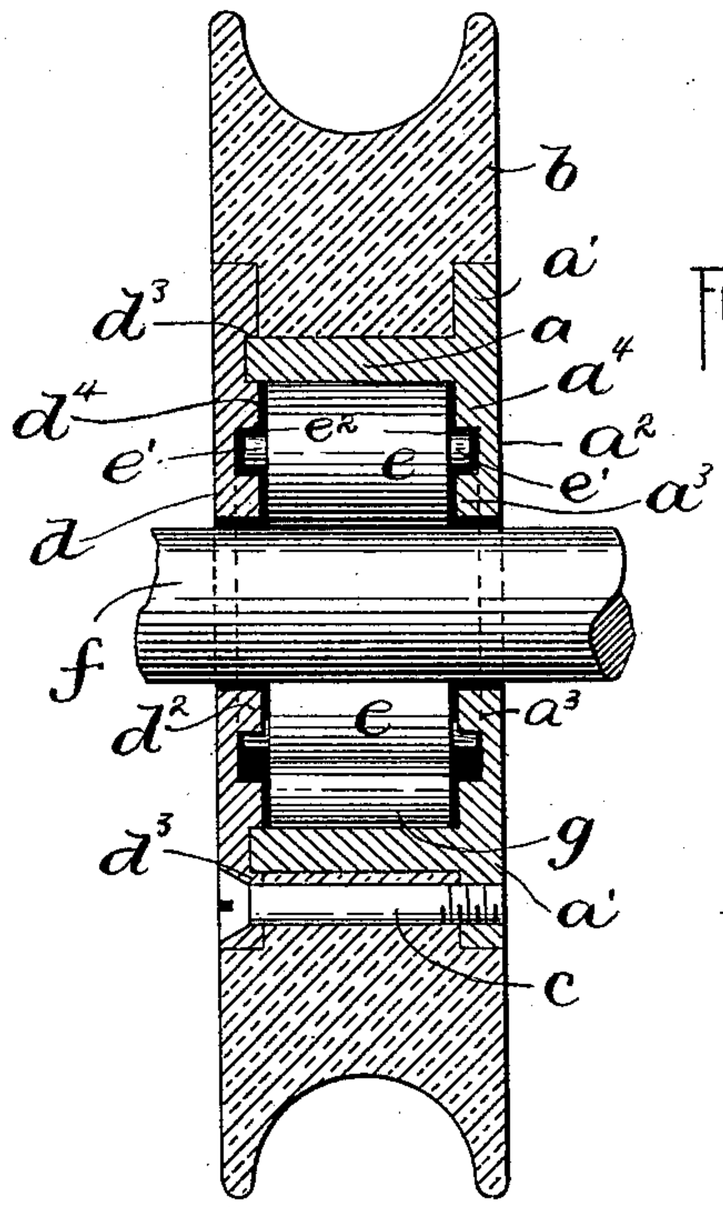
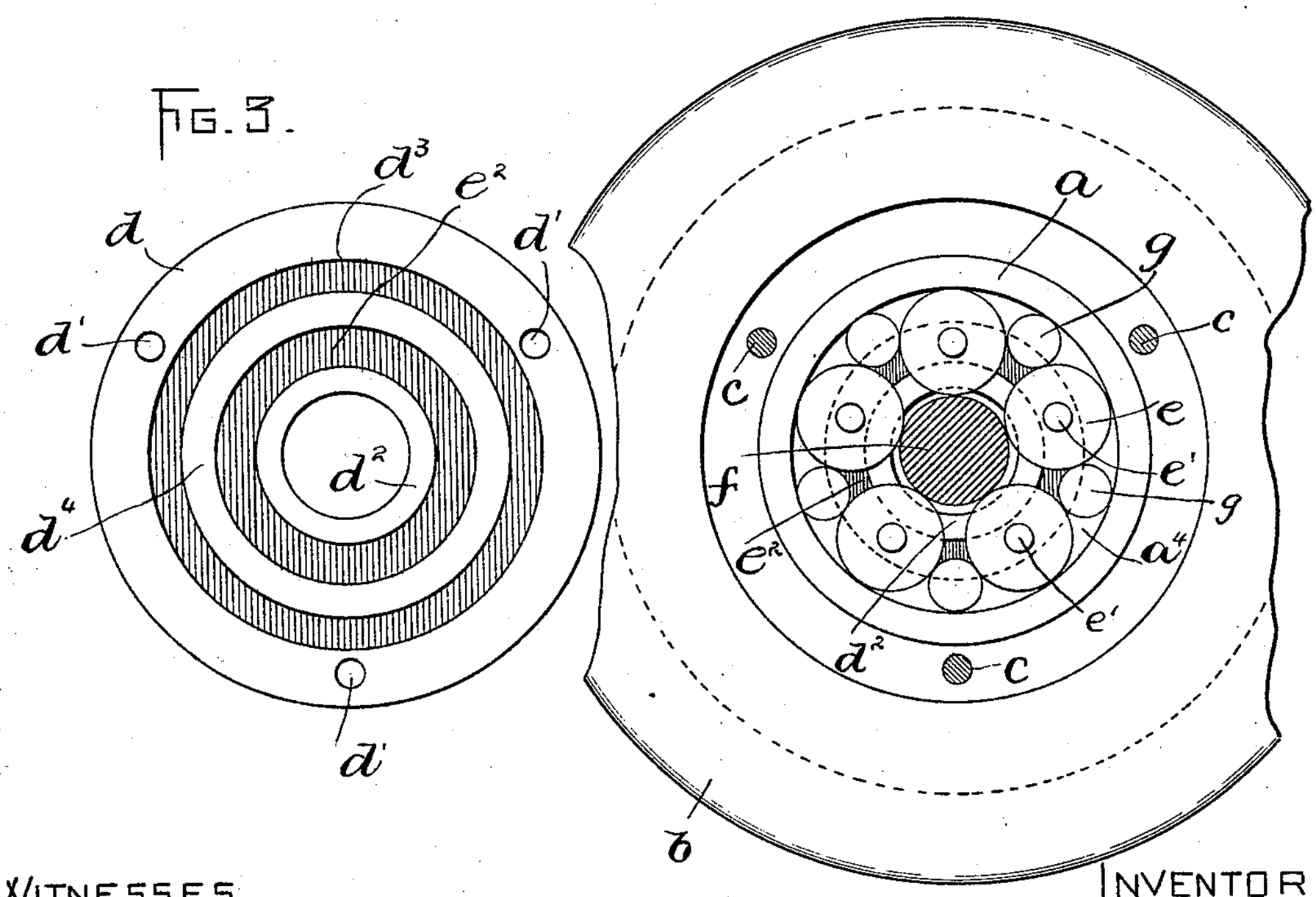


FIG. 2.

FIG. 1.

FIG. 3.



WITNESSES:
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UNITED STATES PATENT OFFICE.

ALONZO J. Q. KNOWLTON, OF CAMDEN, MAINE, ASSIGNOR TO THE DUPLEX ROLLER BUSHINGS COMPANY, OF SAME PLACE.

ROLLER-BUSHING FOR SHEAVES.

SPECIFICATION forming part of Letters Patent No. 594,357, dated November 23, 1897.

Application filed March 15, 1897. Serial No. 627,684. (No model.)

To all whom it may concern:

Be it known that I, ALONZO J. Q. KNOWLTON, of Camden, in the county of Knox and State of Maine, have invented certain new and useful Improvements in Roller-Bushings for Sheaves, of which the following is a specification.

This invention relates to pulleys or sheaves having a series of rollers situated around the shaft or spindle on which the sheave rotates and a metallic bushing which constitutes a casing for the said rollers.

The invention consists in certain improvements in the particular class of roller-bushings illustrated and described in Letters Patent No. 549,686, dated November 12, 1895, which improvements I shall now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents in side elevation a pulley or sheave embodying my invention, the end cap of the bushing having been removed to expose the rollers. Fig. 2 is a section on line 2 2 of Fig. 1. Fig. 3 is a side elevation of the cap, showing its inner side.

The same letters of reference indicate the same parts in all the figures.

Referring to the drawings, *a* represents a cylindrical metallic casing inserted in a central opening of the sheave *b* and secured thereto by transversely-extending screws *c*, whose ends screw into an outer flange *a'* of the casing. These screws serve also to secure the cap *d* to the casing *a*, the said cap being provided with suitable holes *d'* to receive the screws. The casing *a* and its cap *d* together form a box in which are contained the bearing-rollers *e* and *g*. The rollers *e* bear upon the block-shaft *f* and upon the inner wall of the casing, and each roller is provided with trunnions *e' e'*, which are adapted to engage annular ribs a^3 and d^2, formed, respectively, on the end wall a^2 of the casing and on the cap *d*, this arrangement serving to retain the rolls in the casing when for any reason the sheave is removed from its shaft. The cap *d* is provided with an annular abutment d^3, which bears on the outer surface of the casing *a* at the open end of the latter and prevents said casing from spreading at its open end under the pressure to which it is subjected when in use. Thus far the construction agrees with that recited in the patent before referred to. In said patent the cap *d* was provided with a wide recess extending from the abutment d^3 to the trunnion-engaging rib *d'*, and the end wall *a'* of the casing was provided with a similar wide recess extending from the transverse or side wall of said casing to the annular rib a^2. It has been found that this affords insufficient end bearing for the rollers *e*. In practice the rollers by skewing or tilting would become unevenly worn and would likewise wear away the interior of the casing unevenly, so as to impair the parallel alinement of the rollers with the axis of the central spindle *f*, which is necessary to the best working results.

It is one object of the present invention to overcome this difficulty, and I do so by providing annular abutments a^4 d^4 on the inner faces of the end wall a^2 and the cap *d*, respectively, which abutments constitute end bearings for the rollers *e*. Narrow recesses e^2 are left in both the cap and the end wall of the casing, which constitute runways for the trunnions *e'* and assist in preventing tilting of the rollers *e*. This provision of the abutments a^4 d^4, besides affording the advantages stated, serves to give additional strength to the casing and its cap to withstand the rough usage to which the said parts may be subjected.

The small rollers *g*, as in the former patent referred to, are preferably composed of inoxidizable metal, such as bronze, and they act to separate the rollers *e* from each other and to clean or wear off any accumulation of rust that may form on the surfaces of the said larger rollers, which are preferably composed of steel.

I claim—

A sheave or pulley having a central cavity, a bushing or casing inserted in said cavity and having at one end an integral inwardly-projecting flange forming the fixed end wall of a roller-holding space within said casing, and an annular end piece or cap of larger diameter than the casing and attached outside

the casing to the pulley, a series of rollers located in said casing, said end piece constituting the removable end of the roller-holding space and having an abutment that surrounds and prevents the spreading of the open end of the casing, trunnions on said rollers, suitable trunnion-engaging annular ribs formed on the cap and the end wall of the casing, and suitable annular abutments also formed on the said parts at opposite sides of the trunnions from the said ribs, the said abutments and ribs together constituting adequate end bearings for the said rollers.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 22d day of February, A. D. 1897.

ALONZO J. Q. KNOWLTON.

Witnesses:
M. T. CRAWFORD,
F. I. COOMBS.