(No Model.)

C. S. SIMPSON.

ROLLER BEARING FOR AXLES.

No. 343,257. Patented June 8, 1886.

Fig. 1.

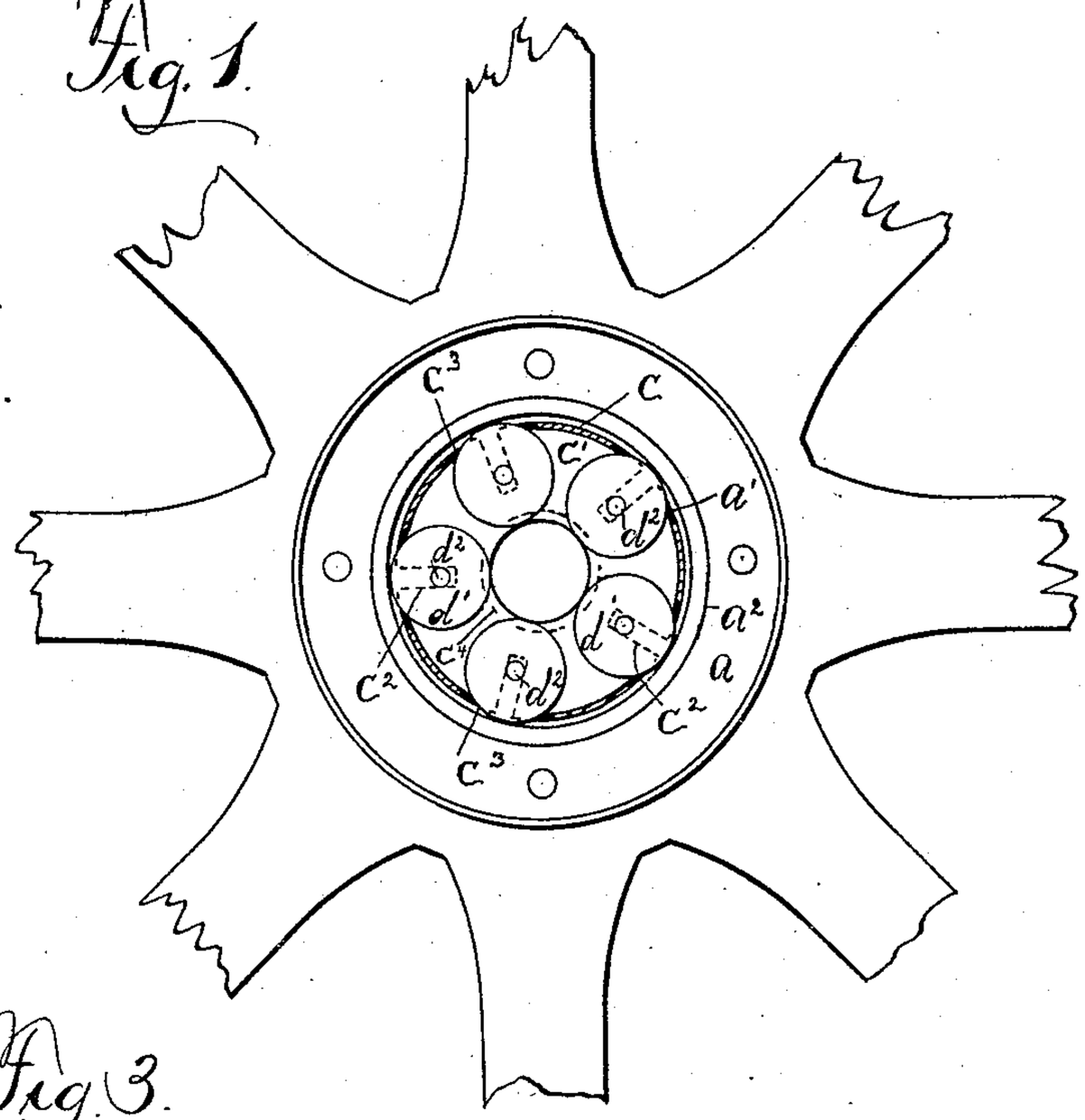


Fig. 3.

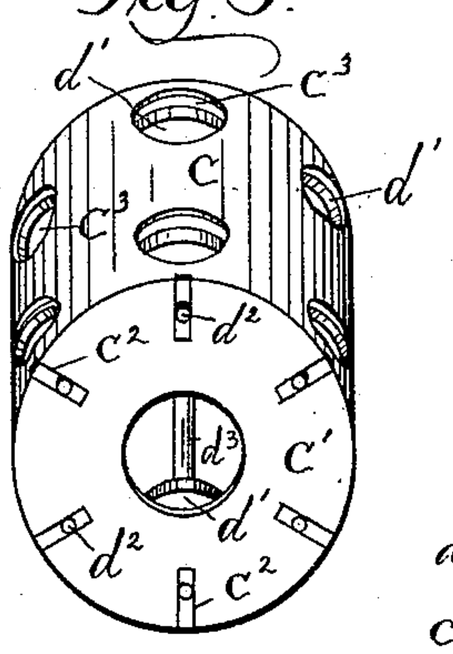
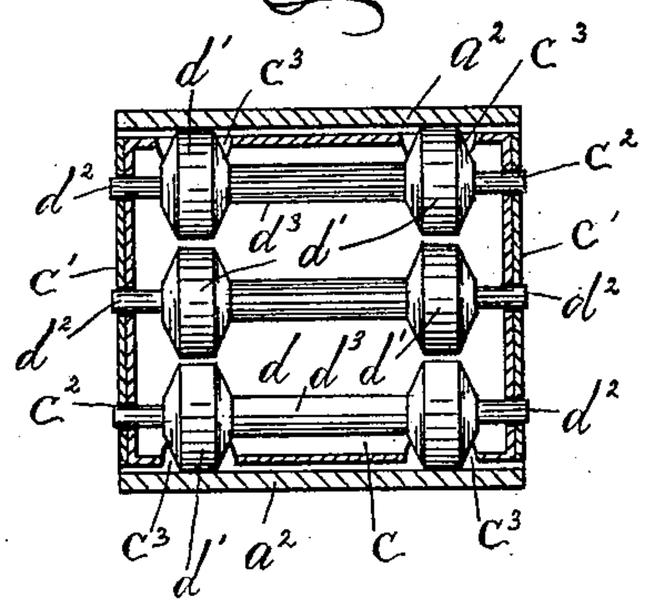


Fig 2.



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UNITED STATES PATENT OFFICE.

CHARLES S. SIMPSON, OF BUFFALO, NEW YORK.

ROLLER-BEARING FOR AXLES.

SPECIFICATION forming part of Letters Patent No. 343,257, dated June 8, 1886.

Application filed March 20, 1886. Serial No. 195,965. (No model.)

To all whom it may concern:

Be it known that I, CHARLES S. SIMPSON, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Roller-Bearings for Axles; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention relates particularly to a certain improved arrangement of rollers to form a bearing for an axle resting between the series of rollers, all as will be more fully hereinafter described and claimed.

In the drawings, Figure 1 is an end view, partly in section, of my improved device. Fig. 2 is a side view of the rollers, with the casing and bushing in section; and Fig. 3 is a perspective view of the casing and contained series of rollers.

Referring to the drawings, *a* is the hub of a wheel, and *a'* the recess or chamber. Within this recess *a'* is the metal bushing a^2, within which my improved bearing is placed.

c is the casing or box for holding the rollers, the ends *c'* of which are provided with a series of slots, c^2, extending from the outer edge inwardly in a radial direction. Upon the cylindrical surface of this casing, near each end thereof, are a series of apertures, c^3, arranged in planes perpendicular to the longitudinal axis of the cylindrical casing. The rollers have the series *d'* (two or more) of narrow bearing-surfaces of cylindrical or spherical form, with end trunnions, d^2, and intermediate portions, d^3, of smaller diameter than the bearing-surfaces *d'*. These rollers are placed within the casing by arranging their trunnions within the radial slots c^2 at the ends of the casing in such manner as to form a circle of these rollers, between which the axle *e* is to pass and rest. The trunnions d^2 are allowed a limited play within the radial slots c^2, and the bearing-surfaces *d'* of the rollers register with the apertures c^3 in the cylindrical wall of the casing, and through which these bearing-surfaces *d'* may project. The casing *c*, it will be seen, is a little smaller than the bushing a^2 within which it is placed.

The different parts are arranged as follows: The casing, with its contained rollers, is placed within the bushing, and the axle *e* passed through the central apertures, c^4, and between the rollers, the play of the trunnions d^2 in the slots c^2 allowing the rollers to adjust themselves around the axle. It is designed that the parts are to be so fitted that the series of rollers are to have bearing-contact both with the axle which they surround and the inner wall of the bushing which surrounds them, the bearing-surfaces *d'* of the rollers passing loosely through the apertures c^3 of the casing *c* to meet the bushing a^2 without contact with the cylindrical wall of the casing.

With my improved construction there is no frictional contact of the rollers with the casing, except when the casing turns within the bushing, as it is free to do, and this frictional contact is extremely small. Again, there is no frictional contact of the casing with the bushing, the only frictional contact or bearing between the parts to be considered being between the rollers and the bushing and axle, and this being rolling reduces the entire friction to a minimum.

The rollers are to be permanently locked within the casing in the manner shown, in which position they can be quickly placed in position and as quickly removed, and by reason of their limited play within the radial slots of the casing easily adapt themselves to the space in which they revolve between the axle and bushing.

In Figs. 1 and 2 I have shown a series of five rollers arranged within the casing, and in Fig. 3 there are six, which number is perhaps the best for effective work, although I do not intend to confine myself to any stated number.

It is apparent that my improved bearing is applicable to axles of all descriptions where it is possible to lessen the frictional contact of parts.

I claim—

1. A bearing for axles, consisting, essentially, of a closed cylindrical casing having a series of radial slots in each end thereof and series of apertures in its cylindrical wall, and

a series of rollers whose ends are adjustably seated in the radial slots, and whose bearing-surfaces pass through the apertures in the casing, the whole being adapted for insertion within the bushing and for the reception of the axle through its center, all combined and operating substantially as shown and described.

2. A bearing for axles, consisting of the casing *c*, having the radial slots c^2 and central apertures, c^4, at each end, and the apertures c^3 around its cylindrical wall, and the rollers having the trunnions d^2 adjustably placed within the radial slots c^2, and the bearing-surfaces d', registering with the apertures c^3, through which they project when in position within the bushing, all combined and operating substantially as shown and described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES S. SIMPSON.

Witnesses:

OTTO HODDICK,

W. T. MILLER.