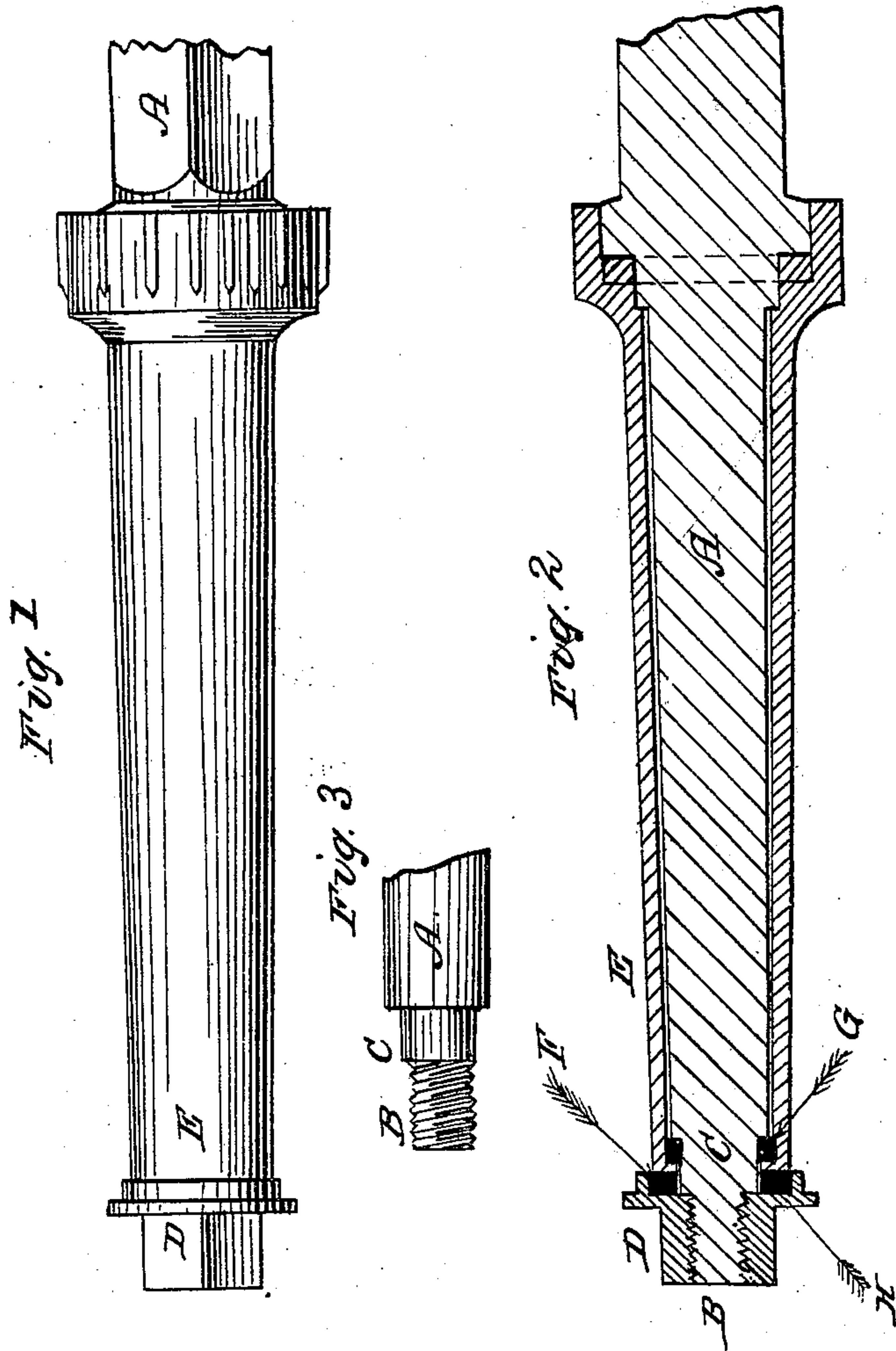


A. E. SMITH.
Carriage Axle.

No. 107,112.

Patented Sept 6, 1870.



Witnesses
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UNITED STATES PATENT OFFICE.

ALFRED E. SMITH, OF BRONXVILLE, NEW YORK.

IMPROVEMENT IN CARRIAGE-AXLES.

Specification forming part of Letters Patent No. **107,112**, dated September 6, 1870.

To all whom it may concern:

Be it known that I, ALFRED E. SMITH, of Bronxville, Westchester county, and State of New York, have invented certain new and useful Improvements in the Manufacture of Axles for Wagons and other Vehicles; and I do hereby declare that the following is a full description of the same.

As explanatory of the object of my invention, and to obtain a better understanding of its nature, it may not be deemed improper to point out the difficulties attending the use of the axle in the ordinary way of securing it in the hub by a simple screw-nut. In the ordinary way of making the axle, the nut draws directly against the edge of the metal box. As this is only about an eighth of an inch thick, it causes the leather washers used to pack the axle to cut or grind out in two or three days' time running the wagon or vehicle, thereby causing the wheels to rattle, and soon, if not repacked with leather washers, destroy the axle, and at the same time allow of the escape of the grease.

The nature of my invention, therefore, is to overcome these objections; and it consists in combining with a metal box having a contracted aperture at its front end an axle or spindle made with a double-shouldered point, whereby the screw-nut which holds the wheel on the axle draws against the face of the enlarged area of the end of the metal box, instead of against its edges, as would be the case if it had not been so contracted.

To describe my invention more particularly, I will refer to the accompanying drawings, forming a part of this specification, the same letters of reference, wherever they occur, referring to like parts.

Figure 1 is a side view of the axle and box in which it runs. Fig. 2 is a longitudinal cut section of the same. Fig. 3 is a detached view of the point of the axle.

Letter A represents the axle, the point of which is made in two subdivisions, B and C, of unequal diameters, and of less diameter than the body of the spindle or axle. The object

of this formation of the end of the spindle is, first, to obtain a greater area of surface between the nut D and the end of the box E for the leather washer F to wear upon or against than would be the case if the spindle were of uniform diameter throughout its length and the screw-threads B cut on its end, as commonly practiced, which allows only of the edge of the metal box for a bearing for the leather washer, and thereby, from its small amount of wearing-surface, is soon worn out, and causes the wheel to rattle, and at the same time leak the grease or oil with which it is lubricated; secondly, to make the bearing part of the spindle or body part of it shorter than the box, so as to combine with the double-nibbed axle an oil-chamber, G, within the end of the box, in consequence of its contracted front end by the formation of the ledge H therein, to fit upon the subdivision C of the spindle. This ledge, it will be observed, is flush with end of the box, and about an eighth of an inch deep. Consequently it admits of the use of a washer of about twice the wearing-surface of an ordinary washer, and at the same time, by its contracted aperture and the shortened bearing-surface of the body of the spindle, forms an oil-chamber, G, within the end of the box, to prevent the escape of the grease or oil therefrom.

Having now described my invention of a new manufacture of axles, I will proceed to set forth what I claim and desire to secure by Letters Patent of the United States:

1. The axle A, formed with double nibs B and C, of unequal diameters, in combination with a metal box having a ledge, H, flush with the outer end of the box, substantially as herein shown and described.

2. The axle A, formed with double nibs B and C, of unequal diameters, the metal box E, with its ledge H, the oil-chamber G, washer F, and nut G, the whole combined and arranged to operate substantially as set forth.

ALFRED E. SMITH.

Witnesses:

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