

D. A. JOHNSON.

Device for Attaching Hubs to Axles.

No. 159,762.

Patented Feb. 16, 1875.

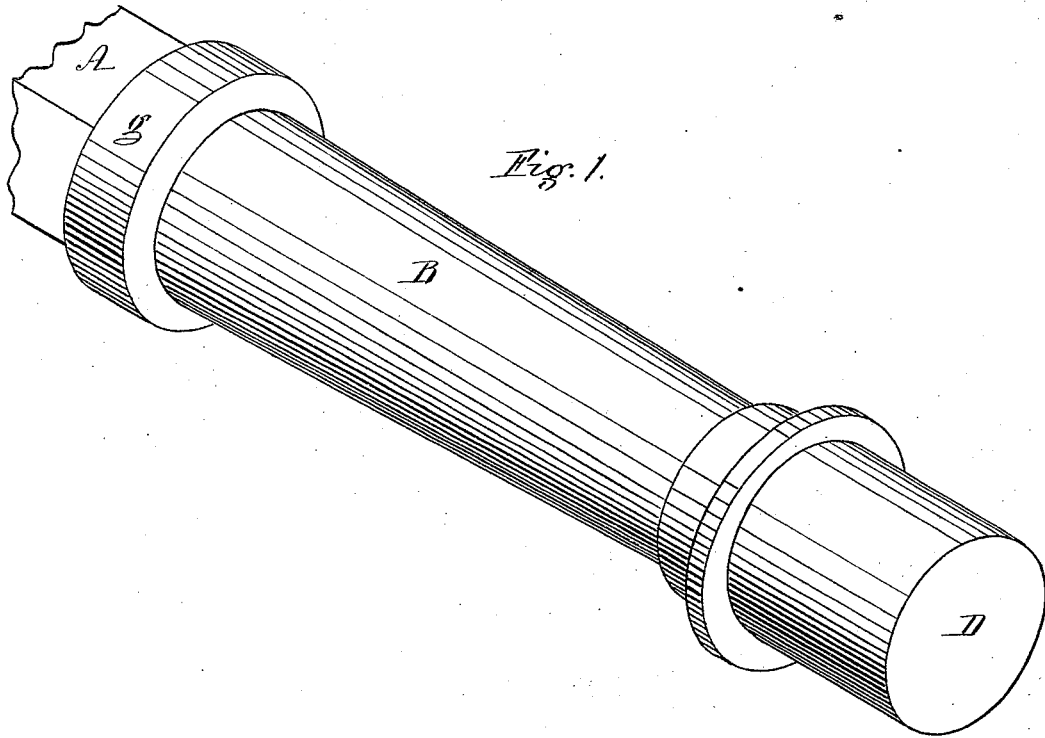


Fig. 1.

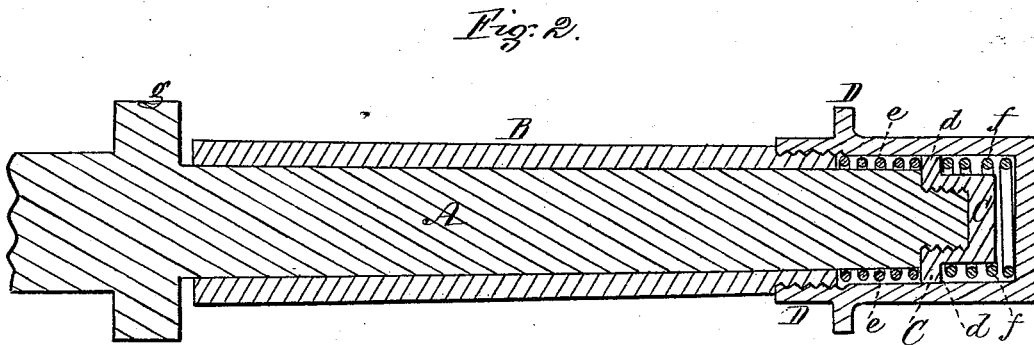


Fig. 2.

Witnesses,
J. B. Cambridge
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Inventor,
Daniel A. Johnson
per T. S. Mather & Stearns
Attys.

UNITED STATES PATENT OFFICE.

DANIEL A. JOHNSON, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN DEVICES FOR ATTACHING HUBS TO AXLES.

Specification forming part of Letters Patent No. 159,762, dated February 16, 1875; application filed January 16, 1875.

To all whom it may concern:

Be it known that I, DANIEL A. JOHNSON, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improved Method of Securing Wheels to their Axles, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a perspective view of an axle and its box made in accordance with my invention. Fig. 2 is a longitudinal section through the center of the same.

My present invention relates to that method of securing wheels to their axles in which one or more spiral springs are employed to prevent concussion and rattling of the parts, and is, in a manner, an improvement on my patent of February 17, 1874; and this invention consists in a peculiar arrangement of springs at the outer end of the axle, the springs being placed one on each side of the nut which secures the wheel in place, and being covered by a cap, which is screwed onto the outer end of the axle-box, by which construction the concussion is relieved longitudinally in both directions, and all rattling of parts avoided in a simple and effective manner.

To enable others skilled in the art to understand and use my invention, I will proceed to describe the manner in which I have carried it out.

In the said drawings, A represents a carriage-axle, over which fits the axle-box B, which is held in place by an ordinary nut, C, screwed onto the outer end of the axle, and provided with a flange, *d*. The outer end of the axle extends beyond the outer end of the axle-box, thus leaving a space between the latter and the flange *d* for the reception of a spiral spring, *e*, which encircles the outer end of the axle, and is confined securely in place by the nut C, one end of the spring *e* bearing against the outer end of the axle-box, and the other end bearing against the flange *d*. On

the opposite side of this flange the nut C is encircled by another spiral spring, *f*, one end of which bears against the flange and the other end against the inside of a cap, D, which is screwed over the end of the axle-box B, and thus, as the spring *f* is compressed by screwing on the cap, the inner end of the axle-box is drawn away from the collar *g*, as seen in Fig. 2, and is prevented by this spring from coming into sudden contact therewith, thus avoiding the concussion in this direction which would otherwise occur, while the concussion in the opposite direction is relieved by the spring *e*, and all rattling of the parts is consequently avoided, while no washers whatever are required.

Where a spring has been applied at each end of the axle-box to relieve the concussion in opposite directions, the chamber or recess formed by enlarging the inner end of the axle-box for the reception of the spring left a portion of the inner end of the journal unsupported, and it was liable to break at this point, which objection is entirely overcome by placing both springs at the outer end of the journal, as no recess or chamber at the inner end of the axle-box is then required.

The screw-cap D excludes dust, and prevents the escape of the oil or other lubricating substance used, and the compression and expansion of the spring *e* assist in distributing it over the surface of the journal.

What I claim as my invention, and desire to secure by Letters Patent, is—

The springs *e f*, placed at the outer end of the axle A, one on each side of the nut C secured thereto, in combination with the screw-cap D and axle-box B, to operate substantially as and for the purpose set forth.

Witness my hand this 13th day of January, A. D. 1875.

DANIEL A. JOHNSON.

In presence of—

P. E. TESCHEMACHER,
N. W. STEARNS.