

(No Model.)

C. S. HARPER.

CARRIAGE AXLE.

No. 276,174.

Patented Apr. 24, 1883.

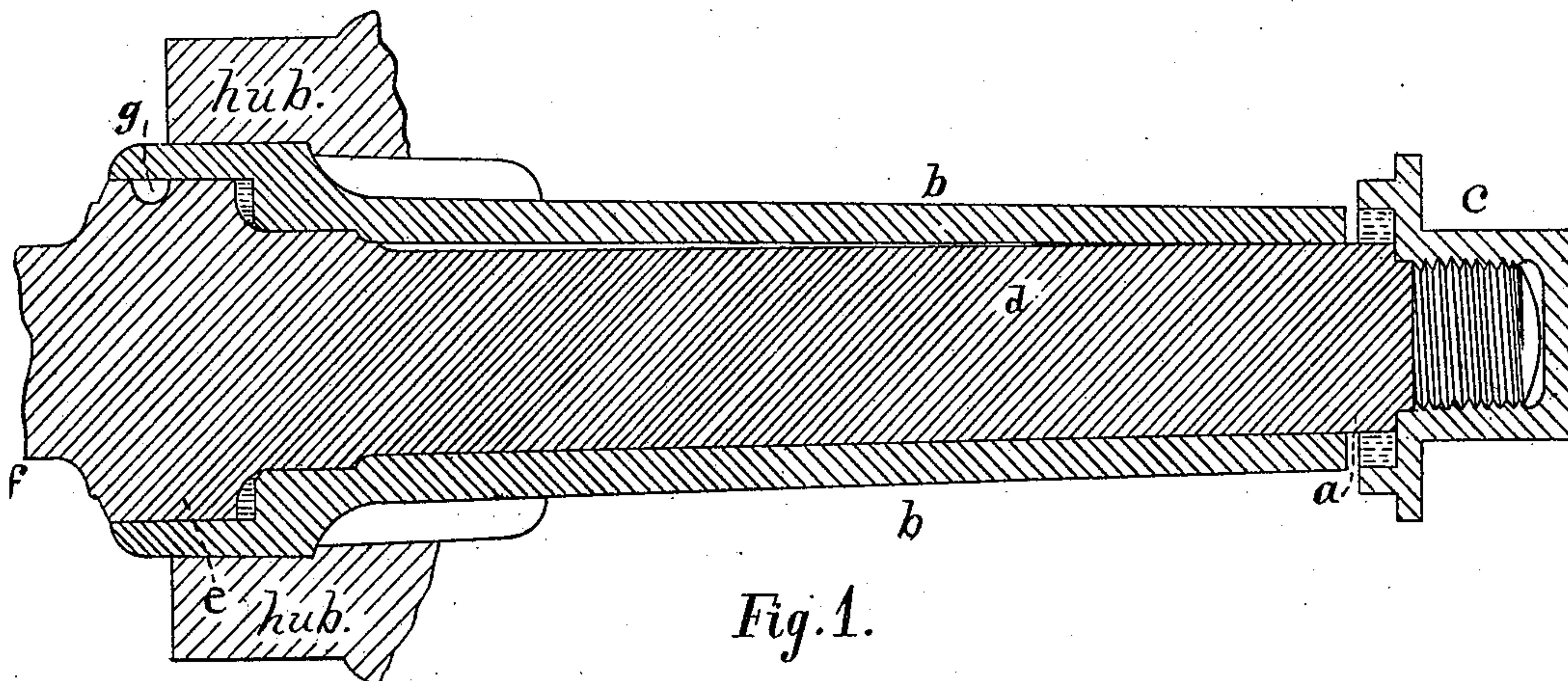


Fig. 1.

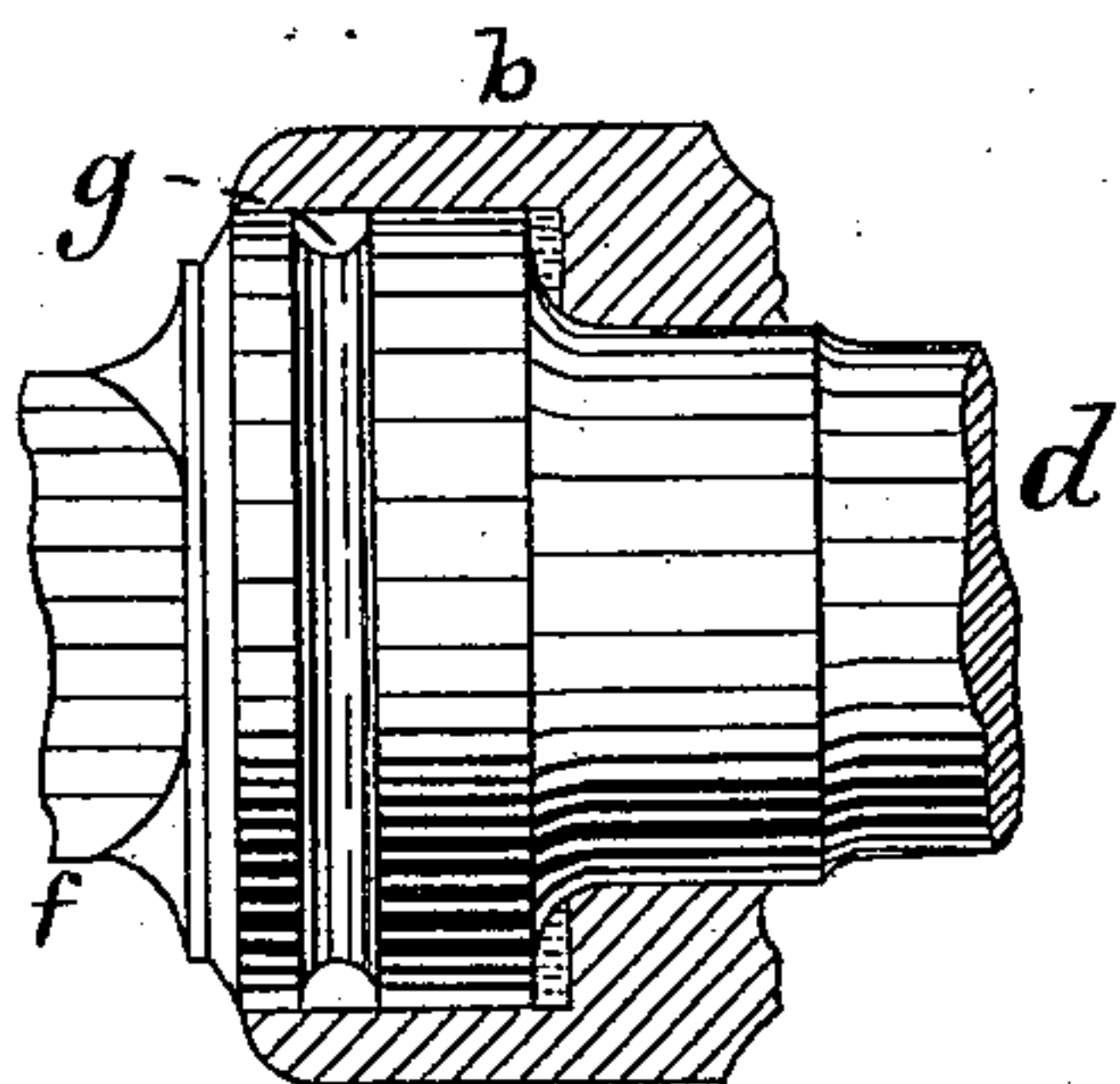


Fig. 2.

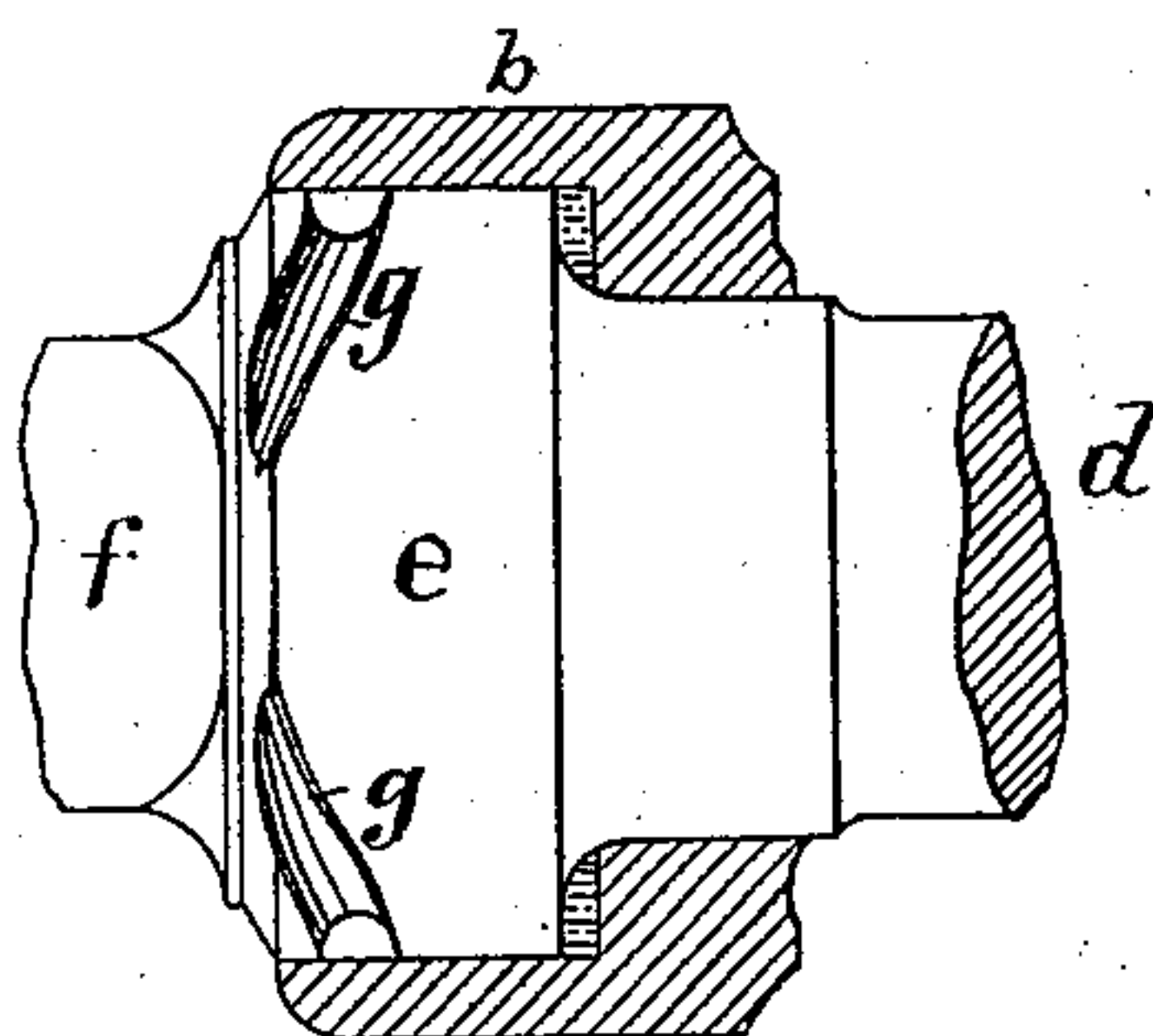


Fig. 3.

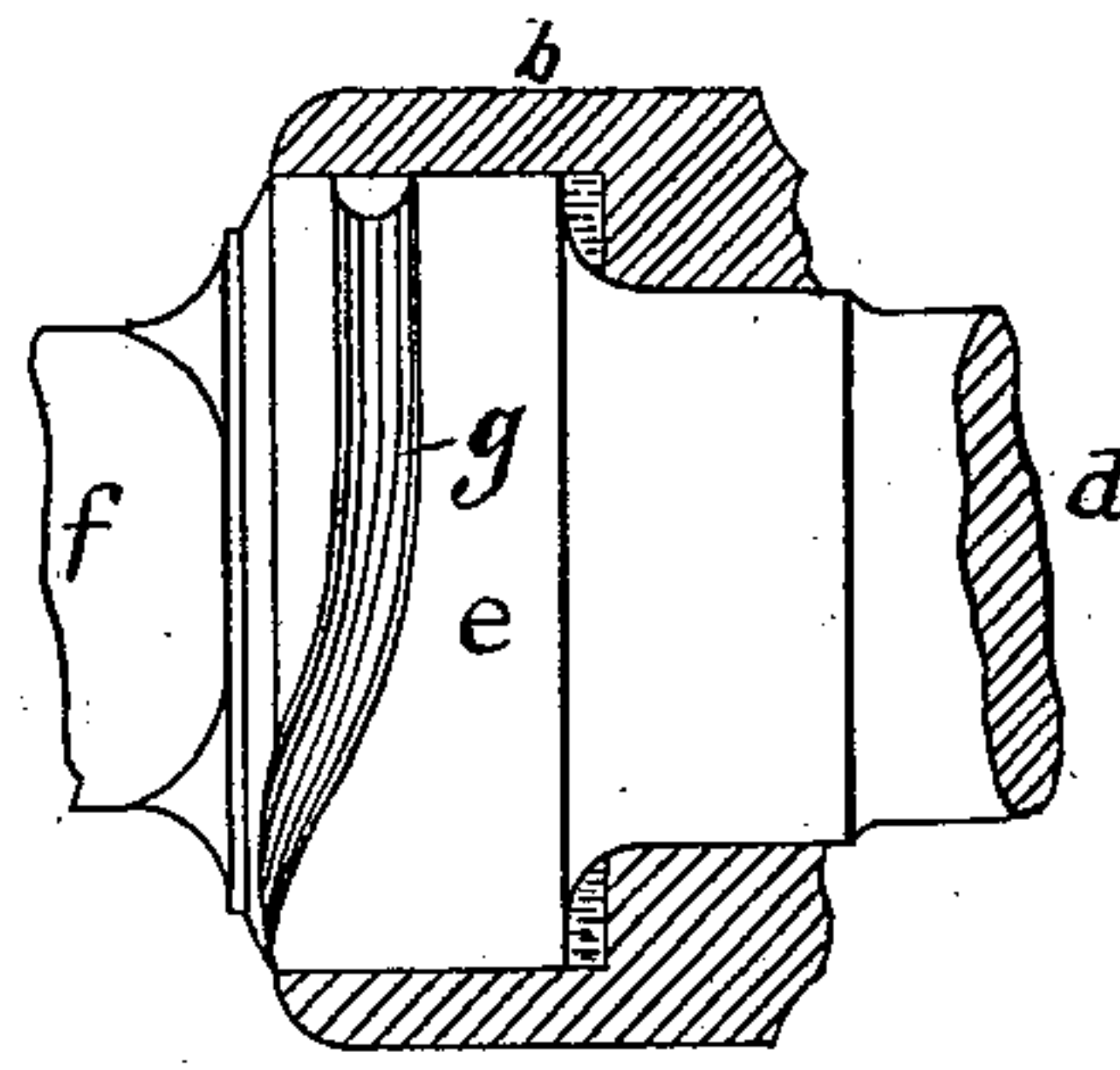


Fig. 4.

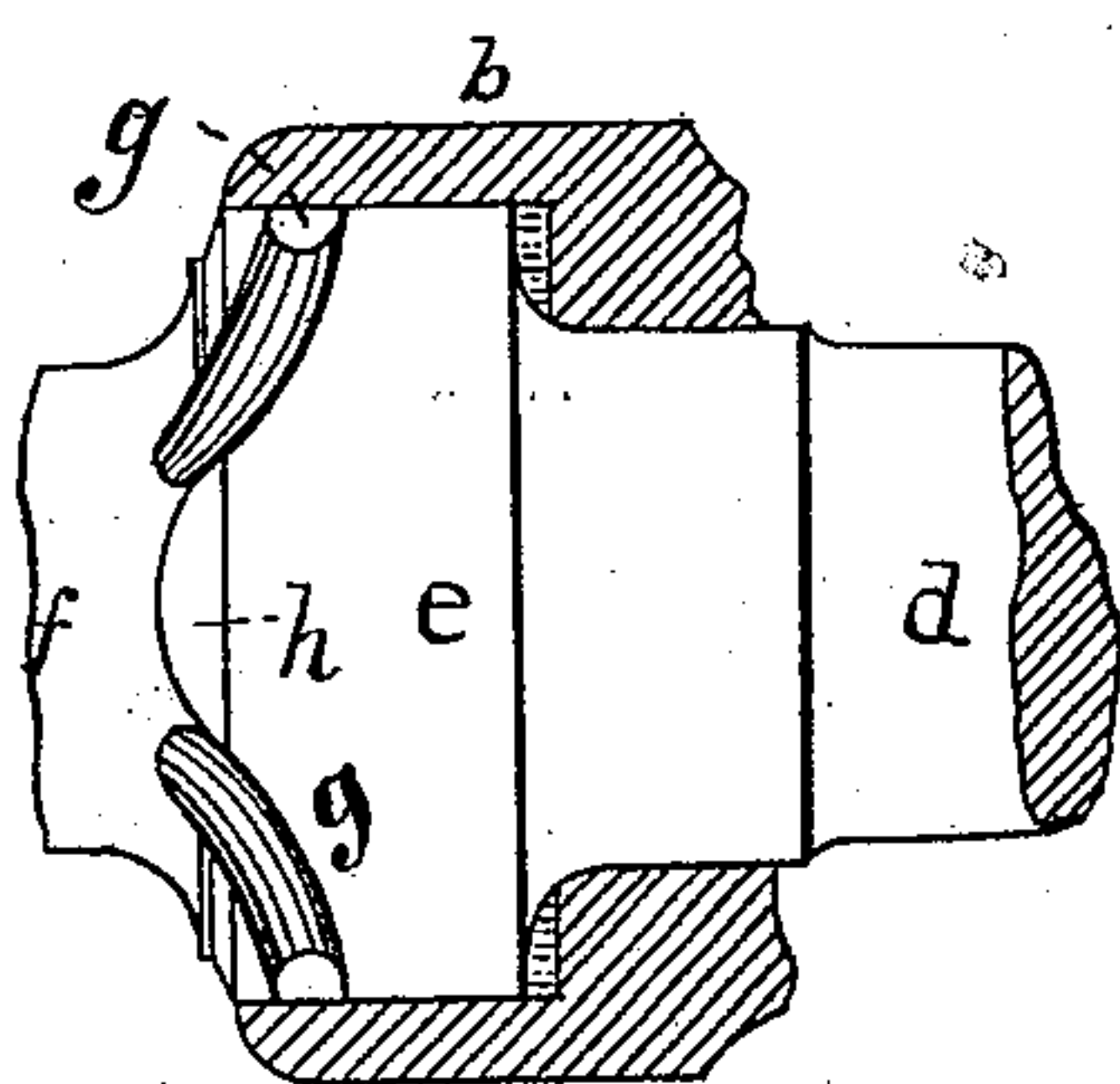


Fig. 5.

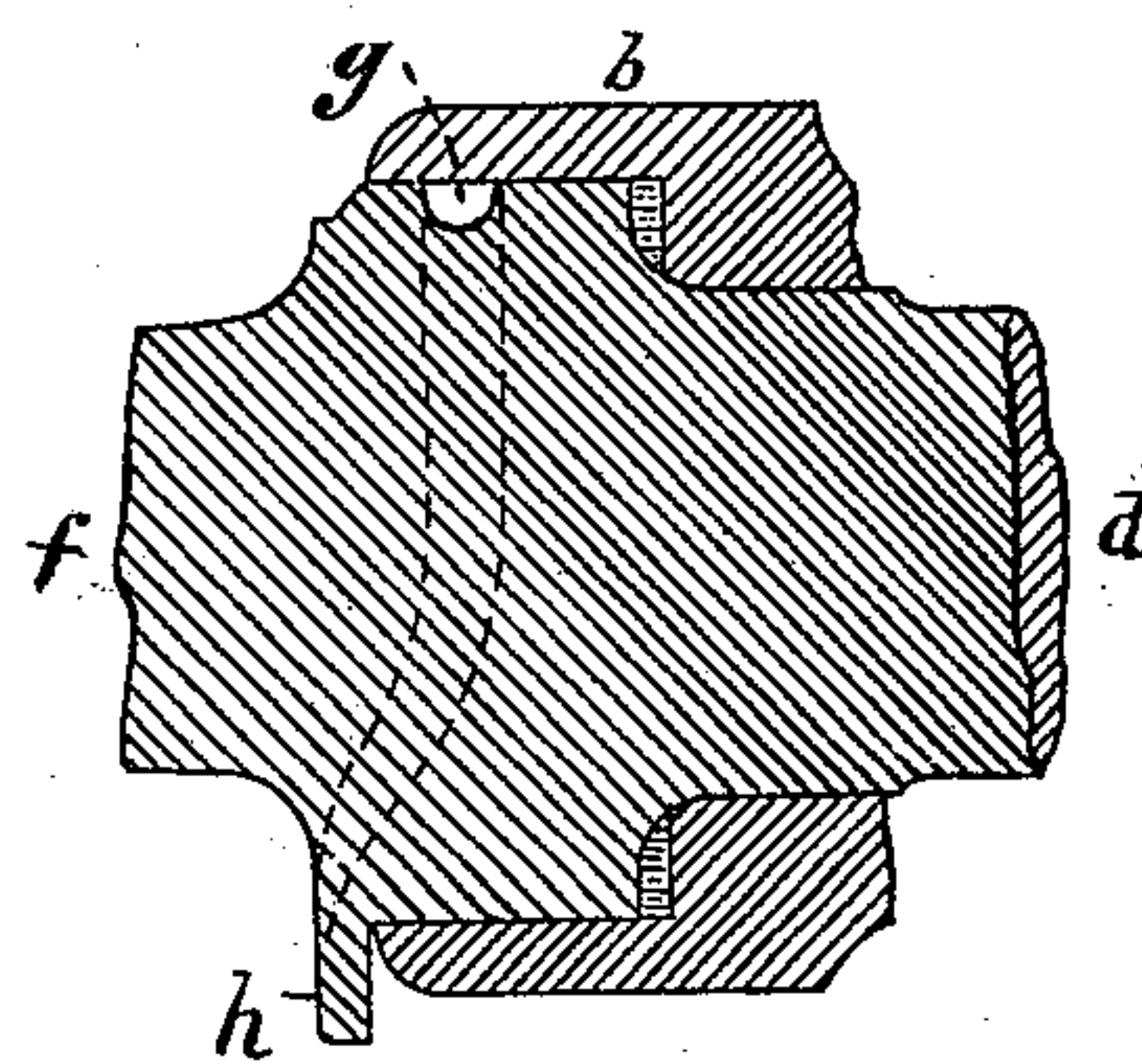


Fig. 6.

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UNITED STATES PATENT OFFICE.

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CARRIAGE-AXLE.

SPECIFICATION forming part of Letters Patent No. 276,174, dated April 24, 1883.

Application filed February 15, 1883. (No model.)

To all whom it may concern:

Be it known that I, CHARLES S. HARPER, of Sharon, in the county of Norfolk and State of Massachusetts, have invented a new and useful Improvement in Carriage-Axles, which invention is fully set forth in the following specification, reference being had to the accompanying drawings.

This invention relates to the metallic axles used as the journals of the supporting-wheels of road-carriages; and its object is to prevent the movement of water and grit into the chamber of the box from the inner end when in use, which object I accomplish by means of a groove peculiarly formed in the periphery of the axle-shoulder, as well as by a lip formed upon the axles, as will be hereinafter fully described, and specifically defined in the appended claims.

In the drawings, Figure 1 shows an axle embodying my improved groove, as also the box and nut, all in longitudinal vertical section, except the threaded end of the axle, which is shown in elevation. Fig. 2 shows in top plan view the portion of the axle at and adjacent to the shoulder and the inner end of the box, which latter is shown in horizontal section. Fig. 3 is a view similar to Fig. 2, but showing the axle upside down and the box in horizontal section. Fig. 4 shows the same portion of the axle in side elevation and the box in vertical section. Fig. 5 is a view like Fig. 3, but showing the lip, which is an additional feature of my improvement. Fig. 6 is a longitudinal vertical section of the parts shown in Fig. 5.

In said views, *a* is the axle. *b* is the hub-box, and *c* is the securing-nut threaded on axle *a*, as shown in Fig. 1. The axle is formed with the usual arm, *d*, shoulder *e*, and bed *f*, which latter is shown as mainly broken away, as it has no connection with my invention except as a well-known constituent part of the axle. The groove *g* is formed in shoulder *e*, as shown in the several figures—that is to say, it is formed at right angles to the axis of the axle around the upper half of the circumference thereof, as shown in Figs. 2, 4, and 6, while from about the center of the sides of the axle the groove descends by a line curving toward the inner or large end of the box, and passing outside such end of the box, it terminates outside the transverse line of the shoulder, as

shown in Fig. 3, leaving the under side of the shoulder intact to serve as a bearing for the box.

In Figs. 5 and 6 a lip, *h*, is shown as formed adjacent to the shoulder, and projecting below the outer periphery of box *b*, and with a right-line face adjacent to the inner end of said box when in position, while the opposite face is preferably formed as an arc of a circle, as shown in Fig. 5. When this lip is employed the groove *g*, at its lower ends, is formed wholly outside of the outer or curved face of said lip *h*, as shown in Fig. 5 by solid lines, and by dotted lines in Fig. 6. That portion of said groove which traverses the upper semi-circumference of the axle should not only be at right angles to its axis, as stated, but should also be at such distance from the exterior transverse line of the shoulder as to leave a space between said transverse line and the groove somewhat less than the width of the groove, as shown in the several figures, as the nearer such groove is to the end of the box the less distance can the gravel or water move inward before falling into the same, when it is thereby arrested, and, moving down the same, is delivered outside the end of the box. By forming this groove with its lower ends oblique to the axis of the axle and terminating outside the end of the box, the under side of the collar or shoulder is continuous across its face in the lineal direction of the axle, and so furnishes a broader bearing than if traversed by the groove, and, besides such oblique termination of the groove, serves to discharge outside the box all deleterious matter entering the same.

I am aware that it is common to form a groove in the shoulder of carriage-axes oblique to the axis thereof and encircling the same, with a longitudinal groove cut in the under side of the shoulder to serve as a duct to discharge outside the end of the box the grit and water that gather at the bottom of the groove, and I make no claim thereto, my invention being confined to my peculiar devices shown and described. My groove may be advantageously employed without as well as with lip *h*, as shown.

I claim as my invention—

1. As an improvement in carriage-axes, a

groove, *g*, formed in the shoulder *e* near the outer portion thereof, and which, in about half the circumference of such shoulder is parallel, or nearly so, with the transverse line of said shoulder, while the lower ends of such groove extend in an oblique direction outside said transverse line of the shoulder and of the end of the axle-box, substantially as specified.

2. In a carriage-axle having the groove *g*

formed in the shoulder thereof, with oblique ends, as specified, the combination therewith of lip *h*, arranged at the end of said shoulder and between the oblique ends of the said groove, substantially as described and shown.

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Witnesses:

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