

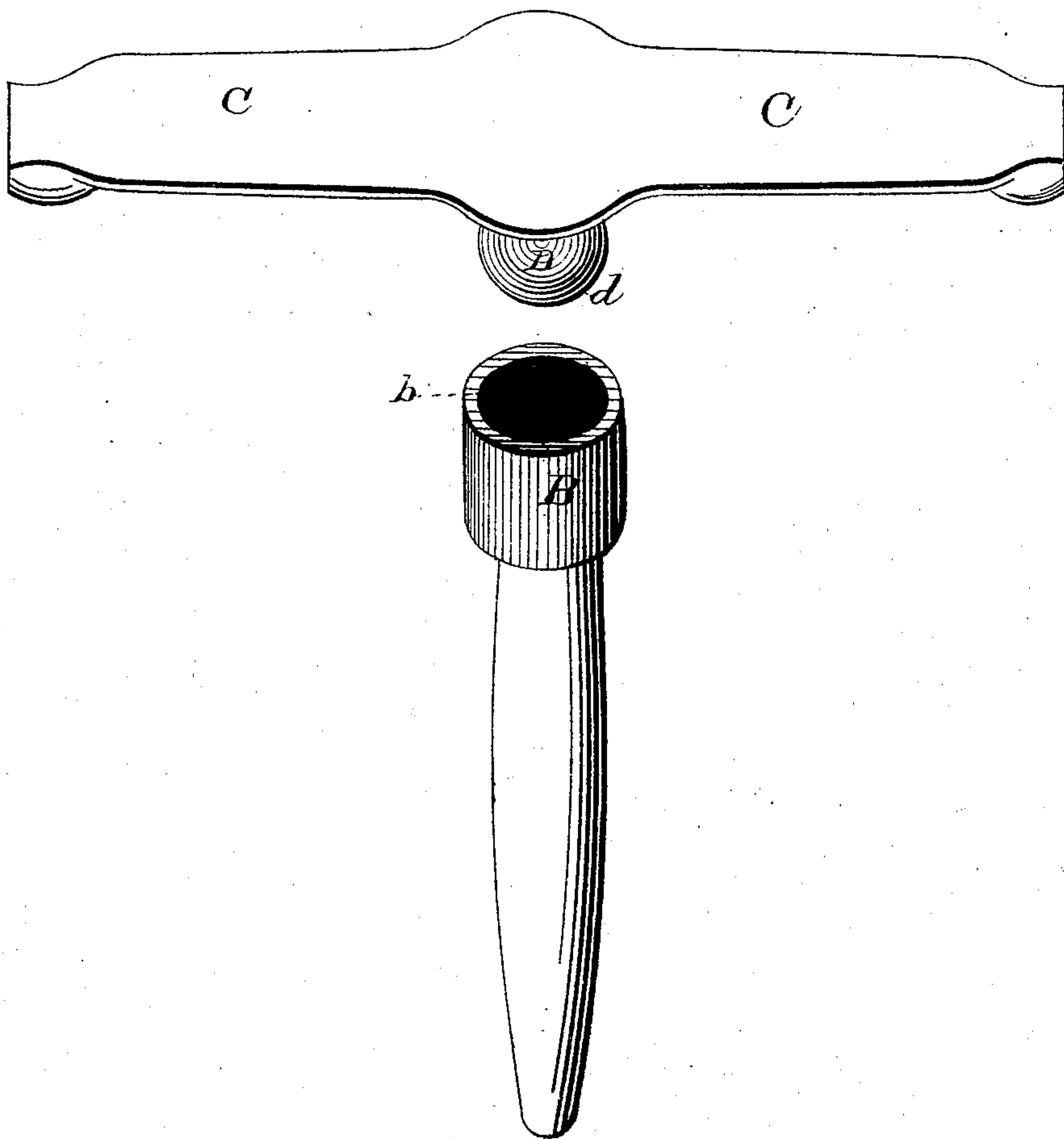
2 Sheets--Sheet 1.

J. DEEBLE.
King-Bolts for Vehicles.

No. 144,323.

Patented Nov. 4, 1873.

Fig. I.



WITNESSES:

*Jas. E. Hutchinson
 Marie. C. Hazard.*

INVENTOR.

*John Deeble, by
 Prindle and Co., his Attys*

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Fig. 2.

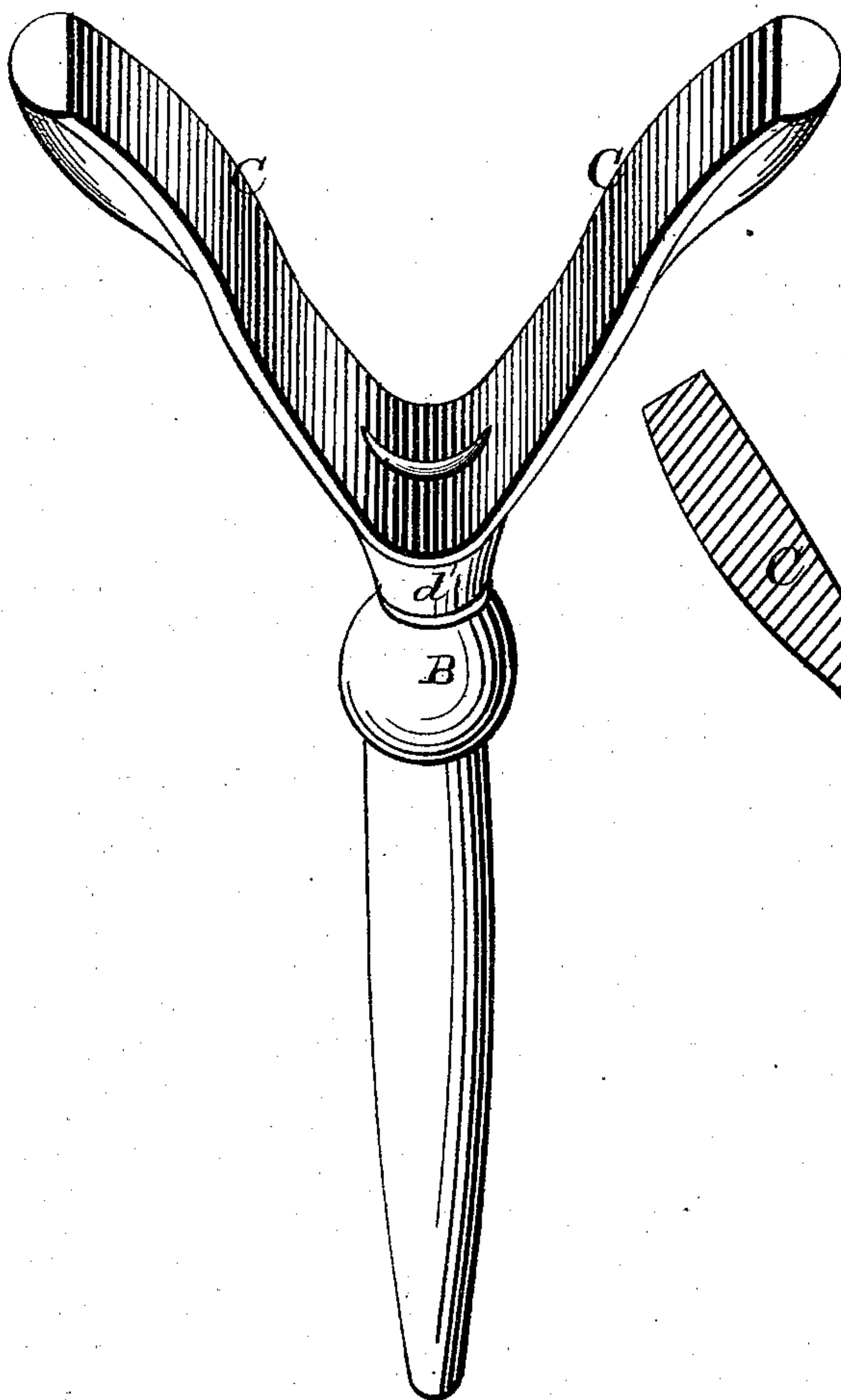
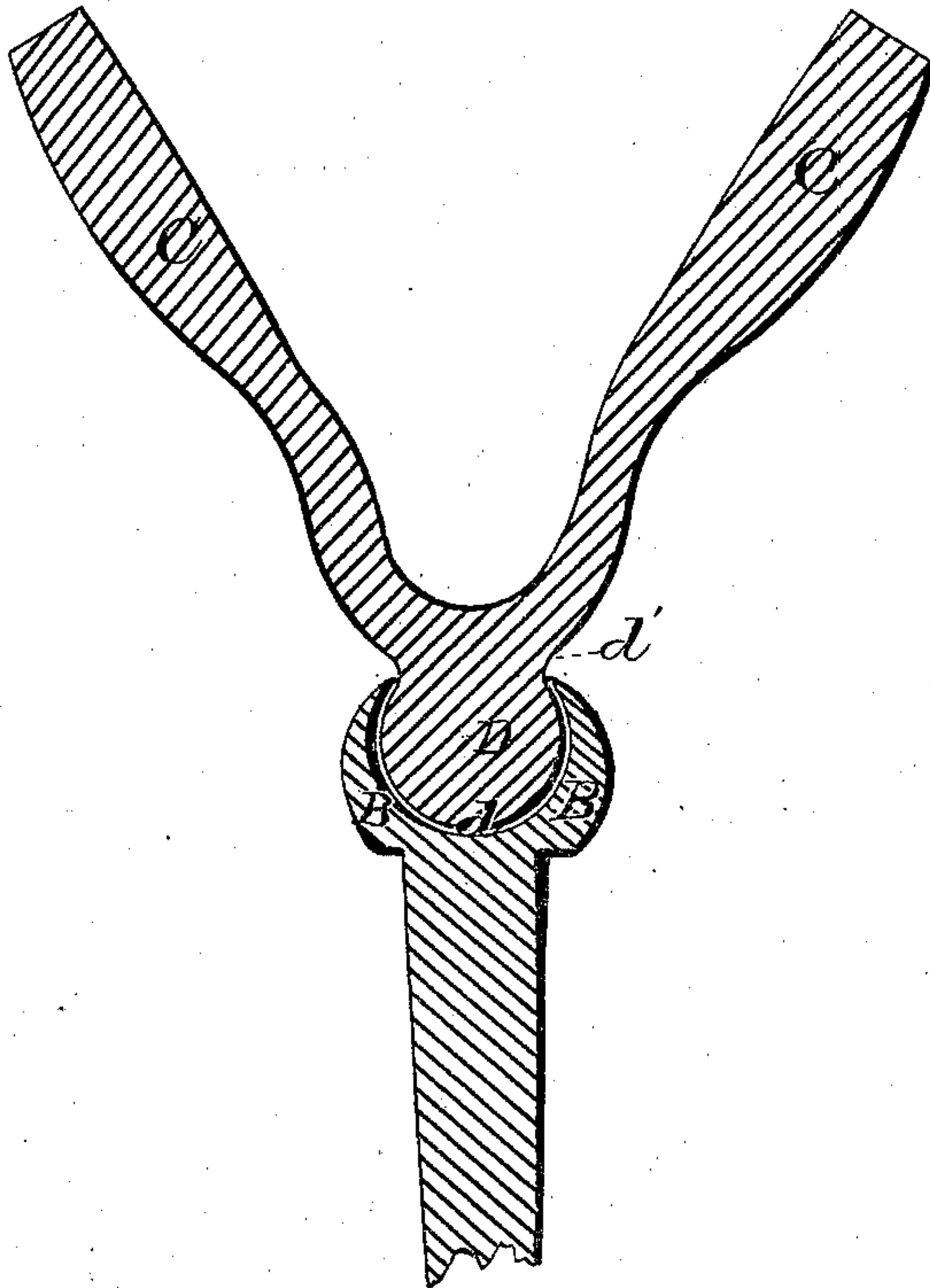


Fig. 3.



WITNESSES.

Geo. C. Hutchinson
Harrie. C. Hazard.

INVENTOR.

John Deeble, by
Orinelle and Co., his Attys

UNITED STATES PATENT OFFICE.

JOHN DEEBLE, OF PLANTSVILLE, CONN., ASSIGNOR OF ONE-HALF HIS RIGHT
TO "THE ATWATER MANUFACTURING COMPANY," OF SAME PLACE.

IMPROVEMENT IN KING-BOLTS FOR VEHICLES.

Specification forming part of Letters Patent No. **144,323**, dated November 4, 1873; application filed
August 25, 1873.

To all whom it may concern:

Be it known that I, JOHN DEEBLE, of Plantsville, in the county of Hartford and in the State of Connecticut, have invented certain new and useful Improvements in King-Bolts; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings making a part of this specification, in which—

Figure 1 is a perspective view of the clip and bolt before being united. Fig. 2 is a like view of the same as combined and prepared for sale; and Fig. 3 is a vertical central section upon a line passing through the wings of the clips.

Letters of like name and kind refer to like parts in each of the figures.

The design of my invention is to form a flexible connection between the forward axle and the contiguous portion of a carriage, so as to enable said axle to conform longitudinally to the inequalities of the ground without changing the transversely horizontal position of the forward part of said carriage; to which end said invention consists in a king-bolt formed of two sections, which are jointed together in the manner and for the purpose substantially as is hereinafter specified.

In the annexed drawings, A represents the body of the bolt, constructed in the usual manner, except at its lower end, where is provided an enlargement, B, within which is formed a semispherical socket, *b*, as shown. The clip C has the usual form, and is provided, at its longitudinal center and upper side, with a stud, D, which has an enlarged spherical end, *d*, that corresponds in dimensions to, and fits into, the socket *b*.

The parts being thus combined, the end of the enlargement B is turned inward around the neck *d'* of the stud D so as to cause it to loosely embrace the lower side of the ball *d*, and form a ball-and-socket joint, which prevents the separation of said parts, while at the same time it permits one of them to rotate horizontally within the other, and to oscillate in a vertical plane having any angle with reference to the line of the axle.

The device thus constructed possesses all required strength and durability, while, from its flexibility, it relieves the forward portion of the running-gear from nearly all of the usual twisting strain, and materially lessens the changes in horizontal position of the carriage.

I am aware that ball-and-socket bearings for wheeled vehicles are not new, the same having been used for many years between the trucks and forward ends of locomotives; and, therefore, do not claim such joints, broadly.

Having thus fully set forth the nature and merits of my invention, what I claim as new is—

The king-bolt A, B, C, and D, having its body and head loosely connected together so as to form at such point of connection a joint which is flexible in either direction, substantially as and for the purpose specified.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 23d day of August, 1873.

JOHN DEEBLE. [L. S.]

Witnesses:

R. W. SCHARF,
W. W. KNOWLES.