

(No Model.)

J. E. DENTON.

BUSHING FOR ROCK DRILL CHUCKS.

No. 336,397.

Patented Feb. 16, 1886.

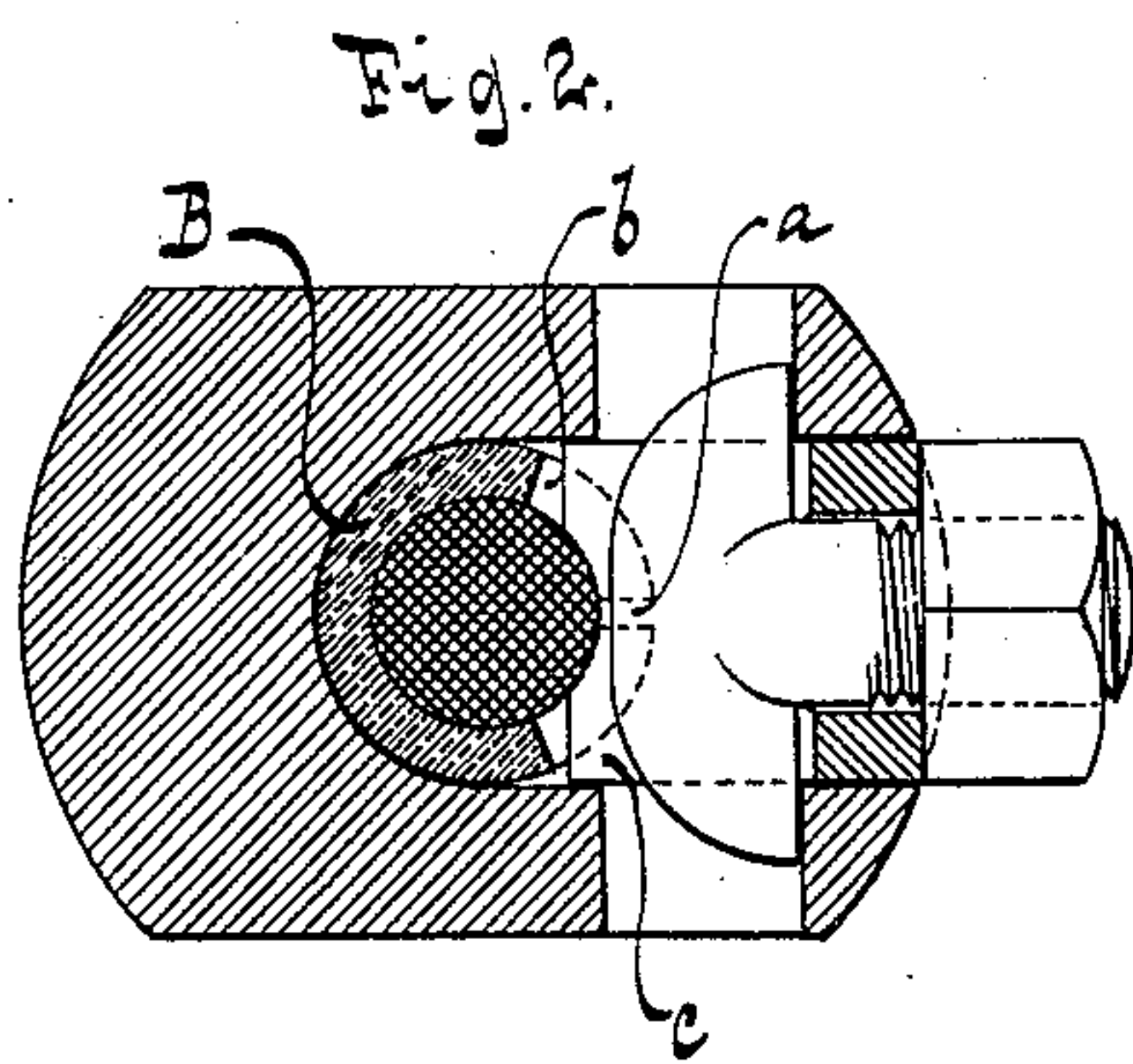
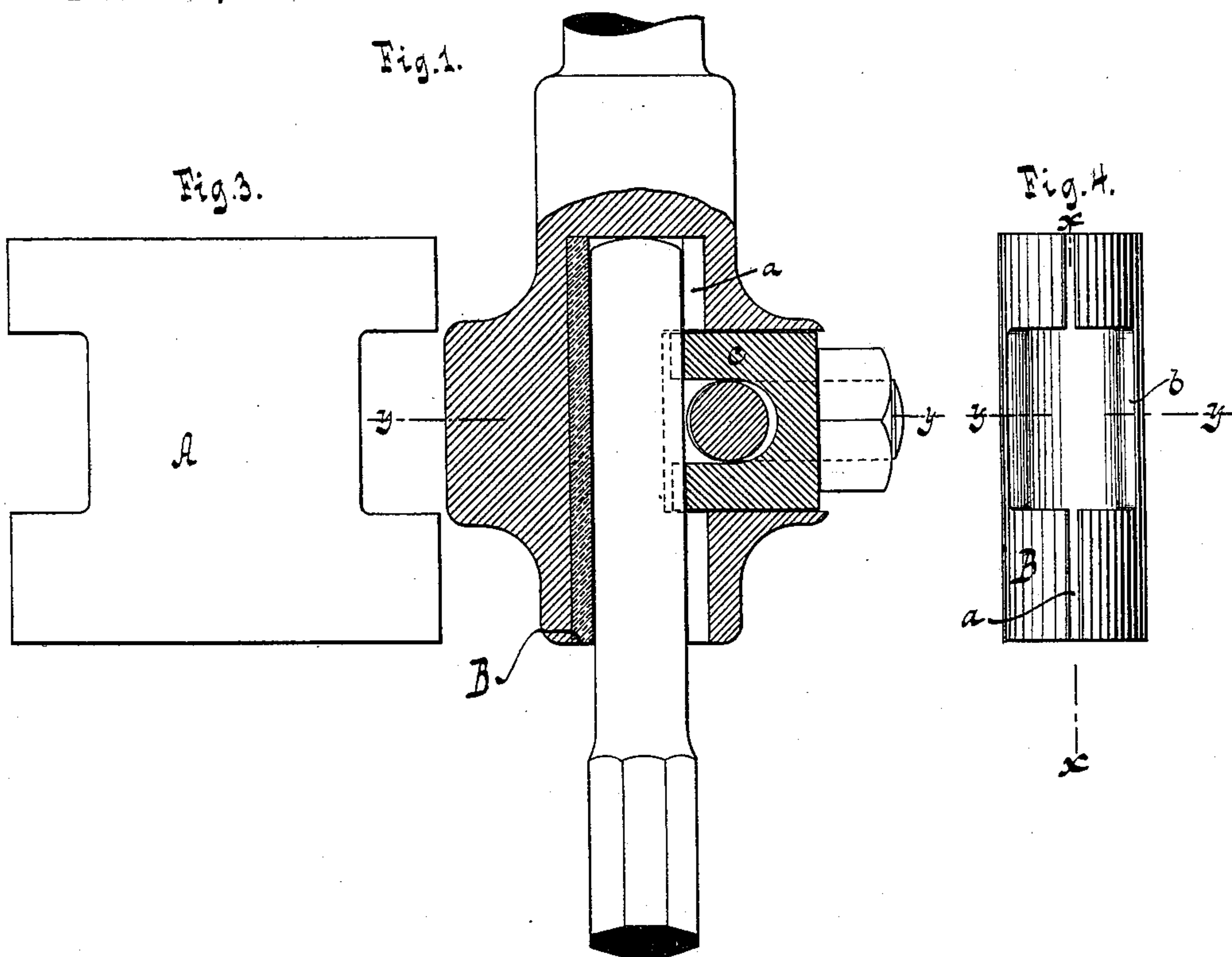
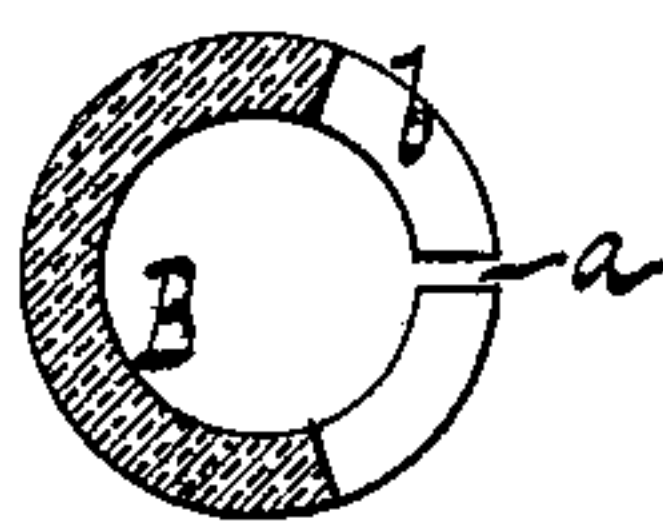


Fig. 5.



WITNESSES:

Otto Stufeland
William Miller

INVENTOR

James E. Denton

BY

Van Santvoord & Hauff

ATTORNEYS

UNITED STATES PATENT OFFICE.

JAMES E. DENTON, OF HOBOKEN, NEW JERSEY.

BUSHING FOR ROCK-DRILL CHUCKS.

SPECIFICATION forming part of Letters Patent No. 336,397, dated February 16, 1886.

Application filed December 3, 1885. Serial No. 184,611. (No model.)

To all whom it may concern:

Be it known that I, JAMES E. DENTON, a citizen of the United States, residing at Hoboken, in the county of Hudson and State of New Jersey, have invented new and useful Improvements in Bushings for Chucks of Rock-drills, of which the following is a specification.

This invention consists in a bushing for chucks for rock-drills, said bushing being provided with a split extending throughout its entire length and with a recess in each edge formed by said split, intended to receive the key which retains the bushing in the chuck.

In the accompanying drawings, Figure 1 represents a vertical central section showing the bushing in the chuck, the line *xx*, Fig. 4, indicating the plane of section. Fig. 2 is a horizontal section in the plane *yy*, Figs. 1 and 4. Fig. 3 is a plan of the blank for the bushing. Fig. 4 is an elevation of the bushing. Fig. 5 is a horizontal section of the bushing in the plane *yy*, Fig. 4.

Similar letters indicate corresponding parts.

Bushings for rock-drills are usually made of solid pieces of steel, which are turned off to fit the socket of the chuck, then bored out to receive the end of the drill-rod, then provided with a recess in their sides for the reception of the key, and finally hardened. Such bushings require much skilled labor, and in many cases they crack in being hardened, so that the labor is lost, and for these reasons they are very expensive; and if it is taken in consideration that the bushings in rock-drills are liable to wear out in a comparatively short time, so that they have to be replaced by new ones, it will be seen that the item of bushings is a serious question for the proprietors of rock-drills, and that it is very important for them to be able to obtain new bushings at a low price.

In the accompanying drawings the letter A designates the blank from which my bushing is made. This blank is cut out of a steel plate

of the required thickness, and it is of such a length that when it is rolled up to form the bushing B (see Fig. 4) a split, *a*, is left throughout its entire length. The blank A is provided with recesses in its edges, so that when it is rolled up to form the bushing B a recess, *b*, is left. (See Figs. 4 and 5.) After the bushing B has been formed, as above described, it is hardened, and then it is ready for use.

By the longitudinal split *a* the danger that the bushing may crack in hardening is materially reduced, and, furthermore, my bushing when finished can accommodate itself to some extent to the size of the socket in the chuck into which it is to be introduced. The recess *b* is intended to admit the key *c*, which prevents the bushing from dropping out. In the example shown in Figs. 1 and 2 of the drawings this key forms a portion of the clamping device of the chuck, and it serves not only to retain the bushing in position, but also to clamp the drill-rod in the chuck.

Of course my bushing can be readily accommodated to clamping devices of different construction, and when it is required the bushing may be provided with two recesses, one diametrically opposite the other.

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

As a new article of manufacture, a bushing for the chucks of rock-drills, consisting of a tubular sheet of metal having a split extending from end to end, and each edge formed by said split provided with a recess intermediate the ends of the bushing to receive a key for retaining the bushing in place, substantially as and for the purpose described.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

JAMES E. DENTON. [L. S.]

Witnesses:

W. HAUFF,

E. F. KASTENHUBER.