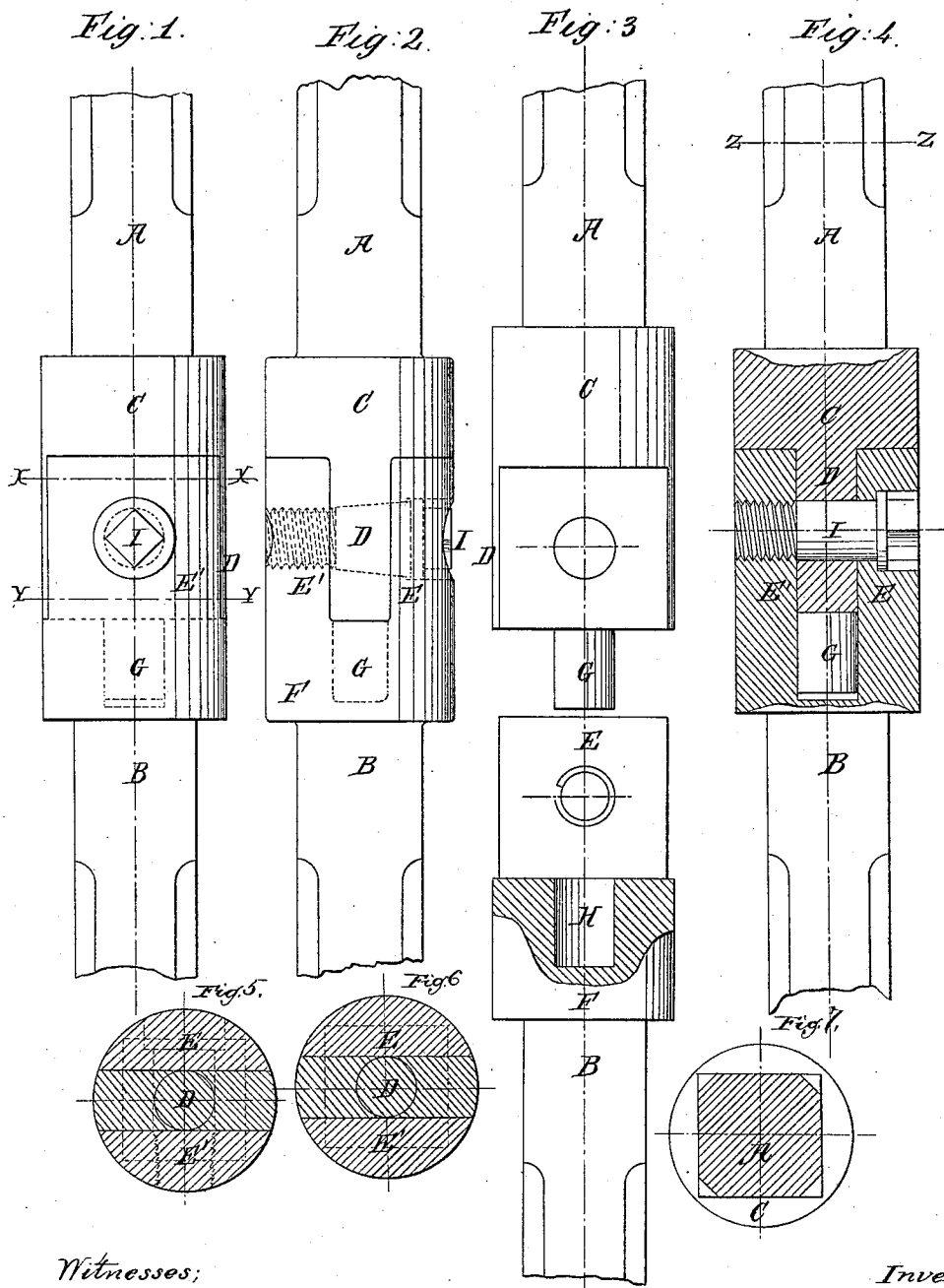


D. G. Coffin,
Rock-Drill Chuck.

N^o 48,793.

Patented July 18, 1865.



Witnesses;
James H. Layman.
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UNITED STATES PATENT OFFICE.

DANIEL G. COPPIN, OF CINCINNATI, OHIO.

COUPLING SHAFTS OF BORING-TOOLS.

Specification forming part of Letters Patent No. 48,793, dated July 18, 1865.

To all whom it may concern:

Be it known that I, DANIEL G. COPPIN, of Cincinnati, Hamilton county, Ohio, have invented a new and useful Improvement in Well-Boring Apparatus; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

My invention relates to an improved mode of coupling the rods from which the drill or chisel is suspended in Artesian-well boring apparatus, said mode combining the advantages of great strength, security, compactness, and endurance with facility of coupling and uncoupling and cheapness of manufacture.

Figures 1 and 2 are side elevations taken parallel with jaws and screw-key respectively. Fig. 3 is a side elevation, showing two consecutive sections uncoupled. Fig. 4 is an axial section of my joint in the plane of the screw-key. Figs. 5, 6, and 7 are transverse sections taken at the planes xz , yy , and zz , respectively.

A and B represent part of two consecutive sections of the rod. The rod or section A terminates in a cylindrical swell or collar, C, from whose central portion projects a tongue, D, which, when the joint is coupled, fits snugly between two jaws, E E', which project from a swell or collar, F, on the end of the section B, said swell or collar being precisely like the swell or collar C. From the extreme point of the tongue D projects a dowel, G, which enters and snugly fills a socket, H, in the swell F.

The above parts, when coupled, are held securely together by a screw key or bolt, I, which, being introduced through one jaw, E, and through the tongue D, screws into the opposite jaw, E'. The jaw E is countersunk to allow the head of the key I to enter the said jaw, so as to have no external projection beyond the periphery of the joint.

The barrel of the screw-key may, if desired, be made tapering, as in Fig. 2, so as to be capable of being set up or slackened should the parts close more together by long use; or the key-seat may be reamed out under these circumstances and a new key inserted.

Several very decided advantages result from

the above mode of construction. For example, all the members of the joint jamming or abutting together in planes at right angles to the line of the rod, the entire transverse section or area of the joint is made available to sustain the concussion incident to the use of the instrument, and hence the liability to stave or jam up is reduced to a minimum. The tongue, jaws, key, and dowel coact to preserve a perfect rigidity of joint and to effectively prevent either knuckling, staving, twisting, or pulling out. The entire area being available, the joint may be of the smallest possible diameter consistent with strength, and serves to make practicable the use of a smaller chisel with a given rod, resulting in a smaller bore and correspondingly less expenditure of labor in drilling and pumping. Each joint can be uncoupled as it reaches the surface in a few moments without disturbing any other joint, and by the use of a small hand-wrench. With the exception of the key and key-seat the joint may be made wholly by forging, and will cost less than most others now in use. The round dowel G on the end of the tongue serves to guide the latter to its place, and acts, in conjunction with the key I and the tongue and jaws, to hold the joint rigidly in line. The screw-key I acts both to prevent knuckling and pulling apart. The jaws and tongue combine to prevent staving as well as untwisting. The breadth of effective area in my joint compares remarkably well with that possessed by the customary screw-coupling, which has only the area of a narrow collar around the screw.

I claim herein as new and of my invention—

The improved coupling for the sections of a well-boring rod, consisting of the collars C and F, the tongue D, jaws E and E', dowel G, socket H, and the countersunk screw-key I, or their equivalents, combined and operating as set forth.

In testimony of which invention I hereunto set my hand.

DANIEL G. COPPIN.

Witnesses:

JAEMS H. LAYMAN,
GEO. H. KNIGHT.