

(No Model.)

C. A. STERLING.

CONNECTING ROD FOR ROCK DRILLS.

No. 287,188.

Patented Oct. 23, 1883.

Fig. IV.

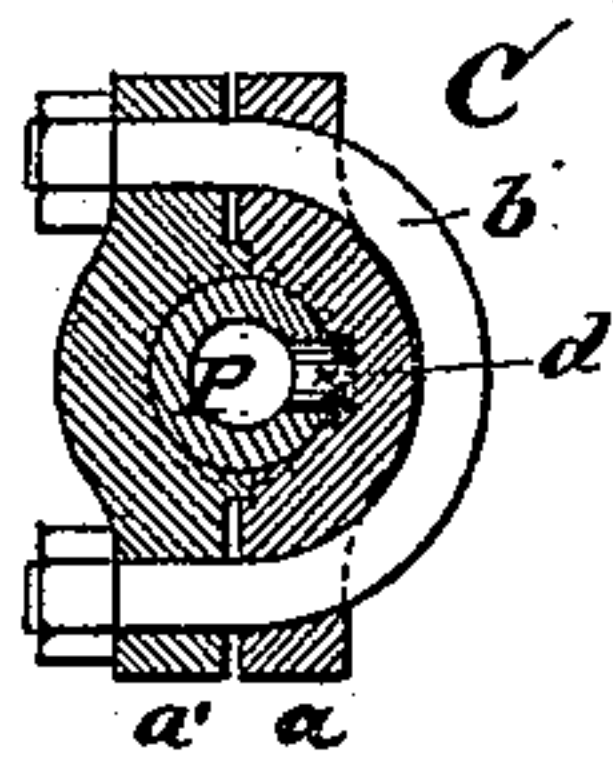


Fig. I.

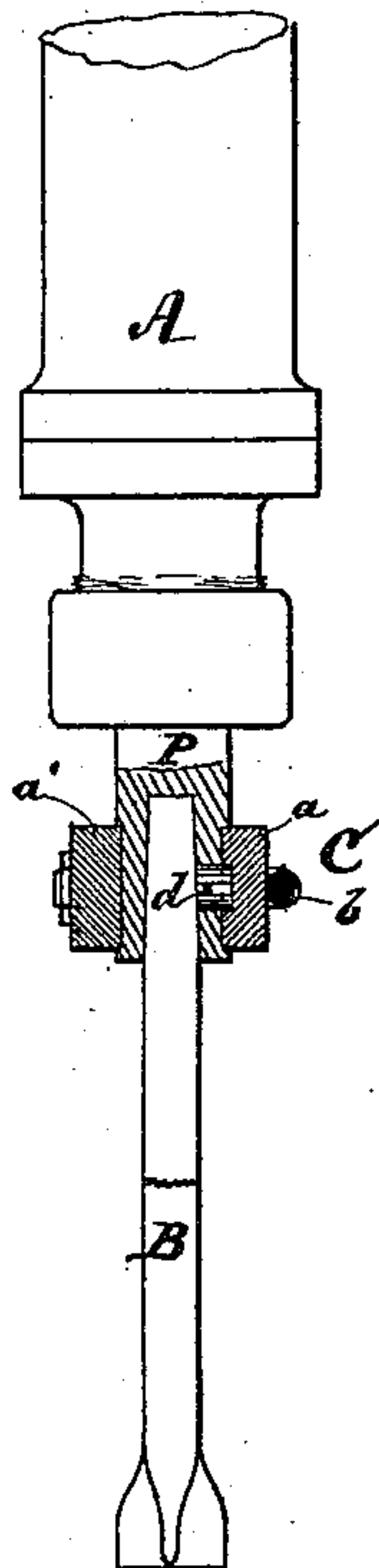


Fig. II.

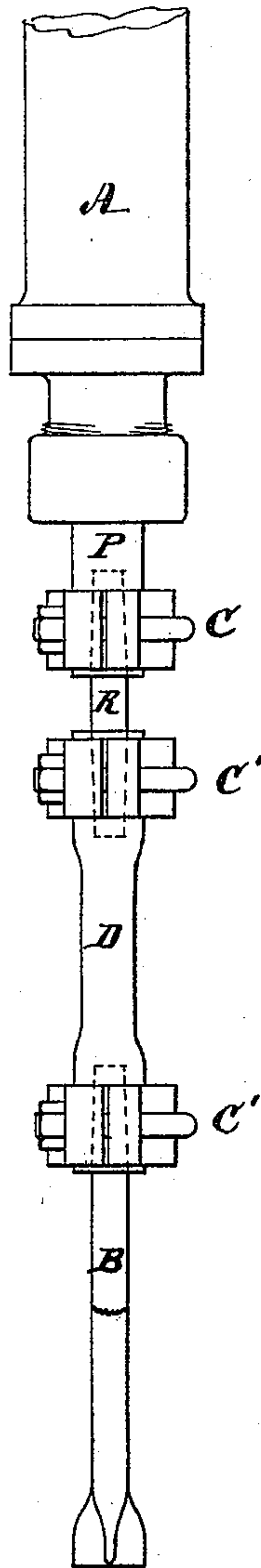
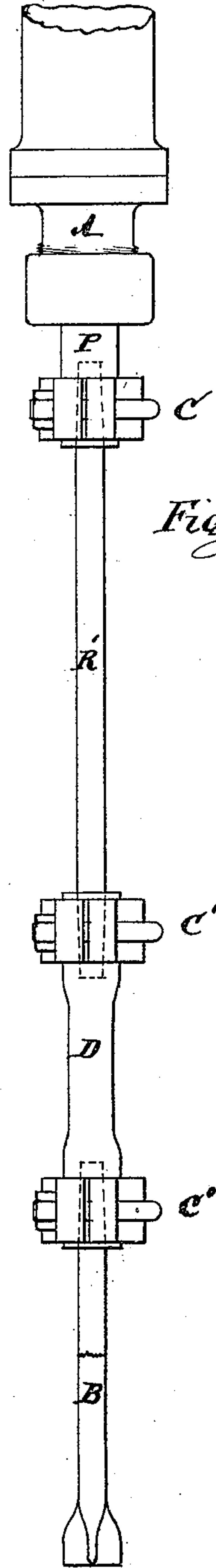


Fig. III.



Witnesses.

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UNITED STATES PATENT OFFICE.

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CONNECTING-ROD FOR ROCK-DRILLS.

SPECIFICATION forming part of Letters Patent No. 287,188, dated October 23, 1883.

Application filed February 21, 1882. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. STERLING, a citizen of the United States, residing at New York, in the State of New York, have invented a new and useful Connecting-Rod for Rock-Drill Tools, of which the following is a specification.

The nature of my invention consists in the construction of a connecting-rod to lengthen the cutting-tool of a rock-drill.

In the accompanying drawings, Figure I represents part of a rock-drill cylinder with the cutting-tool attached, as at present generally arranged. Figs. II and III represent part of a rock-drill cylinder with my improved connecting-rod for lengthening the tool. Fig. IV is a horizontal section of a coupling between piston-rod and cutting-tool.

Similar letters represent similar parts in all the figures.

Rock-drills have generally a motion on their supporting-frames of about three feet, to move downward that distance as the cutting-tool penetrates the rock. When the cutting-tool has cut to this depth and the hole is required a greater depth, the tool must be removed and lengthened or replaced by another tool about three feet longer. Experience has proved that the new cutting-tool must be made smaller across the cutting-surface than the tool which has been replaced, and in many cases the rock-drill has to be moved to get the old tool away and substitute therefor a new tool. The insertion of new tools of various lengths, and, as above stated, of smaller diameter on their cutting-surface than the previous tool, produces an uneven hole, while in many cases a good-tempered tool could penetrate from twelve to eighteen, and more, feet, if the feeding motion of the rock-drill would allow it. All these inconveniences are considerably increased in submarine drilling from above the surface of the water, and the deeper the hole has to be drilled.

To obviate the necessity of removing the cutting-tool after the same has drilled the depth allowed by the construction of the rock-drill, and the necessity of lengthening or replacing the same by a new and longer cutting-tool, I arrange a connecting-rod, D, having at each end recesses corresponding with the recess made in the end of the piston-rod R of the rock-drill A to receive the end of the cutting-tool B, (see Fig. I,) as well as corresponding

couplings, C', similar in construction to the coupling C, arranged at the end of the piston-rod P. Into one end of this connecting-rod D the upper end of the cutting-tool B is fastened, Figs. II and III, in the same manner as the same had previously been fastened to the end of the piston-rod P, Fig. I. Into the other end of said connecting-rod D a rod, R or R', is inserted and fastened, of such a length as to make the whole cutting-tool, consisting of the cutting-tool B, connecting-rod D, and rod R or R', the required length to continue the operation of drilling to the required depth.

The coupling-clutches which I adopt at the ends of the rod D and the end of the piston-rod P, although any other description of couplings may be used, are shown in section in Figs. I and IV, and consist of two clamps, *a a'*, placed around the end of the rods and fastened together by the head-bolt *b*. These clamps are provided with projections on one of their faces, and with a corresponding recess upon the face of the opposite clamp, which snugly fit into each other, to prevent twisting, lateral, or independent motion, whereby the drill-shaft is kept true and in a perpendicular position, and also serve to steady and strengthen the rod when subjected to great strain, one of these clamps, *a*, acting against a plug, *d*, passing through the side of the rod and acting against the end of the cutting-tool B, or the ends of the rods R or R', inserted into the ends of the piston-rod P or the connecting-rod D.

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

1. The combination, with the piston-rod and shaft of a rock-drill, of a clamp consisting of the clamp-boxes *a a'*, joined as described, the key-plug *d*, arranged as set forth, and the U-shaped head-bolt *b*, whereby the same are securely clamped and held together, substantially as described.

2. The combination, with the drill-shaft of a rock-drill, of the clamp-boxes *a a'*, fitted and joined as described, the U-shaped head-bolt *b*, and key-plug *d*, the latter being recessed both into the drill-shaft and clamp, for the purpose set forth.

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Witnesses:

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