(No Model.)

F. DE FOREST.

DRILL CHUCK.

No. 322,807. Patented July 21, 1885.

Fig. 1.

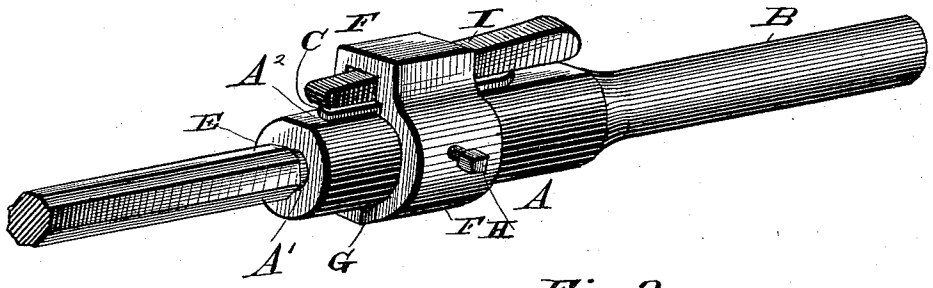


Fig. 2.

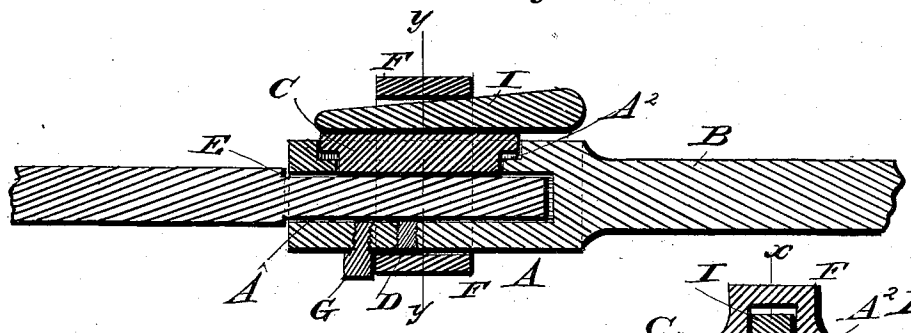


Fig. 3.

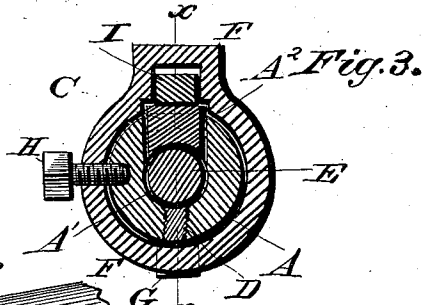
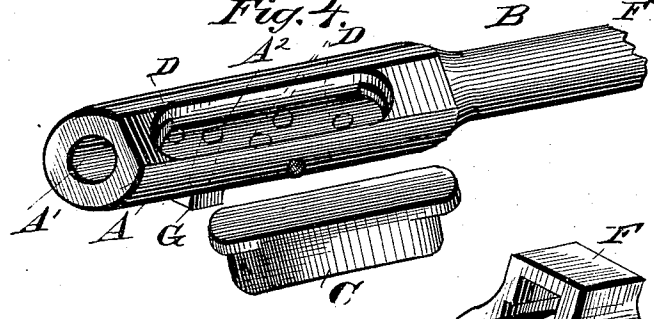
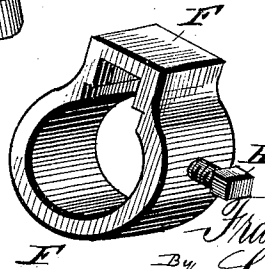


Fig. 4.





WITNESSES

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UNITED STATES PATENT OFFICE.

FRANK DE FOREST, OF BONNE TERRE, MISSOURI.

DRILL-CHUCK.

SPECIFICATION forming part of Letters Patent No. 322,807, dated July 21, 1885.

Application filed June 2, 1885. (No model.)

To all whom it may concern:

Be it known that I, FRANK DE FOREST, a citizen of the United States, and a resident of Bonne Terre, in the county of St. François and State of Missouri, have invented certain new and useful Improvements in Drill-Chucks; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to drill-chucks; and it has for its object the construction of a drill-chuck which is more especially adapted for use in rock-drilling, and which shall possess advantages in the points of simplicity of construction and efficiency in operation.

To these ends my invention consists in the improved construction and combination of parts, which will be hereinafter fully described and pointed out in the claim.

Referring to the annexed drawings, Figure 1 is a perspective view of my improved drill-chuck. Fig. 2 is a longitudinal sectional view of the same, taken on the plane indicated by line *x x*, Fig. 3. Fig. 3 is a transverse sectional view, taken on the plane indicated by line *y y*, Fig. 2; and Fig. 4 is a perspective detail view of the chuck, with its locking-key and collar, the construction of which will be hereinafter described.

Referring to the several parts by letter, A represents the chuck and B the piston-rod, the two being formed in one piece, preferably of Bessemer or other soft steel. The chuck A is provided with the central longitudinal recess A′, in which the upper end of the drill-bit is secured, and is provided on its upper side with the longitudinal slot A^2, in which the key C is inserted, the lower side of the chuck, which receives the principal wear from the end of the drill-bit, being provided with the vertical cast-steel pins D, which serve to prevent the lower side of the chuck from wear, and which are inserted in the following manner: The cast-steel pins are first tightly screwed into suitable apertures in the lower side of the chuck, and then riveted therein. The chuck is then heated red-hot and plunged into a vessel of cold water, which makes it very hard, and in conjunction with the said steel pins serves to prevent the chuck from wearing out on its lower side.

In securing the drill-bit in its operative position in the chuck, the end of the drill-bit is first inserted in the central longitudinal aperture of the chuck and the key C placed in the longitudinal slot A^2 in the upper side of the chuck, the said key (which is preferably made of cast-steel, not tempered,) having its lower face curved to adapt it to conform to the curvature of the shank E, and being made of such a thickness that when its lower curved side rests upon the drill-shank its upper side or face will extend a slight distance above the surface of the chuck, as shown in Fig. 3 of the drawings. A collar, F, preferably of tough steel, is then slipped upon or around the chuck, extending over the key C, and prevented from slipping over the end of the chuck by the square head of a set-screw, G, which passes through a suitable aperture in the lower side of the chuck, the head of this set-screw being cut away on one side to adapt the collar F to rest upon and over the same, this arrangement serving to hold the said screw in position and prevent its working out of the chuck, while the screw prevents the collar from working off of the end of the chuck. After the collar F has been adjusted in its operative position a set-screw, H, is inserted through an aperture in its side and into a threaded recess in the side of the chuck, this screw serving to prevent the said collar from slipping or turning on the chuck, and also from working up on the piston-rod B. A wedge, I, preferably of cast-steel, is now inserted through the collar F, between the elevated upper portion of the same and the key C, the lower side of the said wedge bearing upon the upper surface of the key and serving to lock it firmly against the side of the drill-shank, thereby holding the drill firmly in its operative position in the chuck and rendering it impossible for it to work loose, as each blow of the drill serves to tighten the said wedge. The wedge is made with considerable taper, so that in using drills with different-sized shanks the wedge will still operate efficiently to force the key down upon the drill-shank.

From the foregoing description, taken in connection with the accompanying drawings, the construction of my improved drill-chuck will be readily understood without requiring further explanation.

It will be seen that my improved drill-chuck is simple in construction, and can be easily and cheaply manufactured. It can be used on any ordinary drilling-machines, and costs very little to keep in repair, as it will wear months without requiring a single repair. It is very efficient in its operation, as it is impossible for the drill to work loose when once secured in its operative position.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

The combination of the chuck having the pins arranged in its lower side, for the purpose described, and provided with a longitudinal slot in its upper side, the key adapted to fit in said slot, and having the curved lower face, the metallic collar having the set-screw, and the wedge, adapted to operate in the manner set forth.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

FRANK DE FOREST.

Witnesses:
JEFFERSON D. MASTERS,
JULES LABREYER.