No. 684,564. Patented Oct. 15, 1901.

N. C. BUTLER.

DRILL CHUCK.

(Application filed Dec. 28, 1900.)

(No Model.)

Fig. 1.

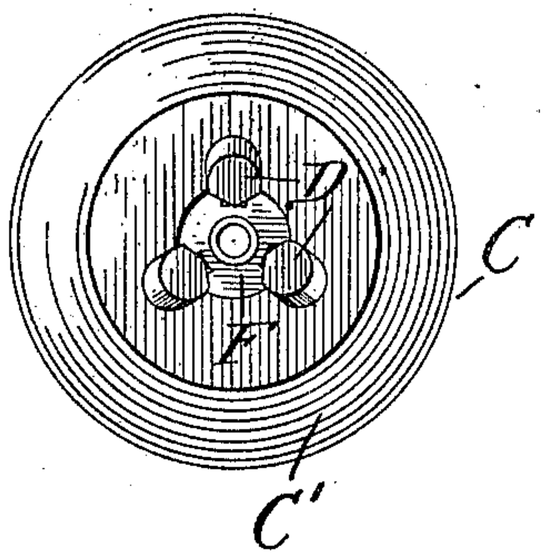


Fig. 2.

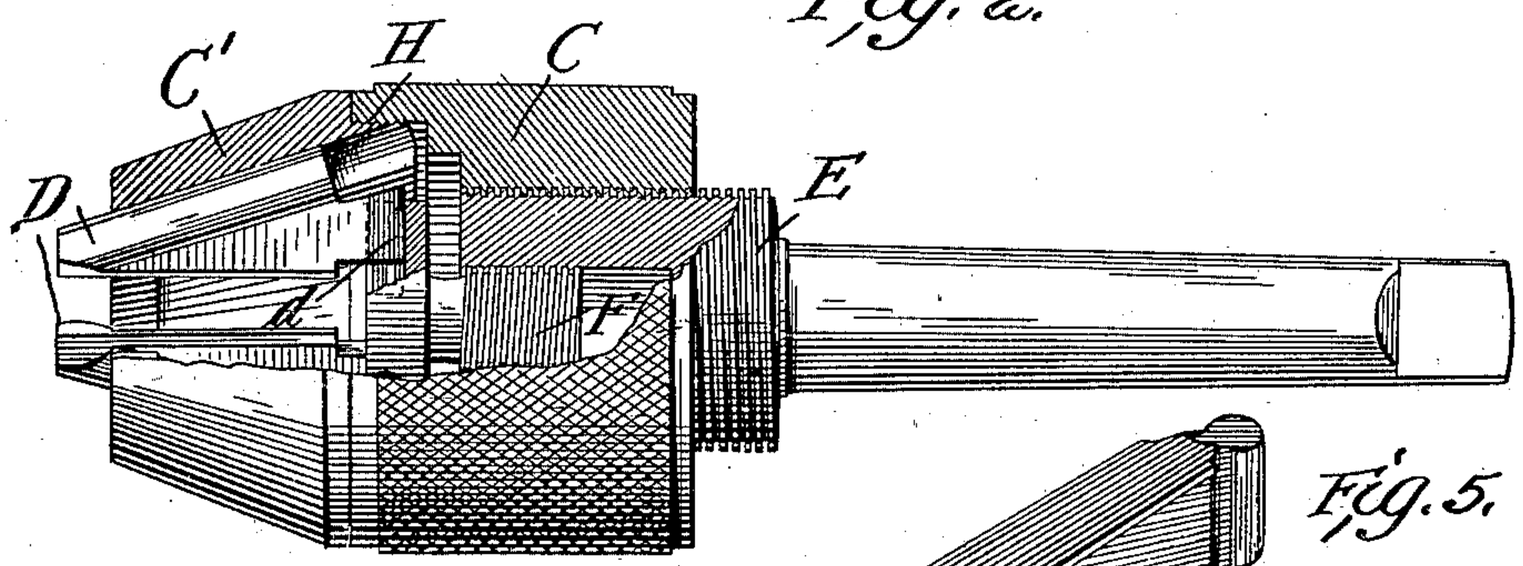


Fig. 5.

Fig. 3.

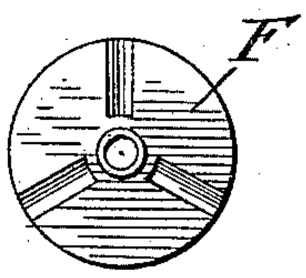
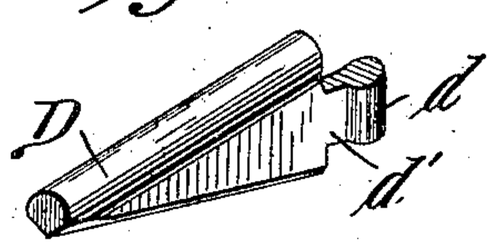


Fig. 4.



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DRILL-CHUCK.

SPECIFICATION forming part of Letters Patent No. 684,564, dated October 15, 1901.

Application filed December 28, 1900. Serial No. 41,329. (No model.)

To all whom it may concern:

Be it known that I, NELSON C. BUTLER, of the town of Greenfield, Franklin county, State of Massachusetts, have invented certain new and useful Improvements in Drill-Chucks; and I do hereby declare the following to be a full, clear, and exact description, such as will enable others skilled in the art to make and use the same.

The object of my invention is to lessen the cost of construction, also to increase the rapidity with which it can be manipulated.

The accompanying drawings illustrate my invention, in which—

Figure 1 shows a front view. Fig. 2 shows a longitudinal section. Fig. 3 shows a front view of the retaining-plug. Fig. 4 shows one of the jaws, and Fig. 5 shows a modified form of the jaws.

Similar letters on the several figures refer always to the same parts.

As shown in the accompanying drawings, the chuck spindle or body is indicated by the letter E, having an enlarged end portion provided with a right-handed screw-threaded periphery, to which an adjusting-sleeve C is fitted. This sleeve carries at its forward end a conical cap C′, which in the present instance is shown as connected to the sleeve by a screw-threaded connection H; but any other form of connection may be employed, it being only necessary that the cap and sleeve turn together in the adjusting operation, to be described hereinafter. The cap is provided interiorly with a plurality of equidistant radial guiding slots or channels, in which the jaw members D are guided. The rear end of each jaw member is provided with a head *d′*, which is guided in one of a plurality of radially-extending equidistant channels in the face of a plug F, these channels corresponding in number to the number of jaw members. The plug F is provided with a stem having a left-handed exteriorly-threaded portion, which screws into a correspondingly-threaded axial bore in the end of the body portion E. The connection between the jaw members and cap is such that while the parts are free to move longitudinally in reversed directions they must rotate in unison. The connection between the jaw members and the plug F is such that while the members are free to move radially independently of the plug the parts must move in unison when partaking of an axial or rotary movement.

The operation of the chuck is as follows: Assuming it is desired to contract the space between the gripping-faces of the jaws, the body part E being held stationary, the sleeve C is turned in a direction to feed the same toward the rear end of part E. This action rotates the cap C′ and also moves the same axially of part E toward the rear end of the same. As the cap turns the jaw members D are carried around therewith, and as they are connected at their rear ends to the plug F the latter will also be rotated in unison with the cap and sleeve. However, as the stem of the plug F is threaded in an opposite direction to the sleeve the plug will be fed axially in a direction opposite to that of the cap and sleeve during its rotation. As the plug is thus pushed out, carrying the jaws therewith, and the cap is simultaneously moved in an opposite direction the jaws will be adjusted with great rapidity and with a slight adjustment of the sleeve. To spread the jaw members, the sleeve is simply rotated is a reverse direction.

I claim—

In combination, a body having a threaded end, a sleeve screwed upon said end, a conical cap carried thereby having interior guiding-channels, a series of jaw members guided in said channels, and a plug having a stem threaded in a direction opposite to the end of the body, said stem being screwed into an axial socket on said end, jaw members guided in the channel in said cap and a connection between said members and said plug for turning the plug in unison with the sleeve and cap whereby said plug and cap will be shifted axially simultaneously in opposite directions to each other, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

NELSON C. BUTLER.

Witnesses:

CARL N. BUTLER,

JAMES P. S. OTTERSON.