

(No Model.)

A. E. ELLINWOOD.
CHUCK.

No. 318,970.

Patented June 2, 1885.

FIG. 1.

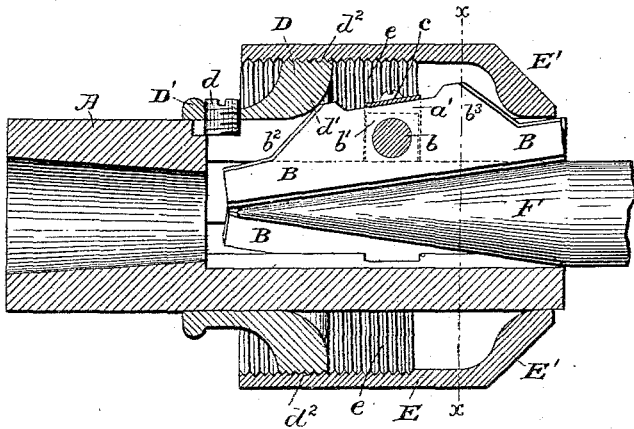


FIG. 2.

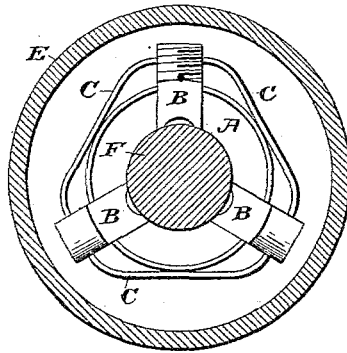


FIG. 3.

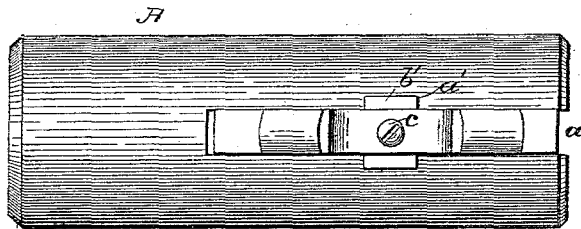
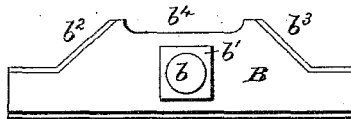


FIG. 4.



ATTEST.

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UNITED STATES PATENT OFFICE.

AUGUSTUS E. ELLINWOOD, OF AKRON, OHIO, ASSIGNOR OF TWO-THIRDS
TO LEWIS MILLER AND HENRY YOUNG, BOTH OF SAME PLACE.

CHUCK.

SPECIFICATION forming part of Letters Patent No. 318,970, dated June 2, 1885.

Application filed May 17, 1884. (No model.)

To all whom it may concern:

Be it known that I, AUGUSTUS E. ELLINWOOD, of Akron, county of Summit, and State of Ohio, have invented a new and useful Improvement in Chucks, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification.

My invention relates to an improvement in lathe-chucks, and more particularly to that class in which the clamping-jaws are hinged or pivoted within the inclosing shell and actuated thereby in the manner set forth in an application filed by me on or about December 1, 1883, Serial No. 113,316, and allowed April 15, 1884.

My invention consists in a novel manner of pivoting the jaws within the mandrel, whereby a positive action is secured and the clamping-jaws rendered more steady in their movements, and in certain details of construction and arrangement of parts hereinafter set forth.

In the accompanying drawings, Figure 1 is a longitudinal sectional view of a chuck with my improvements applied, showing the clamping jaws or dies in elevation. Fig. 2 is a transverse section through the same, taken on the line *xx* of Fig. 1. Fig. 3 is a side elevation of the longitudinally-slotted mandrel with one of the clamping-jaws applied, and Fig. 4 is a side elevation of one of the clamping-jaws detached.

Like letters denote like parts.

A represents the mandrel of the chuck, and is of hollow cylindrical form, provided with longitudinal slots *a a*, as shown. In the drawings the mandrel is shown provided with three of these slots; but two, or more than three, may be employed for the reception of the clamping jaws or dies, if preferred.

B B B represent the jaws of the device, being of the form shown in Fig. 4, or of any suitable form. They are provided with inclined outer edges, *b² b³*, for a purpose hereinafter stated, and with a recess, *b⁴*, for the reception of an angular spring, C, for preserving the position of said jaws and their relation to each other. Each jaw B is provided with projections or pins *b b*, extending outward from its sides and located centrally thereof. These pins serve as pivots, upon

which the jaws may rock and be adjusted, according to the form of bit which is inserted between their inner grasping-faces. They may be either formed upon the sides of the jaws or they may be formed by the ends of a short shaft passing through a perforation in the jaw, and either keyed or allowed to remain loose therein, according to the fancy of the manufacturer. Upon these pins or the ends of the shaft, as the case may be, are mounted guiding-blocks *b' b'*, in which the pins have their bearings, and are adapted to rock, for a purpose hereinafter set forth. The side walls of the longitudinal slots in the mandrel are grooved or have square recesses *a' a'* about midway of their length, corresponding in size with and adapted to receive and guide the square bearing-blocks *b'* on the pins *b* in their radial movements, whether toward or away from the center of the mandrel. The bearing-block *b'* is made slightly smaller than the guide-way *a'*, for the purpose of allowing the said block to slide freely therein without binding. Thus it will be seen that the clamping-jaws may be rocked freely upon their pivots in the blocks *b'* for adjusting them to the form of bit used, while at the same time the blocks themselves are adjustable radially for adapting the jaws to any size or diameter of bit.

The arrangement of the other parts of the chuck and the manner of actuating and adjusting the clamping-jaws now remains to be described. A threaded collar, D, surrounds the mandrel A, fitting closely, but loosely thereon. At its inner end it is provided with a flanged portion, D', through which a retaining-screw, *d*, passes into one of the slots in the mandrel, preventing any revolution or turning of the said collar D upon the mandrel, and at the same time allowing it to slide or be adjusted longitudinally upon the mandrel. The inner face of the collar D is made flaring at *d'*, for the purpose of acting upon the inner inclined faces or edges, *b²*, of the clamping-jaws for depressing the latter or causing them to approach the center of the mandrel for acting upon the bit.

Surrounding the mandrel A, and also the collar D, is an outer shell or collar, E, provided with an internal thread, *e*, corresponding to and engaging with the threaded external

face, d^2 , of the inner collar, D. The outer edges of the collar E converge toward the mandrel, forming an inclined surface within the end of the said collar, which acts upon the inclined faces b^3 of the clamping-jaws. It will thus be seen that as the outer collar or shell is turned upon the inner collar their inner inclined faces will be caused to approach each other, and will operate upon the jaws B to simultaneously force them all inward radially until they clamp or grasp the bit between them. The spring C is angular in form, when in its normal position, and operates to force the jaws apart when they are not acted upon by the adjusting-collars for permitting the introduction of the bit, and is secured to the said jaws by screws c , or in any usual manner.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The clamping-jaws of a chuck or tool-holder, pivoted within radially-adjustable bearing-blocks, substantially as and for the purpose described.

2. The clamping-jaws of a chuck or tool-holder, pivoted within sliding bearing-blocks adjustable radially in the slots of the mandrel, substantially as specified.

3. The clamping-jaws of a chuck or tool-holder, pivoted within radially-adjustable blocks, in combination with means for adjusting the jaws, substantially as described.

4. The combination, with the mandrel, of the radially-moving jaws pivoted within the sliding adjustable blocks working therein, and the inner longitudinally-adjustable collar and the outer covering shell or collar, both provided with intermeshing screw-threads, and internal inclined faces for acting upon the inclined edges of the radially-moving clamping-jaws for adjusting the latter, substantially as and for the purpose specified.

In testimony whereof I have hereunto set my hand this 12th day of May, A. D. 1884.

AUGUSTUS E. ELLINWOOD.

Witnesses:

O. L. SADLER,
E. B. MILLER.