T. J. FEGLEY.

CHUCK.

APPLICATION FILED JULY 11, 1918.

1,330,111. Patented Feb. 10, 1920.

Fig. 1.

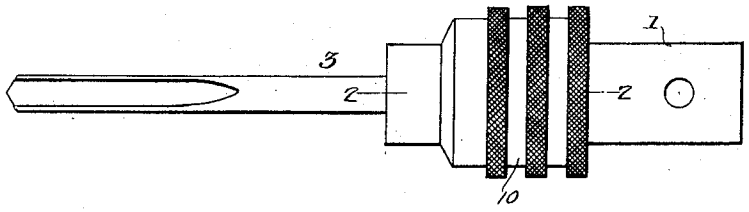


Fig. 2.

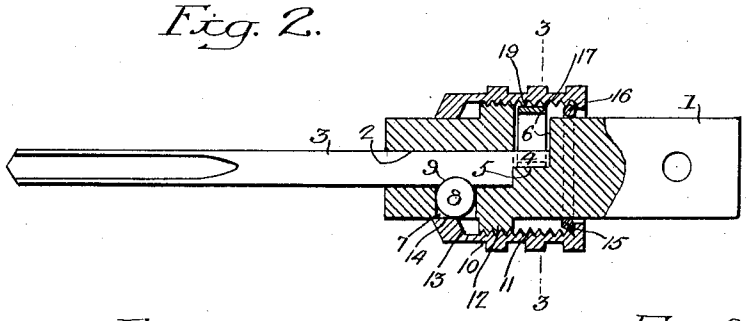


Fig. 3.

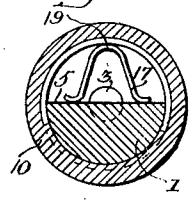


Fig. 6.

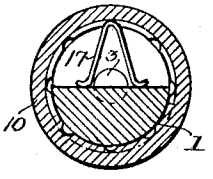


Fig. 4.

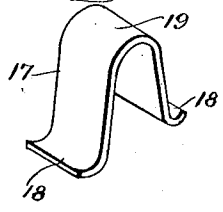
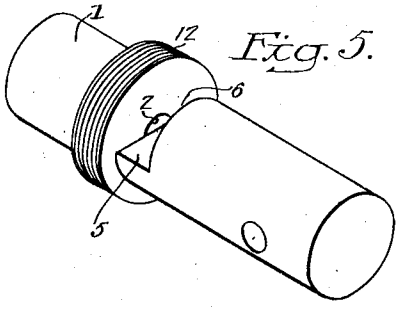


Fig. 5.



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UNITED STATES PATENT OFFICE.

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CHUCK.

1,330,111. Specification of Letters Patent. Patented Feb. 10, 1920.

Application filed July 11, 1918. Serial No. 244,414.

To all whom it may concern:

Be it known that I, THOMAS J. FEGLEY, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain new and useful Improvements in Chucks, of which the following is a specification.

My invention relates to certain new and useful improvements in chucks for securing drills to handles and especially the handles, or body portions, of a reciprocating drill where the tool is rotated first in one direction and then in the opposite direction, or intermittently rotated in one direction.

The object of the invention is to provide sufficient friction so as to prevent the free rotation of the sleeve which holds the means for coupling the drill bit to the body of the chuck as the chuck is rotated, or reciprocated, so that the sleeve will be held against accidental rotation in order to prevent the release of the bit while the tool is in action.

In the accompanying drawings:

Figure 1 is a side view of a drill chuck to which my invention is applied;

Fig. 2 is a longitudinal sectional view on the line 2—2, Fig. 1;

Fig. 3 is a transverse sectional view on the line 3—3, Fig. 2;

Fig. 4 is an enlarged perspective view of the spring friction device;

Fig. 5 is a detached perspective view of the body portion, and

Fig. 6 is a view of a modification.

1 is the body of the chuck, which is secured to the handle, or stem, of an operating device which rotates or reciprocates the drill. This body portion has an opening 2 for the reception of the drill bit 3, which is offset at 4, providing a flat surface which bears against the flat surface 5 on the body portion 1 back of the opening 2. This flat surface is formed by cutting a slot 6 in the body portion, which extends to the center of the said body portion, as indicated in Fig. 3. In the body portion is a transverse opening 7 in which is located a ball 8 which is adapted to enter a notch 9 in the drill bit 3 and when the ball is in the notch it holds the drill bit rigidly to the chuck.

10 is a sleeve having an internal screw thread 11 adapted to a threaded portion 12 of the body 1 and this sleeve is preferably beveled at 13 and has a surface 14 at its forward end acting to retain the ball in the notch 9 of the bit, when in the position illustrated in Fig. 2. When the sleeve is turned on the threaded portion, so as to move it forward, the ball is opposite the enlarged portion of the sleeve and is free to move out of the notch in the bit and into the enlarged portion of the sleeve so that the bit can be withdrawn from the chuck and another bit substituted, if desired.

In order to prevent the sleeve from being withdrawn from the forward end of the chuck, I loosely mount a ring 15 on the body portion and turn down a flange 16 on the sleeve after the parts are assembled, thus preventing the sleeve from becoming accidentally detached from the body portion.

I have found that by applying sufficient friction to the sleeve, it will be retained in the position to which it is adjusted, even when under the most severe conditions. I use a spring friction device 17, such as illustrated in Fig. 4. This friction device is in the form of a spring bent in U-shaped form with the ends 18 flared and resting upon the surface 5 of the body portion, while the curved portion 19 of the spring rests against the inner surface of the sleeve 10. When the parts are in position, a sufficient tension is placed upon the spring so as to spread the ends, causing the spring to bear with sufficient pressure to force the sleeve firmly against the threaded portion 12 of the body and preventing its rotation and the spring being U-shaped allows it to straddle the end of the bit that rests on the portion 5 of the body, as clearly shown in Figs. 2 and 3.

In some instances, the internal portion of the sleeve may be notched, as at 20, Fig. 6, so as to allow the end 19 of the spring 17 to enter the notch in order to prevent the sleeve from turning accidentally. The pressure of the spring will not interfere with the intentional turning of the sleeve by hand.

I claim:

The combination in a chuck, of a body portion having an opening for a drill bit and having a transverse slot forming a flat surface against which the notched end of the drill bit rests, said body having a screw-threaded portion; a sleeve having an internal screw thread adapted to the threaded

portion of the body and having an inturned flange; a transverse opening in the body portion; a ball mounted in the opening arranged to engage the bit, said ball being held in engagement by the inturned flange of the sleeve; and a U-shaped spring friction device located in the transverse slot, the ends of the friction device resting on the flat surface of the body portion while the curved end rests against the threaded portion of the sleeve, retaining the sleeve in the position to which it is adjusted.

In witness whereof I affix my signature.

THOMAS J. FEGLEY.