

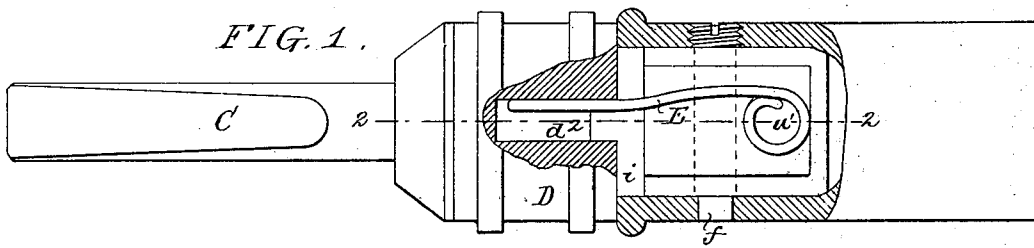
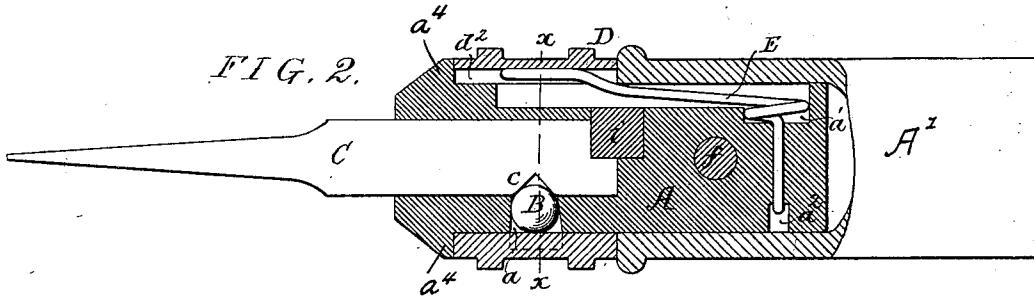
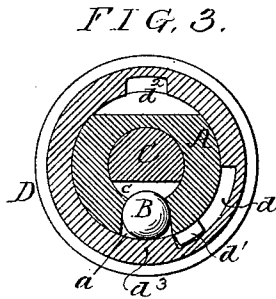
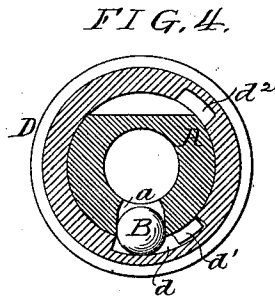
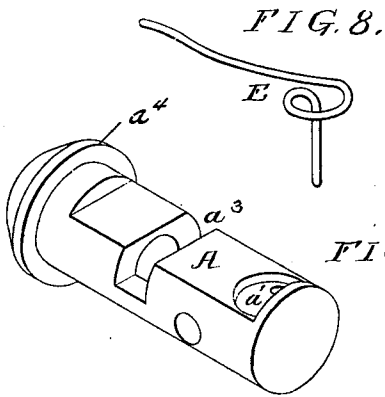
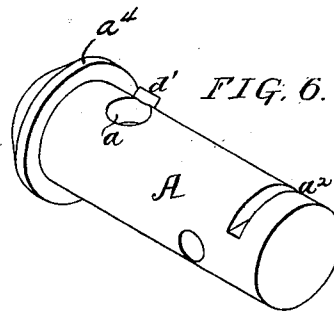
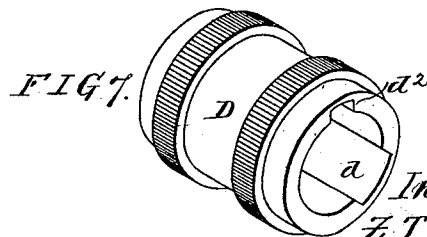
No. 666,507.

Patented Jan. 22, 1901.

Z. T. FURBISH.
CHUCK.

(Application filed June 15, 1898.)

(No Model.)



Witnesses:
Frank M. Graham
Charles McCon

Inventor:
Z. T. Furbish
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UNITED STATES PATENT OFFICE.

ZACHRY T. FURBISH, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE NORTH BROTHERS MANUFACTURING COMPANY, OF SAME PLACE.

CHUCK.

SPECIFICATION forming part of Letters Patent No. 666,507, dated January 22, 1901.

Application filed June 16, 1898. Serial No. 683,470. (No model.)

To all whom it may concern:

Be it known that I, ZACHRY T. FURBISH, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain
5 Improvements in Chucks, of which the following is a specification.

My invention relates to certain improvements in chucks in which a ball is used to secure the bit to the stock.

10 My invention is especially applicable to small chucks used to secure drill-bits to the stocks of ratchet-drills; but it will be understood that it can be used for any purpose for which a chuck is intended.

15 In the accompanying drawings, Figure 1 is a plan view, partly in section, of my improved chuck. Fig. 2 is a sectional view on the line 2 2, Fig. 1. Fig. 3 is a section on the line *x x*, Fig. 2. Fig. 4 is a section on the
20 same line as Fig. 3 with the ball out of engagement with the bit. Figs. 5, 6, 7, and 8 are detached perspective views of parts of the chuck, and Fig. 9 is a view of a modification.

A is the body of the chuck, adapted to a
25 socket A' and secured therein by a screw-pin *f*. The chuck-body has a suitable cavity for the reception of the bit, and in this body is an aperture *a*, in which a ball B is located. The aperture *a* is preferably tapered and
30 narrow at the base, so that the ball will project in the opening for the bit only a certain distance and will not fall out when the bit is removed.

The bit C is notched at its rear end and
35 adapted to engage the notched portion of the body, so that the strain of turning is not taken by the ball but by the body, and the bit is notched at *c*, and this notch is of sufficient width to receive the ball B, which is
40 locked therein and prevents any longitudinal movement of the bit.

In order to throw the ball into and out of engagement, I mount on the body A, between its flanged head *a'* and the end of the socket
45 A', a sleeve D, having a slot *d*, into which the ball can pass when the bit is to be released, as shown in Fig. 4. The movement of the sleeve is limited by a stop *d'*, which projects into a slot *d* in the sleeve.

50 The body of the chuck is flattened on one

side, as shown in Fig. 5, and recessed at *a'*, and within this recess is a coiled spring E, having one arm which is extended through an opening in the body and bent within a slot *a''*. The other arm of the spring extends
55 over the flattened portion of the body and into a groove *d''* in the sleeve D, so that the tendency of the spring is to keep the portion *d''* of the sleeve D always back of the ball, so that the ball is normally projected into the
60 opening for the bit, as in Fig. 3; but by turning the sleeve against the pressure of the spring the recess *d* is brought back of the ball, as shown in Fig. 4, so that the ball will move back out of the opening for the bit.

65 The body A of the chuck is secured in the socket A' of a drill stock or handle by means of a screw *f*, which is preferably formed as shown in Fig. 1. By simply removing this screw the chuck can be removed from the
70 drill-stock and its parts can be readily examined or repaired.

As a substitute for the spring shown in Figs. 1 and 2 I may use a coiled spring.
75 (Shown in Fig. 9.) This spring is adapted to a cavity formed partly in the body of the chuck and partly in the sleeve, so that the tendency of the spring is to hold the sleeve in a position to project the ball into the opening for the bit, as shown in Fig. 3.

80 I preferably form a transverse groove *a''* in the body A at the end of the opening for the bit, and I insert in this groove a bar *i*, which extends into the opening, forming an abutment for the bit.
85

I claim as my invention—

1. The combination in a chuck, of a body having an opening for the reception of a bit, an aperture or hole in said body, an unattached movable piece constructed to operate
90 in the aperture, a sleeve for keeping said piece projected into the opening for the bit, a stop independent of the movable piece in the body and a groove in the sleeve for the reception of the movable piece when the bit is to be removed, said groove being common both to the
95 movable piece and to the said stop, substantially as described.

2. The combination of the body having an opening for the bit and a transverse hole, 100

with a ball adapted to the hole, the opening being such as to allow the ball to project a certain distance into the opening for the bit, a sleeve mounted on the body having a groove
5 therein adapted to be shifted in line with the hole for the ball so that the ball will enter the said groove, a stop to limit the lateral movement of the sleeve, and a spring tending to keep the sleeve against the stop, substantially
10 as described.

3. The combination of a body having an opening for a bit and having a tapered hole, a ball adapted to said hole, a sleeve mounted
15 on the body and having a recess into which the ball can pass, a stop to limit the movement of the sleeve, a groove in the sleeve, a spring secured to the body and having an arm projecting into the groove in the sleeve, said
20 spring tending to keep the sleeve in such a position that the ball will normally project

into the opening for the bit, substantially as described.

4. The combination of a body having an opening for a bit, a tapered hole communicating with said opening, a ball adapted to said
25 hole and extending into the opening a certain distance, a sleeve having a recess into which the ball can pass, a spring tending to keep the sleeve in a given position, a cross-bar mounted in the groove in the body and
30 forming an abutment adapted to engage the notched portion of the bit, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of
35 two subscribing witnesses.

ZACHRY T. FURBISH.

Witnesses:

WILL. A. BARR,
JOS. H. KLEIN.