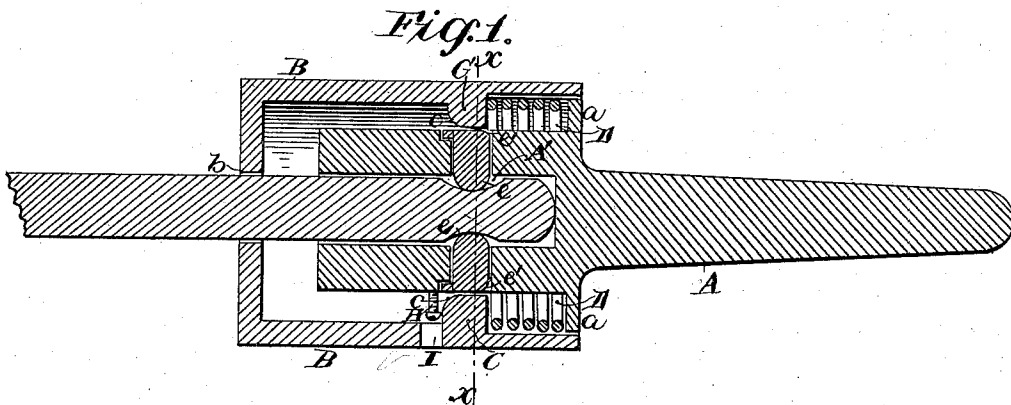


(No Model.)

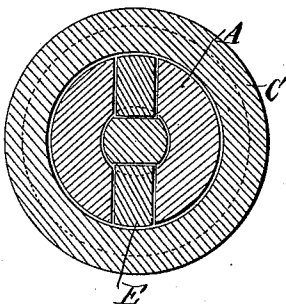
F. C. LARGER.  
CHUCK.

No. 371,954.

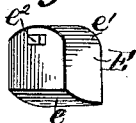
Patented Oct. 25, 1887.



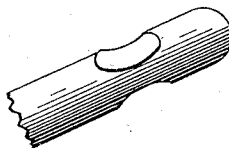
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



WITNESSES:

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BY *J. B. Lawyer*,

ATTORNEY

# UNITED STATES PATENT OFFICE.

FELIX C. LARGER, OF CHICAGO, ILLINOIS.

## CHUCK.

SPECIFICATION forming part of Letters Patent No. 371,954, dated October 25, 1887.

Application filed April 29, 1887. Serial No. 236,583. (No model.)

*To all whom it may concern:*

Be it known that I, FELIX C. LARGER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Chucks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has for its object to provide a new and simplified construction in drill-chucks, and in so constructing the same that the drill or other tool may be placed in position and removed while the chuck is in rapid motion; and the nature thereof consists in providing the same with a slide-cylinder which is operated by a spiral spring and having an annular projection formed upon its inner circumference, which comes in contact with movable dogs or blocks for holding and releasing the drill, and in other details of construction, as will be hereinafter fully described and claimed.

In the accompanying drawings, in which corresponding parts are designated by similar letters, Figure 1 is a longitudinal section of my invention; Fig. 2, a cross-section on line  $x x$  of Fig. 2, and Figs. 3 and 4 are detail views.

The socket A is provided with a shoulder having an annular flange,  $a$ , and fits loosely in a slide-cylinder, B. This cylinder has an opening,  $b$ , preferably of the size of the tool to be inserted, and has upon its inner circumference an annular projection, C, which has formed upon its forward edge a beveled face,  $c$ . Encircling the socket A, and between the annular flange  $a$  and the annular projection C, is the spiral spring D.

The dogs or blocks E lie in holes provided for their reception in the socket A. Their inner faces,  $e$ , have a curvilinear form, as shown in Figs. 1 and 3, so as to fit corresponding recesses in the drill or tool. The outer posterior edge of each of the dogs or blocks is beveled, so as to form a face or side,  $e'$ , which corresponds to the similar face,  $c$ , of the annular projection C. On each of the dogs or blocks, opposite the face  $e'$ , is formed a lug,  $e''$ , which fits into a corresponding recess formed for its reception in the socket A, the object of the same being to prevent the dogs or blocks, when

the drill or tool is withdrawn, from falling into the cylindrical chamber A', which receives said tools. When the slide-cylinder B is in its normal position, the annular projection C lies over the dogs or blocks and prevents any outward movement by them.

Immediately in front of the dogs or blocks E a threaded hole is made in the socket A, fitted to receive a corresponding screw, H, which is adapted to press against the annular projection C on the interior circumference of the slide-cylinder B, the object of which is to prevent the dogs or blocks from passing back from under the annular projection C, as well as to prevent the removal of the socket A from the slide-cylinder B. A hole, I, is formed in the slide-cylinder B, in front of the annular projection C, of such size as to permit the passage of a screw-driver and the screw H, by which means the screw may be removed and the several parts of the chuck disconnected from each other.

When it is desired to insert a tool in the chuck, the slide-cylinder B is pushed back, thus causing the projection C to slide back and from over the dogs or blocks E. While in this position the tool is inserted, the rear end of which, striking the curvilinear faces  $e$  of the dogs or blocks E, forces them outward and then permits the tool to pass between them. If, now, the slide-cylinder B be released, the spiral spring D will force the slide-cylinder back into its original and normal position. In this movement the beveled face  $c$  of the annular projection C will strike the corresponding beveled faces,  $e'$ , of the dogs or blocks and press them down into the holes of the socket A, in which they were at the beginning of the operation, and thus their inner faces,  $e$ , will engage the corresponding recesses in the tool. It is now impossible for the tool to be either withdrawn or turned in relation to the chuck, as the annular projection C prevents the dogs or blocks being forced outward.

By this construction it will be observed that the slide-cylinder B is movable around the socket without in any manner altering the grip of the chuck upon the tool, and this constitutes an important object of my invention, for it is evident that while the chuck is in rapid motion the slide-cylinder B may be grasped

and pushed back, and by this means the old drill removed and a new one inserted. It is also to be observed that the slide-cylinder protects the parts of the chuck from exterior injuries, and also prevents them from seizing clothing, &c., that may happen to brush against it. It may, however, be operated by an inexperienced person with safety. It may also be stated that in tapping nuts, when more nuts are upon the tapper than are proper, the nuts will bear against the slide-cylinder and push it back, thus releasing the tapper and preventing it breaking.

Having described my invention and in what manner the same is to be operated, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a chuck, the combination of a slide-cylinder having an annular projection upon its inner surface and movable upon a socket provided with movable dogs or blocks, as and for the purpose described.

2. In a chuck, the combination of a slide-cylinder having an annular projection upon its inner surface and adapted to move upon a socket provided with movable dogs or blocks having beveled faces, substantially as and for the purpose described.

3. In a chuck, the combination of a slide-cylinder provided with an annular projection upon its inner surface having a beveled edge and movable upon a socket provided with dogs or blocks, substantially as and for the purpose described.

4. In a chuck, the combination of a slide-cylinder provided with an annular projection upon its inner surface having a beveled face and movable upon a socket provided with dogs or blocks having inclined faces, substantially as and for the purpose described.

5. In a chuck, the combination of a slide-cylinder provided with an annular projection

upon its inner surface having a beveled face movable upon a socket provided with dogs or blocks, and a screw which bears against the annular projection, as and for the purpose described.

6. In a chuck, the combination of a slide-cylinder provided with an annular projection upon its inner surface and with an opening in its face movable upon a socket provided with dogs or blocks having beveled faces, substantially as and for the purpose described.

7. In a chuck, the combination of a slide-cylinder provided with an annular projection upon its inner surface having a beveled edge, a socket provided with dogs or blocks, and a spiral spring encircling said socket, substantially as and for the purpose described.

8. In a chuck, the combination of a slide-cylinder provided with an annular projection upon its inner surface having a beveled face, a socket provided with movable dogs or blocks having beveled faces, and a spiral spring encircling the socket, substantially as and for the purpose described.

9. In a chuck, the combination of a slide-cylinder provided with an annular projection upon its inner surface having a beveled face and with an opening in its forward end, a socket provided with an annular flange and with movable dogs or blocks having beveled faces and lugs adapted to fit in recesses in the socket, a screw bearing against the annular projection, a hole in the external cylinder for removing said screw, and a spiral spring encircling the socket, substantially as and for the purpose described.

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

FELIX C. LARGER.

Witnesses:

P. C. HUNTINGTON,  
EDMUND BAILEY.