

C. F. REAM.

CHUCK.

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1,063,215.

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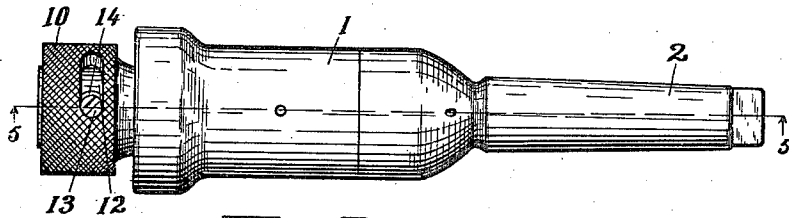


Fig. I.

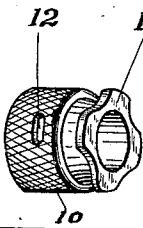


Fig. II.

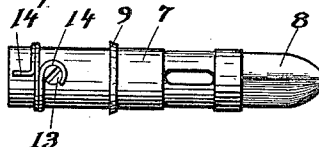


Fig. III.

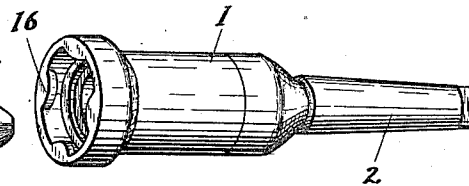


Fig. IV.

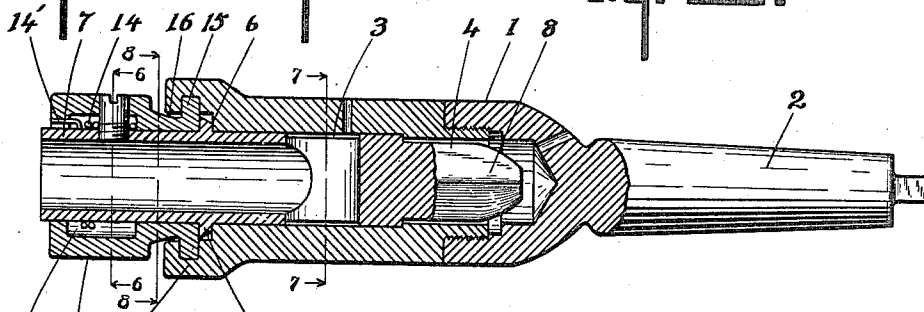


Fig. V.

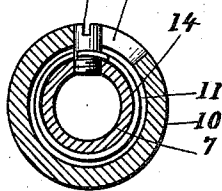


Fig. VI.

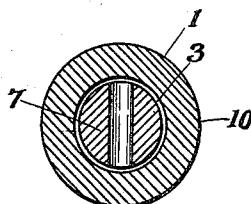


Fig. VII.

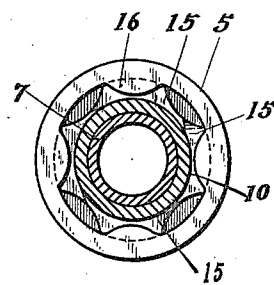


Fig. VIII.

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CHUCK.

1,063,215.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CHARLES FRANKLIN REAM, a citizen of the United States, residing at the city of Lansing, county of Ingham, and State of Michigan, have invented certain new and useful Improvements in Chucks, of which the following is a specification.

This invention relates to improvements in chucks.

The main objects of this invention are,—first, to provide an improved chuck which permits or enables the changing of tools while the spindle is being rotated. Second, to provide an improved chuck having these advantages, which is capable of manipulation with one hand. Third, to provide an improved chuck which is simple and inexpensive in structure.

Further objects, and objects relating to structural details, will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification.

The invention is clearly defined and pointed out in the claims.

A structure which is a preferred embodiment of my invention is clearly illustrated in the accompanying drawing, forming a part of this specification, in which:

Figure I is a side view of my improved chuck. Fig. II is a perspective view of the locking sleeve 10. Fig. III is a side elevation of the tool holder 7, with the spring 14 thereon. Fig. IV is a perspective view of the body 1. Fig. V is a view partially in longitudinal section on a line corresponding to line 5—5 of Fig. I. Fig. VI is a cross section taken on a line corresponding to line 6—6 of Fig. V. Fig. VII is a cross section on a line corresponding to line 7—7 of Fig. V. Fig. VIII is a cross section on a line corresponding to line 8—8 of Fig. V.

Referring to the drawing, the body 1 of my improved chuck is provided with a tapered shank 2 adapted to fit the socket of an ordinary drill spindle, not shown. The body 1 in the structure illustrated, is formed of two pieces for convenience in manufacture.

The body is provided with a cylindrical socket 3 having a squared driving portion

4 at its inner end and an enlargement 5 at its outer end, there being an annular collar shoulder 6 at the inner end of the enlargement.

The tool holder 7 is provided with a squared driving portion 8 at its inner end adapted to coact with the driving portion 4 of the body socket. The tool holder is provided with a collar 9 adapted to engage with the shoulder 6 when the holder is inserted in the body.

A locking sleeve 10 is mounted upon the body, the sleeve being provided with an annular internal groove 11 and a slot 12. A stop pin 13 on the holder engages this slot to limit the rotative movement of the sleeve on the holder. A spring 14 is arranged within the groove 11 with one end of the spring connected to the stop 13, the other being connected to the sleeve at 14'. This spring acts to hold the sleeve with one end of its slot in engagement with the stop pin 13.

The sleeve is provided with spaced cam lugs 15 at its inner end and the body with coacting spaced lugs 16 at its outer end. The spaces between the lugs 16 are adapted to receive the lugs 15 when presented endwise thereto.

In inserting the holder in the chuck body, the holder is pushed into the body socket and the locking sleeve turned rearwardly until the lugs 15 slip between the lugs 16 of the body. The locking sleeve is then released and the spring acts to force the lugs into their engaging position. If the chuck is rotating when the drill is inserted, it is only necessary to hold the locking sleeve and push inwardly thereon, the rotation of the holder bringing the lugs into engaging position.

To remove the tool holder, it is only necessary when the spindle is rotating, to grasp the sleeve and pull out thereon. It will be obvious that this is a one hand operation which is a very great convenience from an operating point.

A further advantage of the structure, is, that the changes can be made without the liability of injury to the workman.

My improved chuck is simple and economical in structure and is not likely to get out of repair in use.

I have illustrated and described my improved chuck in detail in the form preferred by me and have not attempted to illustrate or describe the various modifications which I contemplate as such modifications will no doubt be readily understood by those skilled in the art to which this invention relates. I desire, however, to be understood as claiming my improvements specifically in the form illustrated as well as broadly within the scope of the appended claims.

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

1. In a chuck, the combination of, a body having a cylindrical socket with a squared driving portion at its inner end and an enlargement at its outer end, there being an annular collar shoulder at the inner end of the enlargement; a tool holder having a squared portion at its inner end adapted to coact with the squared portion of said body socket and a collar adapted to engage said shoulder at the inner end of said enlargement of said socket; a sleeve having an internal annular groove and a slot therein mounted on said holder; a stop pin on said holder engaging said slot of said sleeve to limit the movement of the sleeve on the holder; spaced cam lugs on the inner end of said sleeve; spaced coacting lugs on said body; and a coiled spring arranged in said groove of said sleeve, one end of said spring being connected to said stop, the other being connected to said sleeve whereby the sleeve is automatically actuated by the spring to engage and retain said lugs in their engaging position.

2. In a chuck, the combination of, a body having a cylindrical socket with a squared driving portion at its inner end and an enlargement at its outer end; a tool holder having a squared portion at its inner end adapted to coact with the squared portion of said body socket; a sleeve having an internal annular groove and a slot therein mounted on said holder; a stop pin on said holder engaging said slot of said sleeve to limit the movement of the sleeve on the holder; spaced cam lugs on the inner end of said sleeve; spaced coacting lugs on said body; and a coiled spring arranged in said groove of said sleeve, one end of said spring being connected to said stop, the other being connected to said sleeve whereby the sleeve is automatically actuated by the spring to engage and retain said lugs in their engaging position.

3. In a chuck, the combination of, a body having a cylindrical socket with a squared driving portion at its inner end and an enlargement at its outer end, there being an annular collar shoulder at the inner end of the enlargement; a tool holder having a squared portion at its inner end adapted to

coact with the squared portion of said body socket and a collar adapted to engage said shoulder at the inner end of said enlargement of said socket; a sleeve mounted on said holder; a stop for limiting the rotative movement of the sleeve on the holder; spaced lugs on said sleeve; spaced coacting lugs on said body; and a spring arranged to act on said sleeve to engage and retain said lugs in their engaging position.

4. In a chuck, the combination of, a body having a cylindrical socket with a squared driving portion at its inner end and an enlargement at its outer end; a tool holder having a squared portion at its inner end adapted to coact with the squared portion of said body socket; a sleeve mounted on said holder; a stop for limiting the rotative movement of the sleeve on the holder; spaced lugs on said sleeve; spaced coacting lugs on said body; and a spring arranged to act on said sleeve to engage and retain said lugs in their engaging position.

5. In a chuck, the combination of, a body having a socket therein; a tool holder adapted to be inserted into said socket and having driving engagement with said body; a sleeve mounted on said holder for limited rotative movement thereon; spaced cam lugs on said sleeve; spaced coacting lugs on said body; and a spring arranged to act on said sleeve to engage said lugs and retain them in their engaging position.

6. In a chuck, the combination of a body having a socket therein; a tool holder adapted to be inserted in said socket and provided with a driving tang; a securing sleeve for said holder mounted for limited rotative movement thereon, said sleeve and body being provided with coacting engaging members; and a spring arranged to act on said sleeve to hold it yieldingly at the forward end of its movement, said engaging members on said sleeve and body being disposed so that they may be brought into engaging relation by the rearward rotation of said sleeve with said holder tang in driving engagement with said socket.

7. In a chuck, the combination of a body having a socket therein; a tool holder adapted to be inserted in said socket and provided with a driving tang; a securing sleeve for said holder mounted for limited rotative movement thereon, said sleeve and body being provided with coacting engaging members, said engaging members on said sleeve and body being disposed so that they may be brought into engaging relation by the rearward rotation of said sleeve with said holder tang in driving engagement with said socket.

8. In a chuck, the combination of a body having a socket therein; a tool holder adapted to be inserted into said socket and having driving engagement with said body; a

sleeve mounted on said holder for limited
rotative movement thereon, and a spring ar-
ranged to act on said sleeve to hold it yield-
ingly at one end of its movement; and coact-
5 ing engaging members on said sleeve and
body adapted to be engaged when the sleeve
is actuated by the tension of said spring.

In witness whereof I have hereunto set
my hand and seal in the presence of two wit-
nesses.

CHARLES FRANKLIN REAM. [L. s.]

Witnesses:

RALPH JOHN BUDD,
FRED. CARLTON SMITH.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
