

(No Model.)

R. J. PRATT.

DRILL CHUCK.

No. 384,928.

Patented June 19, 1888.

Fig. 1.

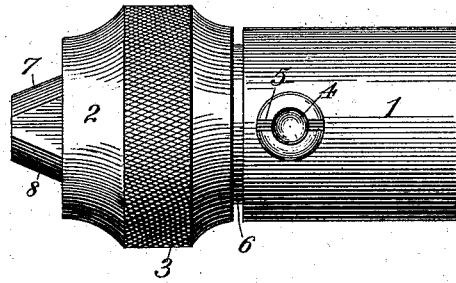


Fig. 2.

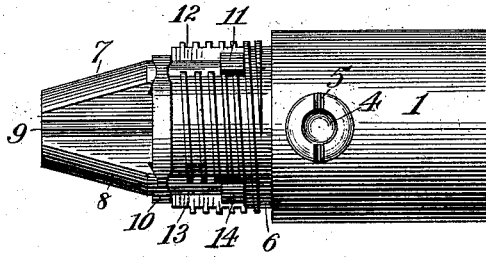


Fig. 4.

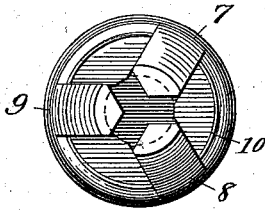


Fig. 3.

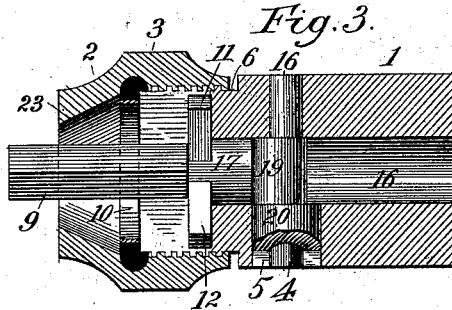


Fig. 5.

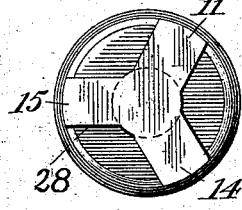


Fig. 6.

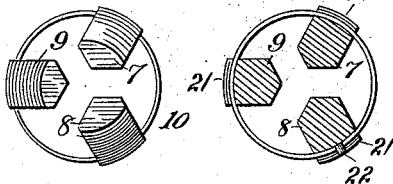


Fig. 7.

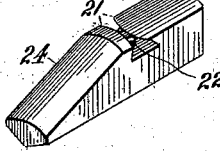


Fig. 8.

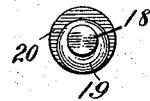


Fig. 9.

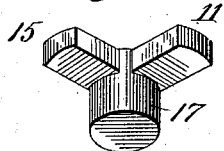
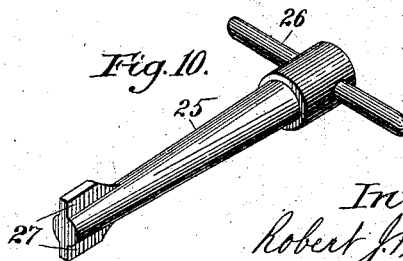


Fig. 10.



Witnesses:

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UNITED STATES PATENT OFFICE.

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DRILL-CHUCK.

SPECIFICATION forming part of Letters Patent No. 384,928, dated June 19, 1888.

Application filed February 14, 1888. Serial No. 261,043. (No model.)

To all whom it may concern:

Be it known that I, ROBERT J. PRATT, a citizen of the United States, residing at Greenbush Heights, in the county of Rensselaer and State of New York, have invented certain new and useful Improvements in Lathe-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 relates to certain new and useful improvements in lathe chucks, and presents a construction of simple and durable character, economical in point of manufacture, readily manipulated, and of especial efficiency in operation.

In the accompanying drawings, forming a part of this specification and illustrative of my invention, Figure 1 represents the same in side elevation. Fig. 2 represents a like view with the jaw-adjusting sleeve removed. Fig. 3 represents a longitudinal section of the chuck, some of the interior parts being shown in elevation. Fig. 4 represents a front end elevation of the parts shown in Fig. 2. Fig. 5 represents a like view with the chuck-jaws removed. Fig. 6 represents in detailed end elevation and section the chuck-jaws and spring. Fig. 7 represents in perspective one of the chuck-jaws. Fig. 8 represents in end elevation the eccentric which operates the jaws. Fig. 9 represents in perspective the follower which transmits power from the eccentric to the jaws, and Fig. 10 represents the actuating wrench or key.

Similar letters of reference indicate similar parts throughout the several views.

The main body or stock 1 of the chuck consists, desirably, of a malleable-iron casting, preferably of cylindrical form and suitable finish, and is cored or reamed out, so as to form a longitudinal passage, 16. The body 1 is also drilled transversely, as shown, for the reception of an eccentric-pin, turned from a single piece of metal, the ends 18 20 of said pin constituting gudgeons having bearings in the walls of the main body 1, so as to be revoluble therein. These gudgeons are substantially flush with the exterior surface of the main body of the chuck, thereby obviating any liability of accidentally turning the pin and loosening the ec-

centric-grip after the said grip has been set, as hereinafter described. The cam-surface or eccentric portion proper, 19, of the pin is located entirely within the passage 16, and is designed to impart a small longitudinal movement to a jaw-actuating follower having a stem, 17, fitting closely within the passage 16.

The main body of the chuck is somewhat reduced in diameter at its forward end, 6, for a portion of its length, and said reduced portion 6 is provided with equidistant slots 12 13 28, and is also provided with an external screw thread adapted to engage with an internal screw-thread upon an adjustable sleeve, 2, said sleeve having a milled periphery, 3. Within the slots or recesses 12 13 28 of the reduced portion 6 of the chuck extend the wings 11 14 15 of the follower, and upon these wings rest, respectively, the jaws 7 8 9. Said jaws are preferably of the particular construction illustrated in the drawings, having V-shaped edges parallel with each other, and adapted to grasp and securely hold between them with a uniform and even bearing a drill or similar tool. The jaws are provided with beveled recesses having overlapping projections 21, said recesses being designed to receive and retain a band-spring, 10, whose function is to release the jaws from contact with the tool and hold them in a distended position, as indicated in Figs. 2, 4, and 6, when the chuck-setting mechanism is released. One of the jaws, as 8, is provided with a pin projection, 22, within its recess, and against said pin abut the ends of the spring 10, thereby locking the spring in place with respect to the jaws and preventing its ends from slipping out from the recess, which would interfere with the proper action of the jaws. At their forward ends the jaws are provided with a beveled or inclined rear surface, 24, and the sleeve 2 is narrowed or beveled at its forward end to correspond therewith, whereby a movement of the sleeve toward the main body 1 of the chuck will cause the jaws to approach each other.

The end or gudgeon 20 of the eccentric-pin is drilled at 4, and a transverse opening, 5, sawed in said end, thereby forming a cavity for the reception of the shank and wings 27 of the wrench or key which sets and releases said eccentric. The main body of the wrench may be cheaply and expeditiously produced

from a corresponding length of rod metal, which is drilled at its upper portion for the reception of the cross-bar 26, and is turned so as to taper in the direction of its length, as indicated at 25, the wings being formed by a suitable cutting-tool.

The parts of my invention being constructed and arranged as described, the operation thereof is as follows: The sleeve 2 is revolved by hand so as to travel toward the left with respect to Fig. 1, thereby permitting the jaws 7 8 9 to separate under the influence of the spring 10 until said jaws assume the position indicated more clearly in Fig. 6. The drill or other tool is then inserted in the opening made by the jaws, and the sleeve 2 thereupon revolved so as to travel toward the right, the effect of this movement being to cause the jaws to approach each other and firmly grasp the tool. When the sleeve has been revolved as far as can conveniently be done, I avail myself of the eccentric to still further tighten the grip of the jaws upon the tool. For this purpose I insert the wings 27 of the wrench within the opening 5 of the eccentric-pin and revolve said wrench and pin, the eccentric portion 19 forcing the stem 17 of the follower outward. This movement is imparted through the medium of the wings 11 14 15 of the follower to the jaws 7 8 9, forcing the inclined surfaces 24 against the incline 23 of the sleeve 2, and thereby causing the jaws to grasp the drill or tool with greatly-increased power, so as to hold it rigidly in place even when exposed to the greatest strain. After the chuck is thus set, the wrench is removed, and there are no projecting parts from the eccentric whereby said eccentric can be accidentally operated so as to release the tool.

In removing the drill or tool the eccentric is first released by means of the wrench, whereupon the sleeve may be operated to permit a separation of the jaws.

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

1. A chuck consisting of a main body portion having a hollow interior and screw-threaded at its forward end, said forward end being provided with slots or recesses, clamping-jaws located within said recesses and inclined or beveled at their forward ends, a follower against which said jaws abut, an eccentric for actuating said follower, and an internally-screw-threaded sleeve having a tapering aperture and engaging with the external screw-thread of the main body, substantially as described.

2. A chuck consisting of a main body portion having a hollow interior and screw-threaded at its forward end, said forward end being provided with slots or recesses, clamping-jaws located within said recesses and inclined or beveled at their forward ends, a follower consisting of a stem fitting said hollow

interior, and side wings against which the clamping-jaws abut, an eccentric for actuating said follower, and an internally-screw-threaded sleeve having a tapering aperture and engaging with the external screw-thread of the main body, substantially as described.

3. A chuck consisting of a main body portion having a hollow interior and screw-threaded at its forward end, said forward end being provided with slots or recesses, clamping-jaws located within said recesses and inclined or beveled at their forward ends, a spring connecting and distending said jaws, a follower against which said jaws abut, an eccentric for actuating said follower, and an internally-screw-threaded sleeve having a tapering aperture and engaging with the external screw-thread of the main body, substantially as described.

4. A chuck consisting of a main body portion having a hollow interior and screw-threaded at its forward end, said forward end being provided with slots or recesses, clamping-jaws located within said recesses and inclined or beveled at their forward ends, a spring connecting and distending said jaws, a follower consisting of a stem fitting said hollow interior, and side wings against which the clamping-jaws abut, an eccentric for actuating said follower, and an internally-screw-threaded sleeve having a tapering aperture and engaging with the external screw-thread of the main body, substantially as described.

5. In a chuck, the combination, with the clamping-jaws, of a spring, said jaws being provided with recesses having overlapping flanges for the reception and retention of the spring, and one of the jaws having a projection against which the ends of the spring abut, substantially as described.

6. In a chuck, the combination, with the main body portion, sleeve, clamping-jaws, and follower, of an eccentric having its shaft journaled in the walls of the main body of said chuck and substantially flush therewith, said eccentric-shaft having at one end an aperture for the reception of an adjusting key or wrench, substantially as described.

7. In a chuck, the combination, with the main body portion, sleeve, clamping-jaws, and follower, of the eccentric described, consisting of a single piece of metal having at its central portion a cam projection and at its opposite ends bearings or gudgeons adapted to turn within the walls of the main body of the chuck, one of said gudgeons being slotted transversely for the reception of an operating key or wrench, substantially as described.

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

ROBT. J. PRATT.

Witnesses:

JOSEPH ROBISON,
BENJAMIN F. ALLEN.