

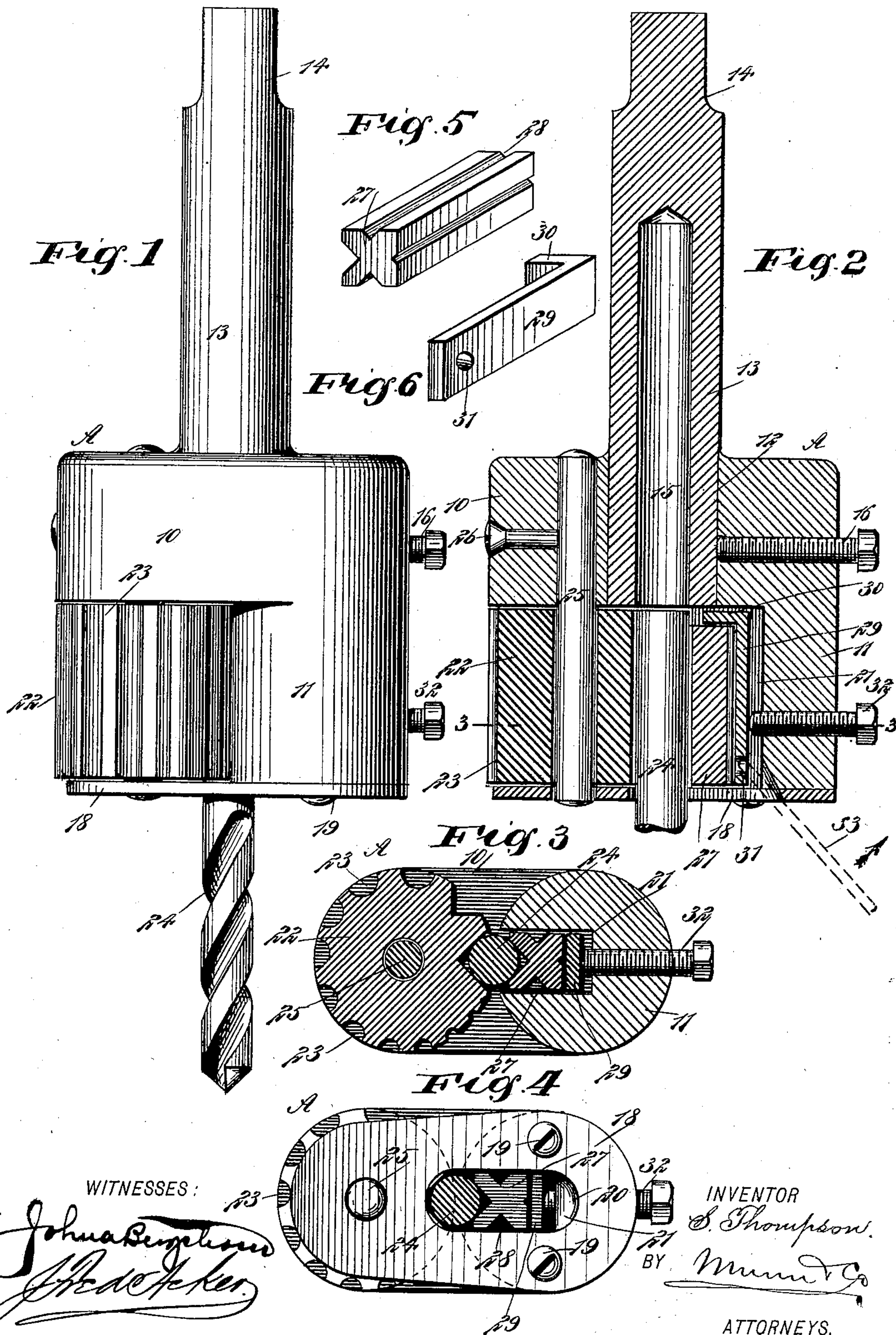
No. 621,624.

Patented Mar. 21, 1899.

S. THOMPSON.
DRILL CHUCK.

(Application filed June 18, 1898.)

(No Model.)



UNITED STATES PATENT OFFICE.

SAMUEL THOMPSON, OF SCHAGHTICOKE, NEW YORK.

DRILL-CHUCK.

SPECIFICATION forming part of Letters Patent No. 621,624, dated March 21, 1899.

Application filed June 18, 1898. Serial No. 683,832. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL THOMPSON, of Schaghticoke, in the county of Rensselaer and State of New York, have invented a new and Improved Drill-Chuck, of which the following is a full, clear, and exact description.

The object of my invention is to provide a drill-chuck so constructed that drills of various sizes may be expeditiously and conveniently fitted thereto and firmly clamped or held therein.

Another object of the invention is to construct a drill-chuck which will not only accommodate the shanks of drills of different sizes, but will likewise accommodate drill-shanks of different cross-sectional shapes.

A further object of the invention is to construct a drill-chuck of the character above described in a simple, durable, and economic manner and so that it may be readily manipulated by any person of ordinary intelligence.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the improved drill-chuck and a drill fitted thereto. Fig. 2 is a longitudinal central vertical section through the chuck. Fig. 3 is a horizontal section taken substantially on the line 3 3 of Fig. 2. Fig. 4 is a bottom plan view of the chuck. Fig. 5 is a detail perspective view of the centering-block of the chuck, and Fig. 6 is a detail perspective view of the locking-plate for the centering-block.

The body A of the chuck is preferably made oval in cross-section, although it may be given other desired shape, and comprises an upper member 10 and a member 11, which is at a right angle to the upper member at one of its ends. The member 10 of the chuck-body is provided with an opening at or near the center of its head portion, which opening extends through the said member 10, as shown in Fig. 2. The opening 12 in the body of the chuck is adapted to receive a shank 13, which shank is usually and preferably provided with a

flattened reduced outer end 14, adapted to enter the socket of a drill-brace. The shank 13 is also preferably provided with a longitudinal bore 15, which extends from its inner end to within a suitable distance of its outer end.

The shank 13 is removable from the chuck-body in order that shanks having different bores 15 may be used in connection with the body, and a shank 13 is securely held in engagement with the body by means of a set-screw 16 or its equivalent, which is usually passed through an end of the member 10 of the body to an engagement with the shank near its inner end, as illustrated in Fig. 2.

Preferably a bottom plate 18 is secured by screws or their equivalents to the inner end of the member 11 of the body, as is particularly shown in Figs. 1, 2, and 4. The plate 18 is provided with a longitudinal opening 20, which registers with a longitudinal chamber 21, formed in the member 11 of the chuck-body, extending through its inner longitudinal side, and the slot or opening 20 is, furthermore, of such length that it will extend some distance beyond the inner longitudinal face of the said member 11 of the body, as shown particularly in Fig. 4. A cylinder 22 is mounted to turn between the inner face of the member 10 of the body and the opposing face of the plate 18, the said cylinder being provided with longitudinal peripheral grooves 23 of different depths and widths and cross-sectional shapes, if desired, the various grooves in the cylinder being adapted to receive a portion of the shank of the drill 24, which is to be carried by the chuck. The cylinder is mounted to turn on a spindle 25, which is held fixedly in the member 10 of the body by means of a screw 26 or its equivalent, the said spindle passing loosely through the said cylinder and through a suitable opening in the plate 18. I desire it, however, to be understood that while the plate 18 is desirable, it is not absolutely essential, since a head or a cap may be placed at the inner end of the fixed spindle 25 to prevent the cylinder leaving the said spindle.

The chamber 21 in the chuck-head is adapted to receive a centering-block 27. This block, as shown in Fig. 5, is rectangular in cross-section and is provided with longitu-

nal grooves 28 in its various faces, the grooves being of different depths and widths or cross-sectional shapes, as desired. The centering-block is placed in the chamber 21 through the opening 20 in the plate 18 when the said plate is employed, one of the grooves 28 in the centering-block receiving that portion of the shank of the drill which is opposite the portion received by a groove in the cylinder 22.

In connection with the centering-block a locking-plate is employed. This locking-plate, as shown in detail in Fig. 6, consists of a flat body member 29 and a short member 30, which is at an angle to the body member, the body member at its lower end being usually provided with an opening 31. Prior to introducing the centering-block into the chuck-head the locking-plate is engaged with what may be termed the "outer" face of the centering-block or the face opposed to that which engages with the shank of the drill, the shorter member 30 of the locking-plate extending over the top portion of the centering-block. When the centering-block and its locking-plate are in position in the body of the chuck, as shown in Fig. 2, they will be located between the member 10 of the body and the plate 18, and these parts are held in proper position in the chamber 21 and relative to the shank of the drill by means of a set-screw 32 or like device, which is passed through the outer side surface of the member 11 of the chuck-body to an engagement with the body portion of the locking-plate. Both the locking-plate and the centering-block may be removed through the opening 20 in the plate 18, the set-screw 32 having been loosened.

The shorter member 30 is provided for the locking-plate in order that when the locking-plate is drawn out from the chuck-body the centering-block will be compelled to follow, and the opening 31 is made in the locking-plate in order that a nail, an awl, a screw-driver, or like device 33 may be passed into the opening 31 of the locking-plate, having bearing against the face-plate 18, so that the instrument 33 may be employed as a pry.

It is evident that a chuck constructed as above set forth is not only simple, durable, and economic, but that it will accommodate a maximum variety of drill-shanks, and the drill may be set or may be removed expeditiously and conveniently. When the drill-shank is short, it need not be introduced into the chuck-body farther than the outer end of the setting-cylinder 22; but if the shank of the drill is long it may be carried up into the bore 15 of the shank 13, which is made sufficiently long to accommodate any length of shank.

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

1. A drill-chuck, comprising a body provided with a depending member having a po-

lygonal or parallel-sided recess, a revoluble cylinder mounted in the body at one side of the depending member and provided with peripheral grooves varying in size and shape, a grooved rectangular centering-block fitted in the recess of the depending member of the body, and means for locking the centering-block in position, substantially as described.

2. A drill-chuck provided with a rotary drill-holder having a series of peripheral grooves varying in width, a detachable centering-block adapted to face the drill-holder, the centering-block being likewise provided with surface grooves of varying width, a locking-plate arranged to engage with a side and the inner end of the centering-block, and means for forcing the locking-plate to an engagement with the centering-block, and for clamping the drill-shank between the centering-block and the rotary holder, for the purpose specified.

3. The combination, with the body of a drill-chuck, the said body comprising two members at angles to each other, a removable shank connected with the said body, and a locking device for the shank, one of the said members being provided with a chamber extending through its inner end, of a rotary drill-holder provided with a series of peripheral grooves varying in width, a centering-block removably located in the chamber of the said body, the centering-block being provided with surface grooves varying in width, the centering-block being arranged to face the rotary holder, a locking-plate engaging with the outer face of the centering-block, and provided with an opening, and a set-screw carried by the body and arranged to engage with the locking-plate, for the purpose specified.

4. A drill-chuck, comprising a body formed of two members at angles to each other, a rotary cylinder mounted in the body and having peripheral grooves varying in size and shape, a centering-block opposite the cylinder and provided with a plurality of grooves varying in size and shape, an angular locking-plate engaging the centering-block, and means engaging the locking-plate for clamping the drill-shank between the centering-block and cylinder, substantially as described.

5. In a drill-chuck, the combination with a body having a member at an angle thereto, said member being chambered, and a slotted bottom plate secured to the said angular member, of a rotary cylinder mounted between the body and bottom plate, a centering-block in the chamber of the angular member of the body and provided with a plurality of faces, each having a groove therein, an angular locking-plate engaging the inner end and outer face of the centering-block, and a screw engaging the locking-plate, substantially as described.

SAMUEL THOMPSON.

Witnesses:

JENNIE A. CONGDON,

H. FLORENCE CONGDON.