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F. H. SPETS.

DRILL CHUCK.

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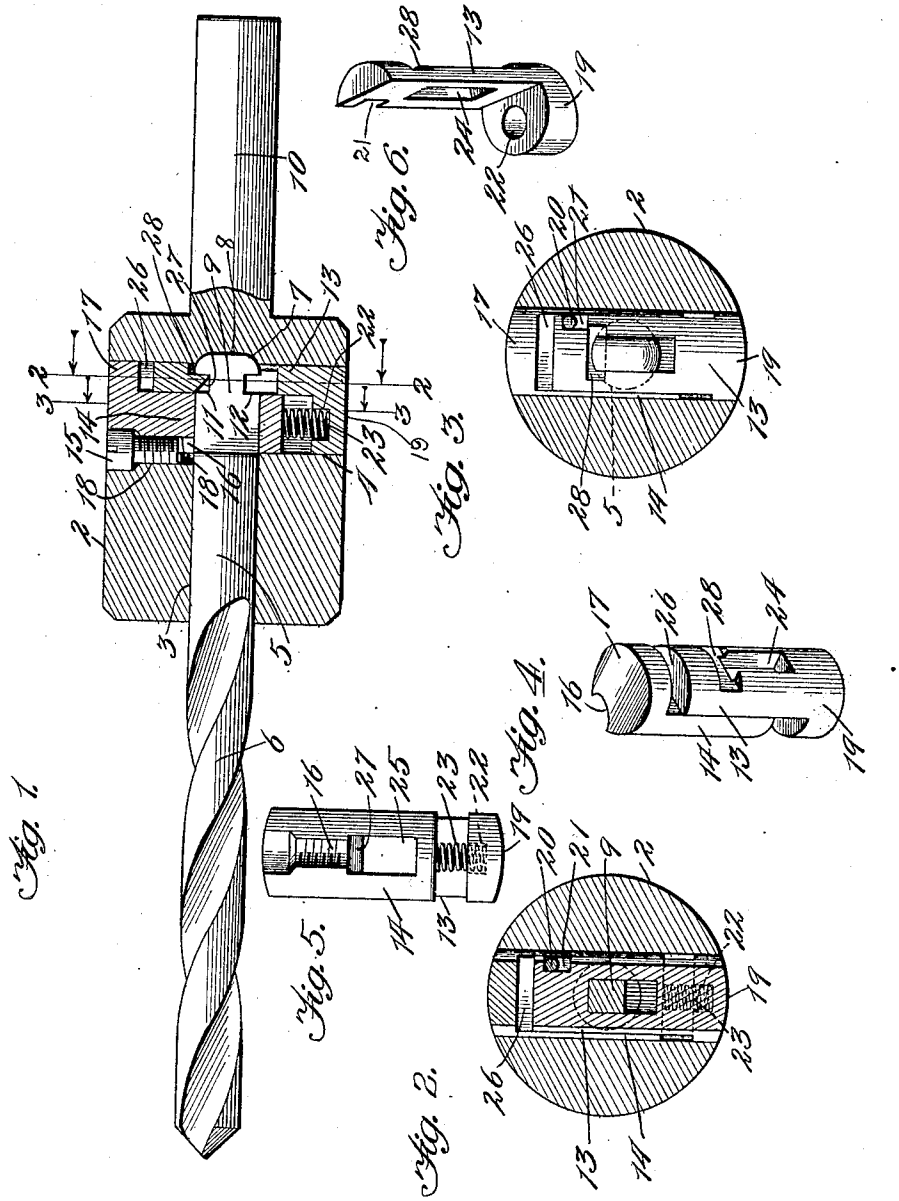


Fig. 1.

Fig. 6.

Fig. 3.

Fig. 4.

Fig. 5.

Fig. 2.

Witnesses:
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DRILL-CHUCK.

No. 885,392. Specification of Letters Patent. Patented April 21, 1908.

Application filed December 2, 1907. Serial No. 404,675.

To all whom it may concern:

Be it known that I, FRANK H. SPETS, 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 Drill-Chucks, of which the following is a specification.

My invention relates to drill-chucks and its object is to provide an improved drill-chuck having the advantages of simplicity, convenience in manipulation, construction and repairs, and with these objects in view my invention consists in the novel construction, combination and arrangement of parts hereinafter described in detail, illustrated in the drawing and incorporated in the claims.

In the drawing—Figure 1 is a longitudinal section of a drill-chuck embodying my invention, together with a drill held therein. Fig. 2 is a section on line 2—2 of Fig. 1. Fig. 3 is a section taken on line 3—3 of Fig. 1. Fig. 4 is a perspective view of the locking members. Fig. 5 is a bottom plan view of same. Fig. 6 is another perspective view of one of the two locking members shown in the other views.

In the several views 2 represents the body of the chuck, which is herein shown as of cylindrical form. The body is a solid cylinder of metal through which two holes 3 and 4 have been drilled at right angles to each other. The hole 3 receives the shank 5 of the drill 6 and is not bored entirely through the cylinder of metal but stops, after intersecting the bore 4, in the form of a concavity 7 in the upper side of the wall of the bore 4. The bottom of the concavity 7 supports the rounded upper end 8 of a flattened tip 9 of the shank 5. The chuck has an integral shank or spindle 10 to be held in the drill-head (not shown) in the usual manner. In the flattened part 9 are two notches 11 and 12, one of which is engaged by the locking mechanism, whichever way the drill happens to be inserted. The locking mechanism occupies the bore 4 and consists of two semi-circular slides 13 and 14, the latter being held stationary in the body of the chuck by means of a screw 15 which has threaded engagement with two halves of a threaded bore, one of the halves, 16, being in the circular head 17 of the slide 14 and the other half 18, being in the form of a semi-cylindrical cavity in the side of one end of the bore 4. The screw 15 has its head countersunk so that it is flush with the outer surface of the chuck and the head 17 closes one end of the bore 4. The opposite end of the bore is closed by a similar head 19, minus the threaded recess 16, and is normally held flush with the outer surface of the body 2 by means of a pin 20 which projects from the flat side of the semi-cylindrical slide 14 and engages a slot 21 in one edge of the companion slide 13, which is movable upon the slide 14 and the extent of its movement is determined by the length of the slot 21.

As shown in Figs. 2 and 3 when the pin 20 is in contact with the inner end of the slot 21 the head 19 is flush with the outer surface of the body 2. As also shown in said figures the heads 17 and 19 are rounded off to conform with the circle of the body 2 and thus leave the exterior of the complete chuck free of projections or obstructions, so that the whole appears as a simple cylindrical piece of metal. The two halves 13 and 14 of the locking mechanism are circular in cross section and form a snugly fitting plug for the bore 4 which can be pushed out of said bore at either of its ends after the screw 15 has been removed. In the inner face of the head 19 is a shallow bore 22 in which is seated one end of a coiled spring 23. The opposite end of the spring bears against the inner end of the stationary slide 14. This spring holds the head 19 normally flush with the outer surface of the body 2 against the resistance of the pin 20 in the slot 21.

In line with the bore 3 the members 13 and 14 have each a rectangular opening which fits the flattened portion 9 of the drill shank, the part 13 having such an opening 24 and the part 14 having a similar opening 25. These openings are normally out of register, but when the head 19 is pressed in so as to close up the gap 26 between the inner face of the head 17 and the end of the slide 13, the two rectangular openings 24 and 25 register. They are brought in register automatically when the shank of the drill is pushed in by beveling off one end of the opening 25 as at 27 and when either of the rounded edges of the tip 8 strikes the bevel the slide 13 is moved inwardly and its opening brought in register with the opening underneath through the slide 14. As the beveled edge of the opening 24 is brought in line with the notch 11 or 12 said edge enters the notch by reason of the tension of the spring 23 and supports the drill vertically. The twisting strain upon the drill cannot injure the members 13 and 14, because they fill the bore 4

and simply interpose a part of their bodies between the walls of the bore and the flattened or rectangualr part 9 of the drill shank. As shown in several of the views I preferably file a notch 28 across the convex upper surface of the upper, or movable, slide 13 at the end of the slot 24 so as to reduce the thickness of metal to be engaged by the notch 11 and obviate making the latter as wide as would otherwise be necessary.

I claim as new and desire to secure by Letters Patent—

1. A solid chuck body 2 having the opening 3 for the boring tool and the transverse opening 4 which passes entirely through said body, a plug consisting of a pair of slides which substantially fill the opening 4, said slides tensioned so that they tend to move apart in a longitudinal direction, means upon the slides for limiting such movement, means securing one of said slides against movement relative to the body 2, said slides having transverse openings which are normally out of register and which may be brought into register by inward pressure upon one of said slides.

2. A chuck consisting of a solid body 2 having a drill shank opening 3 and a transverse opening 4 which passes through said body and intersects the inner end of the first mentioned opening, a locking mechanism in said transverse opening which consists of a fixed and a movable slide, each having a head which forms a closer for one end of said transverse opening, means for removably securing the fixed slide in said transverse opening, a spring tending to force said slides apart, means upon the slides which limits the extent of their relative movement, said slides having normally non registering openings and one end of the opening in the movable slide having a chamfered edge adapted to automatically engage a notched tool as set forth.

3. A chuck that consists of a solid body 2 having a drill shank opening 3 and a transverse opening 4, a recess 7 in the side of the latter opening and in line with the drill shank opening, a locking mechanism substantially closing said transverse opening, said locking mechanism consisting of a fixed slide 14 and a movable slide 13, the fixed slide and the side of the transverse opening having threaded recesses 16, 18, a screw 15 therein which holds the fixed slide in said transverse opening, said slides 13 and 14 having transversely therethrough the openings 24 and 25 said fixed slide provided with a pin 20 and said movable slide with a slot 21 in which said pin is movable and which limits the movement of said pin and movable slide, and a spring 23 tensioned to normally hold the slides with their openings 24 and 25 out of register.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

FRANK H. SPETS.

Witnesses:
GESS T. KRUSELL,
M. C. ALLEN.