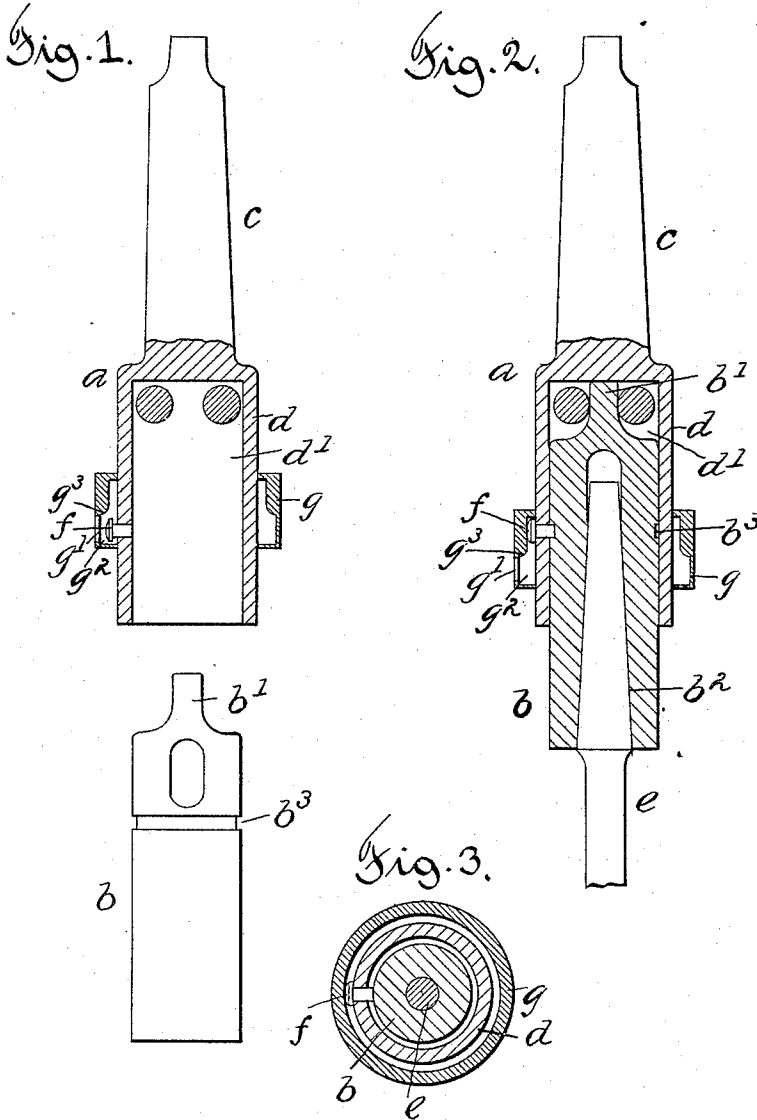


(No Model.)

W. G. CHURCH.
DRILL HOLDER.

No. 489,847.

Patented Jan. 10, 1893.



Witnesses
H. A. Giddings
J. B. Jenkins.

Inventor
William G. Church.
By Chas. L. Burdett,
Attorney.

UNITED STATES PATENT OFFICE.

WILLIAM G. CHURCH, OF HARTFORD, CONNECTICUT, ASSIGNOR TO THE
WOODRUFF MANUFACTURING COMPANY, OF SAME PLACE.

DRILL-HOLDER.

SPECIFICATION forming part of Letters Patent No. 489,847, dated January 10, 1893.

Application filed July 27, 1892. Serial No. 441,356. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM G. CHURCH, of Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Drill-Holders, of which the following is a full, clear, and exact description, whereby any one skilled in the art can make and use the same.

The object of my invention is more particularly to provide a removable drill holder applicable for use in connection with the ordinary drilling machine, and to this end my invention consists in the details of the several parts making up the drill holder as a whole, and in the combination of such parts, as more particularly hereinafter described and pointed out in the claims.

Referring to the drawings: Figure 1 is a detail view in lengthwise section of the socket piece and in exterior view of the filling piece. Fig. 2 is a detail view in lengthwise section of the device illustrating the manner of holding a drill. Fig. 3 is a detail view in horizontal section through the socket piece and cam ring showing the locking device.

The holder as a whole is adapted to be used in any form of drill press or drilling machine in which there is a socket to receive and hold the tapered end of a drill.

In the accompanying drawings the letter *a* denotes the socket piece and *b* the filling piece that together make up and constitute the drill holder. The socket piece has a shank *c* tapered and of convenient and usual shape for insertion in a chuck or the tapered socket in the spindle of a drill press or drilling machine. The lower end of the socket piece forms a shell *d* having a cylindrical chamber *d'* into which the filling piece *b* is removably fitted. The inner end of the chamber is narrowed to receive the narrowed end *b'* of the filling piece that is slanted off so as to afford a holding surface that enables the filling piece to be grasped so as to cause it to turn with the socket piece when the drill spindle is rotated. This filling piece is preferably cylindrical in outline and has a tapered socket *b²* that is adapted to receive the tapered end of the shank of the ordinary drill *e*. A filling piece is provided for each of the several drills that are to be used and the drill is secured to the drill holder by thrusting the filling piece into

the chamber in the socket piece and holding it there by means of the locking mechanism. This latter comprises a sliding bolt *f* that extends through the wall of the shell *d* with the inner end adapted to engage the groove *b³* that is formed in the surface of the filling piece and the outer end arranged to operate in connection with a cam formed in the cam ring *g*. The bolt *f* is shouldered so as to prevent its slipping through into the chamber in the shell and it is locked in place by passing it through the hole *g'* made in the cam ring and then a turn of the latter carries the opening out of registration with the bolt and prevents the accidental removal of the latter.

Within the cam ring *g* there is an annular groove *g²* having on one edge a cam surface *g³* so located that when the cam ring is slid along the surface of the shell in one direction it will tend to thrust the bolt inward and cause it to engage the groove in the filling piece and thus hold the parts firmly together against accidental removal lengthwise of the parts.

The device is particularly intended for use in upright drill spindles, and for that reason the cam is formed on the upper edge of the groove so that the ring that is held downward by gravity will also tend to hold the bolt *f* in engagement with the groove in the filling piece. The upper side of the groove *b³* (see Fig. 1 of the drawings) or the inner end of the bolt *f* or both may be slightly beveled in this instance to disengage the parts the ring is lifted and a slight pull upon the filling piece will cause the bolt to be thrust outward and allow the piece to be removed. In case the walls of the groove *b³* and the sides and end of the pin *f* are made at right angles to each other to disengage the parts after the ring is lifted it will simply be necessary to tip the tool over toward that side on which the pin is located, this movement causing the pin to be disengaged from the bolt and allow the filling piece to be removed. Another drill can then be inserted in the press, the filling piece extending into the chamber in the shell.

By means of this device a large variety of drills can be conveniently secured to the drill spindle of a drill press.

I claim as my invention:

1. In combination with the socket piece *a*

comprising a shank *c* and shell *d*, the sliding cam ring mounted on the shell and having the interior groove with a cam *g*³, the bolt *f*, extending through a hole in the wall of the shell and covered by the ring, and the removable filling piece having an annular groove adapted to receive the inner end of the bolt, all substantially as described.

2. In combination in a drill holder, a socket
10 piece comprising a shank and shell, a bolt extending through the wall of the shell, a sliding cam ring arranged upon the outside of the shell and having the bolt operating cam, and the filling piece having an annular
15 groove and a drill holding socket, all substantially as described.

3. In combination in a drill holder, a socket

piece *a* comprising a shank and shell, the sliding cam ring *g* mounted on the shell and having the interior groove *g*² with an annular cam *g*³ and an opening *g*¹ extending through the ring, the bolt *f* extending through a hole in the wall of the shell and with a broadened end located within the groove in the cam ring, the removable filling piece *b*
25 having a drill socket *b*² and an annular groove *b*³, and adapted to be removably secured against rotation in the chamber in the socket piece, all substantially as described.

WILLIAM G. CHURCH.

Witnesses:

CHAS. L. BURDETT,

JULIA STERN.