

No. 624,274.

Patented May 2, 1899.

A. WALTER.
DRILL SOCKET.

(Application filed June 10, 1897.)

(No Model.)

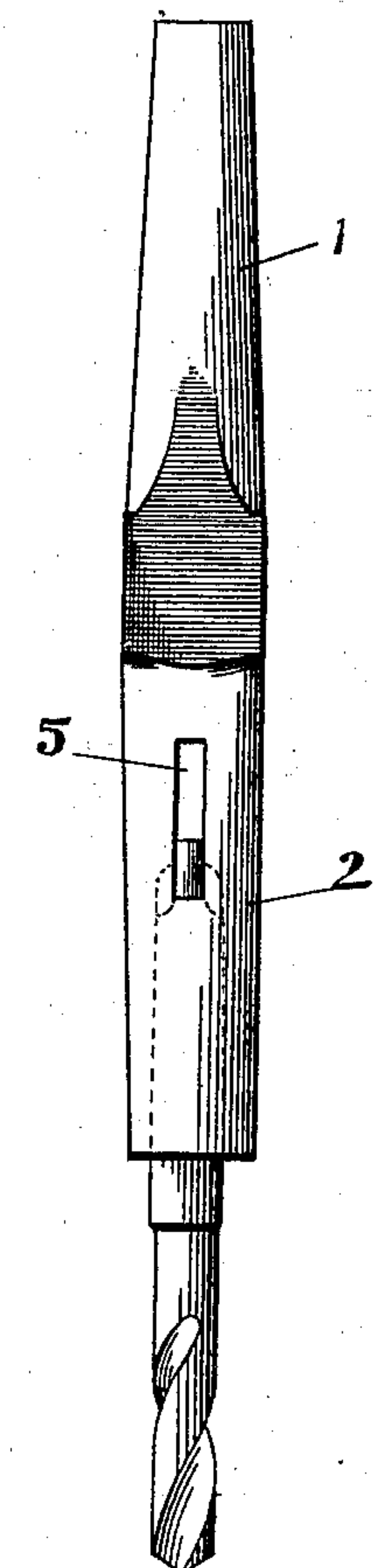


FIG. 1.

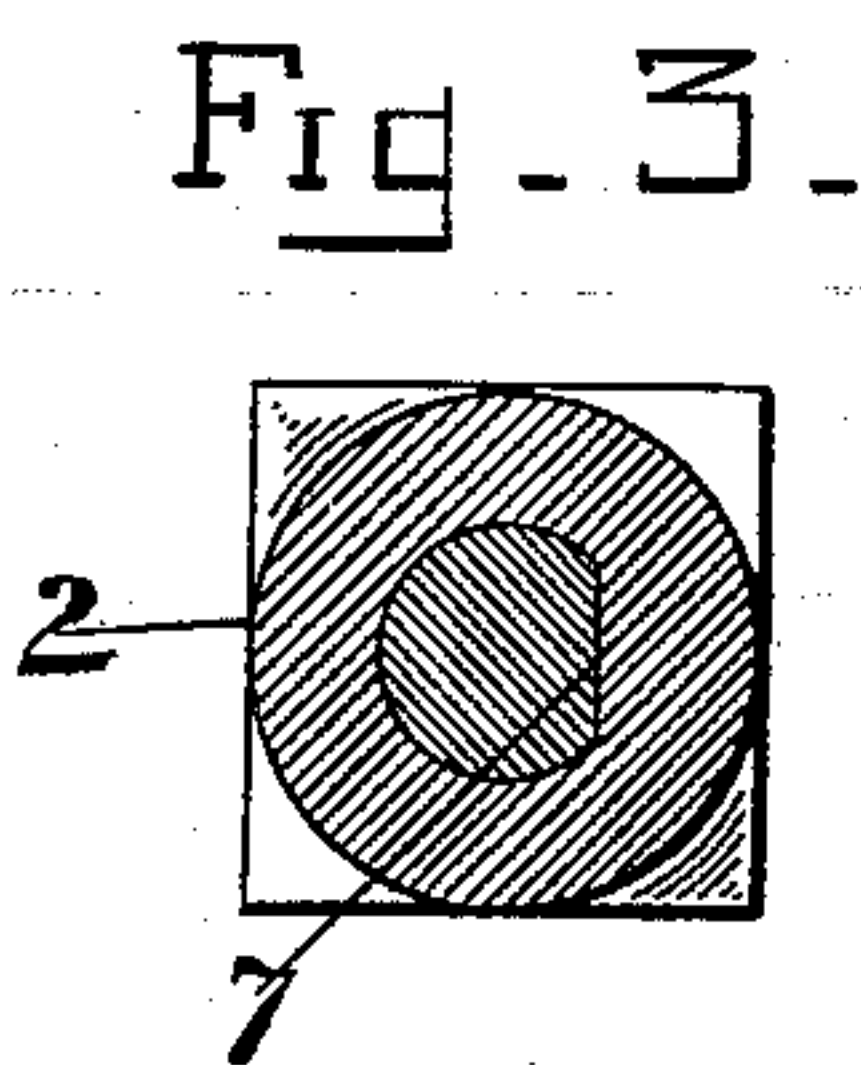


FIG. 3.

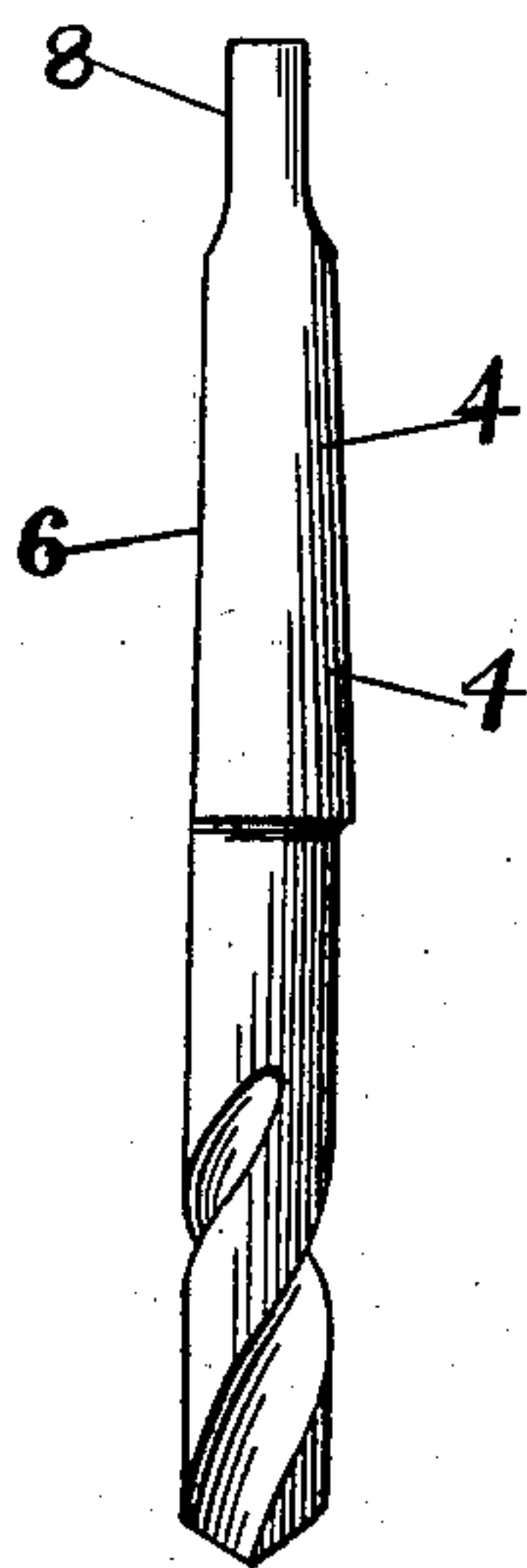


FIG. 4.

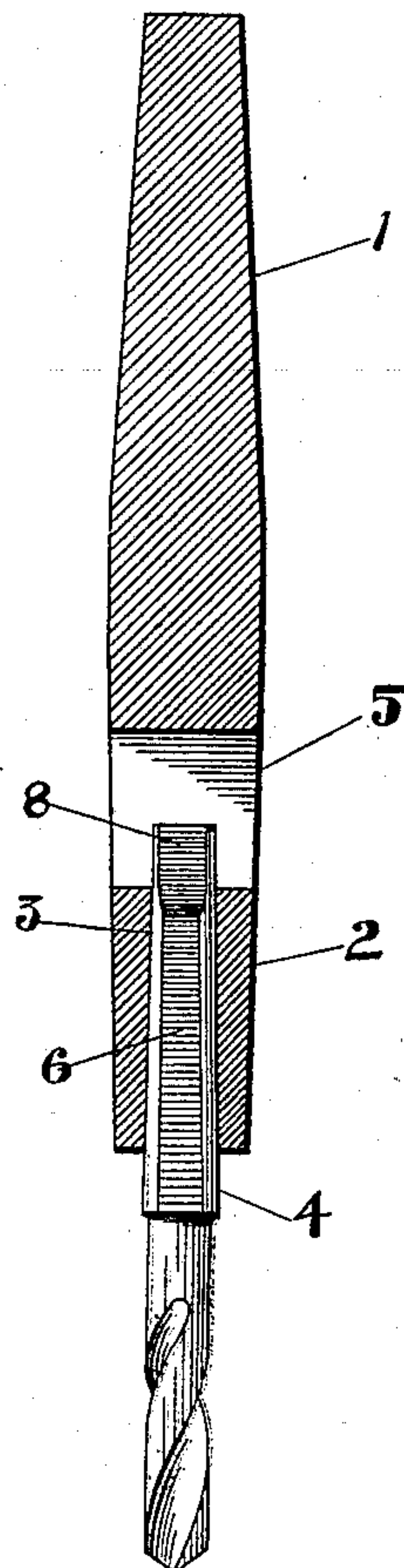


FIG. 2.

Inventor

Anthony Walter.

Witnesses

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By his Attorneys,

UNITED STATES PATENT OFFICE.

ANTHONY WALTER, OF MARION, OHIO.

DRILL-SOCKET.

SPECIFICATION forming part of Letters Patent No. 624,274, dated May 2, 1899.

Application filed June 10, 1897. Serial No. 640,242. (No model.)

To all whom it may concern:

Be it known that I, ANTHONY WALTER, a citizen of the United States, residing at Marion, in the county of Marion and State of Ohio, have invented a new and useful Drill-Socket, of which the following is a specification.

My invention relates to tool-holders, and particularly to drill bit sockets or chucks designed for use in connection with the spindles of drill-presses; and the object in view is to provide a bit socket or chuck of integral construction which is adapted to hold the bit firmly in position against rotation and vibration without the use of fastening devices.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claim.

In the drawings, Figure 1 is a view in elevation of a drill-socket constructed in accordance with my invention. Fig. 2 is a vertical sectional view of the same. Fig. 3 is a transverse section. Fig. 4 is a detail view of the bit-shank detached.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

In carrying out my invention I employ a drill chuck or holder having a socket which is provided with a gradual taper for the reception of a correspondingly-tapered bit-shank, said socket being intersected contiguous to its inner end by a drift-slot, through which may be introduced a drift-key to engage the inner end of the bit-shank and displace the latter, the bit-shank being held in place in the socket by friction and being held from independent rotary movement by corresponding flat surfaces on the bit-shank and on the wall of the socket.

In the construction illustrated in the drawings the chuck is provided with a shank 1 for attachment to the spindle of the drill-press of any suitable construction and a socket portion 2, having a gradually-tapered seat 3 for the reception of the correspondingly-tapered shank 4 of a bit, said tool-seat being intersected by a transverse drift-slot 5, which is so located at the inner end of the seat as to expose the contiguous extremity of the

tool-shank when the latter is in place therein. (See Fig. 2.) The bit-shank is provided with a flat surface 6, preferably extending throughout the length of that portion which is adapted to be inserted into the seat of the chuck or holder, and the seat is provided with a corresponding-flat surface 7, adapted to register with that of the shank. The drift-slot is preferably of less width than the contiguous end of the bit-seat, and the inner extremity of the bit-shank is reduced, as shown at 8, to form an extension for projecting into and fitting the drift-slot.

The tapered seat or socket of the chuck or holder and the continuous flat surface 7 of this socket may be formed in any suitable manner, but is preferably made of cast-steel by means of a finished core or chill which will provide for leaving the socket and flat surface of sufficient smoothness to accurately fit the flat and tapered shank of the drill.

When the bit-shank is inserted into the seat of the chuck or holder, the frictional contact of its surface with that of the seat, owing to the gradual taper of said parts, prevents the accidental displacement of the bit, and after pressure has been applied to the bit, as in the operation of boring, the engagement of the parts becomes so positive as to necessitate recourse to the drift-slot in order to displace the bit.

It will be seen that the essential point of the invention consists in the provision, in connection with a bit seat and shank which are of gradual or slow taper, as in the ordinary practice, of registering flat surfaces on said members to prevent independent rotation, the female member of the joint being provided with a transverse drift-slot, through which a key may be introduced to apply axial pressure to the inner end of the male member, the male and female members each being of integral construction.

Another essential feature of the present invention is the fact that the registering flat faces 6 and 7 not only serve to hold the parts tightly connected by frictional engagement without the employment of separate fastening means, but at the same time serve the important function of preventing the reduced flattened tang 8 from being twisted or bent under torsional strain when the tool is in use,

as frequently occurs with many types of drills in which the bit-shanks are provided with reduced tangs extending into the drift-slot. It is well understood by those skilled in the art 5 that in the ordinary tapered bit-shanks the reduced extensions or tangs which project into the drift-slots are much softer than the remainder of the tool and frequently become twisted or bent and sometimes entirely broken 10 off from the shank. However, in the present invention this is entirely obviated, and, furthermore, the flattened tang 8 closely fits the flat walls of the drift-slot and supplements the locking action of the registering flat faces 15 6 and 7.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

20 The combination of a tool chuck or holder formed integrally with an axially-tapered socket open at both ends, and having a continuous longitudinal flat surface 7 extending the entire length thereof, said chuck or holder being further provided with a narrow trans-

verse open-ended drift-slot intersecting and 25 communicating with the contiguous open end of the socket and of a less width than the latter, and a bit-shank having a taper corresponding to that of the socket and provided at one side with a longitudinal flat surface 6 30 coextensive with the corresponding surface 7 of the socket, and adapted to have a wedging fit against the latter, said bit-shank being further provided with a reduced flattened tang 8 softer than the remaining portion of 35 the shank and projecting into the drift-slot, and closely fitting the flat walls of the latter to supplement the locking action of the registering flat faces 6 and 7, while the latter prevent torsional twisting of the soft tang, 40 substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ANTHONY WALTER.

Witnesses:

FRED E. GUTHERY,
G. W. VEST.