(No Model.)

H. L. SHALER.

AUGER.

No. 298,786. Patented May 20, 1884.

Fig. 1.

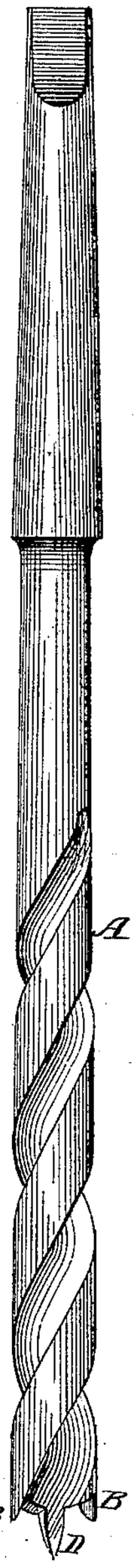


Fig. 2.

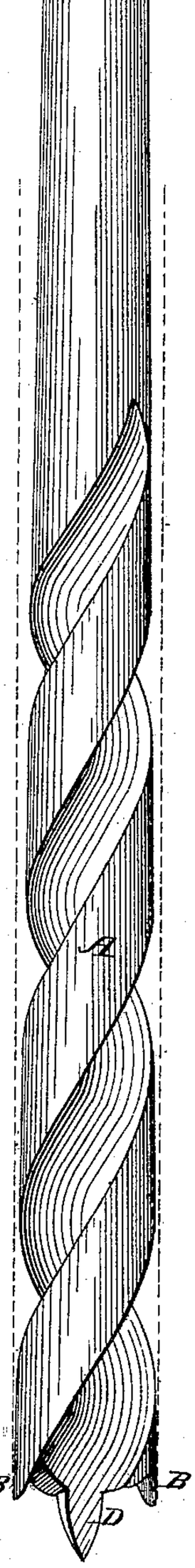
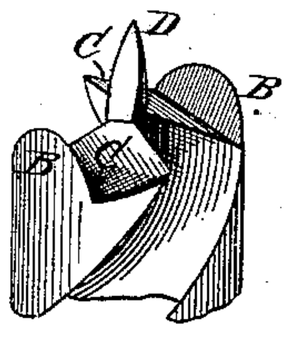


Fig. 3.



WITNESSES

F. L. Ourand.

L. L. Miller.

INVENTOR

Henry L. Shaler,

per Chas. H. Fowler

Attorney.

UNITED STATES PATENT OFFICE.

HENRY L. SHALER, OF DEEP RIVER, CONNECTICUT.

AUGER.

SPECIFICATION forming part of Letters Patent No. 298,786, dated May 20, 1884.

Application filed April 11, 1884. (No model.)

To all whom it may concern:

Be it known that I, HENRY L. SHALER, a citizen of the United States, residing at Deep River, in the county of Middlesex and State of Connecticut, have invented certain new and useful Improvements in Machine and Auger Bits; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 is a view of a complete bit embodying my invention; Fig. 2, a detail view, on an enlarged scale, of the twist portion of the bit; and Fig. 3, a perspective view of the cutting end.

The present invention has relation to certain new and useful improvements in that class of wood-boring bits which is designed to use up the twist in reforming new cutting-edges as they become worn off or broken by use.

Previous to my invention, so far as I am aware, the twist portion of these bits were of the same diameter or circumference throughout their length, with the cutting-spur usually on the front edge of the twist. Now, in boring, the spurs which cut the size of the hole being no larger than the front edge of the twist throughout the length thereof, as it would enter the wood the front edge of the twist would scrape in the hole that is being made, and consequently make the hole rough after the bit had been used a short time, as well as making it turn hard in the process of boring.

The object of the invention, therefore, is to remove the above objections, which I attain by forming the twist from the top of the cutting-edges of the spurs back in a true taper designedly the entire length of the twist, or sufficiently to form new cutting-edges when broken or worn off by use, that will describe a circle in boring of greater diameter or circumference than any other portion of the twist to form what is termed a "clear" for the tool.

In the accompanying drawings I have shown a machine-bit having a double twist and provided with a plain or unscrew-threaded point; but I do not wish to be understood as confining my invention to the form of bit shown or the shape of the cutting-edges, these not being essential, as my invention is equally applicable to a single-twist bit and other styles of cutting-edges with a screw or other shaped point, either adapted to machine or hand use.

The twist A of the bit is of the required thickness to form the cutting-spurs B and cutting-lips C, the point D being without screw-threads.

The essential feature in this bit, and in which it differs from all others of its kind, is in that the twist of the bit tapers back from the top of the cutting-edges of the spurs on a true taper either the entire length of the twist, or so much thereof as may be designed to re-form the cutting-edges of the bit as they may become worn or broken off by use; or, in other words, the twist is of the greatest diameter or circumference at the top of the spurs, and from that point gradually diminishes therein through its longitudinal axis back the desired distance, as shown by dotted lines, Fig. 2. This taper of the twist gives the clear to the bit in boring, for the reason that the cutting-edges of the spurs are always on the largest diameter or circumference of the twist, and will therefore cut the hole sufficiently large to let the twist of the bit into it without cramping or causing it to turn hard in boring.

In a bit constructed as above described—that is to say, forming it on a taper—the spurs or cutting-edges, when broken or worn off by use, admit of their being renewed on the end of the bit by filing new spurs or cutting-edges, which will be on the greatest diameter or circumference of the twist, such operation of providing new spurs or cutting-edges being capable of repetition throughout the length of the twist. This taper of the twist in machine-bits may extend only a portion of the length of said twist, as in many machines augers are made to set into the chuck or socket of the machine to hold it while boring at different depths, so as to bore different depths of holes into the wood. Now, as will be seen, the twist is so wide on its outer side surface that it can be held by chuck or socket as well and as securely as though it were a turned solid round. Thus, instead of requiring a long round, my improved bit can be held by the twist and the twist will answer to deliver the chips.

A bit constructed in accordance with my invention has many advantages over those in or-

dinary use, as it is capable of use with the effect of a new bit until it is worn the entire length of the tapered twist.

Having now fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. An auger or machine bit having the twist thereof constructed on a taper in cross-section, or varying in diameter or circumference throughout a portion of or its entire length, substantially as and for the purpose set forth.

2. An auger or machine bit having its cutting spurs or edges upon the largest diameter of the twist, said twist tapering from the top of the cutting-edges of the spurs back in a true taper designedly the entire length thereof, or sufficiently to form new cutting-edge when worn or broken, and giving clearance to the tool when boring, substantially as and for the purpose specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

HENRY L. SHALER.

Witnesses:
FISK SHAILER,
SAMUEL R. SHAILER.