(No Model.)

H. L. SHALER.

AUGER.

No. 413,972. Patented Oct. 29, 1889.

Fig. 1

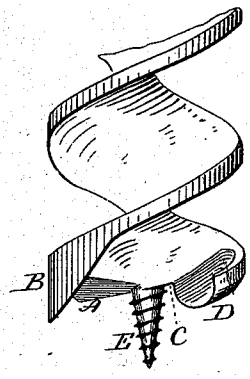


Fig. 2

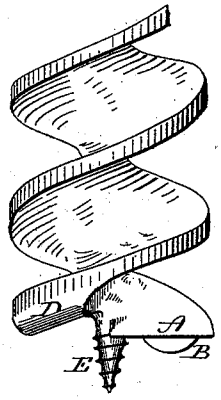


Fig. 3

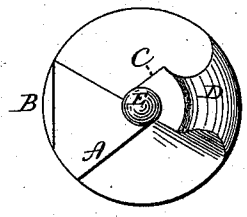


Fig. 4

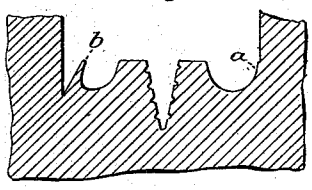


Fig. 5

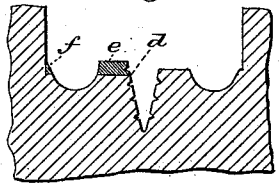


Fig. 6



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UNITED STATES PATENT OFFICE.

HENRY L. SHALER, OF DEEP RIVER, CONNECTICUT, ASSIGNOR OF ONE-HALF TO SIMEON H. JENNINGS, OF SAME PLACE.

AUGER.

SPECIFICATION forming part of Letters Patent No. 413,972, dated October 29, 1889.

Application filed February 18, 1889. Serial No. 300,228. (No model.)

To all whom it may concern:

Be it known that I, HENRY L. SHALER, of Deep River, in the county of Middlesex and State of Connecticut, have invented a new Improvement in Augers; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a side view looking toward the edge of the gouge-lip and upon the back of the floor-lip; Fig. 2, an opposite side view looking toward the edge of the floor-lip and upon the back of the gouge-lip; Fig. 3, an end view looking upon the under side of the lips; Fig. 4, a vertical central section representing the cut of the gouge-lip and the spur; Fig. 5, a like section illustrating the cut of the gouge-lip and the floor-lip; Fig. 6, a modification in the formation of the gouge-lip.

This invention relates to an improvement in the construction of augers such as used by carpenters and others for boring wood. In the more general construction of this class of augers the floor-lips are in a plane at substantially right angles to the axis of the auger, so that they come in a horizontal plane, both lips being alike. The lips are usually provided with a spur, which makes a circular cut in advance of the floor-lip, and so that the chip cut by the floor-lip may clear from the wood. These chips are circular, and usually divide centrally in the grain of the wood, so that each chip will be a semicircular disk. The spur is necessarily thicker at the floor-lip than at the edge, so that it is of wedge shape. This spur, therefore, works with very considerable friction in the cut which it makes, it having to force its way simply by its wedge shape. The spur, therefore, while necessary to the proper working of the floor-lip, adds greatly to the friction of the working of the auger, which friction increases as the wood is harder. The chips, as I have described, are large, and are obliged to force their way through the twist of the auger, and, being so large, they unavoidably choke the passage to a greater or less extent, and produce so great friction upon the auger that it is necessary in boring a hole of any considerable depth to frequently withdraw the auger to clear same.

The object of my invention is to overcome these difficulties; and it consists in forming one of the lips with a gouge less in width than the width of the floor-lip, the gouge being preferably arranged at the extreme outer edge and so that the gouge will cut a groove following the flat floor-lip, and as the floor-lip follows the gouge it cuts over this groove and the chips cut by the floor-lip will be divided, and consequently so greatly reduced in size as to freely clear through the twist of the auger.

The shank and twist of the auger are of usual construction, the twist being double. One twist terminates in a flat floor-lip A. That lip is provided with a spur B, as in the usual construction of augers. The other lip extends from the center horizontally, like the floor-lip, through a portion of it, as C, Fig. 1, toward the outer side. This lip curves downward to form a gouge D, and the depth of this gouge I prefer to make substantially the same as the depth of the spur B. The gouge extends back upon the twist, as seen in Fig. 3, to a sufficient extent for the proper renewal or sharpening of the gouge as it may wear away. The head is constructed with the usual screw-point E.

In use the cut of the gouge is in advance of the floor-lip and spur, and the cut will be as represented in Fig. 4. The gouge will leave but a slight amount of wood at the outside, as indicated at *a*, Fig. 4. The spur follows, and easily turns this wood inward, as seen at *b* in Fig. 4, and without the resistance which necessarily follows when the spur cuts into the solid wood, as in the usual construction of augers. The flat floor-lip will follow the gouge, and its cut will be through the groove formed by the gouge, as on the line *d*, Fig. 5. The chip cut by the floor-lip will therefore be divided by the gouge, one part *e* at the inner end of the floor-lip, and the other part *f* at the outer floor-lip, and, so continuing, the gouge will form a groove, delivering its small chips, and the floor-lip will follow the groove, cutting chips at each side of the groove. Thus the

chips will be exceedingly small, and because of being so small will readily follow the twist of the auger and be discharged without any considerable friction thereon. Thus the gouge relieves the friction upon the spur, and so divides the chips that a large proportion of the friction usually coming upon the auger is avoided, and the boring may be continued to the full depth of the auger in the hardest or most difficult boring woods without necessary withdrawal.

While I prefer to make the gouge-lip at the outer edge of the auger and extending over but a portion of the floor-lip, it may be made of greater extent, or may be arranged at a different part of the floor-lip—say as seen in Fig. 6, in which the gouge is represented as about midway of the length of the lip.

The spur is always desirable in this class of augers, yet it may be omitted when the gouge is arranged at the extreme outer edge of the lip. As the gouge cuts in advance of the floor-lip, it will make a clearance for the chip cut by the floor-lip. I, however, prefer to employ the spur.

I do not claim, broadly, a double-twist auger, one twist terminating in a flat floor-lip and the other in a gouge-lip, as such, I am aware, is not new.

I claim—

The herein-described double-twist auger, each twist terminating in a like floor-lip, one of the said lips constructed with a depression forming a gouge shape less in extent than the cutting-edge of said lip, substantially as described.

HENRY L. SHALER.

Witnesses:
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