

2. Sheets. Sheet. 1.

W. A. Ives,
Manufacturers.

No. 112,255.

Patented Feb. 28. 1871.

fig. 1

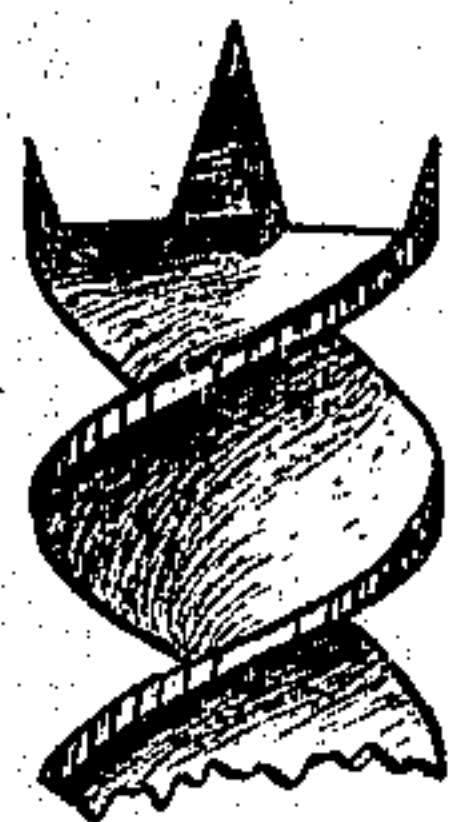


fig. 2.

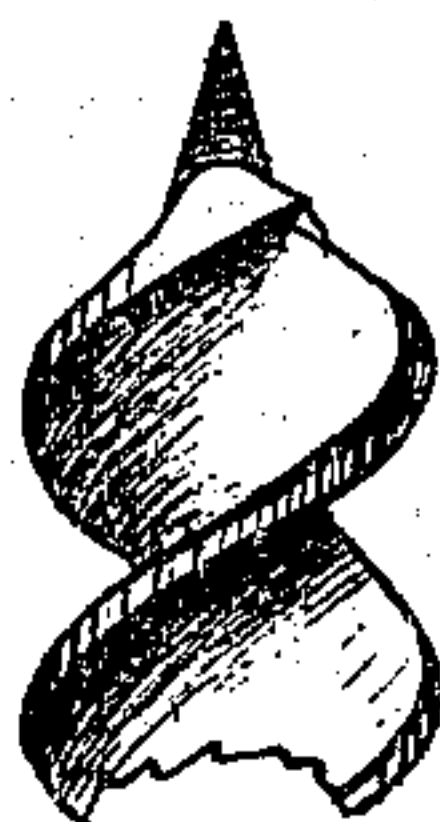


fig. 3.

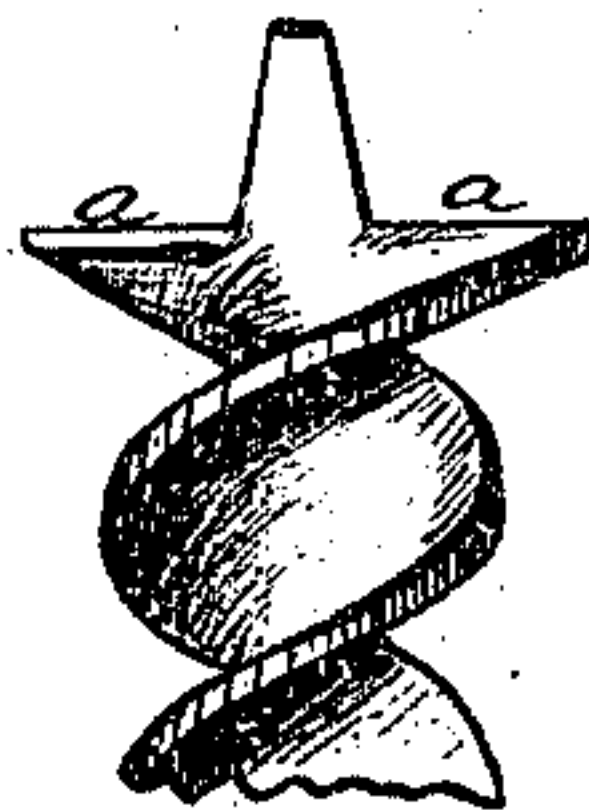


fig. 4.

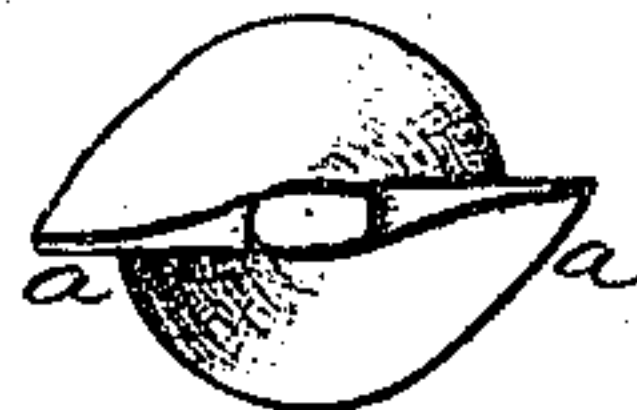


fig. 5.



Witnessed.
J. H. Shumway
A. J. Tibbitts

W. A. Ives
Inventor
By his Attorney,
John F. Earle

W. A. Ives,
Mary Augers!

2. Sheets, Sheet 2.

No. 112,255.

Patented Feb. 28. 1871.

fig. 7



fig. 6

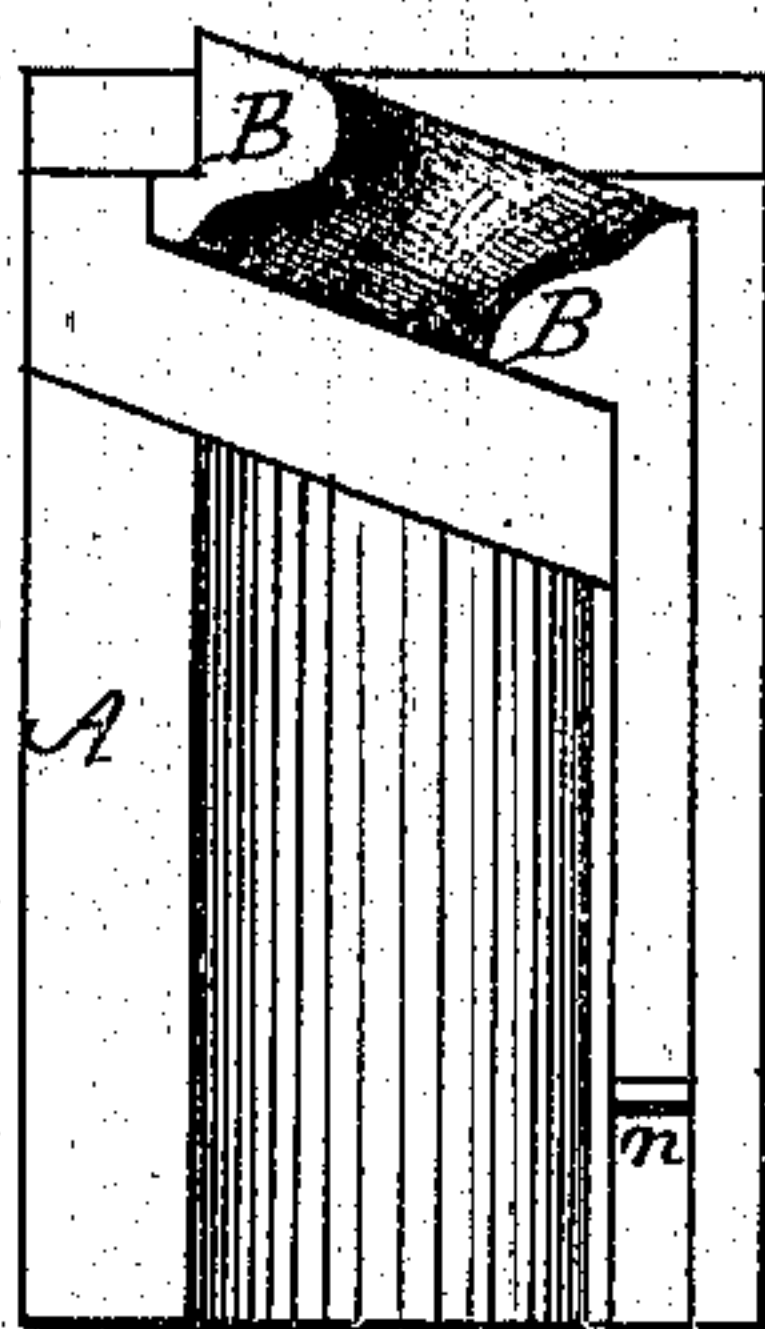


fig. 8

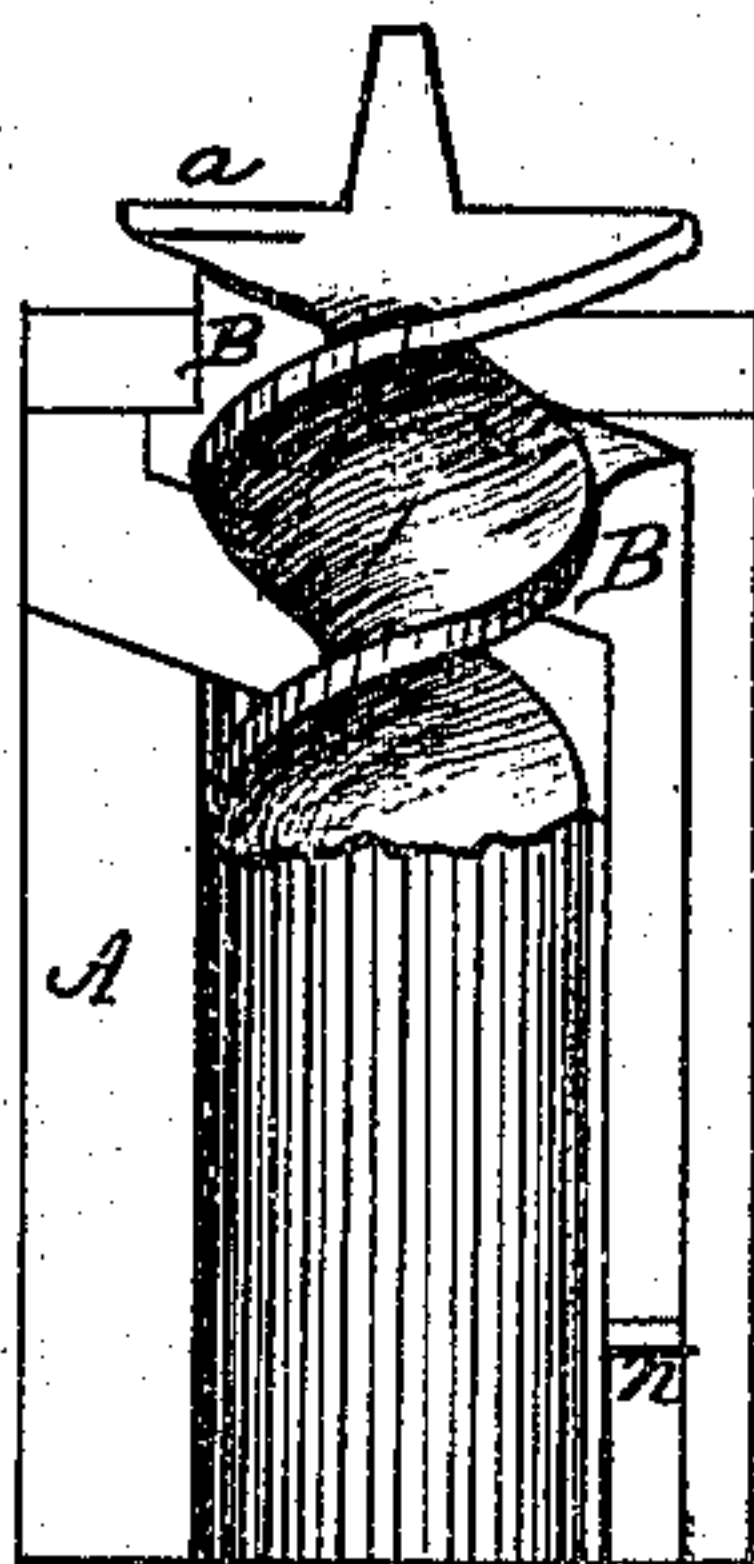
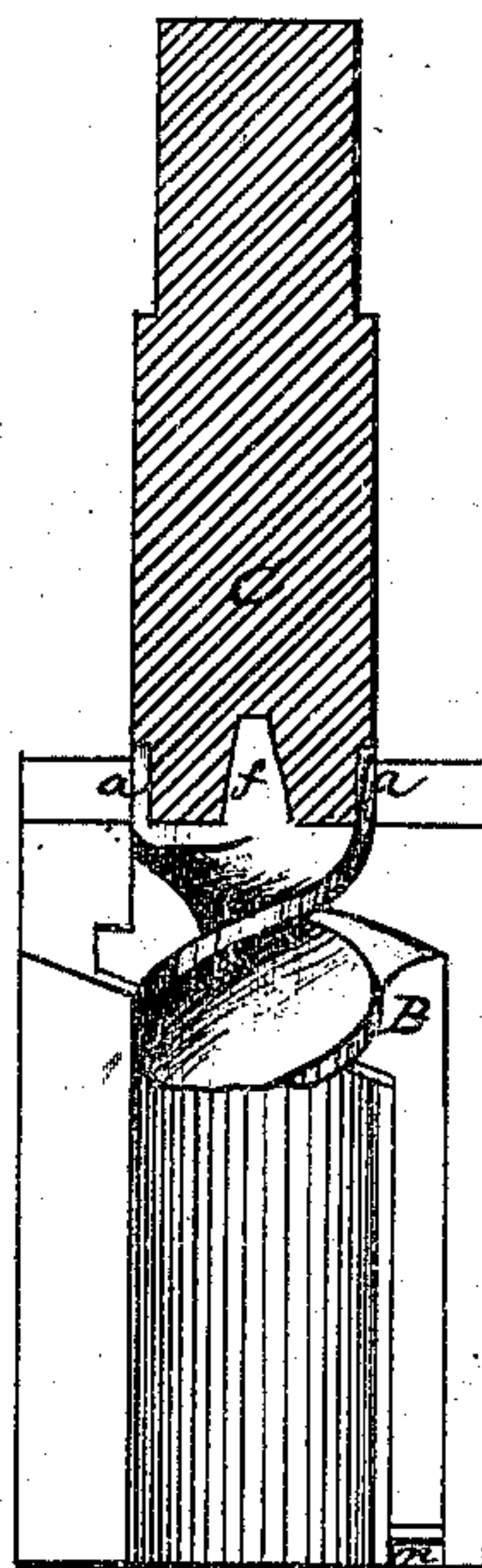


fig. 9



Witnesses
A. J. Tibbitts
J. H. Shumway

William A. Ives
Inventor
By his Attorney
J. S. Earle

UNITED STATES PATENT OFFICE.

WILLIAM A. IVES, OF NEW HAVEN, CONNECTICUT.

IMPROVEMENT IN METHODS OF FORMING SPUR-LIPS OF AUGER-BITS.

Specification forming part of Letters Patent No. **112,255**, dated February 28, 1871.

To all whom it may concern:

Be it known that I, WILLIAM A. IVES, of New Haven, in the county of New Haven and State of Connecticut, have invented a new Improvement in Process of Forming Spur-Lips of Auger-Bits; and I do hereby declare the following, when taken in connection with the accompanying drawing, and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawing constitutes part of this specification, and represents, in—

Figure 1, a side view of the bit complete, looking toward the edge of the spur-lip; Fig. 2, a side view of the same turned one-fourth around; Fig. 3, a side view of the blank preparatory to forming a spur-lip; Fig. 4, an end view of the same; Fig. 5, the blank after the lips have been turned; Fig. 6, one-half of the die; Fig. 7, the follower; and Figs. 8 and 9, the process for forming the lips.

This invention relates to an improvement in the process of forming spur-lips to augers.

Heretofore this has been done by forging the lips thicker at the cutting-edge, and filing down the edge to leave the spur or lip projecting at right angles to the cutting-edge. This makes the cutting end of the auger more difficult to form than would be if the same thickness were maintained throughout the twist to the end of the cutter.

To accomplish this is the object of my invention, which consists in spreading the last twist, which is to form the cutters, so that, on a line radial from the center, the edge is as much longer than the diameter of the bit as the height of the spur to be formed; then this extra length of lip is, by dies or with suitable devices, turned up at right angles to the cutter—that is, parallel to the axis of the bit.

From the shank of the auger the bit is crimped or twisted, in the usual manner for double crimp or twist augers. At the lower or cutting end of the twist the edge *a a*, Fig. 3, is made of greater diameter than the twist of the bit, as more clearly seen in Fig. 4; then,

in suitable dies or other devices, the projecting portions of the lips *a a* are turned up to form blanks *d d* for the lips, as seen in Fig. 5, bringing the auger at the cutting-edge of the same diameter as other parts of the twist; then the spurs are ground and filed into shape, as seen in Figs. 1 and 2.

The best means known to me for thus forming the lips I illustrate in Figs. 6, 7, 8, and 9. In Fig. 6 one-half the die only is shown.

A is the die, in which is arranged a sliding crimp-form, D, which fits closely the twist of the bit, as seen in Fig. 8, and is arranged to slide longitudinally within the die. C, the follower, has a longitudinal movement axially with the center of the die, and also a rotary movement.

The blank, as formed, is laid into one part of the die, so that one of the lips *a* projects beyond the extreme edge of the part B. The other part of the die closed onto the bit will, in like manner, lie up under the other lip. In this position, which is as seen in Fig. 8, the bit is securely held by the closing of the dies, but yet so that the part B may be forced back, as from the position in Fig. 8 to that in Fig. 9, carrying with it the bit. To thus force the bit back, the follower C, revolving, is advanced to and pressed against the lip of the bit, forcing the bit into the die. The projecting ends are, by the force of the die, pressed up around the follower, which, revolving, shapes the spur-lip, and at the same time forms the point *f*, which extends into a recess formed in the follower for that purpose.

A spring, *n*, is arranged back of the crimp B, to force it forward when the follower is withdrawn.

I claim as my invention—

The process herein described for forming the spur-lips of auger-bits.

WM. A. IVES.

Witnesses:

JOHN H. SHUMWAY,
A. J. TIBBITS.