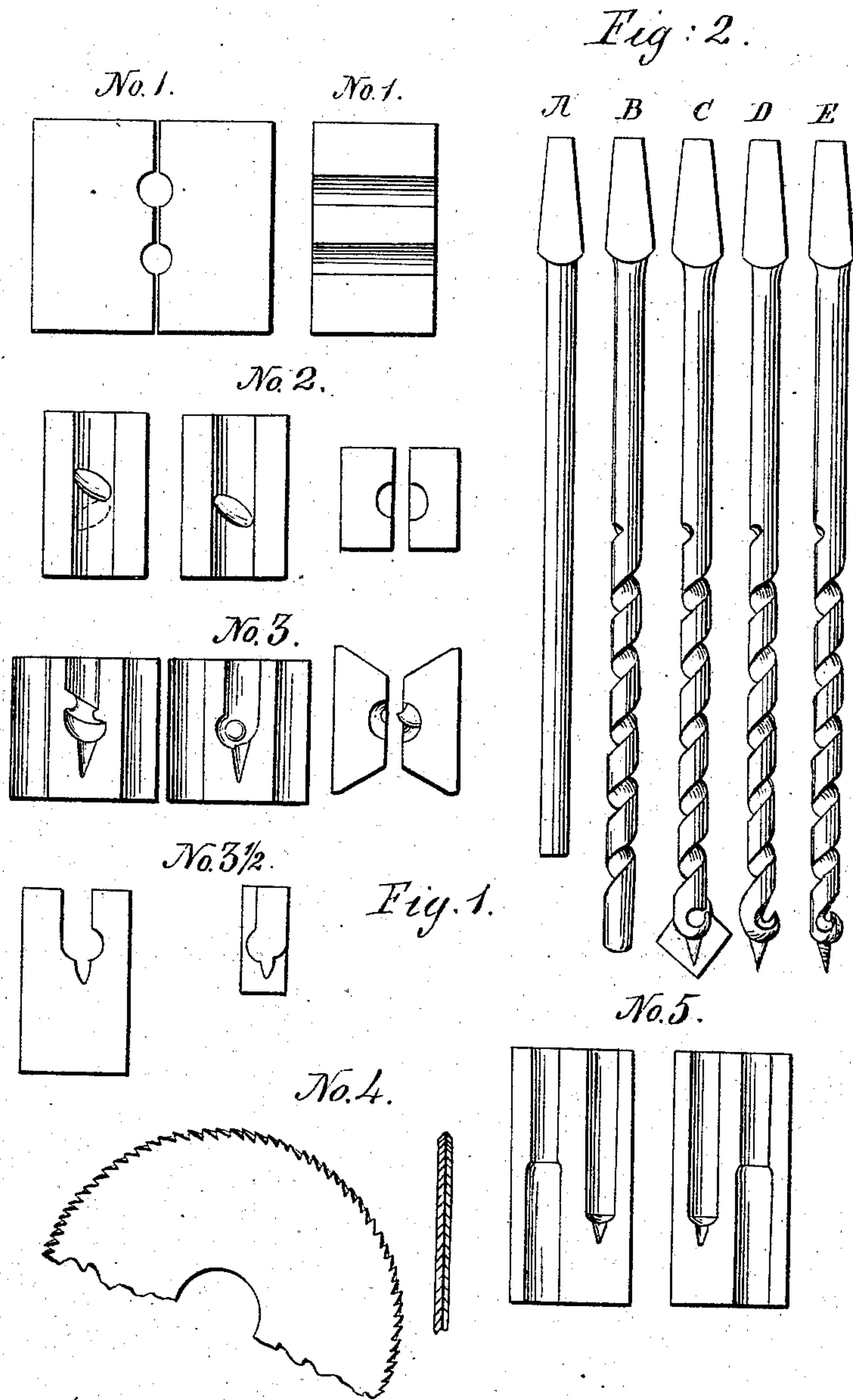


J. SWAN.

Making Augers and Auger Bits.

No. 68,012.

Patented Aug. 20, 1867.



Witnesses;
Thos Fische
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United States Patent Office

JAMES SWAN, OF SEYMOUR, CONNECTICUT.

Letters Patent No. 68,012, dated August 20, 1867.

IMPROVEMENT IN THE MANUFACTURE OF AUGERS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, JAMES SWAN, of Seymour, in the county of New Haven, and State of Connecticut, have invented a new and useful Improvement in the Manufacture of Augers and Auger-Bits; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

This invention consists in forming the twist or pod of the single-twist auger or auger-bit in dies, by blows or by pressure, different dies being employed to suit the progressive stages of the process.

Figure 1 represents the different dies which are used during the process.

Figure 2 represents auger-bits, showing them as they appear in the different stages of their manufacture.

Similar letters of reference indicate like parts.

No. 1 represents a pair of trip-hammer dies, between which the blank A, fig. 2, is formed. These dies are such as are in ordinary use. In the use of dies No. 2, which are provided with ribs placed diagonally across their surfaces, the blank is so turned or moved by any suitable mechanical device when in the die, that the twist or pod of the auger is formed, as seen in B, fig. 2. The die No. 3 is set in a lifter or drop, and the head, lip, and point for the screw are formed therein, as seen in fig. 1, marked C. No. 3½ are dies used in a press to cut off the "flash" which is developed by process No. 3. No. 4 is a cutter, by the revolution of which the metal is removed from the formed head, so as to form the inner side of the lip, the result of whose operation is seen in sample marked D. No. 4 are dies, which are placed within crimp-jaws whose action extends and brings down the lip, and centres and rounds the point for the screw, and generally trues up and perfects the bit. The result of the action of these dies is shown in sample E in fig. 2, and in this condition the bit is ready for finishing by any ordinary method. For the action of the dies Nos. 1, 2, 3, and 5, the blank or metal is heated each time. For Nos. 3½ and 4 the operation is performed without heating. In the common or ordinary method of forming the auger-bit, (hitherto considered most perfect,) it is drawn out considerably longer than the pod or twist is intended to be, the pod in this condition being of a triangular form in its cross-section. It then goes through a process of what is called "wringing up" around a screw. The end is then upset to give stock enough from which to form the lip and screw. In the course of the operations to which the bit is subjected during the process, it is necessary to heat it as many as nine times, and the greatest care and skill on the part of the workmen are required to prevent over-heating and other injuries.

By my method the twist is formed at once in the forging. The respective parts are kept in their proper relative positions throughout the process. The dies employed are of simple construction, and not liable to get out of order, and the whole process of making the best quality of auger-bits is so simplified that any workman of ordinary skill can perform it, while the saving in the expense for labor, &c., is at least fifty per cent. It will be readily understood by all who are acquainted with the subject that the twist of the bit thus obtained by hammering must be greatly superior in stiffness and general durability to anything produced by the old process of "wringing up."

What I claim as new, and desire to secure by Letters Patent, is—

The method of constructing auger-bits by means substantially as herein shown and described.

JAMES SWAN.

Witnesses:

CHAS. DOUGLASS,

E. H. KNIGHT.