W. A. Clark,

Hollow Auger,

No. 28,653, Patented June 12, 1860.

Fig: 1

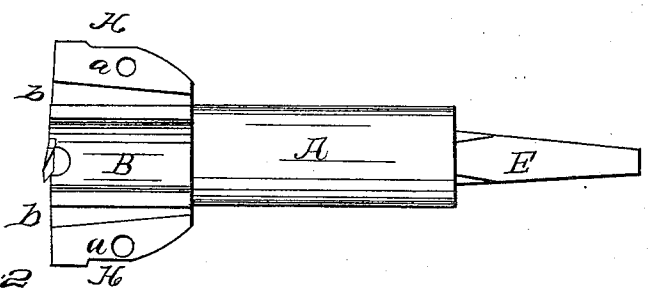


Fig: 2

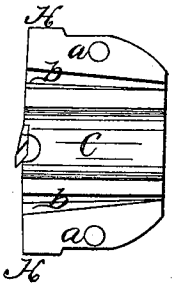


Fig: 3

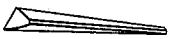


Fig: 4

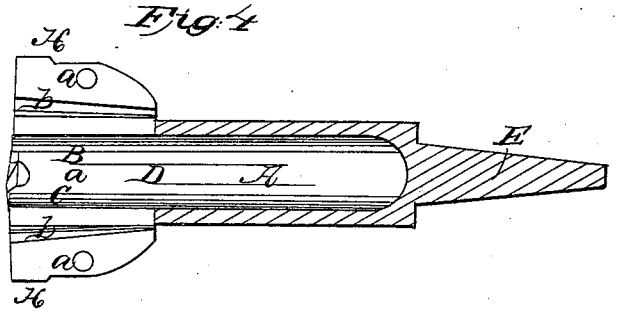
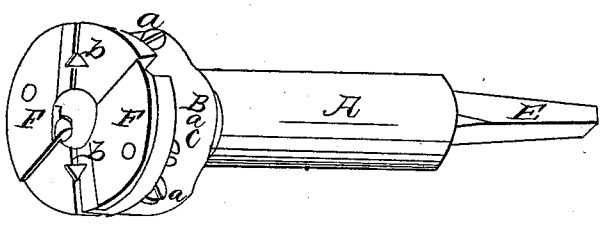


Fig: 5



Witnesses:

Jno. J. Breck

Dennis Kimberly

Inventor:

Wm. A. Clark

AM. PHOTO-LITHO. CO. N.Y. (OSBORNE'S PROCESS)

UNITED STATES PATENT OFFICE.

WILLIAM A. CLARK, OF BETHANY, CONNECTICUT.

TENONING-AUGER.

Specification of Letters Patent No. 28,653, dated June 12, 1860.

To all whom it may concern:

Be it known that I, WILLIAM A. CLARK, of Bethany, in New Haven county, State of Connecticut, have invented a new and useful Improvement in Adjustable Hollow Augers; and I do hereby declare that the following is a full and exact description thereof.

It is essential to the successful working of a hollow auger, that the tenon formed by it should be of the exact size adapted for the bore formed by its corresponding auger-bit. As hollow-augers are now commonly made, this is found difficult, and often impracticable. Differences in size, of a greater or less degree, between the barrel of the hollow-auger and the auger-bit it is adapted to fit, exist; though the manufacturer intends them to be of the same size. And when of the same size as originally made, the constant tendency of the friction consequent upon their use, is to create dissimilarity, by making the barrel of the hollow-auger larger, and the diameter of the auger-bit smaller.

My invention consists in an improved mode of remedying these defects, by making the barrel of the hollow-auger adjustable, and enabling the operator, though having but a single auger, to adapt the size of the tenon (within a reasonable limit) to the bore of his auger-bits. It will thus be found of especial convenience where, as in the repairing of a wagon wheel, the wheelwright has to fit one or more tenons to a bore already made, and for which he may have no auger of the size adapted to form a suitable tenon.

I use the term "improved mode of adjusting the barrel," for I am aware that the idea itself is not now new, as one mode of accomplishng this result is described in the specifications of Letters Patent issued to me, dated July 12, 1859.

My present improvement consists in casting about one third of the barrel of the auger in two parts, in such form as that, being united, they make a perfect barrel with its interior surfaces such, that longitudinal lines drawn thereon from the opening of the barrel to its terminus, are at all times parallel to each other within the entire limit of the adjustability of the instrument; and at the same time it is, in strength and capacity to resist torsional pressure, equal to the solid barreled hollow-auger.

The accompanying drawings are referred to, and made part of this specification, as explanatory of my said improvement.

The auger is cast in two parts, Figure I showing one part thereof, A being that portion of the barrel which is cast as in the common hollow-auger, with the shank E, and B representing that portion of the auger, being the section of one half thereof, to which the corresponding section C, as represented in Fig. II, is designed to be fitted.

D marks the point of division, upon the barrel of the auger, where these sections begin. Both sections are furnished with flanges, (H H) in which are the fitting screw-holes *a*, *a*, and the grooves *b*, *b*, hereinafter more particularly described. The barrel or bore of the auger is so constructed, that when these two corresponding sections are fitted, and brought as closely in contact as possible by the screws fitting into the holes *a*, *a*, that portion of the barrel represented by A, and extending from the terminus at the shank end to the point of division D, is as large as the largest tenon for which the instrument is designed; while that portion of the barrel between the two sections B and C, and extending from the opening of the barrel to the point of division D, is as small as the smallest tenon for which the instrument is adapted; and to the extent that this portion of the barrel, while the two sections are thus closely fitted together, differs in size from the other portion of the barrel of the auger, its diameter in the line of division between the two sections, is greater than its diameter in a line drawn at right angles to such line of division. The extent to which such difference in diameter can successfully be carried, is the only limit to the capacity of the auger, as applied to the varying sizes of the tenons to be formed.

In practice I have found it convenient to make that portion of the barrel embraced between the two sections of such size, that when the sections are brought as closely as possible in contact for making the smallest tenon within the capacity of the instrument, the diameter of the aperture in the line of the section, exceeds the diameter of a line drawn at right angles to it, by about one-sixteenth of an inch. It is not essential, however, that this difference in diameter should extend through the entire length of the barrel, between these two sections. The

same object will be attained, if a sufficient portion thereof, at and from its opening, to give the bearing and form of the tenon, is thus constructed;—and then the remainder of this portion of the barrel may be of the same size and form as in A. Upon the line of division of each of these two sections, and at about one-third the distance from the outer edge of the barrel to the outer edge of the lip, and upon either side of the barrel, a half section of a triangular wedge-shaped groove *b*, *b*, is made, having its largest diameter at the lip, and gradually decreasing toward and up to the line of division between the two sections at D. These grooves are of such size and form as that, when the two sections are brought together as closely as possible for forming a tenon of the smallest size within the capacity of the instrument, the two wedges, one of which is represented in Fig. III, will exactly fit into the grooves, with the larger end of the wedges on a line and flush with the outer surface of the face of the auger. When now, the two sections are brought together and fastened in contact by means of the set screws at *a*, with upper surface of the larger end of the wedges flush with the outer surface of the face of the auger, the instrument is adapted to form a tenon of the smallest size within its capacity. When it is desired to increase the size of the tenon, the set screws are loosened, and the wedges driven down toward the shank end of the auger to a greater or less extent, in proportion to the degree of variation of size required, and the set screws again firmly fixed in place. The instrument may thus be varied in size within the limit of its adjustability, to suit the size of different auger-bits, and yet, throughout the entire limit of the variation, the inner surfaces of the barrel remain parallel with each other, and there is no more strain or tendency to break, than in the solid-barreled hollow-auger.

The other figures upon the drawing explain themselves. Fig. IV, representing a sectional view of the auger, and Fig. V, a view of the auger as completed, with the cutters E, as in the ordinary hollow-augers.

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

An adjustable hollow-auger, having the longitudinal lines of the periphery of the inner surfaces of the barrel at all times parallel to each other, within the entire limit of the adjustability of the instrument, constructed substantially as above described.

WM. A. CLARK.

In presence of—
JNO. S. BEACH,
DENNIS KIMBERLY.