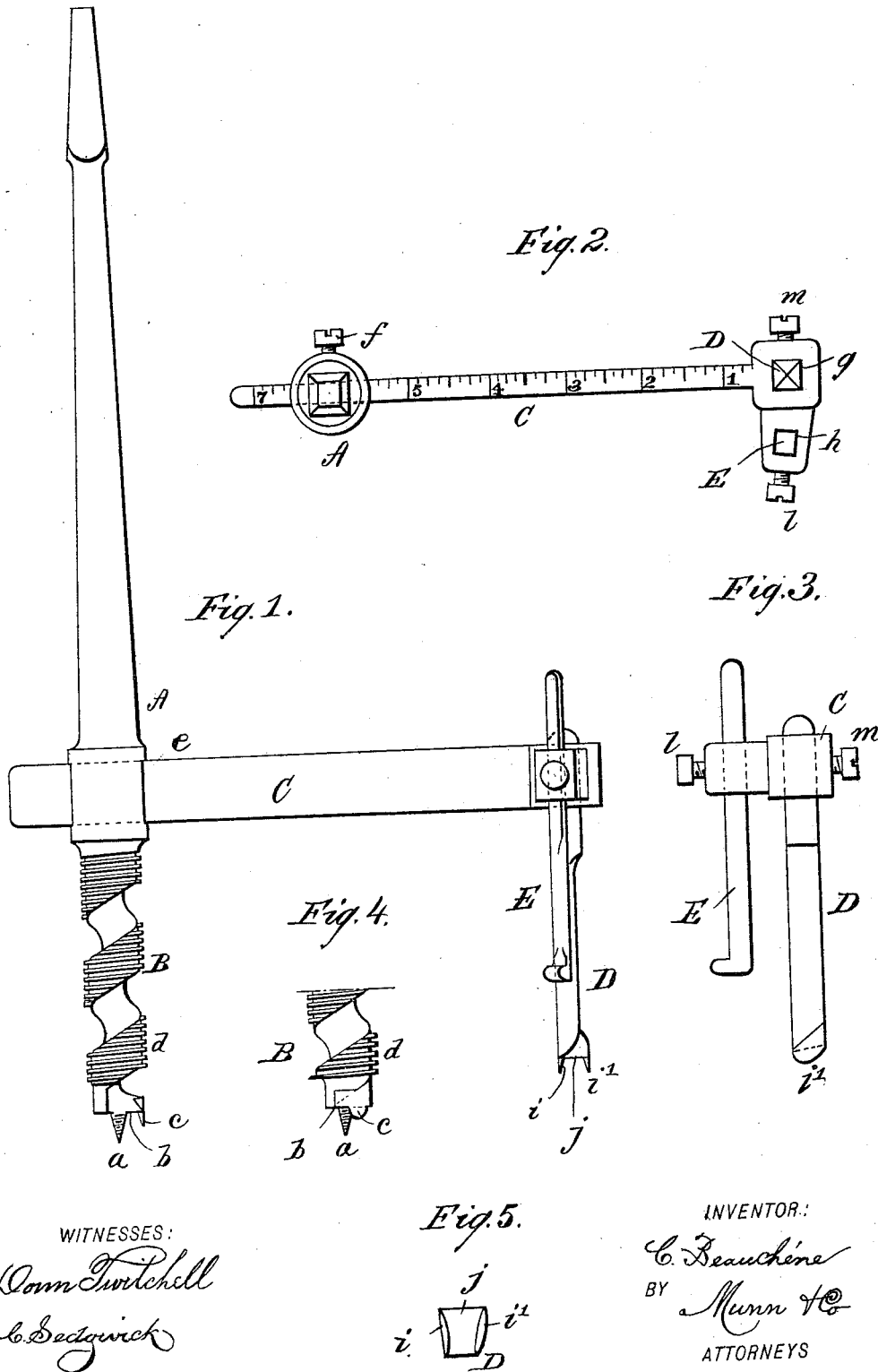


(No Model.)

C. BEAUCHÊNE.  
EXPANSION BIT.

No. 458,091.

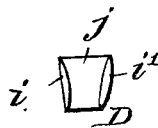
Patented Aug. 18, 1891.



WITNESSES:

Wm Twitchell  
C. Sedgwick

Fig. 5.



INVENTOR:

C. Beauchêne  
BY Munn & Co  
ATTORNEYS

# UNITED STATES PATENT OFFICE.

CHARLES BEAUCHÉNE, OF LAKE LINDEN, MICHIGAN.

## EXPANSION-BIT.

SPECIFICATION forming part of Letters Patent No. 458,091, dated August 18, 1891.

Application filed December 23, 1890. Serial No. 375,566. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES BEAUCHÉNE, of Lake Linden, in the county of Houghton and State of Michigan, have invented a new and Improved Expansion-Bit, of which the following is a specification, reference being had to the annexed drawings, forming a part thereof, in which—

Figure 1 is a side elevation of my improved expansion-bit. Fig. 2 is a plan view. Fig. 3 is an end elevation of the extension-arm. Fig. 4 is a side elevation of the point of the central portion of the bit, and Fig. 5 is an inverted plan view of the channel-cutters.

Similar letters of reference indicate corresponding parts in all the views.

The object of my invention is to provide a bit for boring holes having a diameter of from an inch or less up to several inches.

My invention consists in the construction hereinafter described and claimed.

The shank A, forming the body of the tool, is squared and tapered at its upper end to adapt it to a bit stock or handle and furnished at its lower end with a spirally-grooved portion B, provided with a gimlet-point *a* and cutting-lips *b c*. Upon the body of the spirally-grooved portion B there is formed a screw-thread *d*, designed to screw into the hole formed by the cutting-lips *b c*.

In the shank A is formed a mortise *e*, in which is inserted an arm C, which is clamped in the mortise by a set-screw *f* entering the side of the shank. The free end of the arm C is enlarged and provided with two mortises *g h*. In the mortise *g* is inserted a cutting-tool D, having at its lower end a pair of spurs *i i'*, between which is formed a cutting-edge *j*. The spurs *i i'* are arranged divergently, as shown in Fig. 5, to enable them to cut without pinching in the wood. Above the cutting-edge *j* the shank of tool D is cut away, so that the ascending chips will ride up and off of the inclined cutting-edge past the shank.

In the mortise *h* is placed a guide-bar E, having its lower end angled and rounded, as shown. The guide-bar E and cutter D are held in their places by set-screws *l m*. The

upper surface of the arm C is provided with graduations for the purpose of setting the arm so as to bore a hole of the desired size.

The bit is used by placing the gimlet-point *a* upon the center from which the hole to be bored is to be struck. By turning the bit the gimlet-point *a* draws the cutting-lips *b c* into the wood, and as soon as the threaded portion B reaches the surface of the wood it screws into the hole made by the cutting-lips. At the same time the spurs *i i'* and the cutting-edge *j* form a channel in the wood, and when the channel is cut through the wood or to the required depth a circular piece separated from the main body of the wood by the cutter D either drops out or is removed by other tools.

It will be seen that my improved bit does not remove all the wood from the hole in the form of chips, but that the cutting is done in a narrow annular space and requires a comparatively small amount of power.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. An expansion-bit consisting in a spirally-grooved shank having a gimlet-point and having an external thread upon the spirally-grooved portion, an adjustable transverse arm mounted on the shank and having vertical mortises, a guide-bar mounted in one mortise, and a cutting-bit D, having a shank mounted in the other mortise, substantially as set forth.

2. In an expansion-bit, the cutter D, having two divergent spurs *i i'* on its lower end, the shank of the cutter being recessed or cut away on its front and outer sides just above the cutters, and the cutting-edge *j* between the front edges of the spurs, the lower end of the recess or cut-away portion being inclined upward from the cutting-edge *j* and rearward to guide the chips past the outer side of the cutter, substantially as set forth.

CHAS. BEAUCHÉNE.

Witnesses:

DOLPHUS ROLERT,  
G. O. GIRARDIN.