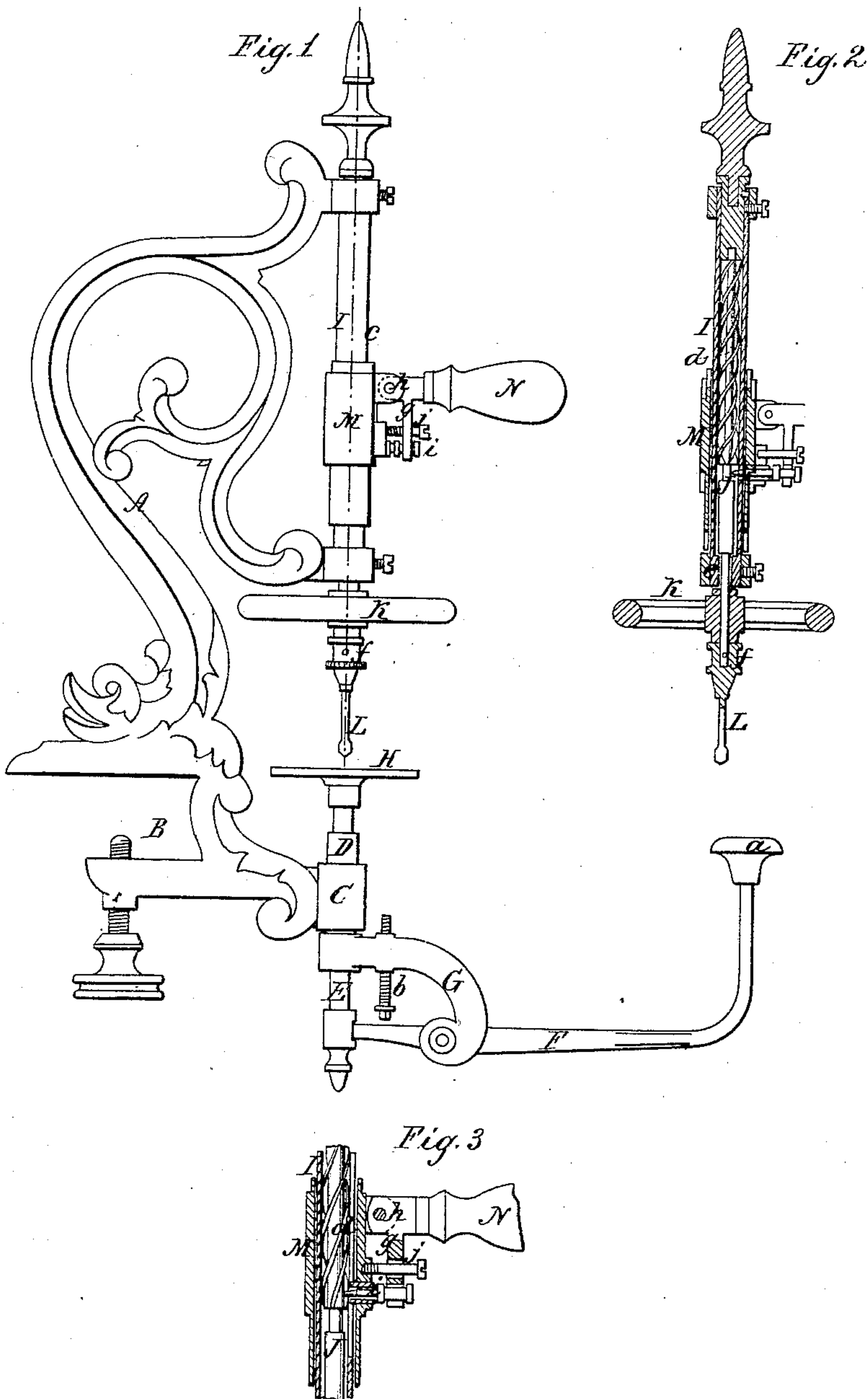


*C.G. Miller.*

*Hand and Bench Drill.*

*N<sup>o</sup> 78,309.*

*Patented May 26, 1868.*



*Witnesses*  
*H. C. Ashkettle*  
*Wm A Morgan*

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*per Wm A Morgan*  
*attorneys*

# United States Patent Office.

CHARLES G. MILLER, OF BRATTLEBORO, VERMONT, ASSIGNOR TO S. M. SPENCER AND COMPANY, OF SAME PLACE.

Letters Patent No. 78,309, dated May 26, 1868.

## IMPROVEMENT IN BENCH-DRILLS.

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, CHARLES G. MILLER, of Brattleboro, in the county of Windham, and State of Vermont, have invented a new and improved Hand and Bench-Drill; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to a new and improved hand and bench-drill, and consists of a peculiar construction and arrangement of parts, as hereinafter fully shown and described, whereby an exceedingly convenient and desirable article for the purpose specified is obtained. In the accompanying sheet of drawings—

Figure 1 is a side view of my invention.

Figure 2, a vertical section of the same, taken in the plane  $x x$ , fig. 1.

Figure 3, a vertical section of a portion of the same, the plane of section being at right angles to  $x x$ .

Similar letters of reference indicate corresponding parts.

A represents the frame of the device, which may be constructed in any proper manner, of cast iron, and provided with a clamp, B, at its lower end, to secure the device to a bench or other suitable fixture.

At the lower part of the frame there is also a tubular guide, C, in which a vertical sleeve, D, is fitted, and allowed to turn freely, said sleeve being secured at any desired point by a set-screw, or other suitable means.

E is a shaft, which passes loosely through the sleeve D, and has one end of a lever, F, connected to its lower end, said lever having its fulcrum in an arm, G, connected to the lower end of the sleeve D.

The outer part of the lever F is curved or bent upward, and is provided with a knob,  $a$ , and through the arm G, directly over the lever F, near the end which is connected to the shaft E, a screw,  $b$ , passes vertically, which screw serves as a stop to limit the upward movement of the shaft E, when the outer end of the lever F is pressed down. This will be fully understood by referring to fig. 1.

On the top of the shaft E a circular horizontal bed, H, is fitted, which is allowed to turn freely.

I is a vertical tube, secured to the upper part of the frame A, in line with the centre of the bed H. This tube I has a slot,  $c$ , made vertically in it, and within the tube there is fitted a screw-shaft, J, which is allowed to turn or rotate freely.

The lower part of this shaft J, below the screw  $d$ , extends through the lower bearing  $e$ , and has a fly or balance-wheel, K, secured upon it, and also a socket,  $f$ , to receive the drill L, the socket being below the fly or balance-wheel.

On the tube I there is fitted a sleeve, M, which is allowed to slide freely up and down, and has a right-angular lever,  $g$ , attached to it by a pivot,  $h$ , a handle, N, being applied to the upper part of said lever.

The lower end of the lever  $g$  has a pin,  $i$ , extending from it at right angles, and this line passes through the slot  $c$  in tube I, and when the handle N is pulled or pressed downward, engages with the screw  $d$  of shaft J, said pin being freed from the screw when the handle is moved upward.

By working the handle N, and consequently the sleeve M, up and down, a rotary motion is given the screw-shaft J, the pin  $i$  turning the screw-shaft as the handle is pulled or pressed down, and the momentum of the fly or balance-wheel K continuing the rotation during the time the handle is moved upward, and the pin  $i$  freed from the screw  $d$  of the shaft J, a stop,  $j$ , limiting the outward movement of the pin  $i$ .

At the lowest point of the downward movement of the pin  $i$ , the latter is below the screw  $d$ , as shown in red, fig. 2, to admit of the shaft J turning previous to the upward movement of the pin. Without this precaution the continuous rotary motion of the drill would be more or less retarded or checked.

The work to be drilled is placed upon the bed H, and raised to the drill by pressing down the outer end of the lever F.

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

1. The sleeve M, fixed slotted tube I, screw-shaft J, pin  $i$ , and right-angular lever N  $g$ , or its equivalent, when said parts are applied to and used in connection with a drill, substantially as shown and described.

2. The movable bed H, arranged and operated substantially as shown, the slotted tube I, screw-shaft J, balance-wheel K, and the adjustable pin  $i$ , operated as shown, or in an equivalent way, all combined and arranged for operating the drill L, substantially as described.

CHARLES G. MILLER.

Witnesses:

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