GEORGE F. CLUFF.

Improvement in Boring Machines.

No. 120,716.

Patented Nov. 7, 1871.

Fig. 1

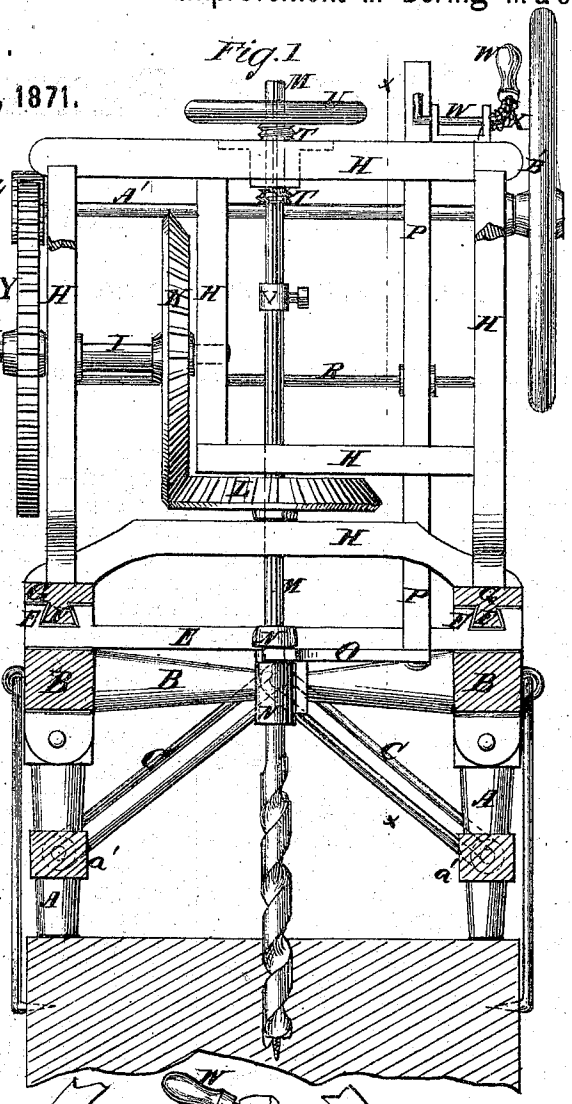


Fig. 2.

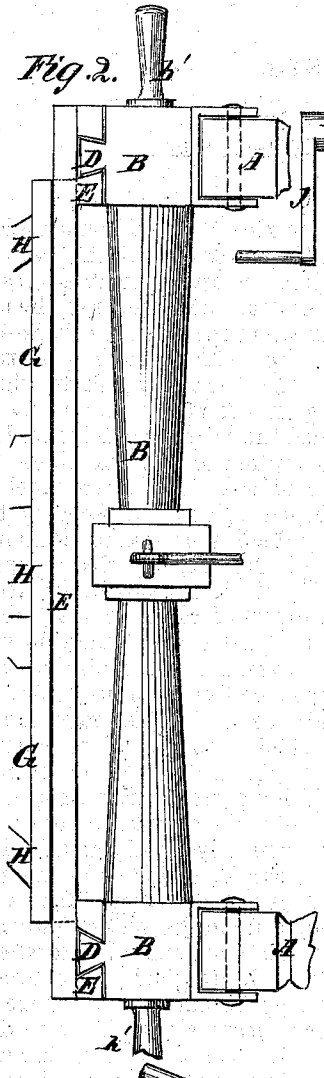
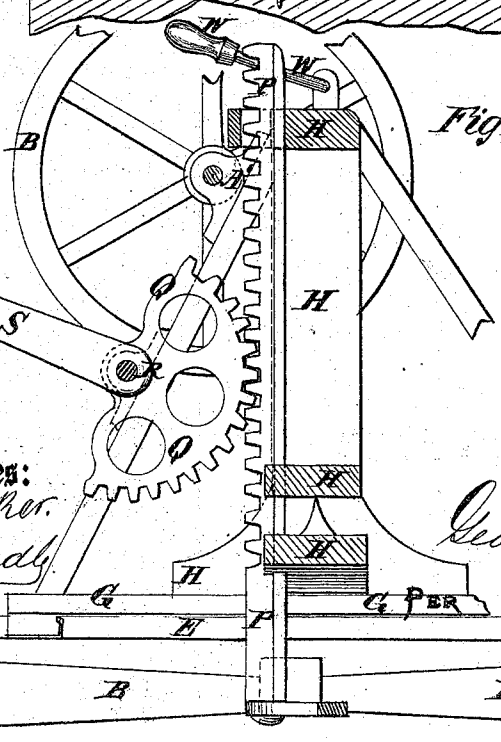


Fig. 3.



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UNITED STATES PATENT OFFICE.

GEORGE F. CLUFF, OF PETERSBURG, ILLINOIS.

IMPROVEMENT IN BORING-MACHINES.

Specification forming part of Letters Patent No. 120,716, dated November 7, 1871.

To all whom it may concern:

Be it known that I, GEORGE F. CLUFF, of Petersburg, in the county of Menard and State of Illinois, have invented a new and useful Improvement in Combined Boring and Drilling-Machines; 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 drawing forming part of this specification, in which—

Figure 1 is a detail vertical cross-section of my improved machine. Fig. 2 is a partial side view of the same. Fig. 3 is a detail sectional view of the same taken through the line *x x*, Fig. 1.

Similar letters of reference indicate corresponding parts.

My invention has for its object to furnish an improved machine for boring wood and drilling iron, which shall be simple in construction, convenient in use, and adapted for ready and various adjustments; and it consists in the construction and combination of various parts of the machine, as hereinafter more fully described.

A are the legs of the machine, which are jointed at their upper ends to the frame B. The legs A upon each side of the machine are rigidly connected by a bar, *a'*, so that they may move together. C are slotted bars or long links, placed at the ends of the machine to brace the legs and secure them in position when adjusted. The upper ends of the braces C are secured to the center of the end cross-bars of the frame B, and their lower ends are secured to the lower parts of the legs A by hand-screws, so that they can be conveniently clamped and released when required. This construction allows the legs A upon the opposite sides of the machine to be moved toward each other laterally or inward to adjust the machine to stand upon narrow timber when required. This construction also enables the machine to be conviniently racked or inclined for draw or inclined boring. Upon the ends of the frame B may be formed or to it may be attached handles *b'*, for convenience in moving the machine. Upon the upper side of the end cross-bars of the frame B are formed or to them are attached dovetailed ribs or tongues D, which enter and fit into dovetailed grooves in the end cross-bars of the frame E. In the side bars of the frame E are formed dovetailed grooves, into which enter and fit dovetailed ribs F, which are attached to or formed upon the lower side of the bars G, to which are attached the upright frame-work H that carries the operating mechanism of the machine. This construction enables the boring-tool to be shifted as required without moving the timber or the machine. I is the driving-shaft, which revolves in bearings in the frame H, and to its outer end is attached the crank J or drive-pulley, by which power is applied to the machine. To the shaft I is attached the bevel gear-wheel K, the teeth of which mesh into the teeth of the bevel gear-wheel L, which is pivoted to the frame-work H, and through the hub of which passes the vertical shaft M, which is grooved longitudinally to receive a tongue formed in the hub of the said wheel, so that the shaft M may be carried around by the wheel L in its revolution, and at the same time may be free to move longitudinally through said wheel. To the lower end of the shaft M is attached a socket, N, to receive the shank of the auger, drill, or other boring-tool. The socket N has a groove formed around its upper part to receive the slotted end of a bar, O, the other end of which is rigidly attached to the lower end of a bar, P, which slides up and down through keepers attached to the frame H, and has teeth formed upon its outer side into which mesh the teeth of a segmental gear-wheel, Q, placed upon a rod, R, attached to the frame-work H, so that it may be conveniently thrown into and out of gear with the rack P by sliding it upon the said rod R. S is a lever or handle, formed upon or attached to the segmental gear-wheel Q for convenience in operating it. By this device the boring-tool can be conveniently raised out of the hole for shifting it to another place, or for any other desired purpose. This device may also be used for bearing down upon the auger when boring hard wood or through a knot, or upon the drill in ordinary drilling. T is a hollow screw, through which the shaft M passes, and which forms the upper bearing for said shaft. The screw T screws into a nut secured in the upper cross-bar of the frame H, and has a hand-wheel, U, attached to its upper end for convenience in operating it. V is a collar, placed upon the shaft M, and adjustably secured in place by a set-screw. The device T U V is used for a stop in raising the tool from the hole, and also and especially as a feed in heavy drilling. In this

case, when the drill has been adjusted in place, the screw T U is run up and the collar V is adjusted to rest against the lower end of said screw; then, by turning the screw T slowly downward, the drill is held down to its work with any desired force. W is a bent lever, working in lugs attached to the upper cross-bar of the frame H, and which is provided with a spring, X, to hold its shorter end against the rear side of the bar P to hold the said bar, and consequently the tool in any position into which it may have been raised. This is especially convenient for supporting the tool while being shifted to bore another hole. To the driving-shaft I is attached a large gear-wheel, Y, the teeth of which mesh into a small gear-wheel, Z, attached to the shaft A′, which revolves in bearings attached to the frame H, and to the other end of which is attached a fly-wheel, B′, to give steadiness of motion to the machine when in operation.

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

1. The combination of the jointed legs A and slotted bars C with the frame B that supports the operating mechanism of the machine, substantially as herein shown and described, and for the purpose set forth.

2. The combination of the arm O, toothed rack P, segmental gear-wheel Q, rod R, and lever or handle S, with the slotted or grooved shaft M that carries the tool, and with the frame-work of the machine, substantially as herein shown and described, and for the purpose set forth.

3. The combination of the hollow screw T U and adjustable collar V with the grooved shaft M that carries the tool and with the frame-work of the machine, substantially as herein shown and described, and for the purpose set forth.

4. The combination of the gear-wheels Y Z, shaft A′, and fly-wheel B′, with the shaft I, by which is driven the slotted or grooved shaft M that carries the tool, substantially as herein shown and described, and for the purpose set forth.

GEORGE F. CLUFF.

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