H. C. CLOYD.
Boring-Machine.

No. 206,091. Patented July 16, 1878.

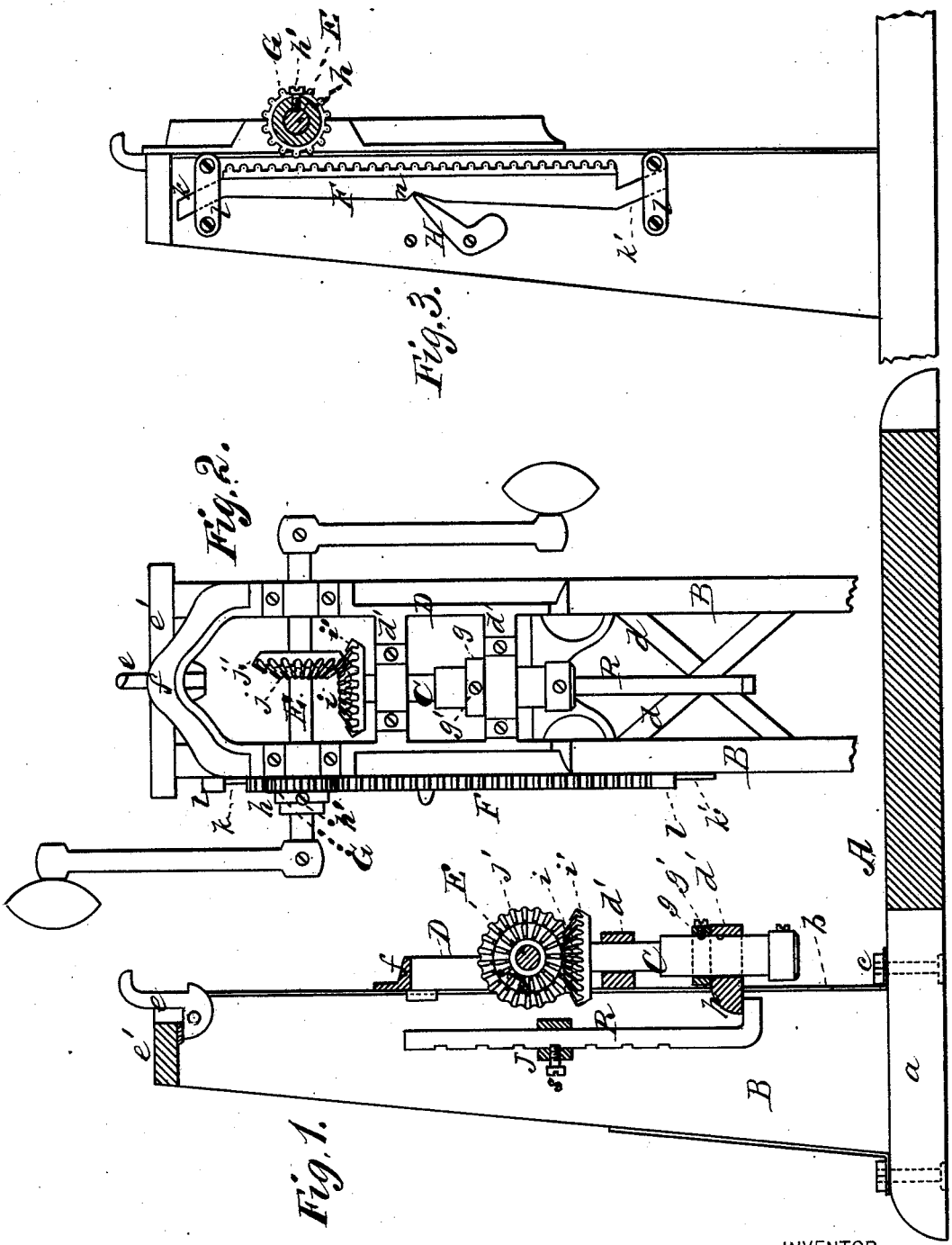

Fig. 3.

Fig. 2.

Fig. 1.

WITNESSES
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HENRY C. CLOYD, OF WEST ALEXANDRIA, OHIO.

IMPROVEMENT IN BORING-MACHINES.

Specification forming part of Letters Patent No. **206,091**, dated July 16, 1878; application filed June 1, 1878.

To all whom it may concern:

Be it known that I, HENRY C. CLOYD, of West Alexandria, in the county of Preble and State of Ohio, have invented a new and valuable Improvement in Boring-Machines; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a longitudinal vertical section of my improved boring-machine. Fig. 2 is a front view of the same; and Fig. 3 is a side view thereof, showing the arrangement of the rack and dog.

The nature of the invention consists in the construction and novel arrangement of a boring-machine having uprights, the obliquely-slotted guides attached to one of the uprights, the sash, the driving and driven shafts, and the gear of the driving-shaft of a rack having oblique tangs engaging the slot-guides of the upright, and the edge notch for the engagement of a gravitating-dog, all as hereinafter shown and described.

In the annexed drawings, the letter A designates the seat or foot-board of my improved wood-boring machine, having the usual end slot *a*, at each side of which the uprights B are erected. These have upon their front edges strong metallic angle-plates *b*, the feet of which are secured to the base by means of a bolt and nut, *c*. They are braced together in rear by the crossed metallic plates *d*, that are bolted together at their point of intersection, and, being extended along the rear edge of the uprights, are bolted to the base. By this means the said uprights are braced to each other and to the base, and are rendered unusually rigid.

C represents the tool-carrier shaft, having its bearings in spaced braces *d'* of a metallic frame, D, sashed in any suitable manner on the uprights B, and supported, when raised to its fullest extent, by a gravitating-catch, *e*, upon the top brace *e'* of the frame, the hooked end of which engages under the arched cross-piece *f* of the sash. Shaft C has free endwise motion in its bearings, and is supported by means of a movable collar, *g*, and its set-screw *g'*. It carries at its upper end, the one within the other, the beveled gears *i i'*, the former being of less diameter than the latter, and separated therefrom by a narrow annular space.

The double-crank shaft E, which has its bearings in the sash, is also endwise movable, and controlled by a collar, *h*, and set-screw *h'*. It is provided with the gears *j j'*, the one within the other, and the former of less diameter than the latter, that are adapted to engage in the following relations with each other: The gears *i j'* may be engaged with each other when speed rather than power is desired; but when power rather than speed is demanded, as in boring with a large auger or through hard wood, the gear *j* may be engaged with the gear *i'*, or the gear *j'* with the gear *i*, as may be preferred. These changes are attained by loosening the set-screws in the collars, sliding the crank-shaft, and raising or lowering the tool-carrier, as the case may be, until the required bevel-gears are in engagement, and reapplying the said set-screws.

F indicates a rack-bar, having at its ends oblique tangs *k k'*, parallel to each other, and projecting, respectively, from the upper and lower extremities of the said bar. These tangs are engaged in obliquely-slotted guides *l* upon the side of the upright. By raising the rack it is moved away from a gear-wheel, G, upon the end of the crank-shaft adjacent thereto, and is disengaged therefrom. When fully raised a gravitating-dog, H, swings automatically into a notch, *n*, upon the edge of the rack, and holds it in place out of engagement with the said pinion.

By swinging the dog out of the notch the rack falls by a parallel movement automatically into engagement with the gear G, and, if the crank-shaft be actuated, causes the sash to rise and draw the auger out of the timber.

Should the auger stick in the hole and fail to be raised out of the same by the movement above mentioned, it may be loosened by reversing the crank-shaft, the rack opposing no obstacle to such reversal.

Behind the tool-carrier is a graduated L-shaped metallic rod, R, the longer arm of which extends up through a metallic guide-brace, J, that connects the uprights B, and is secured adjustably thereto by means of a thumb-screw, *s*. The shorter horizontal arm projects to the front a sufficient distance, so that when the sash descends in the act of boring a hole an

offset, *p*, at the lower edge of said sash will come in contact with the said arm and prevent the auger from farther penetration into the wood. By this means, in making mortises, the holes will be bored of uniform depth, and the bottom of the mortises made level, so as to afford a proper bearing to the adjacent ends of the tenons.

The rod R is graduated for inches and fractions thereof, and by a proper adjustment thereof holes of any depth, limited only by the capacity of the machine, may be bored.

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

The combination, with the uprights B, its obliquely-slotted guides *l*, the sash D, driving-shaft E, having gear G, and the driven shaft C, of the rack F, having oblique tangs *k k'*, engaging said guides, and an edge notch, *n*, and a gravitating-dog, H, substantially as and for the purposes set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

HENRY C. CLOYD.

Witnesses:

JOHN W. COFFMAN,

CHAS. E. CAMPBELL.