A. O. Neal.
Boring Mach.

No. 86,176. Patented Jan. 26, 1869.

Fig. 1.

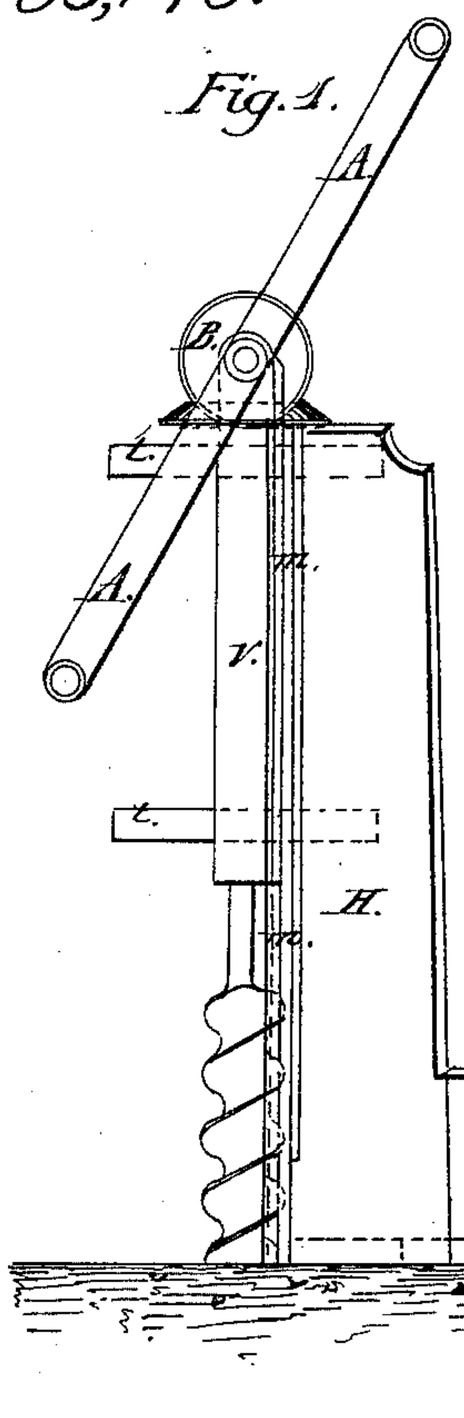


Fig. 2.

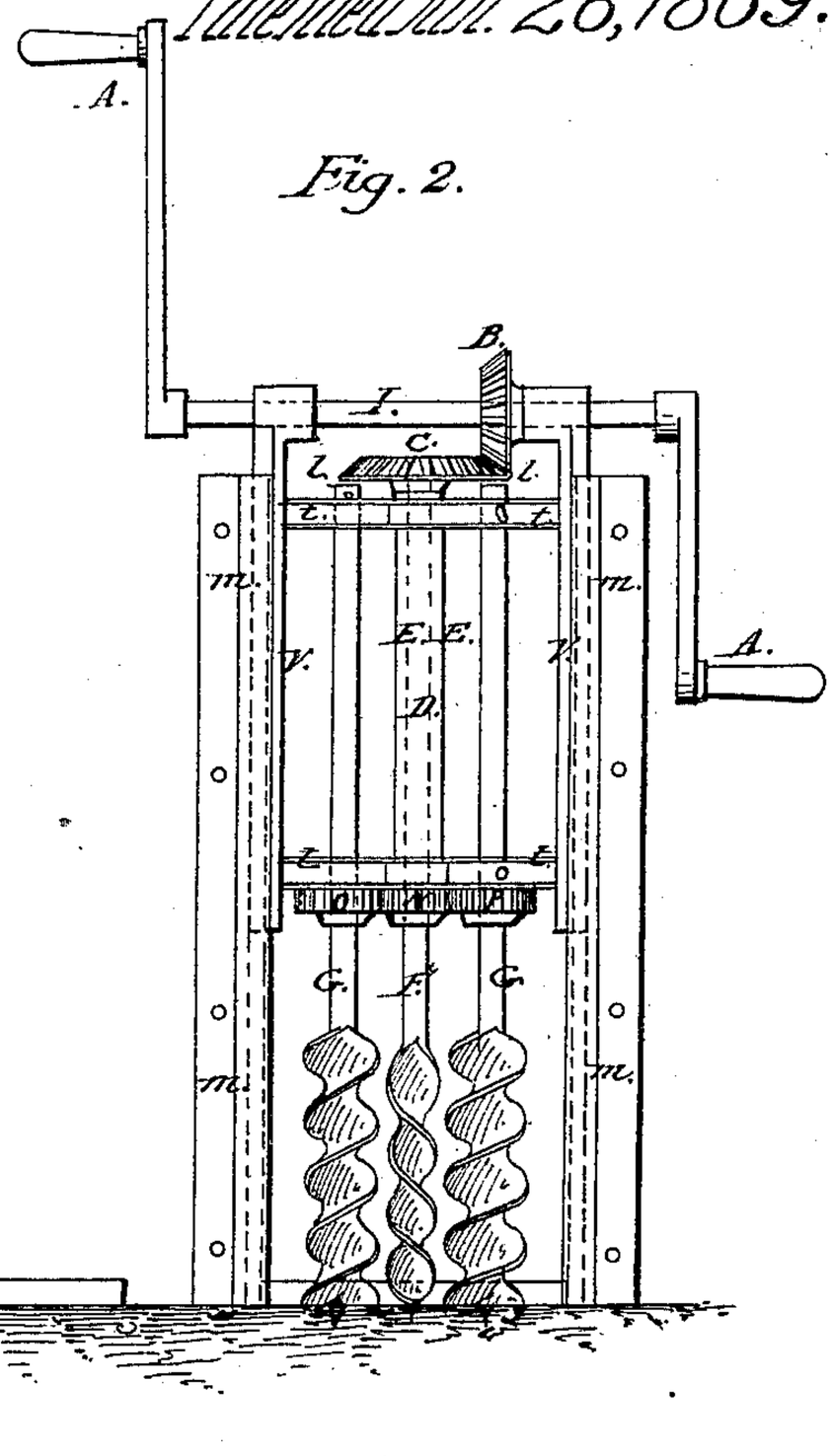


Fig. 3.

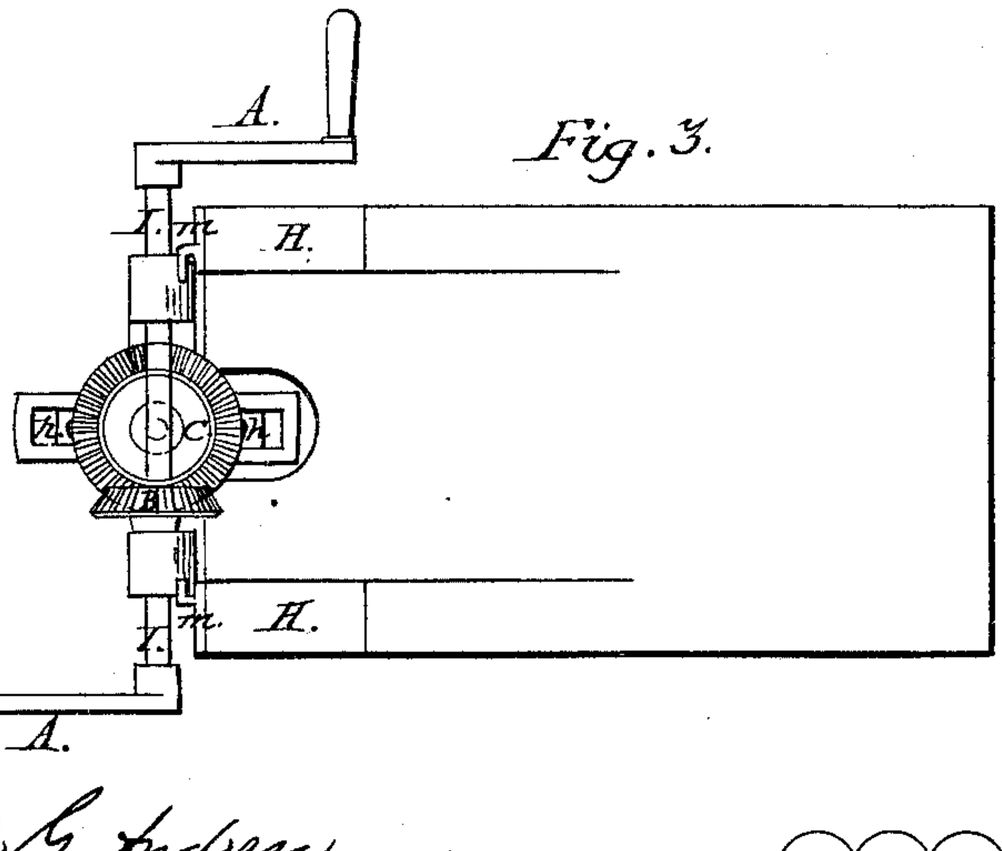
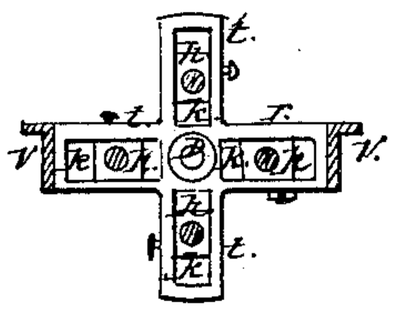


Fig. 4.



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United States Patent Office.

ARTHUR O. NEAL, OF HYDE PARK, MASSACHUSETTS.

Letters Patent No. 86,176, *dated January* 26, 1869.

IMPROVEMENT IN BORING AND MORTISING-MACHINES.

The Schedule referred to in these Letters Patent and making part of the same.

Be it known that I, ARTHUR O. NEAL, of Hyde Park, in the county of Norfolk, and State of Massachusetts, have invented certain Improvements in Boring or Polyauger-Machines; and do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation.

Figure 2, an end elevation.

Figure 3, a ground plan.

Figure 4 is a section over braces *t t t t.*

Figure 5 shows position of holes bored by centre and side-augers.

The object of my invention is to produce a double-boring auger, to facilitate mortising timber—one that will be durable, easily made, and easily operated.

I wish to produce a boring-machine which will, in reality, bore a hole of much greater length than width.

The nature of my invention consists in so adjusting two augers with another between them, that the outside augers may turn in one direction while the centre auger may turn in an opposite direction, and within the plane of the outside augers; that is, the centre auger shall bore into the holes made by the outside augers, thus securing the lengthened mortise, which only needs squaring out to be complete, but little work with the chisel being required.

In the drawings—

A A are cranks on shaft I, to which is attached bevel-geared wheel B.

Wheel B runs in and revolves bevel-geared wheel C.

D is a spindle, which is actuated by wheel C.

This spindle revolves in tube E, which is used as a brace.

The centre auger, F, is set in spindle D.

Wheel N is attached to the auger-shaft F.

The outside augers, G G, are set in braces *t t*, and have wheels, O P, attached to their shafts.

The wheel N runs between and on wheels O P, thus giving a reverse motion to centre auger F, to that of side augers G G, and as the cutters of centre auger F are set at right angles with the cutters of the side augers, the three augers can be used very near to each other, so that the centre auger will run in the inside planes of the side augers. This arrangement of right and left-hand augers gives the desired result.

H is a frame, in which are held the various devices.

The frame V V, which immediately holds braces *t t*, in which are set the side augers, slides in grooves *m m*, on frame H. This allows the augers to penetrate the timber.

The frame V V is carried outside the frame H, so as to allow shaft I, which runs through frame V V, to pass outside frame H, in operating the machine.

The number of augers may be increased beyond three, but their operation would be the same as described.

I am aware that two or more augers have been used before, acting auxiliary to each other, and also acting reversely.

The parts of my invention, taken separately, are not new, but their arrangement is new.

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

The augers G G and F, frame H, frames V V, shaft I, cranks A A, wheels B and C, spindle D, wheels N O P, braces *t t t t*, and grooves *m m*, when all are constructed and arranged to operate as herein described and set forth.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

ARTHUR O. NEAL.

Witnesses:

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