

E. C. Dodge.

Boring Machine.

No. 97,280.

Patented Nov. 30, 1869.

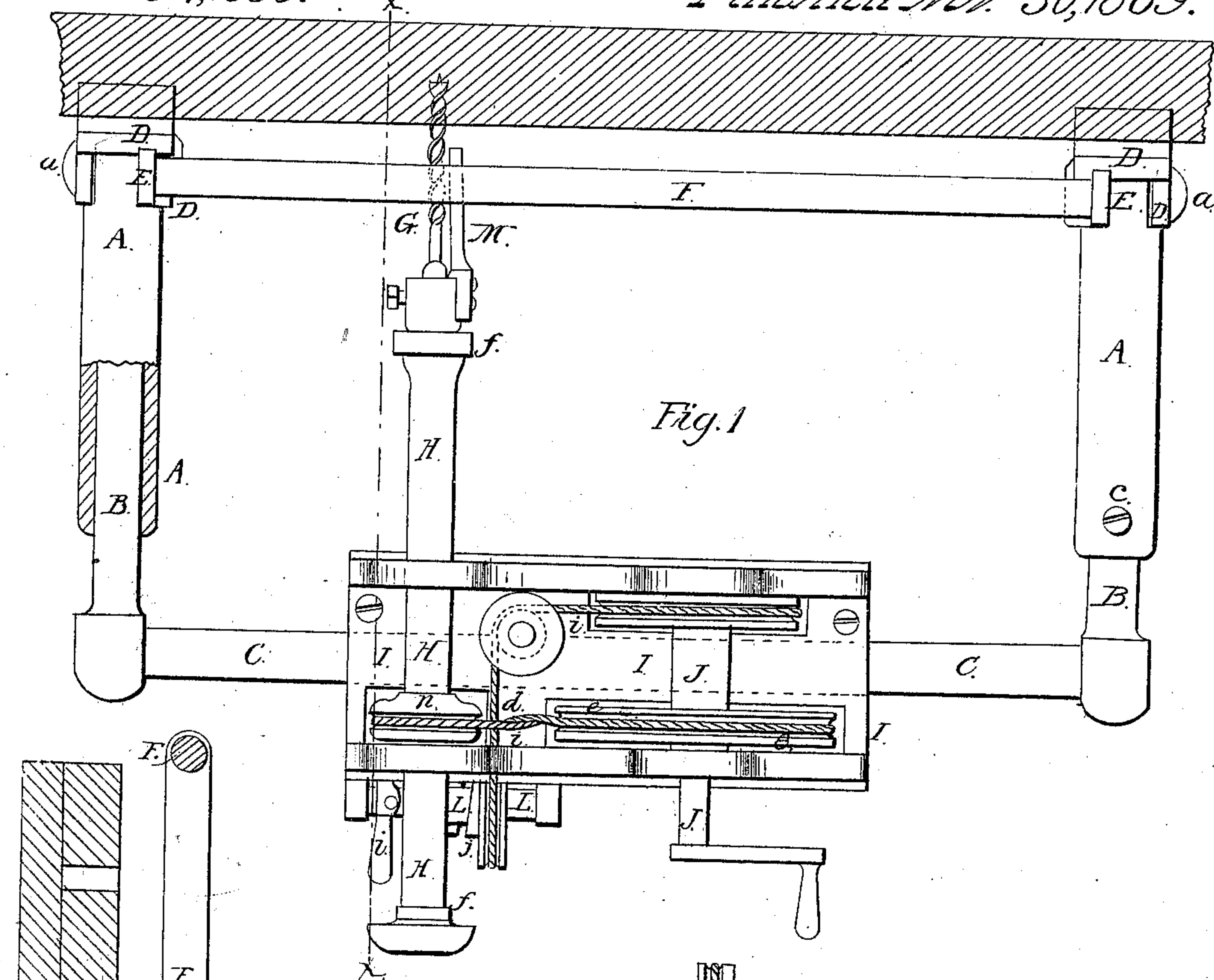


Fig. 1

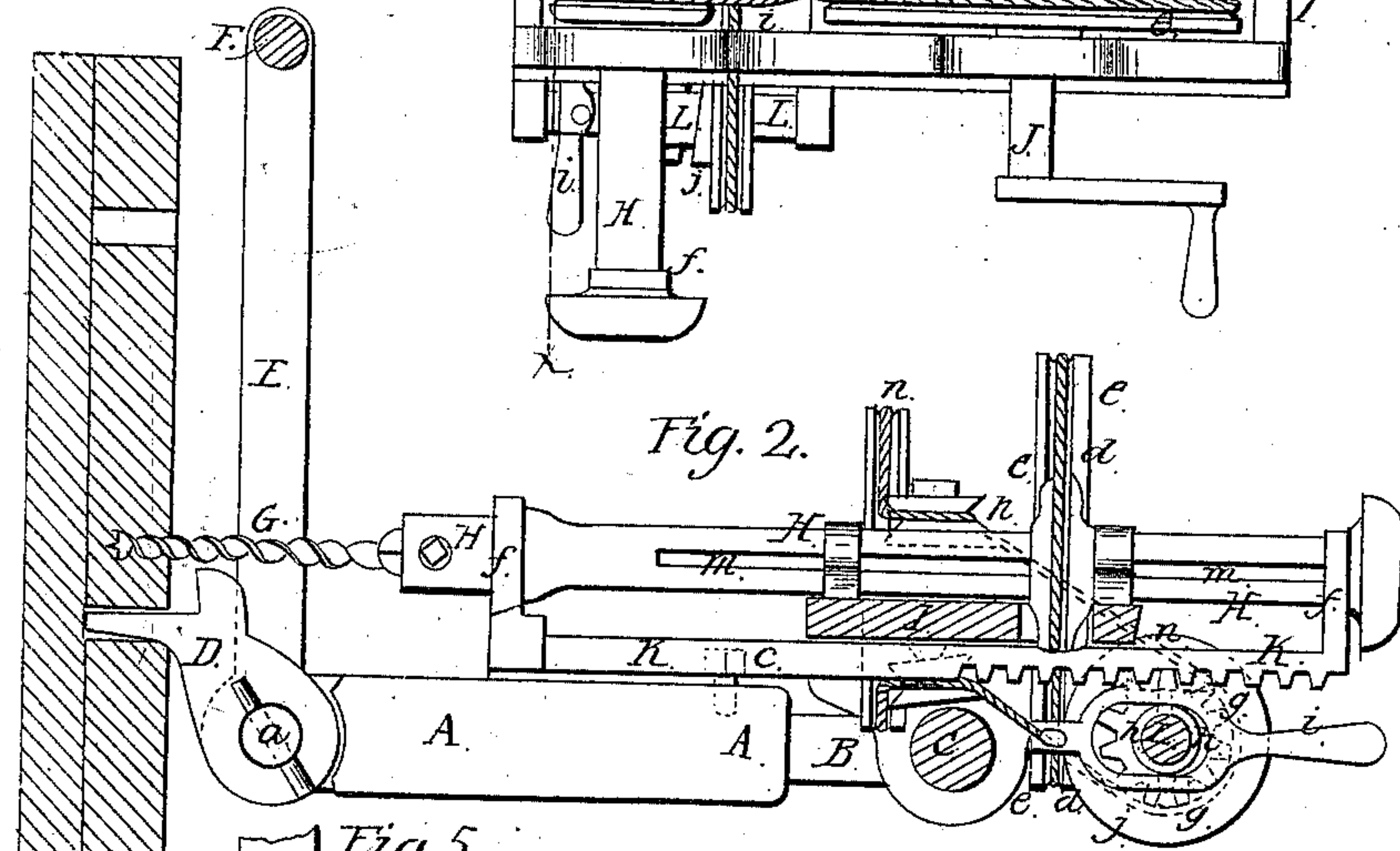


Fig. 2.

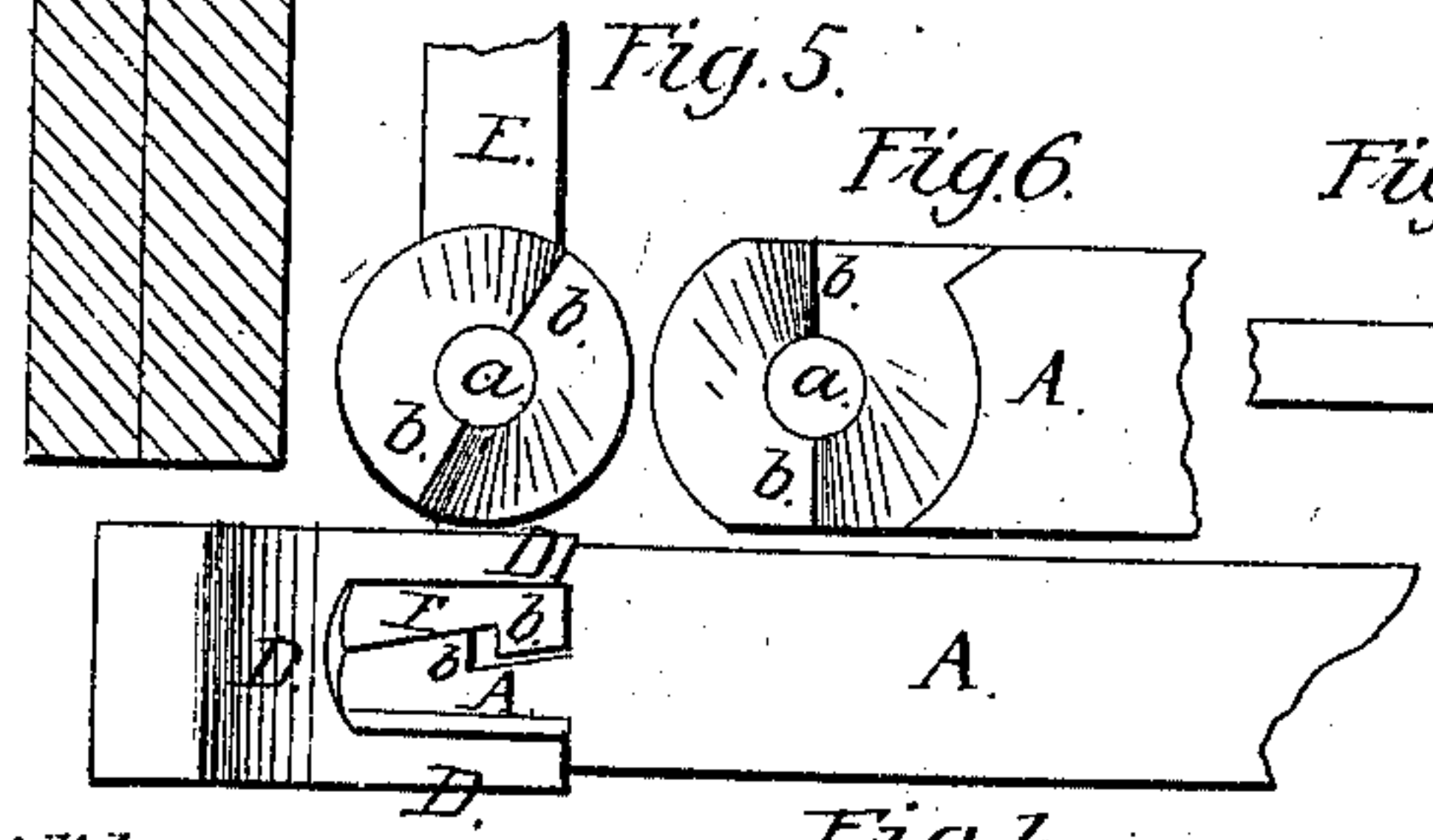


Fig. 3.



Fig. 4.



Fig. 5.



Fig. 6.

Witnesses:

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EVERD C. DODGE, OF EDGEComb, MAINE.

Letters Patent No. 97,280, dated November 30, 1869; antedated November 13, 1869.

IMPROVEMENT IN BORING-MACHINE.

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, EVERD C. DODGE, of Edgecomb, in the county of Lincoln, and State of Maine, have invented a new and improved Ship-Builders' Auger; 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 drawings, forming a part of this specification.

Figure 1 represents a plan or top view of my improved ship-builder's auger.

Figure 2 is a vertical longitudinal section of the same, taken on the plane of the line *x x*, fig. 1.

Figure 3 is a detail under-side view of the apparatus for feeding it back.

Figure 4 is a detail under-side view of the apparatus for clamping the device in any desired position.

Figures 5 and 6 are detail side views of the parts constituting the clamping-device.

Similar letters of reference indicate corresponding parts.

The invention consists in so constructing the teeth of a toothed bar, by interposing wedge-shaped bridges between them, that the said bar will, when being moved longitudinally by the action of a clutched pinion, automatically throw the said pinion out of gear. The motion of the said toothed bar will thus be automatically stopped by its own action.

The invention further consists in connecting the tool-holder to the said toothed bar, and thereby also with the aforesaid pinion and with the mechanism for driving the same, so that, by the rotary motion of the said pinion, the tool will be withdrawn after a hole of the desired depth has been bored.

A A, in the drawing, are two straight tubes, in which two parallel rods or bars B B are respectively fitted, the outer or rear ends of the rod B being connected by means of a bar, C.

To the closed-front ends of the tubes A are respectively pivoted, by means of pins *a*, wedge-shaped fingers or plates D D, and also bars E E, the outer upper ends of the said bars E being connected by means of a rod, F.

The pivoted portion of each plate D is bifurcated so as to fit around both sides, and the contiguous faces of the tubes A and their respective bars E are provided with projecting inclines *b b*, as shown in figs. 4, 5, and 6.

By bringing the bars E at about right angles to the tubes A, as in fig. 2, the farthest projecting portions of their respective inclines *b* will be brought in contact with each other, whereby the forks of the plates D will be spread so as to clamp, by friction, the said fingers to the tubes or the tubes to the fingers.

The ends of the fingers D are to be inserted between

two of the planks of the ship, in a crevice formed between them.

The tubes are then turned around their pivots *a*, so as to bring them into the desired position, and are then clamped in the said position by turning up the frame E E F, as aforesaid.

The rods B B can be moved in or out of the tubes, so as to bring the rod C any desired distance away from the planks, and can then be clamped in the desired position by means of screws *c c*, indicated in fig. 1.

It is evident, that instead of being tubes, the parts A may be rods or bars, in which case B would be tubular, to allow the aforesaid lengthwise adjustment.

The part hereinbefore described constitutes the frame of my improved auger.

The auger G itself is fastened in a rotating holder, H, which has its bearings in a carriage, I, that slides and turns on the bar C.

It will be seen from the above that the auger can thus be adjusted in various different ways, viz, it can be turned into the desired direction around the pivots *a* or around the bar C; it can be longitudinally adjusted by means of the parts B, sliding in or on the parts A, and it can be laterally adjusted by sliding the carriage on the bar C.

In this manner it is clear that holes can be bored through either one of a series of planks, and through any part of one certain plank embraced between the fingers D.

The tool-holder H, having its bearings in the carriage I, can be rotated by means of a belt, *d*, which runs around a pulley, *e*, on a shaft, J, that has its bearings in the carriage I, as shown.

The shaft J receives its rotary motion either by hand or by suitable machinery.

The holder H may, however, in any other suitable manner be connected with the shaft J.

The holder H turns also in lugs or ears *f*, that project from a toothed bar, K, which bar is thus suspended from the said holder.

It gears into a pinion, *g*, mounted on a sliding sleeve, *h*, which slides on a shaft, L, that has its bearings in the carriage.

The shaft L is rotated by being connected either by means of a belt, *i*, or otherwise, with the shaft J, the shaft L being at right angles to J, as shown.

The sleeve *h* can, by means of a lever, *i*, which is pivoted to the carriage, be moved on the shaft L, so as to be coupled to a clutch, *j*, formed on the latter, as in fig. 3.

When thus coupled, the sleeve *h* and its pinion *g* will be rotated by and with the shaft L, so as to cause sliding motion of the toothed bar K, and thereby also of the tool-holder and its tool.

The operation is as follows:

The position of the tool-holder having been ascertained and adjusted, the tool is brought against that spot on a plank where the hole is to be bored.

The shaft J is then revolved, so as to turn the tool-holder and the tool, and the latter will then bore the hole, feeding itself forward by the action of the screw formed on its end.

During all this time the pinion *g* was not in gear with the shaft L.

When the hole has been bored to the desired depth, the lever *i* is moved so as to throw the pinion in gear. The rotary motion of the latter will then cause the toothed bar, and with it the tool-holder and tool, to slide back, and the tool will thereby be again withdrawn from the plank.

Between the innermost teeth of the bar K are formed tapering wedge-shaped bridges *l l*, which, when the tool has been sufficiently withdrawn, come against the side of the pinion or of any part of the sleeve *h*, so as to gradually throw the latter out of gear, to prevent further withdrawal and possible consequent breakage of either of the parts G H K.

The holder H has a groove, *m*, or is otherwise so arranged that it will turn with, but freely slide in a pulley, *n*, or its equivalent, by means of which it is connected with the rotating shaft J.

To the holder H is secured a removable rod or bar, M, which is so long that it will strike the plank when a hole of the desired depth has been bored.

The said rod M is thus a gauge for regulating the depth of holes.

Having thus described my invention,

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

1. The combination of the pivoted fingers D D, the bars E, having the inclines *b* and the tubes A, also provided with inclines *b*, substantially as described, for the purpose specified.

2. The adjustable tool-holding carriage I, and adjustable frame B C, in combination with the tubes A, having the pivoted fingers D and bars E, substantially as described, for the purpose specified.

3. The tool-holder H, in combination with the toothed bar K, having the wedge-shaped bridges *l*, formed between some of its teeth, and with the sliding clutch-pinion *g*, substantially as described, for the purpose specified.

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Witnesses:

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