M. R. Foy.

Felling Trees.

No. 90,834. Patented Jun. 1, 1869.

Fig. 1.

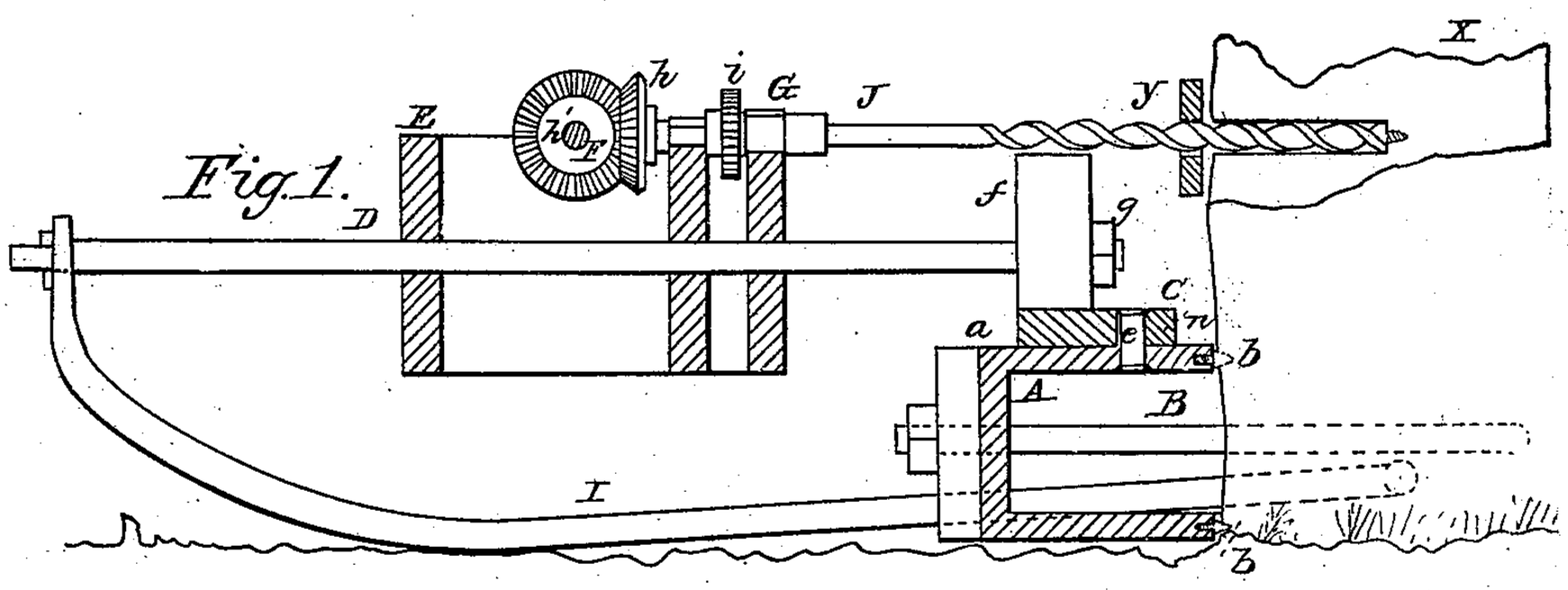
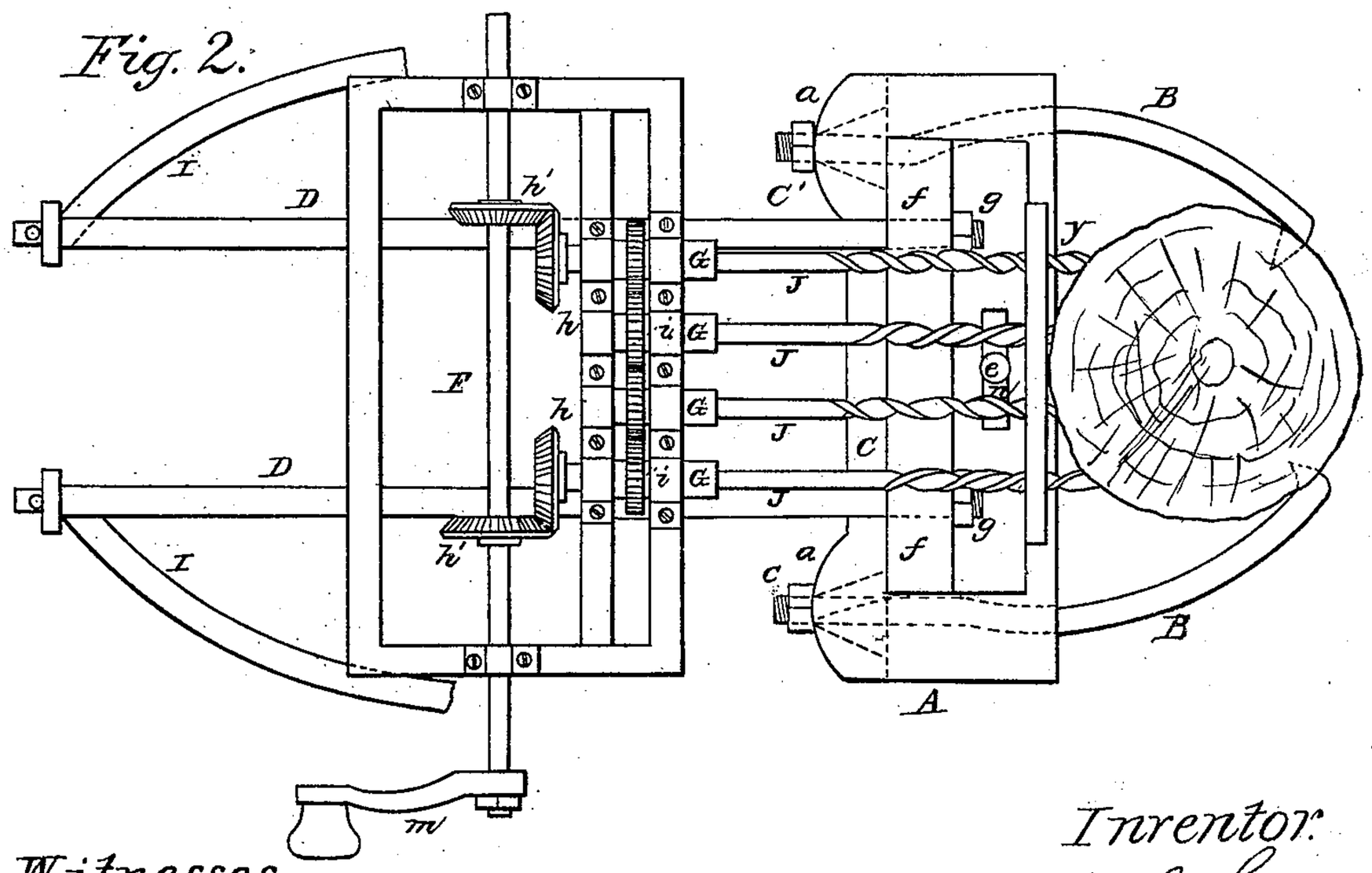


Fig. 2.



Witnesses.

John Bulkley

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Inventor:

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By his Attorney

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M. R. FORY, OF NEW YORK, N. Y.

Letters Patent No. 90,834, *dated June* 1, 1869.

IMPROVEMENT IN APPARATUS FOR FELLING TREES.

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, M. R. FORY, of the city, county, and State of New York, have invented certain Improvements in Tree-Felling Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the same.

My invention consists of a series of augers revolving upon a carriage, which is rendered adjustable in respect to a tree, as fully described hereafter, so that the augers may be caused to penetrate the tree at any desired angle or point, with but little labor on the part of the operator.

In order to enable others skilled in the art to make and use my invention, I will now proceed to describe its construction and operation, reference being had to the accompanying drawing, which forms a part of this specification, and in which—

Figure 1 is a sectional elevation of my improved tree-felling apparatus, and

Figure 2, a plan view.

A is a frame, of wood or iron, at the rear side of which, near the ends, are projections *a a*, with rounded faces, and, from the front edges of the frame, project sharp-pointed pins *b b*, for a purpose described hereafter.

Through openings in the frame, and in the projections *a a*, extend bars, or arms B B, the outer ends of which are bent inward, and sharpened; and on the inner end of each arm turns a nut, *c*, which bears against the rounded face of the adjacent projection *a*.

To the upper side of the frame A is secured a plate, C, which is adjustable on a bolt, *e*, extending from the frame into a slot, *n*, in the plate; and, through lugs *f f*, on the plate C, extend guides, or bars D D, on the inner end of each of which turns a nut, *g*.

On the guides D slides freely a carriage, E, in bearings on which turn a driving-shaft, F, and a series of spindles, G G, the latter being parallel to the guides D, and provided with pinions *i*, which gear into each other.

To the spindles nearest the ends of the carriage are secured bevel-wheels *h*, which gear with similar wheels *h'* on the driving-shaft F, the latter, in the present instance, being provided with a crank-handle, *m*.

To the outer end of each guide D is connected an arm, I, which extends forward beyond the frame A, the end of each arm adjacent to the frame being bent inward, and sharpened.

In the inner end of each spindle C is a socket, for the reception of the shank of an auger, J.

When a tree, *x*, is to be felled, the frame A is placed against the trunk, its pins *b b* piercing the same, as shown in fig. 1, and the sharpened hooked ends of the arms B B I I are driven into the tree, so as to hold the frame and the guides D D firmly in their positions, the plate C being parallel to the edge of the frame A, and the carriage E being drawn back to the outer ends of the guides.

A rotary motion is now imparted to the shaft F, and the carriage is pushed forward, so as to bring the augers against the tree, which they will perforate, boring a series of parallel openings.

After the augers have passed through the tree, the carriage is drawn back, and the plate C is moved laterally until the augers are opposite uncut portions of the tree, when the carriage is again moved forward, and another series of holes are bored, parallel to and between those first cut.

The apparatus is then detached, when a few blows with an axe will cause the tree to fall.

Instead of moving the plate C laterally after the first cut, it may be turned on the pin *e*, so as to cause the augers, at the second operation, to penetrate the tree at an angle to the openings first made.

Owing to the manner in which the augers are geared together, the adjacent augers revolve in opposite directions, and a straight cut is thus insured, the augers of course being twisted to the right or to the left, according to the direction in which they turn.

Should the apparatus become unsteady from any cause, it may be secured firmly in its position by turning the nuts *c g*, and it will be seen that, inasmuch as the faces of the projections *a a* are rounded, the nuts *c* will have firm bearings, whatever may be the position to which the arms B B are turned.

In order to guide the augers near their front ends, they may be passed loosely through openings in a strip, Y, arranged adjacent to the tree, to which it may be secured temporarily.

In place of the arms B B, a chain, or yoke, extending round the tree, and attached to the frame A, so as to be tightened at pleasure, may be used, and the outer ends of the guides D may be secured to a frame adjustable upon a standard resting on the ground.

A handle may be secured to each end of the shaft F, or a driving-pulley may be substituted for the handle when steam or other power is used for operating the apparatus.

Without confining myself to the precise construction and arrangement of parts shown and described, or to the use of augers of any special number, or size,

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

1. The combination and arrangement of the frame A, guides D D, and carriage F, holding a series of augers, all as and for the purpose specified.

2. The arrangement of the adjustable arms I I, having hooked ends, and hung to the guides D D, as and for the purpose specified.

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

M. R. FORY.

Witnesses:

A. FRANKLIN,

OWEN DOUGHERTY.