

L. D. Noble.
Excavator.

No. 104,631. Patented Jun. 21, 1870.

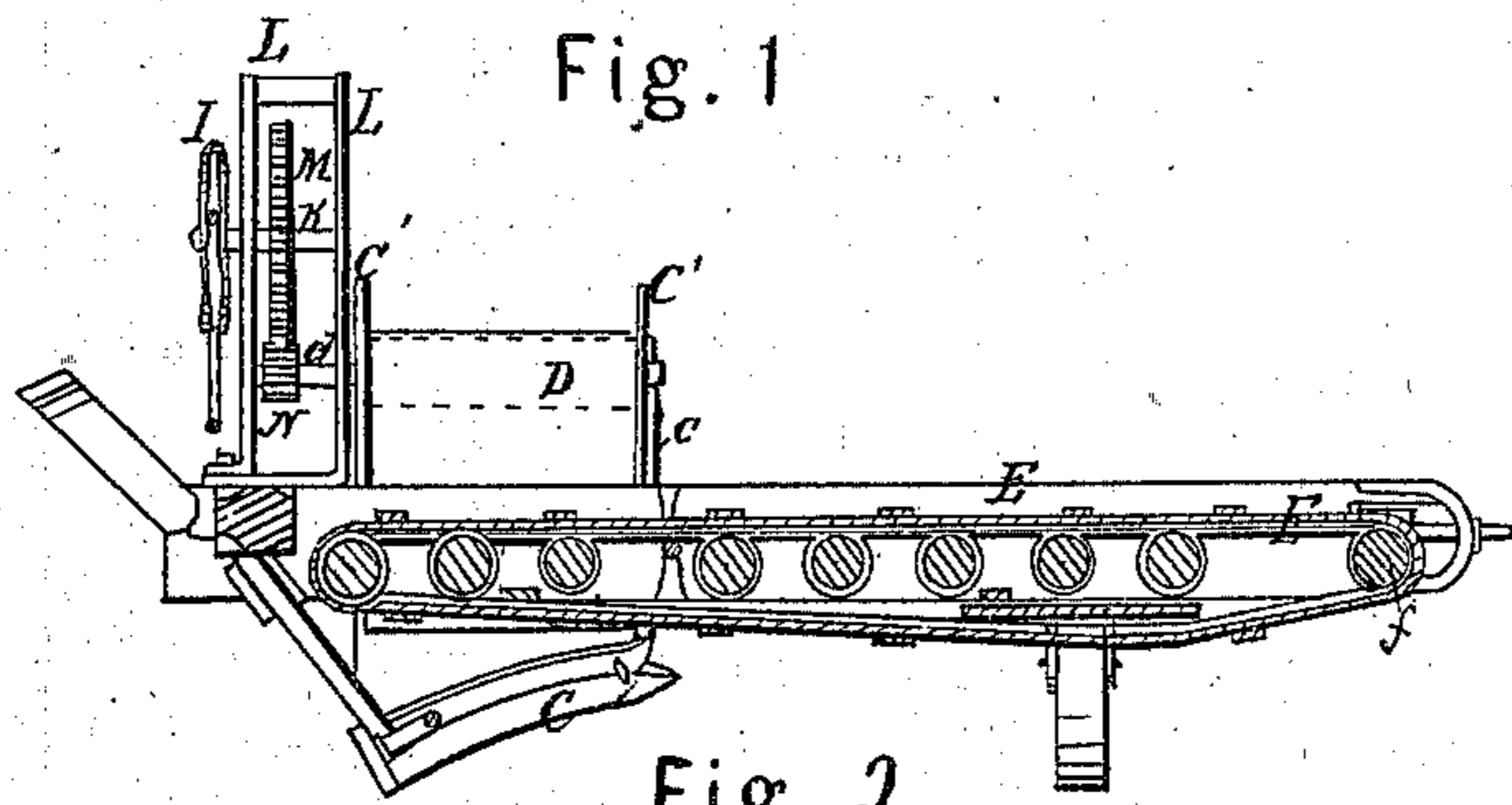


Fig. 2.

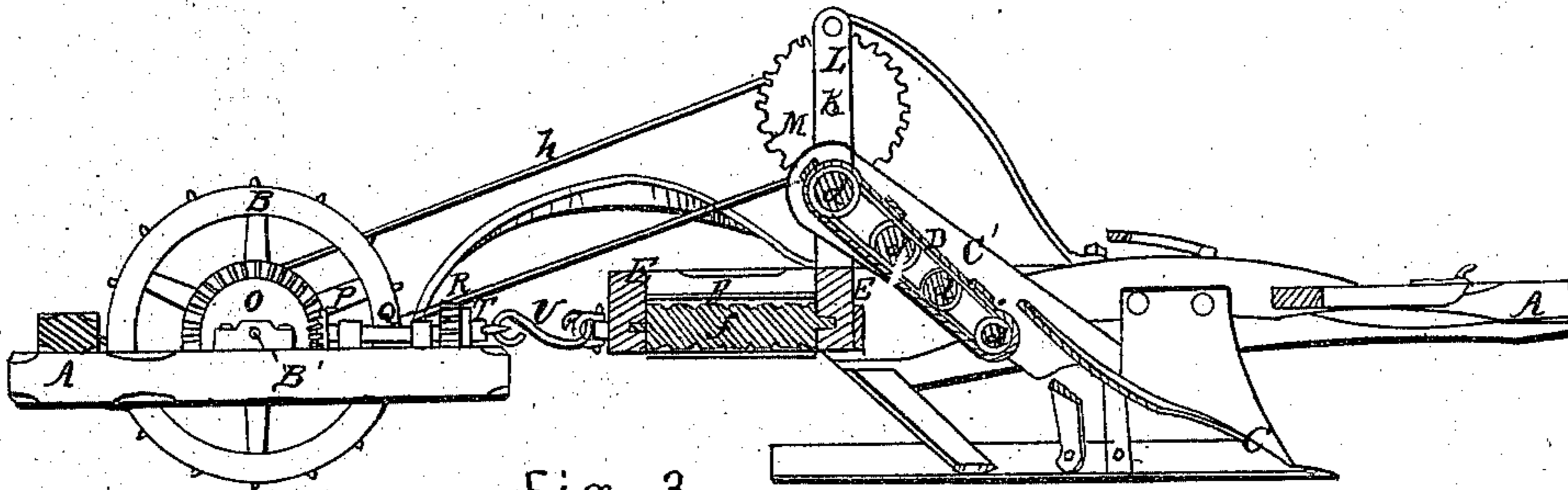
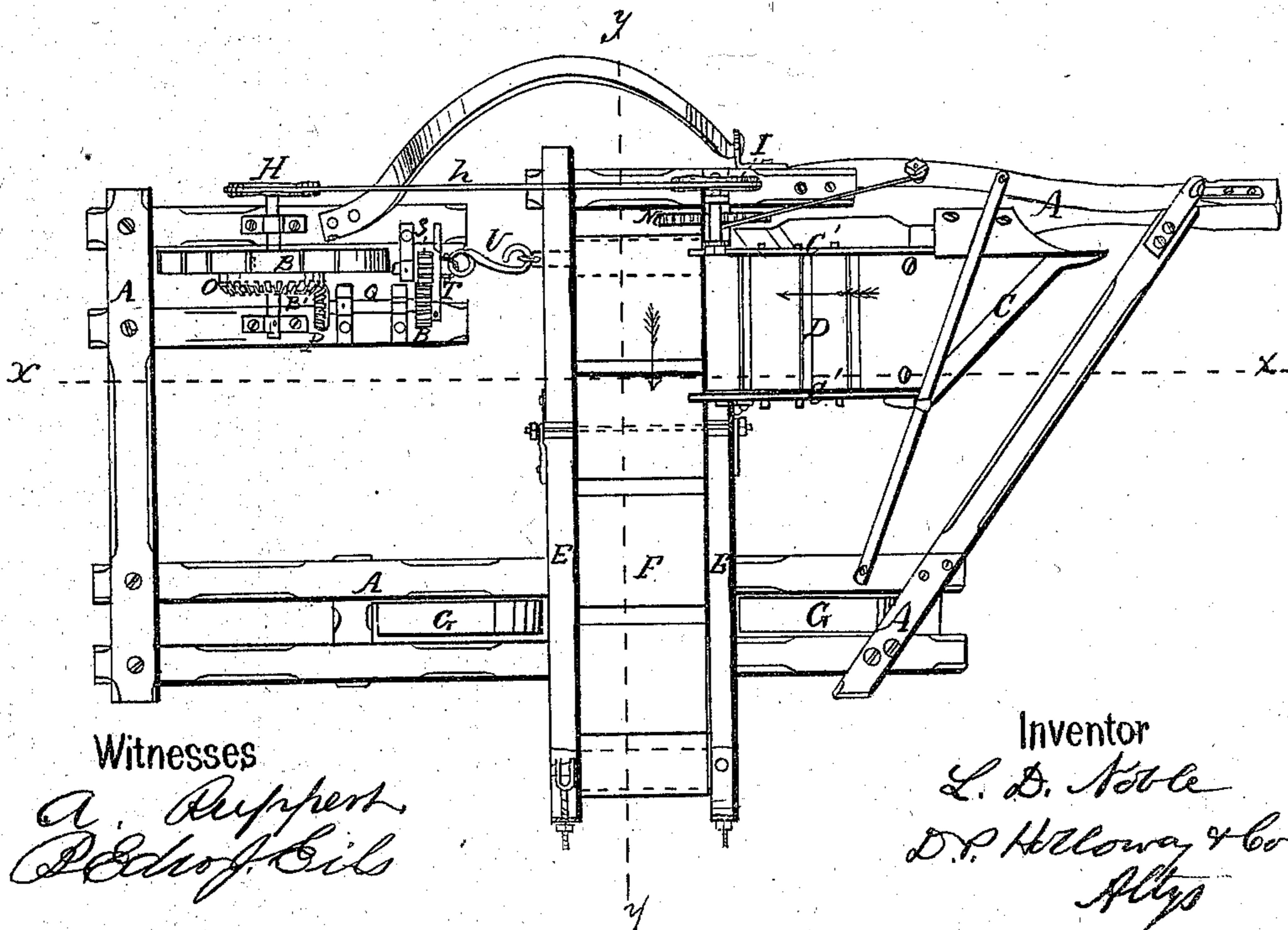


Fig. 3.



Witnesses

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L. D. NOBLE, OF CERRO GORDO, ILLINOIS.

Letters Patent No. 104,631, dated June 21, 1870.

IMPROVED DITCHING-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, L. D. NOBLE, of Cerro Gordo, in the county of Piatt and State of Illinois, have invented Improvements in Ditching-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the annexed drawing making a part of this specification, in which—

Figure 1 is a plan view;

Figure 2 is a vertical section on line *x x*, fig. 1; and

Figure 3 is a vertical section on line *y y*, of fig. 1.

The same letters are used in the designation of identical parts in the several figures.

My invention relates to that class of devices termed ditching or excavating-machines; and

My improvement consists in the employment of a single driving-wheel, combined with and arranged, in relation to the other parts of the machine, in the manner more fully set forth hereinafter.

To enable those skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

In the drawing—

A represents the truck of the machine, consisting of longitudinal and transverse beams firmly bolted together. That portion of it to which the plow is attached is to be adjustably fastened to the other part, so that the plow can be raised or lowered as may be necessary.

In constructing the truck, a form similar to the one shown in the drawing may be adopted, or any such form which will enable it to receive and support the several driving parts which are to be mounted upon it.

B represents the driving-wheel, firmly secured upon a transverse horizontal shaft or axle, B', having its bearings in that part of the truck which is in rear of the plow, as clearly shown in figs. 1 and 2. The tread of this wheel may be constructed with transverse ribs, to increase its traction.

Arranging a single driving-wheel directly in rear of the plow, possesses the advantage that such wheel can run on a level with the plow, in the furrow made thereby, so that its ribs can take hold upon the hard ground at the bottom of such furrow, and thus greatly increase the efficiency of the machine.

C represents the plow mounted upon the front and adjustable portion of the truck.

Its share terminates in an inclined plane, of suitable width, rising toward the rear of the machine, and provided with side-pieces, C', which extend upward, and are, at their upper ends, respectively, secured to a standard, c, rising from the jointed frame E, and to the frame L, soon to be described.

D represents an endless elevating-apron, stretched upon rollers, *d*, which have their bearings in the side-pieces C'.

E represents the jointed frame above mentioned, the two portions of which are, respectively, secured to the rigid and adjustable portions of the truck, lying across the same directly in rear and under the elevating-apron D.

F represents an endless conveying-apron, which is stretched upon rollers, *f*, the journals of which have their bearings in the sides of the jointed transverse frame. The outermost roller is placed in sliding boxes, the position of which is controlled by screws, for the purpose of keeping the apron taut at all times.

G G are two ground-wheels, supporting that side of the machine which is opposite the driving-wheel.

Motion is imparted to the elevating and conveying-aprons by the following trains of mechanism:

Upon the outer end of the axle B' is secured a pulley, H, which imparts motion, through a belt or chain, *h*, to a pulley, I.

This latter is keyed to a shaft, K, which has its bearings in the upper part of the sides of a frame, L, which is secured upon the adjustable portion of the truck, at the side of the elevating-apron.

The journal of the uppermost roller of this apron, on that side which is next to the frame L, is elongated, and extends through both sides of such frame. Upon this elongated portion is secured a pinion, N, which is driven by the spur-wheel M, the latter being secured upon the shaft K.

It will be seen that, as a consequence of the above-described arrangement of gearing, the elevating-apron will be moved in the direction of the arrow as the machine is drawn forward, so that, as earth is delivered upon it by the plow, it will carry it upward, and discharge it upon the conveying-apron.

O is a large bevel-wheel, cast in one piece with the driving-wheel B, or separately, in which case it is firmly secured upon the axle B'.

This wheel gears with a small bevel-wheel, P, placed upon a horizontal shaft, Q, arranged in boxes secured upon the truck, at right angles to the axle B', and extending toward the jointed frame.

Upon the front end of this axle a spur-wheel, R, is secured, which gears into and drives a pinion, S.

This pinion imparts motion to a shaft, T, to which it is keyed, and which is connected, by means of a universal joint, U, to the elongated journal of the inner and end roller of the conveying-apron, which is thus moved in the direction of the arrow, so that the earth which has been discharged upon it by the elevating-apron is conveyed by it across the machine, and delivered at the side of and some distance from the ditch dug by the plow.

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

A ditching-machine, combining, in its construction, a plow, C, elevating-apron D, conveying-apron E, carrying-wheels G, and a single driving-wheel, B, when such driving-wheel is arranged directly in rear of the plow, running upon the hard ground at the

bottom of the furrow made by such plow, substantially as set forth.

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

Witnesses:

L. D. NOBLE.

W. L. PITTS,
JOSEPH STARR.