

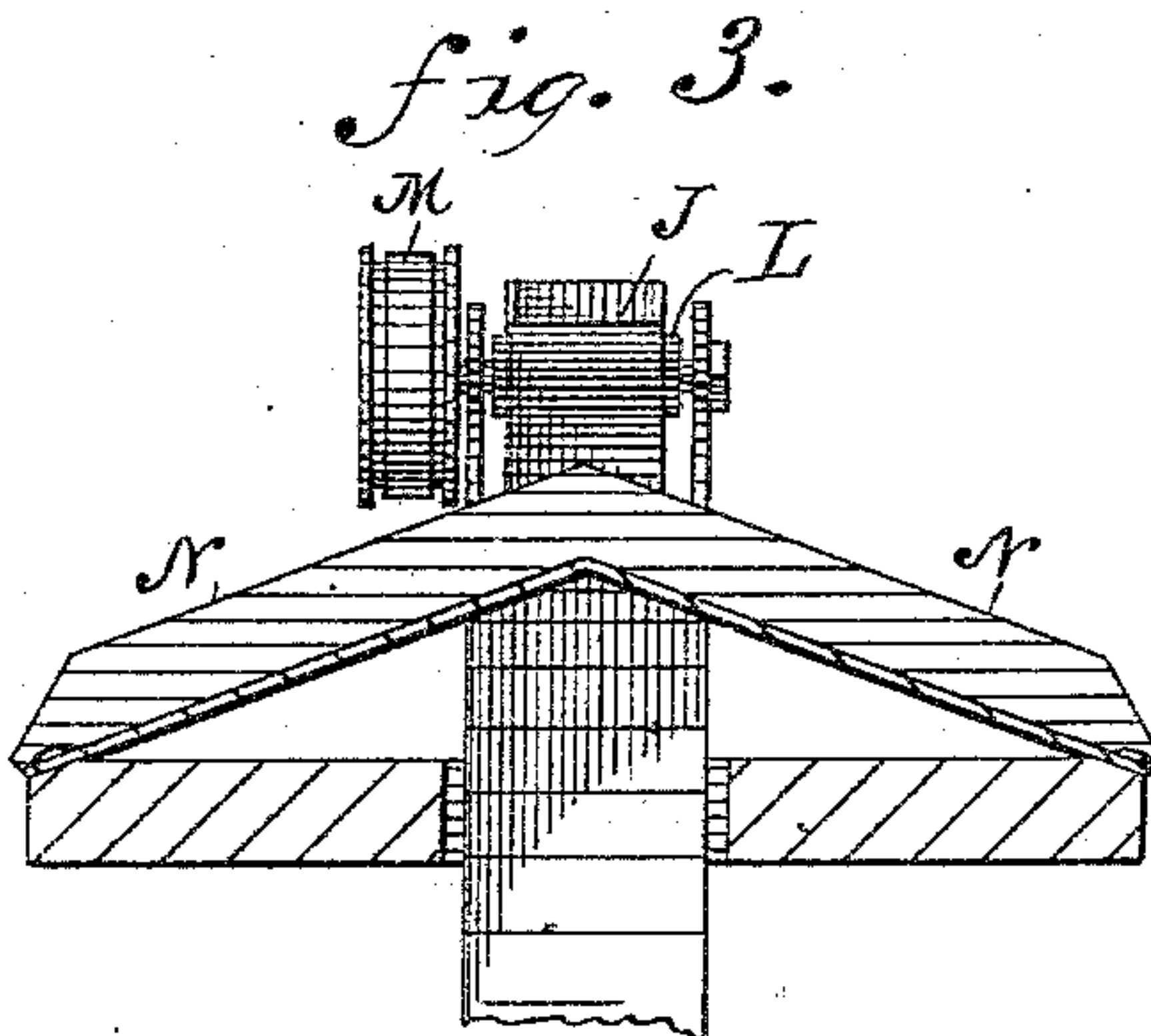
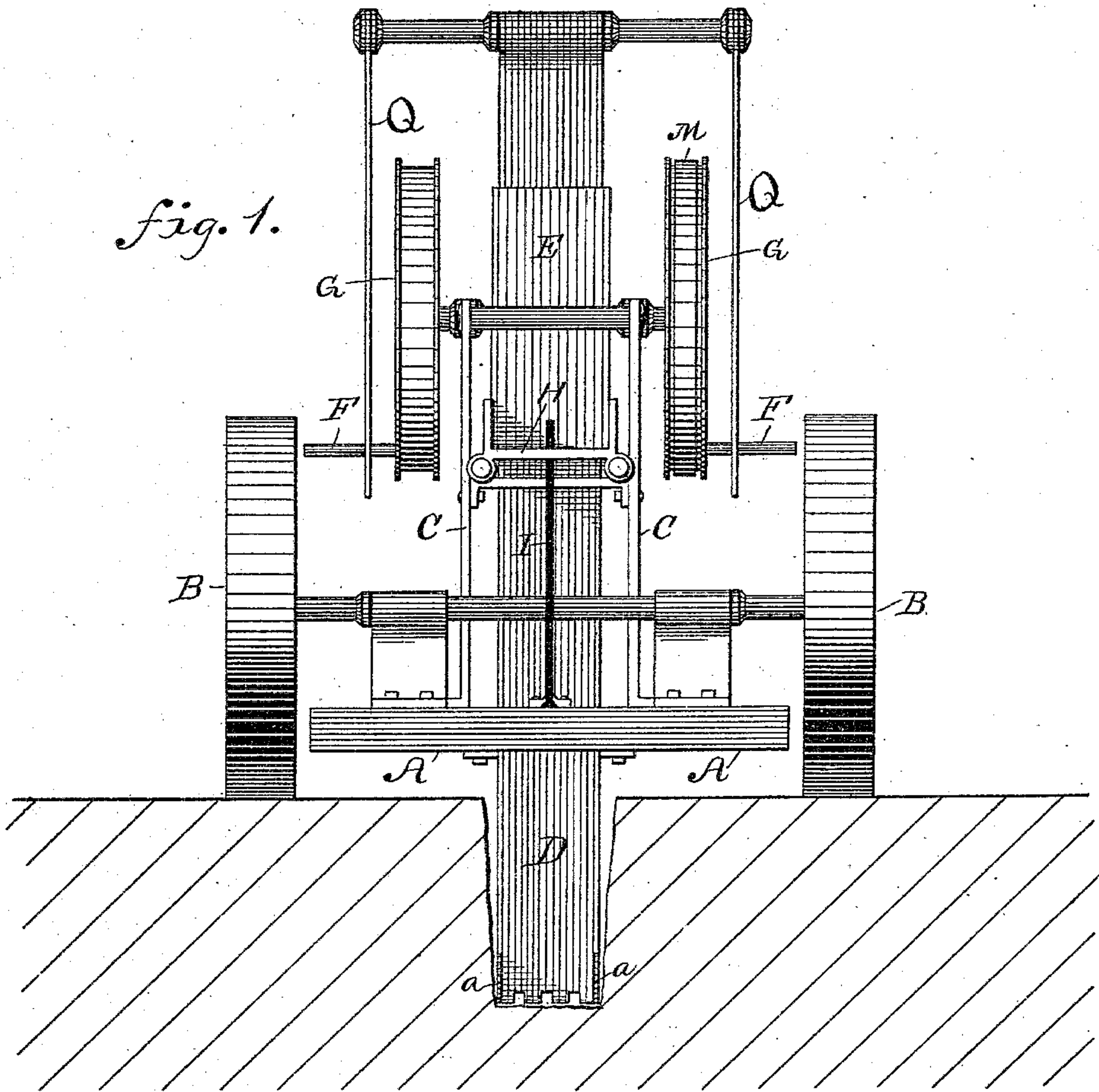
(No Model.)

2 Sheets—Sheet 1.

J. ARTHUR.
TILE DITCHING MACHINE.

No. 295,323.

Patented Mar. 18, 1884.



WITNESSES:

H. B. Brown
W. H. Stevens,

INVENTOR:

John Arthur
BY Munn & Co

ATTORNEYS.

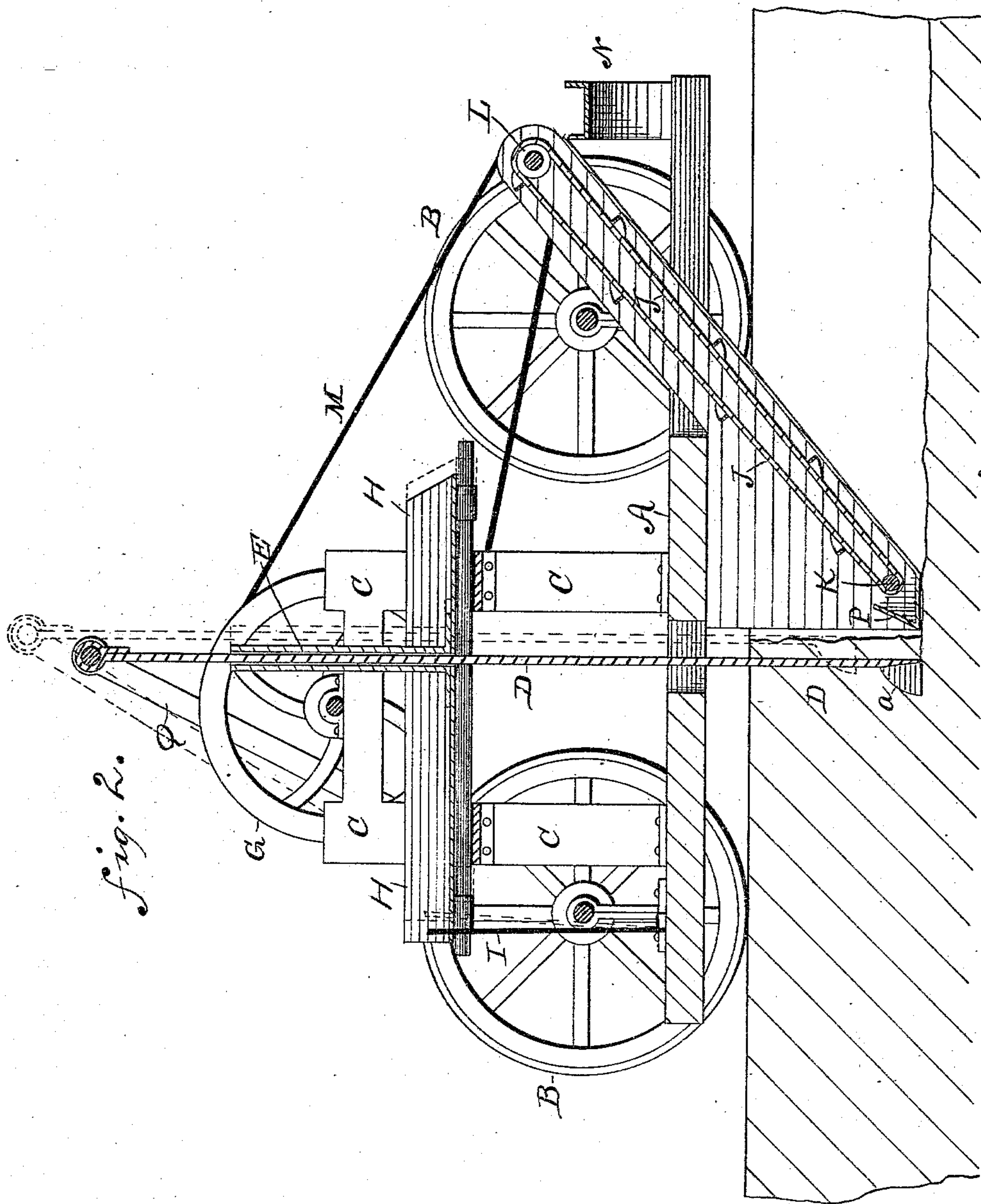
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UNITED STATES PATENT OFFICE.

JOHN ARTHUR, OF STREATOR, ILLINOIS.

TILE DITCHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 295,323, dated March 18, 1884.

Application filed October 15, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOHN ARTHUR, a citizen of the United States, residing at Streator, in the county of La Salle and State of Illinois, have invented certain new and useful Improvements in Tile Ditching-Machines, of which the following is a description.

This invention relates to that class of machines used for digging trenches or ditches for laying tiles and other purposes; and it consists in the construction and combination of parts forming a ditching-machine, hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is a front elevation, and Fig. 2 is a central longitudinal vertical section, of my ditching-machine. Fig. 3 is a transverse vertical section through the delivery-troughs.

A represents the bed of the machine, mounted on wheels B, forming a truck.

C represents a frame mounted and firmly secured on the bed.

D is the spade, having its edge notched, and provided with side lips, *a*, to cut the earth to form the sides of the ditch. The spade has a long flat shank, which is fitted to reciprocate in a vertical slideway, E. This reciprocating motion is produced by means of cranks F on the drive-wheels G and connecting-rods Q. These cranks may serve as the medium through which rotary motion is given to the wheels G either by hand or by an engine carried upon the bed of the machine.

As the operation of digging a ditch is performed while the ditching-machine advances on the ground over the line of the ditch, the machine will advance somewhat during each descent of the spade. I therefore provide means to allow the spade to recede relatively to the machine, so that the spade may be entering and withdrawing from a fixed point on the ground while the machine advances. To accomplish this movement I mount the slideway E on a longitudinal slideway, H, and I connect with way E a spring, I, which constantly strains upon way F to draw it forward, yet permits said way to recede to the amount that the machine advances while the spade is in the ground. By this means the spade will be drawn forward the instant it

leaves the ground. To raise from the ditch the dirt which is thus loosened by the spade, I mount an elevator-belt, J, having blades or buckets to engage and carry the dirt on two rollers, K L, and revolve the roller L by a belt, M, connecting with the drive-wheel G.

N represents spouts joined at their highest points in the middle of the machine, under the delivery of belt J, and extending sidewise beyond the ditch to deliver the dirt well out of the way.

The same power which runs the spade also runs the elevator, as described, and the rate of speed of the machine will be regulated relatively to the rate of its advance on the ground proportional to the hardness of the earth. If the earth be soft, the spade may take long steps, and yet loosen the dirt sufficiently to assist the elevator to remove it. If the earth be hard, the machine must advance more slowly, or the speed of the spade and elevator must be increased.

To raise the earth a little from the bottom of the ditch, so that the lower wheel of the elevator may have room to work, I provide a shovel-nosed plow, P, which is rigidly secured in the frame of the machine.

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

1. The combination, with a wheeled truck and an earth-elevator mounted thereon, of a spade, vertical ways for the spade, and means to reciprocate the spade therein; longitudinal ways for the spadeways, and means for moving the spadeways forward thereon, substantially as and for the purpose specified.

2. The combination, with a wheeled truck, an earth-elevator mounted thereon; a frame supporting longitudinal ways mounted on said truck, vertical ways mounted in said longitudinal ways, a spade fitted to said vertical ways, drive-wheels provided with cranks, rods connecting said cranks with said spade, and a belt connecting one of said drive-wheels with said elevator, substantially as shown and described.

JOHN ARTHUR.

Witnesses:

M. W. JACK,
J. L. ARTHUR.