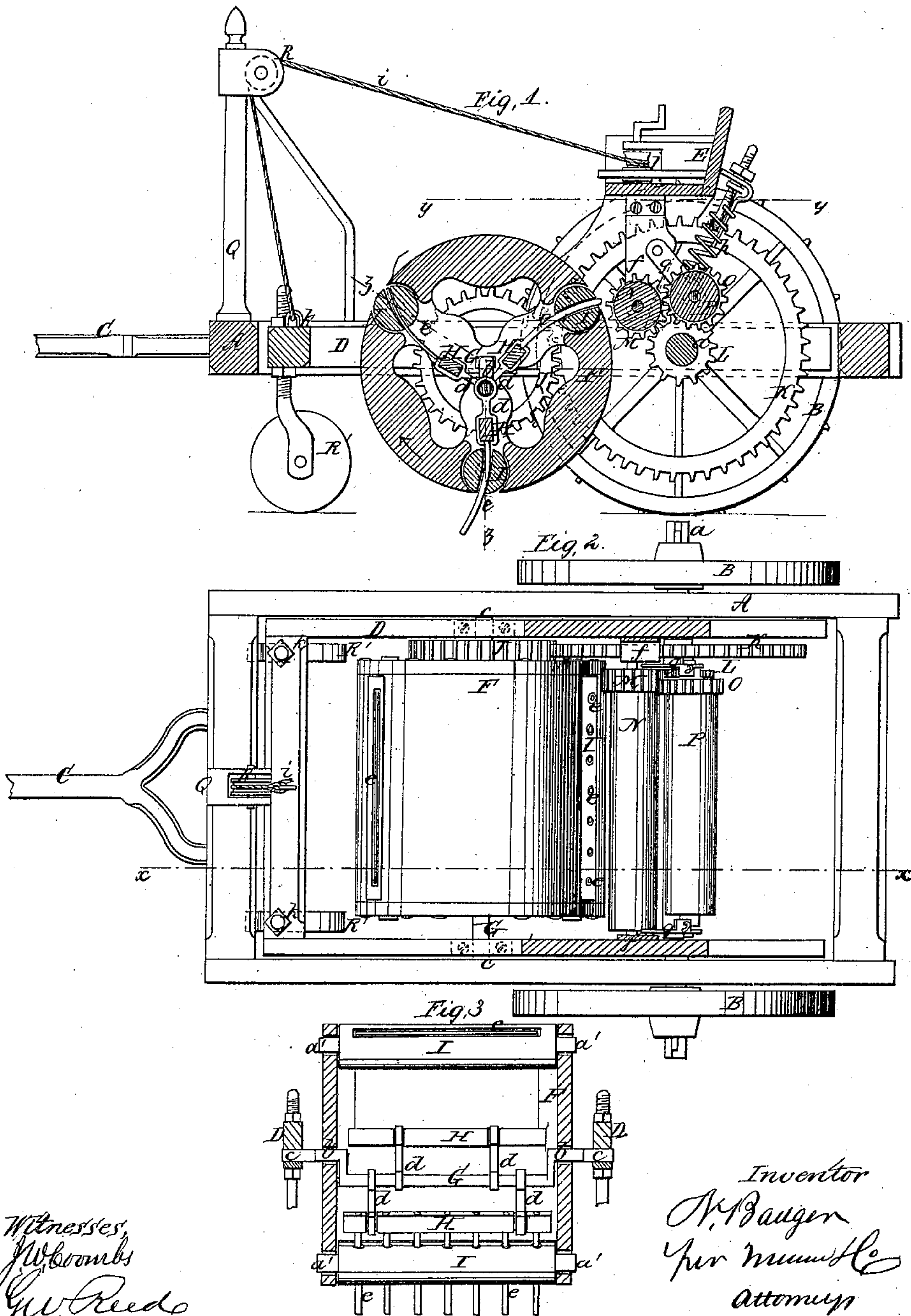


N. BADGER.
DIGGING MACHINE

No. 34,473.

Patented Feb. 25, 1862



Witnesses
J. W. Brown
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UNITED STATES PATENT OFFICE.

N. BADGER, OF SHELBYVILLE, KENTUCKY.

IMPROVED DIGGING-MACHINE.

Specification forming part of Letters Patent No. 34,473, dated February 25, 1862.

To all whom it may concern:

Be it known that I, N. BADGER, of Shelbyville, in the county of Shelby and State of Kentucky, have invented a new and Improved Digging-Machine; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a side sectional view of my invention, taken in the line *xx* of Fig. 2; Fig. 2, a horizontal section of the same, taken in the line *yy* of Fig. 1; and Fig. 3, a detached longitudinal section of the digging-cylinder, taken in the line *zz* of Fig. 1.

Similar letters of reference indicate corresponding parts in the several figures.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents a rectangular frame, which is mounted on two wheels, B B, and has a draft-pole, C, attached to its front end.

D is a frame, which is fitted within the frame A and placed loosely on the axle *a* of the wheels B B, the axle *a* passing through the back part of the frame D. On the frame D the driver's seat E is placed, and within the frame there is placed a cylinder, F, the axis G of which is bent to form a crank, *b*, at each end, as shown clearly in Fig. 3, the ends *c* of the axis G being at the outer ends of the cranks. The bearings of the ends *c* are in the frame D, and to the body of the axis or shaft G of the cylinder F there is attached a series of arms, *d*, the outer ends of which have bars H attached, and to these bars teeth *e* or spades are secured. The teeth or spades are of curved form and pass through cylindrical or semi-cylindrical guides I, which are fitted in the periphery of the cylinder F, the guides having journals *a'* at their ends, which are fitted in the sides of the cylinder. The axis or shaft G of the cylinder F does not rotate—the cylinder F works upon it.

To one end of the cylinder F there is attached a toothed wheel, J, into which a wheel, K, on the axle *a* gears. On the axle *a* there is also placed a small toothed wheel, L, which gears into a corresponding wheel, M, at one end of a roller, N, the journals of which have

their bearings in pendants *f*, attached to the bottom of seat E.

Into the wheel M of roller N a wheel, O, gears, said wheel O being on a roller, P, which is parallel with the roller N. The journals of the roller P are fitted in adjustable or swinging bearings *g*, against which spiral springs *h* act, said springs having a tendency to keep the roller P in contact with the roller N.

On the front part of the frame A there is secured an upright, Q, which has a pulley, R, attached, over which a cord, *i*, passes, said cord being attached at one end to the front part of frame D and the opposite end attached to a windlass, *j*, at one side of seat E.

To the front part of the frame D there are attached two caster-wheels, R' R', the upper ends of which are provided with nuts *k*, said nuts fitting on screws cut on the shanks of the caster-wheels.

The operation of the machine is as follows: As the device is drawn along the cylinder F is rotated by the gearing K J in the direction indicated by the arrows, and the teeth or spades *e* are forced out from the cylinder F through their guides I in consequence of the eccentric position of the main portion of the shaft G of the cylinder F, the shaft G having such a position that the teeth or spades will be forced out from the cylinder as they pass underneath its axis or shaft G and be drawn inward as they ascend at the front part of the cylinder. The teeth or spades *e* penetrate the earth at the under side of the cylinder and raise it upward, the earth being discharged at the back side of the cylinder in consequence of the teeth or spades being drawn within it.

When the implement is used as a digging device the rollers N P are used to crush the clods of earth, the latter being discharged directly between them, owing to the revolution of the cylinder. When the device is used as a potato-digger the roller P is removed, and, if necessary, a screen or endless discharging-apron may be employed to discharge the potatoes at the rear of the machine.

In turning the machine at the ends of rows, or in drawing it from place to place, the frame D is elevated at its front end sufficiently to admit of the cylinder and its teeth or spades clearing the ground. This elevating of the frame

D is accomplished by the driver actuating the windlass *j*.

The depth of the penetration of the teeth or shares *e* may be regulated by adjusting the nuts *k* on the shanks of the caster-wheels *R* *R'*.

The guides *I* serve to facilitate the forcing out of the teeth or spades from the cylinder and their withdrawal therein.

This invention is an improvement upon the device patented by B. F. Fields, 1859. I therefore disclaim the invention of the cylinder and arms operated by an eccentric; but.

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

1. The combination of the oscillating guides *I*, arms *d*, and crank *G*, with the cylinder *F*, as and for the purpose herein shown and described.

2. The combination, with the above parts, of the pulverizing-rollers *N* *P*, as shown and described.

Witnesses:

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A. B. KNIGHT,

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