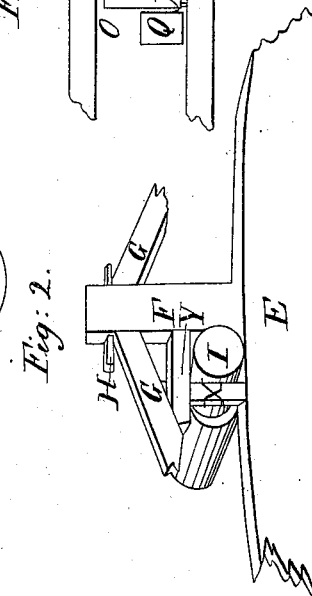
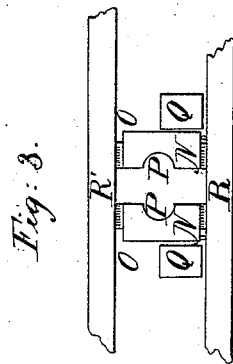
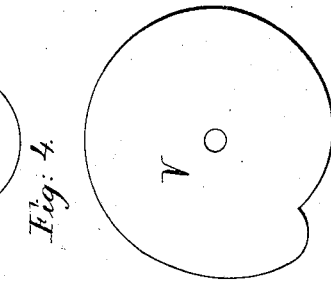
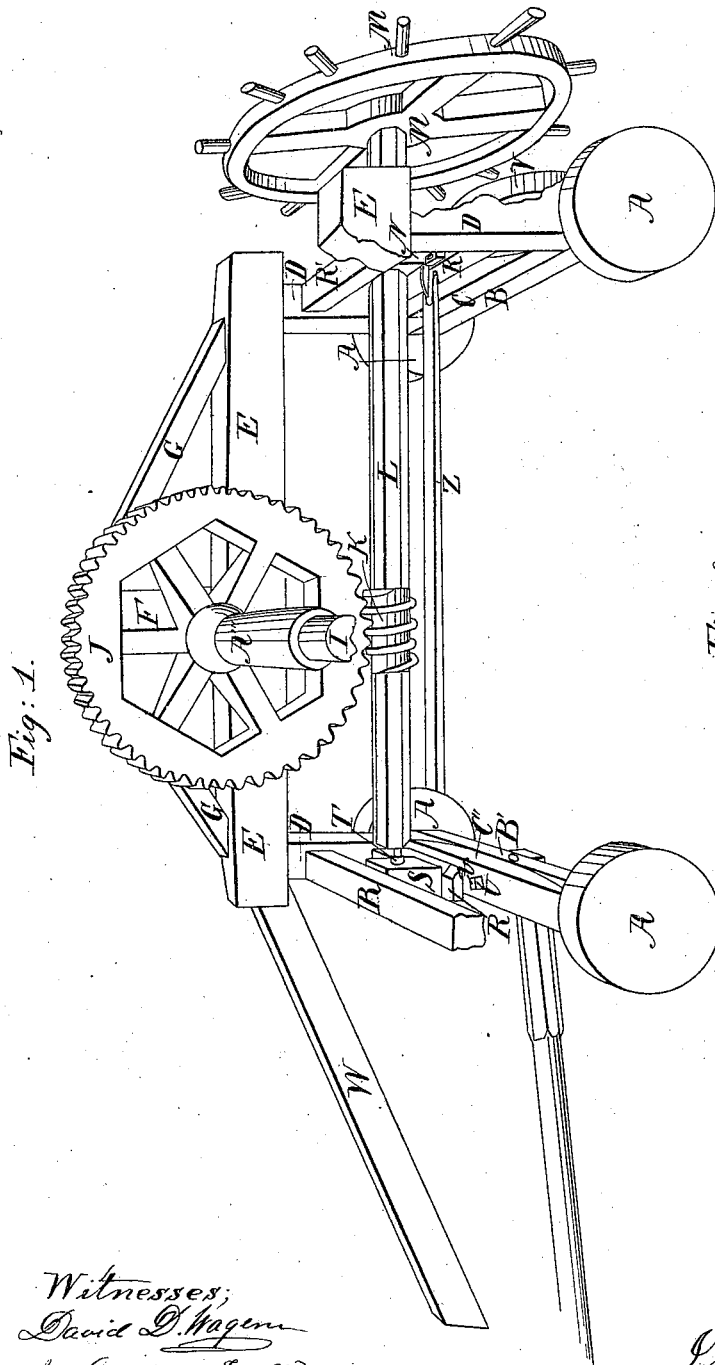


*J. D. Akin,  
Stump Elevator.*

*N<sup>o</sup> 1,500.*

*Patented Feb 26, 1840.*



*Witnesses;  
David D. Wagon  
J. Hampden Field*

*Inventor;  
John D. Akin*

# UNITED STATES PATENT OFFICE.

JNO. D. AKIN, OF COLUMBUS TOWNSHIP, WARREN COUNTY, PENNSYLVANIA.

## STUMP-EXTRACTOR.

Specification of Letters Patent No. 1,500, dated February 26, 1840.

*To all whom it may concern:*

Be it known that I, JOHN D. AKIN, of Columbus township, in the county of Warren and State of Pennsylvania, have invented a new and Improved Mode of Constructing Stump-Drawing Machines; and I do hereby declare that the following is a full and exact description.

The nature of my invention consists in firmly sustaining in a substantial, light and convenient frame—which moves like a carriage, upon wheels—a cog-wheel and axle, to which motion is communicated by means of an endless screw and shaft from a wheel worked by hand, in the mode of constructing this frame and in the method of moving it, as hereinafter described, off from or over a stump, sidewise, by a fifth and eccentric wheel and easily again permitting its regular outward motion when it is perfectly clear of the stump.

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

I make the wheels of my carriage A, Figure 1, of any convenient size, according to the nature of the ground upon which it is chiefly to be used, as, for example, 3 feet in diameter and 6 inches in tier. My axle-trees B and B' may be, for example 8 feet, so that the space between the tracks may measure about 6 feet. The hind axle-tree B sustains a bolster C which may be 5 feet 8 in. in length. This bolster and axle-tree are firmly bolstered together and each of them and also the forward axle-tree may be 7 by 9 inches in thickness. The forward axle-tree, also, sustains a bolster C', the under face of which forms a small segment of a large circle touching the upper face of the axle-tree only in its center. Through this point and through the bolster and the axle-tree a pin passes, which is secured by a nut U, allowing the two forward wheels free motion around the pin as a center, so that the carriage may be turned in the same manner as carriages in common use. Four upright posts, two and a section of a third of which are represented in the drawing and marked D, are raised upon the four extremes of the two bolsters. They may be 5 feet long and 8 inches square. They sustain two plates, one of which is represented marked E, the upper faces of which are large elliptical segments. These plates run in the lengthwise direction of the carriage.

They may be 8 by 16 in the center and 8 by 10 inches at each end. Upon these plates and immediately above their centers two king-posts F, Figs. 1 and 2, are erected and firmly dovetailed to the plates. The king posts may be three feet long and 6 by 10 inches thick. They are strengthened by braces, which are mortised into the plates at a distance of about 24 inches from their ends and also into the king posts about 9 inches below their upper ends, the tenons being made firm into the mortises of the king posts by keys H, Fig. 2, so that they may be at any time tightened should the braces become loose from the moving or action of the machine. These braces are intended to aid in sustaining the plates in their position against the resisting power of the stump and act upon the principle of the arch.

From the front surface of the king posts and also on the upper face of the plates two segments of a cylinder which is 12 inches in diameter are cut, passing through the point of contact of those faces. These segments have perpendiculars of two inches. In these segments the axle-tree of the cog-wheel turns and is prevented from slipping forward or upward or out of them by two upright and horizontal posts X Y, Fig. 2. Of the cogwheel the axle, at its hub, which is 8 inches from the center (of the axle), measures 20 inches, at the working post A'', 18 and at its centers of motion 12 inches in diameter. From A''' the chain which is attached to the stump is suspended. It is wound around or unwound from the axle as the axle turns. It hangs directly from the center of the machine. The cog-wheel itself, J, may be 6 feet 3 inches in diameter and the cogs ninety in number. It is moved by an endless screw K, which occurs upon a shaft L, that is horizontal and parallel to the plates E. The shaft is sustained at the forward end by a gudgeon and a stud S, which is supported by the two girts R, that are mortised into the forward uprights. Toward the other end it passes through the orifices P cut in the two studs N represented in section in Fig. 3. These studs are supported in girts R', that are mortised into the two hind uprights. The studs terminate in tenons which pass into mortises in the girts, and those mortises, both above and below, are deeper and longer than the tenons so as to admit the keys Q, which are

to be employed both above and below. Two keys are driven into the openings O as necessity may require, so as to regulate the position of the orifice P and raise or lower the shaft at will. The shaft projects 3 feet beyond these studs and behind the carriage and terminates in a wheel M, which may be 6 feet in diameter and is provided with pins perpendicular to the tier of the wheel and two feet in length where motion is given to the machine by hand.

Z is a stay to the frame. It passes into and through mortises in the lower girts R' and R and its tenons are also mortised and held firmly in their position by keys. This stay is represented as broken in the drawing.

V is an eccentric wheel, represented in section in Fig. 4. Its axle passes through the center of the axle B. Its circumference gradually varies from a greater to a lesser diameter, the smaller of which, when it points directly to the center of the earth, is of such a length as to hang clear of the ground; but, also, so that when it is drawn a little out of the plumb line in a direction opposite to that of the expansion of its circumference that expansion shall cause the wheel to touch the ground, thus raising the two hind wheels off from the ground and the back of the machine upon the increasing surface of its 5th wheel, by which means the back of the machine may be moved the

length of one revolution of this 5th wheel sidewise, over or off from a stump, when the back of the machine will again fall upon its hind wheels and the front wheels being moved by having the cattle the whole machine may be employed to operate upon the stump or, should the stump have been drawn, be moved forward, while the stump remains undisturbed in the position to which it had been brought.

There are two movable braces, one of which is represented in the drawing, marked W. They are designed to be employed only when it is necessary to draw the stump out in a sidelong direction, when they may be placed against the forward extremities of the plates in the position represented and sustained there by tenons, with which their extremity terminates and which enter mortises in the forward extremities of the plates. Their second extremity is cut so as partially to enter the ground.

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

The employment of the eccentric wheel for bringing the machine above or removing it from a stump in a sidewise direction constructed and operating as herein described.

JOHN D. AKIN.

Witnesses:

WM. BISHOP,

C. H. WILTBERGER.