T. L. WEBSTER.

Machine for Subsoiling and Digging Vegetables.

No 160,489. Patented March 2, 1875.

Fig. 1

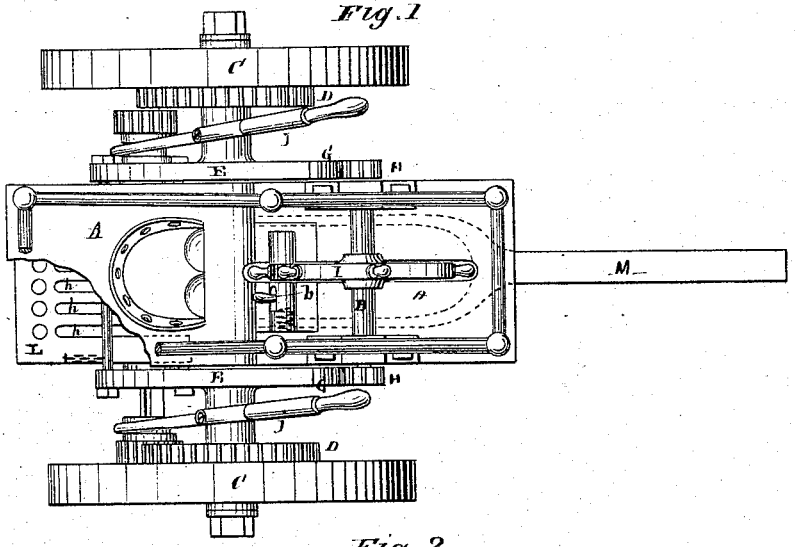


Fig. 2.

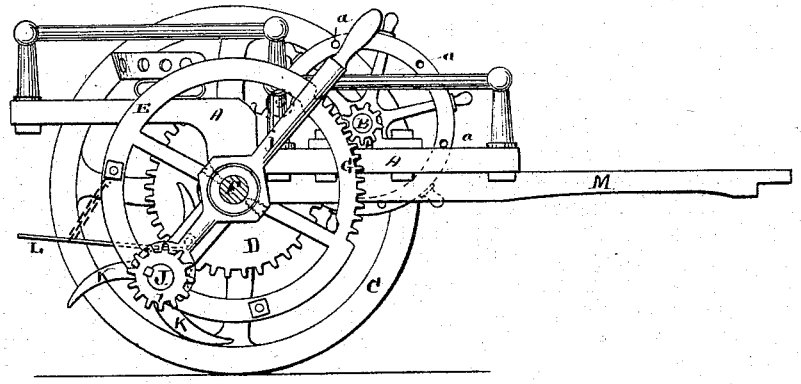
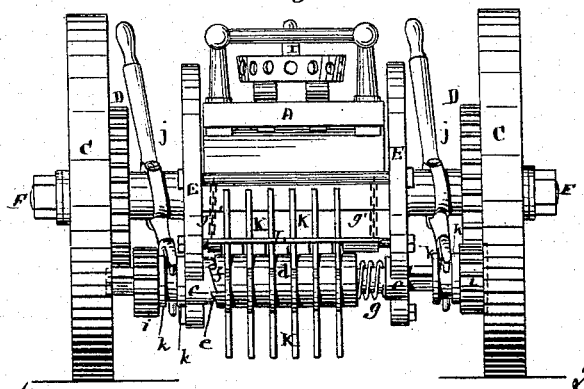


Fig. 3.



Witnesses
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UNITED STATES PATENT OFFICE

THEODORE L. WEBSTER, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN MACHINES FOR SUBSOILING AND DIGGING VEGETABLES.

Specification forming part of Letters Patent No. **160,489**, dated March 2, 1875; application filed February 11, 1875.

To all whom it may concern:

Be it known that I, THEODORE L. WEBSTER, of Brooklyn, Kings county, New York State, have invented certain new and useful Improvements in Machines for Subsoiling, Digging Vegetables, and for analogous purposes, of which the following is a specification:

My improvements in machinery of the class above referred to are designed to render said machines more effective in operation and better adapted to the uses for which they are intended.

I employ a rotary fork-head carrying a series of revolving forks, mounted in a frame adjustable by means of toothed sectors operated by a rotary toothed adjusting-wheel. On the shaft of the fork-head, and united therewith by a groove-and-spline connection, are pinions, which are movable to engage or disengage at pleasure driving-gears fixed either to the wheels on which the machine runs or to the shaft or axle of said wheels in case said axle revolves. The fork-head is arranged to have an intermittent but regular lateral movement, for the purpose of freeing the teeth from material which may adhere to them, which movement takes place preferably when the set of forks to be thus cleared has just passed its upper center. With the fork-head and the forks or teeth carried by the same is combined a slotted clearing-table, which moves laterally with the forks.

A machine embodying my improvements is shown in the accompanying drawing, in which—

Figure 1 is a plan view of said machine. Fig. 2 is a side elevation, and Fig. 3 is an end elevation.

A is the platform, which carries the driver's seat and the shaft B, on which are fixed the devices by which the adjustment of the sectors of the fork-head frame is effected. The platform is fixed to the main axle F of the machine, on which axle are loosely mounted the main wheels C. Each wheel C has fixed on its inner side a gear, D, which revolves with the wheel. The fork-head carrying-frame consists of two disks, plates, or wheels, E, whose hubs are loosely mounted on the main axle F. These disks, on that portion of their peripheries at the front of the machine, are toothed, as seen at G, constituting as to this portion what I have termed sectors. Sectors G engage pinions H fixed on the ends of shaft B. The shaft is revolved by means of a hand-wheel, I, (or its equivalent—as, for instance, a radial arm, or lever,) fixed to the shaft. In the hand-wheel are formed a series of sockets, *a*, opposite to which is a spring locking-pin and handle, *b*, on the platform, which engages the one of said sockets brought opposite to it by the rotation of the wheel I. The pin can be withdrawn therefrom at any time by means of its handle. The fork-head consists of a rotary shaft, J, mounted in bearings *c* in the wheels or frame E. Fixed and radiating from a hub, *d*, are several series or rows of forks or teeth, K, the series being equidistant from one another. The hub is mounted on shaft J, and united therewith by a spline-and-groove connection, so that while rotating with the shaft it may have an endwise movement independent of the shaft. This endwise movement is produced by means of series of inclines *e*, resembling ratchet-teeth, on the inner face of one of the bearings *c*, and a corresponding series of inclines, *f*, on the contiguous face of hub *d*. The hub is pressed up against the inclines *e* with a yielding pressure by a spring, *g*. When, therefore, the shaft J and hub *d* revolve, the inclines or jogs *e* and *f*, acting on one another, will give the hub, together with the teeth carried by the same, intermittent lateral movements, which have the effect of shaking from the teeth, as well as from the table hereinafter described, material that may adhere to the former or be deposited on the latter. The jogs are preferably arranged as shown, so that the shaking movement will take place just as each series of teeth in turn passes its upper center. The table above referred to is shown at L. It is hinged to frame E, and is held in position by chains or cords or arms *g'*. It is slotted, as shown at *h*, for passage of the forks K, and its journals have sufficient lateral play to permit the table to follow and partake of the lateral movement of the fork-head. At each end of the fork-head shaft J is a pinion, *i*, whose hub is mounted on the shaft and united therewith by a spline-and-groove connection, so that it may be free to slide longitudinally of the shaft,

These pinions are designed to engage the driving-gears D, and are thrown into and out of gear with said driving-wheels by levers *j*, having their fulcrums on the hubs of the frame-disks E, and provided with forked lower ends, which straddle the hubs of pinions *i*, between flanges *k k* thereon. The upper ends of the lever are in convenient proximity to the driver's seat, as shown. Under the arrangement shown the pinions can be thrown in and out of gear without stopping the forward movement of the machine, and each pinion can be used independently of the other, according to the necessity of the case. The teeth or forks are made in scoop form, to render them more effective in operation. The tongue, to which the team is to be hitched, is shown at M. It is fixed to the main axle or to the driver's platform.

Having described my improved machine, what I claim therein as new, and desire to secure by Letters Patent, is—

1. The combination, with the revolving fork-head, of the movable and adjustable toothed sectors constituting the fork-head supporting-frame, and mounted on the main axle or shaft, and the hand-wheel and pinions, arranged on the platform, and connected with and adapted to operate the toothed sectors, substantially as shown and set forth.

2. The fork-head supporting-frame, consisting of rotary skeleton disks or wheels mounted on the main axle on each side of the platform, formed on their peripheries with teeth or cogs to engage the adjusting-pinions, and provided with bearings for the fork-head, substantially as shown and described.

3. In combination with the fork-head supporting-frame, the revolving and laterally or endwise reciprocating fork-head, substantially as shown and set forth.

4. The combination, with the rotary fork-head shaft, of the fork-head revolving in unison therewith, but having intermittent lateral or endwise movements independent of the shaft, substantially as and for the purposes shown and set forth.

5. The combination, with the rotating and laterally-moving fork-head, of the slotted clearing-table, moving to and fro laterally in unison with the fork-head, substantially as shown and set forth.

In testimony whereof I have hereunto signed my name this 9th day of February, A. D. 1875.

THEODORE L. WEBSTER.

Witnesses:
F. W. HANAFORD,
HENRY ENTENZA.