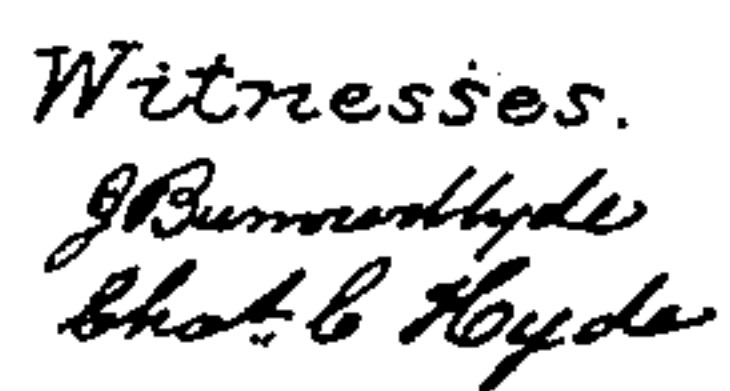


## Peat Machine.

Patented April 26, 1870.



Inventor:  
James B. Lyons.



# United States Patent Office.

JAMES B. LYONS, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO VULCAN PEAT-MANUFACTURING COMPANY, OF NEW YORK CITY.

Letters Patent No. 102,414, dated April 26, 1870.

## IMPROVEMENT IN PEAT-MACHINES.

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, JAMES B. LYONS, of the city and county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Utilizing Peat for Fuel; and I do hereby declare the following to be a full and exact description thereof, reference being had to the accompanying drawings and the letters of reference marked thereon.

My invention consists in an improved machine for the preparation of peat-fuel.

In the drawings—

Figure 1 represents a vertical elevation of the back or receiving side of the manipulating apparatus and rack-way, with the racks thereon;

Figure 2 shows the front elevation;

Figure 3, the elevation of the delivery side; and

Figure 4 shows a plan of the same.

Figure 5 shows a plan of the curved working blades and the fixed manipulators;

Figure 6 shows an elevation of the same; and

Figure 7 shows a plan of the blades, with the manipulators removed.

Figure 8 shows a pair of racks, as placed in position when loaded with peat for drying; and

Figure 9 shows a plan view of the same.

Figure 10 represents a side elevation of a curing and storing crib, as filled with peat; and

Figure 11 shows a plan view of the same.

My improvements consist in the peculiar shape and arrangement of the rotating working-blades *a a*, secured to the vertical rotating-shaft *b*, and with a special view to their operation with the fixed radial manipulators or kneading-arms *c c*, and the intermediate pocket or recesses over the retaining compressing-plate *d d*, and also to the retaining-plate itself, and, in view of the special functions of the above-described, with the moulding-dies *e e* and the supporting drying-racks *f f*, with the independent flanch wheels *g g*, fixed and rotating in the frame-work of the inclined rack-way *h h*, placed beneath the manipulator, from which the prepared material is delivered onto the racks in the condition of bars or cams *e' e'*, each about six feet long and four inches diameter.

The racks are made about twenty-seven inches wide and seventy-two inches long, of light strips of wood, as lath stuff, with alternate intervals, and nailed together by transverse strips at the ends, and with stiffening pieces at the sides. The ends are provided with additional transverse strips forming angular recesses, so that the edge of one rack can rest in the recess of the other, and thus hold the two secure in a semi-vertical position. (See fig. 8.)

The functions of these racks are five-fold. They receive the prepared peat, and automatically remove it from the machine. Attendants then take the peat

upon the racks to the drying-ground, where they fix them in pairs, with the load outward, and the upper ends inclined inward, and locked together by the lock-strips thereon, in which elevated position (see figs. 8 and 9) they remain until the peat is dry enough for removal.

The manipulating machine is contained within a wooden casing, *k k*, properly strengthened and secured by frame-work, *k' k'*, the whole being fitted and held together by mortises and tenons, and by iron screw-bolts and nuts.

*k<sup>2</sup> k<sup>2</sup>* are movable panels, held in position by sliding bolts, enabling the attendants to uncover the working parts readily, when necessary to remove such obstructing matters, as stones, &c., which may accumulate there from the rejecting action of the blades.

*l* is the main driving-pulley, fixed upon a horizontal shaft, *l'*, across and resting in proper bearings upon the top of the machine. Near the center of this shaft a beveled pinion is fixed, which takes into and actuates a second pinion secured to the upper end of the working-shaft *b*.

Upon the opposite end of this horizontal shaft a flat-belted pulley, *m*, is fixed, which actuates a second pulley, *n*, upon the end of a second horizontal shaft, *n'*, held in proper bearings upon the back side of the frame-work.

In the center of this shaft a wide pulley, *o*, is secured, opposite to and partly projecting within the feed-opening made through the paneling and frame-work of the machine.

A trough, *p p*, made of any required length, open at top and two ends, is employed for filling or feeding the peat to the machine, and its width is made to fit the length or face of the pulley *o*.

Upon the lower or opposite end of this trough a second pulley, *o<sup>2</sup>*, is secured in proper bearings.

An elevating or carrying-belt, *q q*, of same width of the trough, is placed around the pulleys *o* and *o<sup>2</sup>*, the intervening portions resting through the bottom of the trough as the working surface, the counter half passing below the trough, as seen in fig. 3.

Near the end of the shaft *l'*, and by the side of the main driving-pulley, outside of the frame-work, a flat-belted pulley, *r*, is fixed, which, through the medium of a belt, actuates a pulley, *s*, upon one end of a horizontal stop, *s<sup>2</sup>*, fixed against and rotating upon proper bearings in the front side, and near the bottom of the frame-work of the machine.

On the opposite end of this shaft *s<sup>2</sup>* a beveled pinion is secured, by a sliding collar and clutch, to connect it with, or to disengage it from, a similar pinion fixed upon the outer end of a transverse shaft within the machine, and not shown in the drawings. On this unseen shaft a volute-shaped plate, extending across



the inside of the casing, is secured, which, by rotation of the shaft, forces the manipulated peat through the dies *e e* onto the racks.

This attachment is put in motion and arrested through the action of the lever *t* and the hand of the attendant.

The shape or curve of the working-blades is precisely or nearly the same as will be obtained by drawing a circle whose radius is the same as the extreme direct length of the required blade. Within this curve describe a second circle, so as to permit an interval between the two equal to the width of the proposed blade. Now, divide this flat ring into three equal parts, and place them radially with equal intervals at their outer ends, the curves coinciding, the inner ends touching, and we have the shape of one of the three-bladed working-plates described. A cross-section of the blades show them wedge-shaped, being thicker on the back than the working-edge. The upper surface is horizontal, and the lower side depressed toward the back, thus giving a compressing or screwing of the material downward as the blades rotate. The curve described is such that any hard, foreign substance, such as stones, bones, roots, &c., is deflected therefrom into the recess before described, and there rests until removed by hand.

These three-bladed plates are cast in one piece, the center or boss being slightly thickened on each side. They are placed on the shaft so that the blades of the under are slightly behind the upper to the third plate, when the positions are repeated, forming them like three threads of a screw.

The upper and lower blades are provided with a binding-flanch or feather, by a thin plate projecting to the rear. (See *a<sup>2</sup> a<sup>2</sup>*.) This increases the width of those blades, to obtain additional binding surface, and confine the peat below the plane of their rotation.

The manipulating or kneading-plates *c c* are cast in sets or "combs," with flanches at the base, to secure them to the frame-work. These plates gradually decrease in width toward the center of the machine, and are fixed opposite each other on its four sides. The intervening spaces allow a free passage of the arms between them.

The operation of the apparatus is as follows:

The peat, being excavated from its bed in a moist state, and conveyed to the manipulator, is shoveled into the trough *p*, which, by the belt *q*, is conveyed upward and through the feed-opening, where it falls into the upper receptacle or curb of the machine. By the rotation of the blades *a a*, in their action with the manipulators *c c*, the peat is kneaded into a homogeneous, paste-like consistency. At the same time, by the action and shape of the blades, and the weight of the column of peat, it is forced below the retaining-plate *d*, without which the peat would return upward outside of the blades, and, by the same means, and the action of the rotating volute-shaped plate, it is condensed and forced through the dies *e e* in a series of bars, as at *e<sup>2</sup> e<sup>2</sup>* upon the racks. One attendant places a rack on the rollers at the left side, pressing it under the machine to his right, until it takes the bars of peat, which then propel it forward. As the rear end of the rack passes the dies, the series of bars are simultaneously cut or separated by a thin-edged instrument or blade in the hand of the second attendant standing at the right of the machine, at the lever *t*. From this point the loaded racks glide along the rack-way, which is slightly inclined toward the drying-ground, where it is removed and placed in position, (see fig. 8,) from which, after three or four days, it is removed from the yard.

I do not claim, broadly, the several devices herein shown, nor any general combination of the same; but

What I do claim, and desire to secure by Letters Patent, is—

In the peat-machine herein shown, an improved arrangement of parts consisting of the top and bottom-flanged wipers *a<sup>2</sup>* and intermediate cutter-knives *a* upon the shaft *b*, stationary blades *c*, retaining-plates *d*, and dies *e e e*, when said parts are constructed and arranged to operate as and for the purposes herein shown and described.

JAMES B. LYONS.

Witnesses:

J. BURROWS HYDE,  
CHAS. C. HYDE.