No. 858,354. PATENTED JUNE 25, 1907.

M. C. SHARPNECK.

PEAT MACHINE.

APPLICATION FILED MAR. 18, 1907.

FIG. 1.

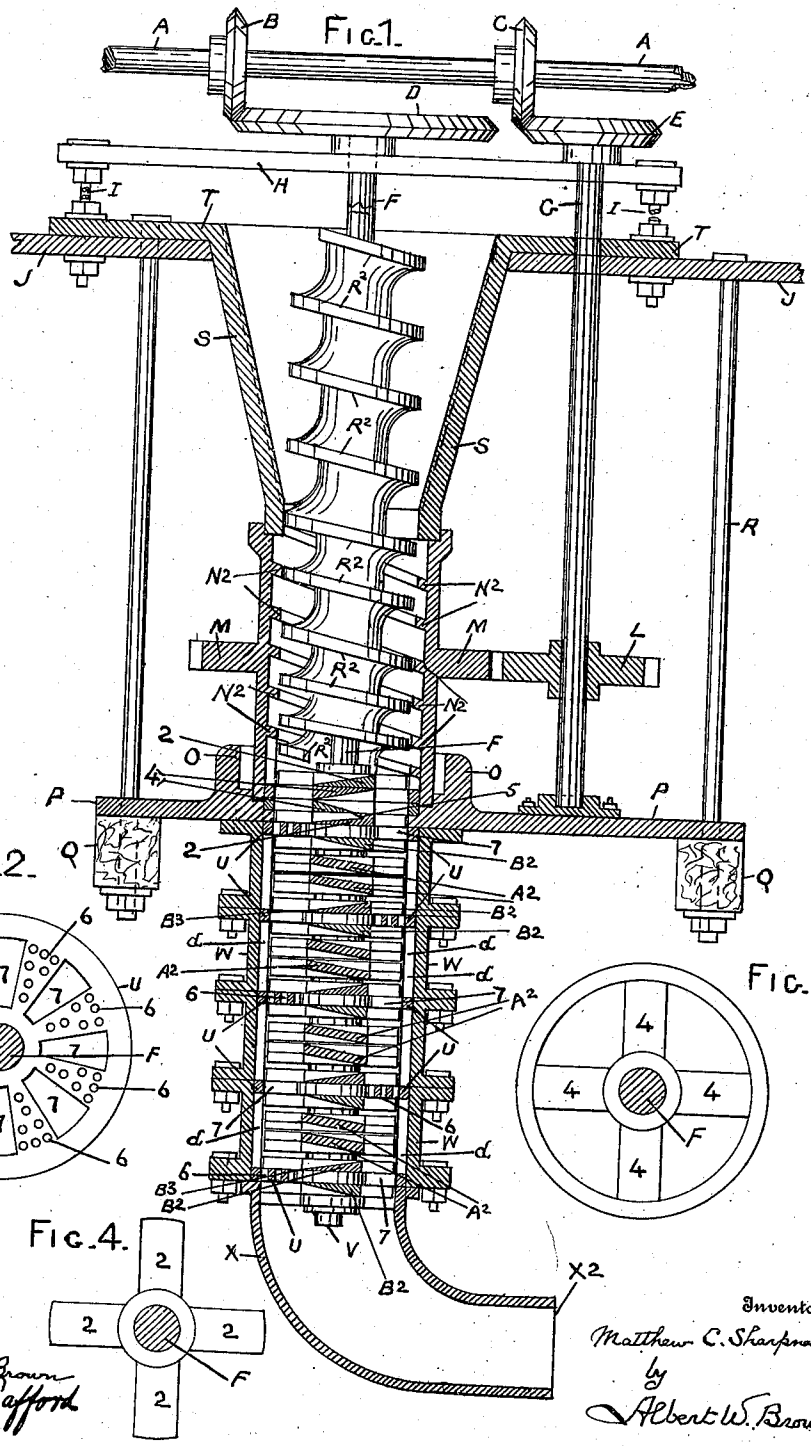

FIG. 2.

FIG. 3.

FIG. 4.

Witnesses

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MATTHEW C. SHARPNECK, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE AMERICAN PEAT MACHINERY COMPANY, OF PORTLAND, MAINE, A CORPORATION OF MAINE.

PEAT-MACHINE.

No. 858,354. Specification of Letters Patent. Patented June 25, 1907.

Application filed March 18, 1907. Serial No. 362,998.

To all whom it may concern:

Be it known that I, MATTHEW C. SHARPNECK, a citizen of the United States, residing at the city of Boston, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Peat-Machines, of which the following is a specification.

This invention, more particularly, relates to improvements in peat-machines embraced in my application for United States Letters Patent, filed October 13, 1906, Serial No. 338,871.

The invention, in substance, consists in the combination with the rotatory spirally-flanged shaft and the rotatory shell, internally spirally flanged, the two rotating in opposite directions, of cutting-blades carried by each thereof and arranged for coöperative cutting action on the peat being forced through the rotatory-shell; also in the combination with said rotatory shaft, said rotatory shell, a stationary shell in continuation of said rotatory-shell, and fixed perforated partitions dividing said shell into chambers of cutting-blades carried by said rotatory shaft and arranged to act on the peat as it is forced through the perforations of said partitions at the opposite sides or faces of said partitions; and, also, in other details, all as hereinafter fully described, and pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a central vertical section of the rotatory-shell, a stationary hopper surmounting it, a stationary shell having a discharge spout and in continuation of said rotatory shell, the several cutting-blades, the several perforated partitions and a part of the supporting structure, and a side elevation of the rotatory spirally flanged shaft and of the mechanism for driving it and the rotatory shell, except in the parts directly connected with said shell which are in central vertical section. Figs. 2, 3 and 4 are enlarged detail views, all as will hereinafter appear.

In the drawings, A is a horizontal shaft supported and driven in any suitable manner. B and C are similar vertical bevel gear-wheels carried by the shaft A.

D and E are horizontal bevel gear-wheels meshing the gear-wheels B and C, respectively, and F and G are separate vertical shafts located alongside of each other and respectively carrying the gear-wheels D and E. These shafts F and G at their upper end-portions turn in suitable bearings of a horizontal platform H, supported on vertical posts I from a flooring J and these posts are adapted for adjustment of the platform H relative to the floor J.

L is a horizontal pinion gear-wheel intermediate of and turning with the shaft G and M is a larger horizontal gear-wheel surrounding and carried by a vertical cylindrical shell or casing N, which, at its lower end-portion, has bearings in a socket O of a stationary horizontal platform P located below the meshing gear-wheels L and M and supported by fixed horizontal beams Q and in turn supporting by vertical rods R, the flooring J. The bearing-socket O is to be suitably adapted as well known, but not shown, as a stuffing-box for the entering end of the shell N, and to allow it to freely turn therein.

S is a fixed vertical funnel or hopper-shaped basin extending upward from the upper open end of the shell N and connected therewith for the shell N to turn freely thereon and to make close joint therewith.

T is a horizontal outward flaring flange at and about upper open end of the hopper S and suitably secured to the flooring J. The hopper S and shell N are axially coincident with each other and with the vertical shaft F, and within them both, the shaft F has a spirally-running flange R^2, and the shell N has a spirally-running flange N^2, and the shaft F and shell N, geared as has been explained, rotate in directions opposite to each other.

W is a stationary cylindrical shell or casing in continuation of the lower end of the rotatory shell N and the shaft F is continued downward through this shell, its continuation being marked V, and sectioned and jointed together so as all to turn as one and in suitable bearings or supports.

U, U are a series of fixed horizontal perforated partitions or floorings, dividing the stationary shell W into a series of superimposed chambers, and also covering the lower open end of the rotatory shell N, and the lower open end of the stationary shell W, beyond which and in continuation thereof is a stationary spout X having an outer discharging end X^2 opening to a downwardly inclining chute or way, not shown. The extension V of the shaft F, within each of the superimposed chambers, above referred to, carries a series of radial-arms A^2 spirally arranged, and in a quartering series, and the outer edges of these arms A^2 pass by the vertical

edges of vertical ribs forming the vertical grooves *d* at the inner periphery of the stationary shell W.

All as far as has been described is substantially the same as in the application for Letters Patent before referred to, and also otherwise in many details, not necessary to herein more particularly refer to, as they of themselves constitute no part of this invention.

Further than has been described and which constitutes a feature of this invention, the shaft F and its continuation V are provided within both the rotatory shell N and the stationary shell W, with radial and quartering wings or blades B^2, each having a cutting-edge B^3 at its forward side or edge relative to the direction of the rotation of the shaft F and its continuation V and in the instance of each of the perforated partitions U there is a set of said cutting blades B^2 to act by their cutting edges B^3 in coöperation with the perforations of the partitions at both sides of each partition, all as is plainly shown, Fig. 1. Further than this the rotatory shaft F and the rotatory shell N have within the shell N pairs of cutting-blades 2 and 4 substantially similar to the cutting-blades B^2 and respectively carried, the one set 2 of each pair, by the rotatory shaft F and the other set 4 thereof by the rotatory shell N, and otherwise they are arranged relatively to each other and one set above the other, as is plainly shown, Fig. 1, so that as one set of each pair rotates in one direction, being carried by the shaft F, and the other set thereof in an opposite direction, being carried by the shell N, their cutting-edges will coöperatively act like the cutting-edges of shears and scissors-blades. In addition to the above for a better cutting action it is well to construct each of the cutting-blades of the one set 2 with an under cut, as at 5, the set so constructed being the one carried by the rotatory shaft E, and this one set, as shown, is also utilized to serve as the cutting-blades B^2 to coöperate with the perforated partition at the lower end of the rotatory shell N. The perforations of the partitions U, which form another feature of this invention, are in part round, or of other substantially similar shape, as at 6, and in part, radial slots, as at 7, all as shown, Fig. 2, more particularly. And preferably these two forms of perforations, round holes 6 and radial slots 7, are arranged in the partitions U so as to alternate, the one 6, in a series, with the other 7, and similarly to alternate with each other as to the several partitions U, one above the other.

The cutting-blades 2 and 4 in combination with the rotatory shaft F and rotatory shell N, all substantially as herein explained, secure a better cutting up of knots, sprigs, branches, and such like as are found mixed with the peat which is to be operated on, and so the better prepare the material for passing through the perforations of the first perforated plate U of the series and thereby prevent any possible blocking of the rotation of said shaft and said shell. Further the slot-perforations 7 facilitate the passing of such of the peat, as might possibly obstruct, through the perforated partitions, while, by applying cutting-blades B^2 at the opposite sides of the partitions to operate in conjunction with their perforations, a still further improvement in the disintegration of the more or less larger particles which are mixed with the peat proper is secured. Again the undercuts 5 of one set of the cutting-blades 2 in coöperation with the other set of cutting-blades 4 still further add to the disintegration of the peat before it is to pass through the perforated partition U next below. All of these effects or results, while seemingly of minor character, are yet most essential for securing most perfect disintegration and for obviating possibilities of obstruction to a continuous operation of the machine.

There may be any number of the pairs or sets of cutting-blades 2 and 4, according as may be deemed best; it being of course evident that the rotating shaft and shell are to be lengthened out to accommodate the same as also to permit of the several pairs being substantially separated from each other. It may be also well to here observe that the spirally running flanges of the rotating shaft and shell are preferably to be omitted at their portions carrying the sets of cutting-blades 2 and 4.

In conclusion it may be well to here observe that all the features of this invention are as susceptible of adaptation to the same variation in their position as was particularly noted for the machine described in the application referred to.

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

1. In a machine or apparatus for preparing peat for use as fuel, a spirally-flanged and rotatable shaft, an interiorly spirally-flanged and rotatable shell, the one rotating in a direction opposite to that of the other, and the shaft arranged within and axially coincident with the axis of the shell, and the outer edges of the flanges of the shaft and by the inner edges of the flanges of the shell adapted to pass by each other in the rotation of the shaft and shell, in combination with sets of radially extending cutting-blades, the one set carried by said shaft and the other set carried by said shell and arranged for coöperative action, substantially as described, for the purpose specified.

2. In a machine or apparatus for preparing peat for use as fuel, a spirally-flanged and rotatable shaft, an interiorly spirally-flanged and rotatable shell, the one rotating in a direction opposite to that of the other, and the shaft arranged within and axially

coincident with the axis of the shell, and the outer edges of the flanges of the shaft and by the inner edges of the flanges of the shell adapted to pass by each other in the rotation of the shaft and shell, in combination with sets of radially extending cutting-blades, the one set carried by said shaft and having an under cut 5, and the other set carried by said shell and arranged for coöperative action, substantially as described, for the purpose specified.

3. In a machine or apparatus for preparing peat for use as fuel, of otherwise suitable construction, a stationary plate or partition having round, or such like apertures, and radial slots through its thickness, substantially as described, for the purpose specified.

4. In a machine or apparatus for preparing peat for use as fuel, of otherwise suitable construction, a stationary plate or partition having apertures through its thickness, in combination with radially extending cutting-blades in two sets, and a rotating shaft carrying the same and both sets of said blades arranged to act the one set at one side and the other set at the other side of said partitions, and in coöperation with the apertures thereof, substantially as described, for the purpose specified.

In witness whereof, I have hereunto set my hand in the presence of two subscribing witnesses.

MATTHEW C. SHARPNECK.

Witnesses:
ALBERT W. BROWN,
MARION E. BROWN.