July 3, 1945. C. A. FRIBERG 2,379,570

MEANS FOR WINNING AND PREPARING PEAT

Filed Sept. 4, 1943 2 Sheets-Sheet 1

Fig. 1

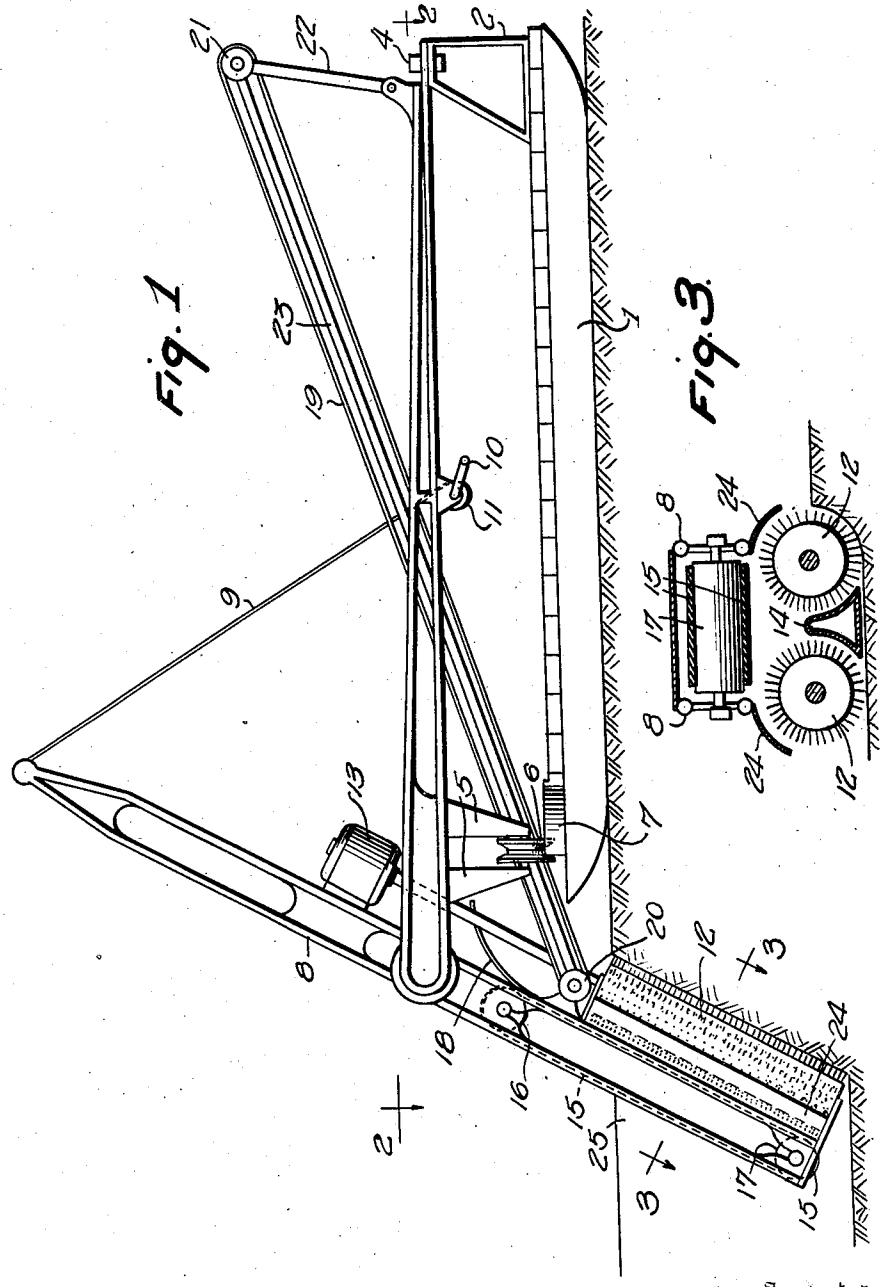


Fig. 3

Inventor
CARL A. FRIBERG

By Young, Emery & Thompson
Attorneys

July 3, 1945. C. A. FRIBERG 2,379,570

MEANS FOR WINNING AND PREPARING PEAT

Filed Sept. 4, 1943 2 Sheets-Sheet 2

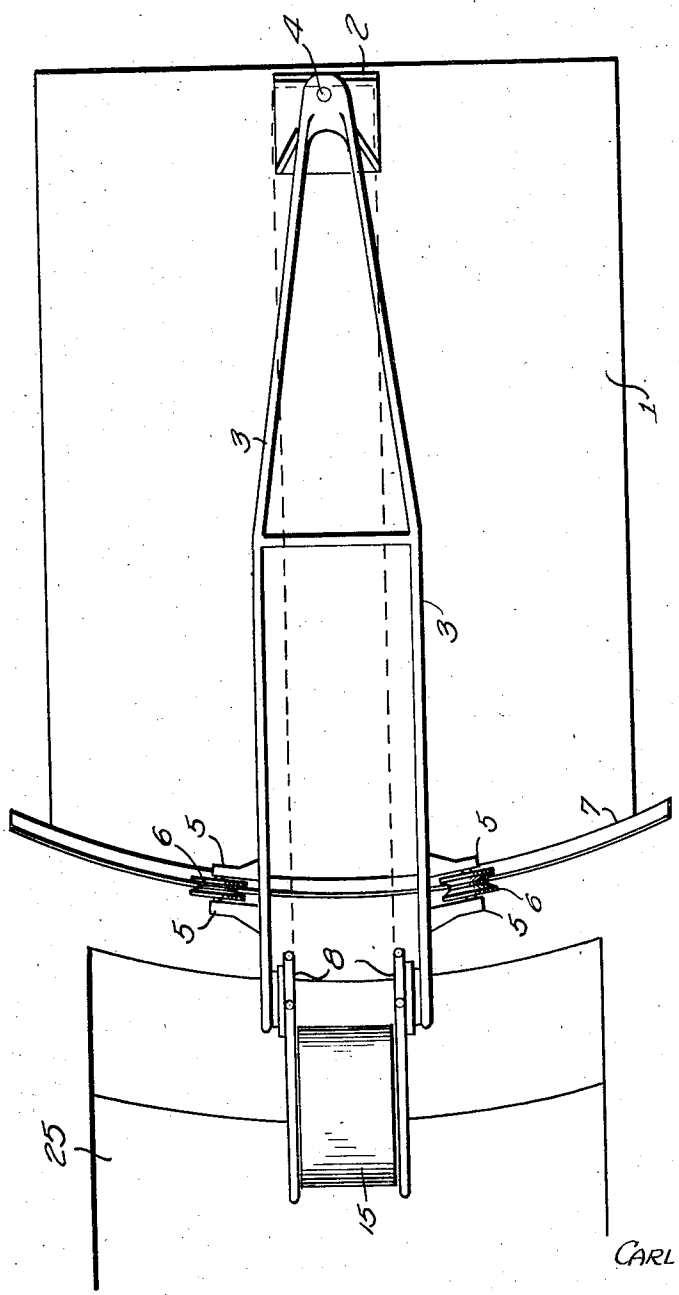


Fig. 2.

Inventor
CARL A. FRIBERG

By Young, Emery & Thompson
Attorneys

Patented July 3, 1945 2,379,570

UNITED STATES PATENT OFFICE

2,379,570

MEANS FOR WINNING AND PREPARING PEAT

Carl Allan Friberg, Malmo, Sweden

Application September 4, 1943, Serial No. 501,328
In Sweden September 1, 1942

5 Claims. (Cl. 37—3)

This invention refers to an improved means for winning peat from peat bogs.

An object of the invention is the provision of a means whereby the peat is won by means of brushing.

A further object of this invention is to enable a certain preparation of the brushed-off peat in conjunction with the brushing-off process.

Another object within the purview of the present invention is the conveyance of the brushed-off peat on conveyer means to any preferred place of discharge.

Another object within the scope of the present invention is the comminuting of the brushed-off peat simultaneously with the brushing-off process.

The range of the invention also comprises a vigorous intermixing of the peat particles brushed off the various layers of the peat trench.

The invention also contemplates the elimination of a subsequent grinding or kneading of the peat necessary for obtaining a peat mass of uniform structure.

Further objects of the invention will become clear in the course of the description.

In order that the invention may be easily understood it will now be described in detail reference being made to the attached drawings which illustrate an embodiment of the device according to the invention.

Fig. 1 is a side view of the apparatus at work.

Fig. 2 is a cross section along the line II—II in Fig. 1 in which for clarity's sake certain parts have not been shown.

Fig. 3 is a cross section along the line III—III in Fig. 1.

The device shown in the drawings comprises a frame in the form of a sled 1 which may be drawn across the bog as desired by any suitable means not shown in the drawings. At one end of the sled is a support bracket 2 on which the one arm of a substantially horizontal arm 3 is rotatably mounted on a pivot 4. The arm 3 is provided at its other end with obliquely downward and outward extending legs 5 carrying wheels 6 by means of which arm 3 when rotating about the pivot 4 can roll along an arcuate rail 7 mounted on the frame.

Onto the free end of the arm 3 a long frame member or beam 8 is rotatably mounted about a horizontal axle. That part of the beam 8 extending downward from its mounting is heavier than the other part, so that the beam tends to assume an approximately vertical position on account of the force of gravity. The beam 8 is rotatable about its horizontal axle on the arm 3 in such a way that it may assume an approximately horizontal position. To the upper end of the beam 8 is fastened the end of a wire 9, whose other end is wound around a drum 11 that can be rotated by means of a handle and secured by a ratchet-and-pawl device. By means of this winch the beam 8 may be adjusted in any position between its vertical and horizontal end positions.

On the lower end of the beam 8 and on that side thereof facing the sled are mounted a pair of rotating brushes 12 whose axles extend substantially parallel to one another and to the direction of extension of the beam 8. In the illustrated example each of the rotating brushes is driven at a high speed by its appropriate electric motor 13 fixed on the beam 8, but, of course, the brushes can be driven in any other way. The two brushes 12 are rotated by the motors 13 in opposite directions and in such a way that their juxtaposed peripheral portions travel towards the beam 8. Between the brushes is located a block 14 of roughly triangular cross section said block extending along the length of the brushes and one of its triangular sides being substantially in alignment with the tangential plane of the circumferences of the brushes opposite the beam 8 and the other triangular sides of the block being arcuated in such a way that they run substantially parallel to the circumferences of the brushes and are located at a little distance from same.

A conveyer band 15 is stretched over an upper drum 16 and a lower drum 17 inside the lower frame-like end of the beam 8. The conveyer band is adapted in such a way that its one part extends along the whole length of the brushes and comparatively close to same, and in the illustrated example extends somewhat above the brushes, before it runs over the upper drum 16. The conveyer band 15 is driven at a great speed and in such a manner by means of an electric motor located in the upper drum 16 that that part of the conveyer band facing the brushes travels in an upward direction.

Adjacent the conveyer band 15 at the upper end of that part of the band facing the brushes 12 and somewhat above that point where the band begins to bend over the upper drum 16 is located the one end of an arcuate plate 18 fixed to the beam 8. Underneath the plate is the terminal of another conveyer 19 extending across two drums the bearings of one of said drums being mounted on the beam 8, the bearings of the other 21 on a forked arm 22 linked near the pivot 4 to the

arm 3. In order to keep the conveyer band 19 tight, the bearings 20 and 21 are connected by means of a rigid rod 23. The conveyer band 19, like the band 15, is driven by means of an electric motor located in one of the drums.

When peat is to be won from a bog with the apparatus described herein a portion of the bog of at least the same width and length as that of the machine is first cleared; a strip of the bog of at least the same width as that of the apparatus may preferably be cleared. It is not necessary to clear any further portions of the bog before working same in contrast to digging, milling, cutting or slicing or paring peat in turfs or sods. Various parts of the bog to be worked are then cleared as the apparatus proceeds. The apparatus is transported onto the bog with its beam 8 hoisted substantially horizontal by means of the winch 9—11. After the starting of the brushes 12 and the conveyer bands 15 and 19, the beam 8 is gradually lowered by means of the winch 9—11, so that the brushes, which are provided with preferably rather long bristles made of a hard, tough and resilient material, preferably piano wires or stainless steel, come into contact with the surface of the bog and begin to brush off peat therefrom. Because, as already mentioned, the brushes 12 rotate at a great speed with their juxtaposed faces moving in a direction towards the conveyer band 15 and because the block 14 encloses the circumference of the brushes approximately between the surface of the bog and the point where the surfaces of the brushes are nearest one another, the brushed-off wet peat will be flung against the conveyer band 15 and adhere to the surface thereof. The block 14 also prevents the brushes from brushing off bigger lumps from the bog. To prevent any accidental contact with the brushes a pair of arcuate guard plates 24 are provided, which at the same time prevent any peat left in the brushes from being flung out sideward. During the brushing process the arm 3 is swung to and fro by means of a suitable device (not shown in the drawings) so that its supporting wheels 6 roll to and fro from one end of the rail to the other. For every oscillation of the arm 3 the beam 8 is swung a little towards the vertical position so that the brushes 12 may brush off a new layer of the bog. The swinging of the beam 8 towards the vertical position is interrupted preferably before the beam has assumed the vertical position (see Fig. 1). The feeding of the brushes 12 working against the surface of the bog is performed besides swinging the arm 3 to and fro by moving the sled 1 to the right with respect to Fig. 1, for example, by means of a winch (not shown). The apparatus will thus brush an excavation 25 across the bog the width thereof corresponding to the effective range of the arm 3.

As the band 15 runs at a high speed, the wet peat brushed off by the brushes and flung against the conveyer band will adhere to the band in the form of a comparatively thin layer, and, as the brushes, when brushing off the peat, finely comminute the same, and as the brushes extend approximately vertically and at the same time work a deep layer of the bog, the peat of this thick layer will be vigorously intermixed as it leaves the trench on account of the fact that peat from the upper parts of the brushed layer of the bog is continuously intermingled with peat from the underneath parts of that layer on that part of the band 15 travelling upward along the brushes. The conveyor band 15 is preferably driven at such a high speed that the collected layer of peat thereon may not become thicker than a few millimeters, so that the product taken off from the conveyor band will not only be finely comminuted but also very uniform, so that the composition of the product will correspond throughout to the average composition of the layer of peat in the bog. This eliminates the necessity of any subsequent grinding, kneading or similar treatment of the peat thus won, when producing a finely comminuted product of uniform consistence.

Thanks to the great speed of the conveyer band 15, the layer of peat adhering thereto during its passage along the brushes 12 will be flung away from the conveyer band on account of its inertia, when the conveyer band passes over the upper drum 16. The peat flung from the conveyer band hits the plate 18 from which it falls down onto the conveyer band 19 that conveys the peat to the front end, where it can be suitably scraped off and fall down into a tilting truck or onto a conveyer extending along the travelling direction of the sled for further conveyance to a peat manufactory, for example, near the bog. The peat may naturally also be subjected to further treatment by means of machines mounted on the sled, for example, drying in a centrifugal machine, pressing in a briquette press etc.

It will be appreciated that the invention is not to be considered as limited to the example illustrated herein, as a great number of considerable modifications may be performed within the spirit and scope of the invention.

What I claim and desire to secure by Letters Patent is:

1. An apparatus for winning peat from bogs, comprising a carriage movable on the surface of the bog, a substantially cylindrical brush of relatively great axial length rotatably mounted on said carriage for work on one depthwise extending side of a peat trench in the bog, means for rotating said brush about its axis at a high speed, an endless conveyer band having a surface to which comminuted peat can adhere, said band being mounted above said brush with its upwardly running peat collecting surface facing downwardly towards said brush and substantially parallel to the axis thereof, and means for driving said conveyer band at a sufficiently high speed to throw off the adhering peat layer at the top of said band.

2. An apparatus for winning peat from bogs, comprising a carriage movable on the surface of the bog, a number of cylindrical and parallel rotary brushes rotatably mounted on said carriage for work on one depthwise extending side of a peat trench in the bog, means for rotating each of said brushes about its axis at a high speed, an endless conveyer band having a surface to which comminuted peat can adhere, said band being mounted above said brushes with its upwardly running peat collecting surface facing downwardly towards said brushes and substantially parallel thereto, and means for driving said conveyer band at a sufficiently high speed to throw off the adhering peat layer at the top of said band.

3. An apparatus for winning peat from bogs, comprising a carriage movable on the surface of the bog, a member mounted on said carriage and movable substantially transversely thereto, a substantially cylindrical brush carried by said transversely movable member and adapted to work in an approximately upright position on one side of a peat trench in the bog, means for rotating

said brush about its axis at a high speed, an endless conveyer band having a surface to which comminuted peat can adhere, said band being mounted above said brush with its upwardly running peat collecting surface facing downwardly towards said brush and substantially parallel to the axis thereof, and means for driving said conveyer band at a sufficiently high speed to throw off the adhering peat layer at the top of said band.

4. An apparatus for winning peat from bogs, comprising a carriage movable on the surface of the bog, an arm mounted on said carriage and movable in a horizontal plane in relation thereto, said arm having one end projecting beyond said carriage, a beam mounted on the projecting end of said arm so that said beam is swingable about a horizontal axis between approximately horizontal and vertical positions, a cylindrical rotary brush mounted on said beam and having its axis parallel thereto, means for driving said brush at a high speed, and an endless conveyer band having a surface to which comminuted peat can adhere, said band being mounted on said beam above said brush and driven at a relatively high speed, said brush being adapted to work on one side of a peat trench in the bog for brushing off peat from said side and flinging it upwardly onto the downwardly facing bight of the conveyer band.

5. An apparatus for winning peat from bogs, comprising a carriage movable on the surface of the bog, a member movable on said carriage transversely thereto and projecting beyond one end thereof, a beam mounted on said movable member beyond said end of said carriage, said beam being swingable from an approximately horizontal position to an approximately vertical position, a pair of parallel substantially cylindrical rotary brushes mounted on said beam parallel thereto, means for driving said brushes in relatively opposite directions at high speeds, and an endless conveyer band having a surface to which comminuted peat can adhere, said band being mounted on said beam above said brushes with its upwardly running peat collecting surface facing downwardly towards said brush and substantially parallel thereto, said conveyer band being driven at a relatively high speed, and said brushes being adapted to work on one depthwise extending side of a peat trench in the bog for brushing off peat and flinging it onto the downwardly facing bight of the conveyer band.

CARL ALLAN FRIBERG.