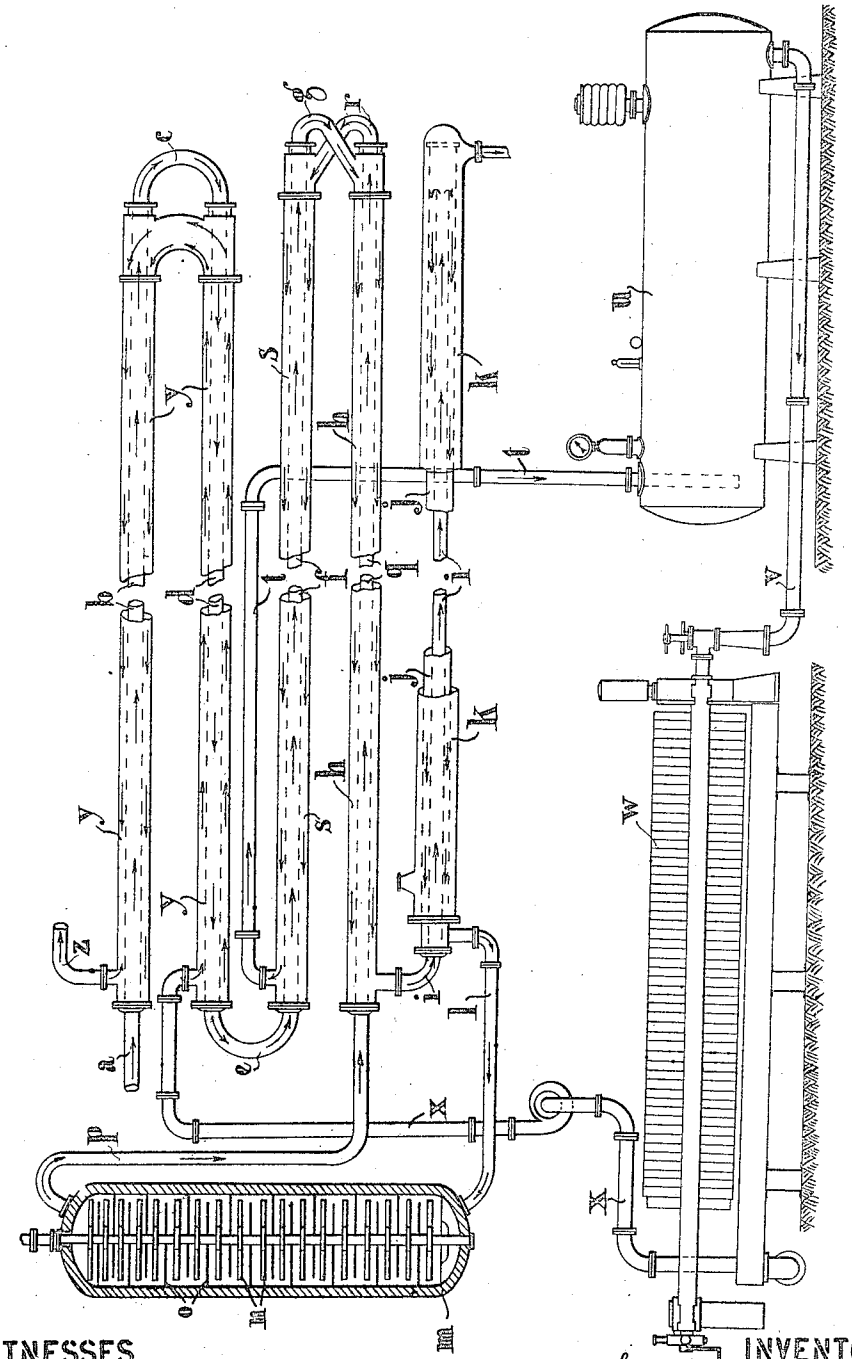
T. RIGBY.

METHOD OF REMOVING WATER FROM PEAT.

APPLICATION FILED OCT. 27, 1913.

1,151,825. Patented Aug. 31, 1915.



WITNESSES

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METHOD OF REMOVING WATER FROM PEAT.

1,151,825. Specification of Letters Patent. Patented Aug. 31, 1915.

Application filed October 27, 1913. Serial No. 797,636.

To all whom it may concern:

Be it known that I, THOMAS RIGBY, a subject of the King of Great Britain and Ireland, and residing at 61 Loreburn street, Dumfries, Scotland, engineer, have invented a certain new and useful Method of Removing Water from Peat, of which the following is a specification.

It has long been known that under pressure peat will part more readily with a small proportion of its water when hot than when cold, and that proposals have been made to utilize this property by heating the pressing appliances.

As the result of experiment it has now been ascertained that peat which has been wet-carbonized according to the Ekenberg process, or has been by other kindred process of heat treatment caused to undergo those changes which make the bulk of its water readily expressible, has still this property of losing water more easily and to a greater extent when pressed hot than when pressed cold.

According to the present invention, methods of heat treatment of the kind in question are modified so as to take advantage of this property, and this despite the necessity of recovering as far as possible the heat which has been supplied to the material. This is effected by regenerating the heat of the hot treated peat in the usual manner, but in addition by interrupting the cooling before the temperature has fallen sufficiently low to affect appreciably the ease of pressing, whereupon the peat is pressed and the heat regeneration then continued by using the hot effluent instead of the peat to impart heat to the cool raw material awaiting treatment. The best temperature for pressing appears to vary considerably, but usually a temperature below 70° centigrade is to be avoided, while on the other hand a limit is placed on the use of higher temperatures by the inconveniently high temperature then occurring in the neighborhood of the filter or other presses. In applying this method for instance to the wet-carbonization of peat using concentric tubular heating and heat-regenerating elements, the peat pulp is withdrawn from the regenerator when its temperature has fallen to say 70° centigrade, and then passed to the filter presses, whereupon the expressed liquid is returned to the regenerator in the vicinity of the point of removal, where it continues to yield up its heat.

In the accompanying diagrammatic drawing is shown a wet-carbonizing installation modified on these lines.

The peat pulp is forced into the apparatus at *a*, and passes through the inner tube, *b*, bend, *c*, inner tube, *d*, bend *e*, inner tube, *f*, bend, *g*, outer tube, *h*, and then through the concentric tubes, *i*, and *j*, in the latter of which it is heated by the steam jacket, *k*, whereupon it passes through the pipe, *l*, to the vessel, *m*, which is provided with stirrers, *n*, and intermediate baffles, *o*. On leaving the latter vessel by the pipe, *p*, the peat flows through the inner pipe, *q*, bend, *r*, and outer pipe, *s*, from the latter of which it leaves the apparatus by the pipe, *t*, connected to a storage reservoir, *u*, from which the peat is supplied through the pipe, *v*, to the filter press, *w*. From the latter the hot expressed liquid is returned by the pipe, *x*, to the regenerator part, *y*, of the wet-carbonizing apparatus having lost, if the various parts have been properly lagged and all ordinary precautions taken, but little heat. After imparting heat to the raw incoming peat passing through the tubes, *b* and *d*, the peat now leaves the regenerator part, *y*, of the carbonizing apparatus at *z*.

Having now described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. The method of dewatering peat, consisting in passing the peat through concentric tubular passages, wherein it is heated under pressure, partially cooling the heated material by causing it to regeneratively heat raw peat in said passages, pressing the material while at a relatively high temperature, and thereupon returning the resulting effluent to said passages in order to continue the heat regeneration.

2. A method of de-watering peat by wet-carbonization consisting in heating wet peat until wet-carbonized, cooling the material to a temperature in the neighborhood of 70° centigrade by means of raw peat awaiting treatment, pressing the wet-carbonized peat at about this temperature, and heating a further quantity of raw peat by means of the liquid expressed from the peat which has undergone treatment.

3. The method of dewatering peat consisting in passing the peat through concentric

tubular passages wherein it is heated under pressure, partially cooling the heated material by causing it to regeneratively heat raw peat in said passages, filter-pressing the treated material at a temperature above 70° C. and thereupon returning the resulting warm effluent to said passages in order to continue the heat regeneration.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

THOMAS RIGBY.

Witnesses:
JOHN HOPE JOHNSTON.
ANDREW V. SKILLING.