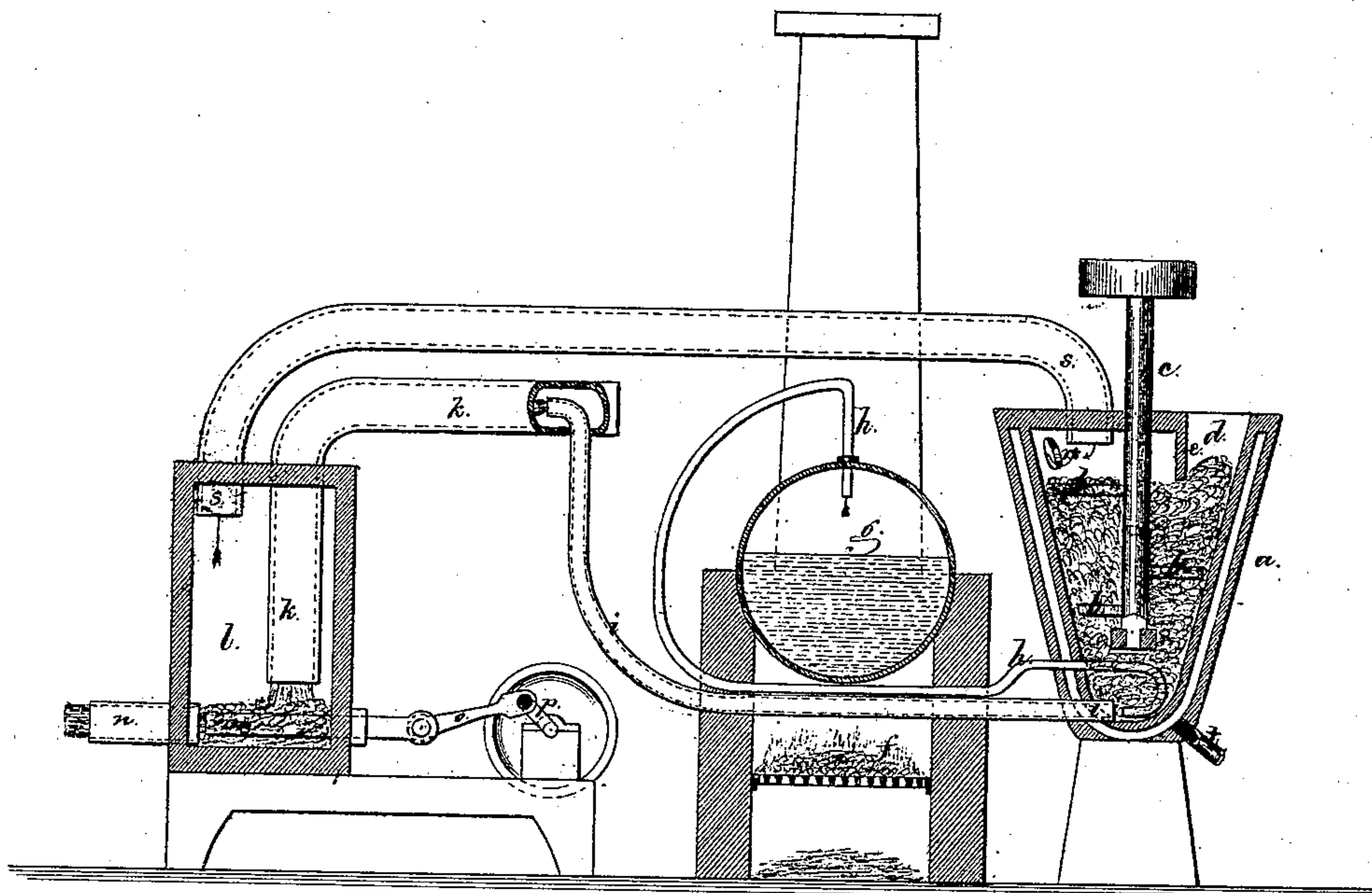


T. G. WALKER.
 EXPELLING VOLATILE MATTERS FROM PEAT.
 No. 108,853. Patented Nov. 1, 1870.



Witnesses

Chas. H. Smith
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United States Patent Office.

THOMAS GEORGE WALKER, OF NEW YORK, N. Y.

Letters Patent No. 108,853, dated November 1, 1870.

IMPROVEMENT IN EXPELLING VOLATILE MATTERS FROM PEAT.

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, THOMAS GEORGE WALKER, of the city and State of New York, have invented and made a new and useful Improvement in Expelling Volatile Matter from Peat, &c., and the following is declared to be a full description of the same.

In Letters Patent granted to me February 8, 1870, and numbered 99,733, an arrangement of devices is shown in which superheated steam is employed to act upon the peat, and the vapors passing away from the same are used for warming or heating the peat previous to its being subjected to the action of superheated steam.

My present invention is an improvement upon the device set forth in the said patent, and consists in a peculiar character of mixing or pug-mill, in which the peat is heated, and thereby rendered of a semi-liquid or plastic consistency, and from which the small pieces of peat are conveyed, by superheated steam, through a pipe that is in the heating furnace, so as to dry or carbonize the peat, and it is delivered into an enlarged pipe to equalize the action of the steam and heat; thence the peat is delivered into a chamber having an ejecting plunger. The steam and vapors return to the mixing or pug-mill and warm up the contents thereof.

In the drawing I have represented my apparatus by a vertical section.

The pug-mill *a* is made with a double casing, so that steam may act therein, as hereafter set forth.

Within the mill are stirrers, *b b*, to mix the peat thoroughly, and, at the same time, allow of the escape of vapors or gases.

These stirrers are upon the vertical shaft *c*, that is revolved by competent power.

The supply-mouth *d* is provided with a screen, *e*, that separates the same from the steam space in the upper part of the mill.

The furnace *f* and steam-boiler *g* are of usual character, and the steam-pipe *h* is passed from the boiler *g* through the furnace *f* in a coil, or otherwise, so as to be superheated, and the pipe *h* terminates near the open end of the pipe *i*, so that the jet of steam issuing from said pipe *h*, in a superheated condition, will drive the peat through the pipe *i*.

The peat in the mill *g*, being heated, is rendered semi-liquid or plastic, and hence is easily blown through the pipe *i*, and this pipe *i* is heated by passing through

the fire, (*f*) in order that the particles of peat may be more thoroughly acted upon by the heat.

The pipe *i* terminates in an enlargement or chamber, *k*, so that the peat accumulates somewhat therein, and is only moved along by the action of the steam pressure, comparatively slowly, so as to become equalized in temperature throughout the mass by the contact of the pieces of peat with each other, so that, when the peat issues from the lower end of the pipe *k*, within the chamber *l*, the aqueous portions will immediately pass off in the form of vapor, and the peat itself is delivered progressively by the plunger *m* forcing it through the nozzle *n*.

This plunger *m* is actuated by the pitman *o* and crank *p*.

The steam passes from the chamber *l* to the pug-mill *a* through the tube *s*, and this tube *s* opens into the upper part of the casing above the peat; so as to come directly into contact with the same, and any particles of peat-dust carried over with the steam are deposited upon the moist peat, and the vapors thence pass by the opening *r* into the space between the casings *a*, and heat the contents of the pug-mill, and any water of condensation or vapors pass away by an opening at *t*.

The vapors arising from the contents of the pug-mill also pass off through the opening *r* into the space between the casings of the pug-mill.

I claim as my invention—

1. The pipe *i*, passing through the fire-space or furnace, combined with the steam-pipe *h*, that supplies steam to force the peat through said pipe *i*, substantially as and for the purposes specified.

2. The enlargement or chamber *k*, in combination with the pipe *i*, and superheated steam-pipe *h*, as and for the purposes set forth.

3. The chamber *l*, plunger *m*, and nozzle *n*, in combination with the pipes *i*, *k*, and *s*, for the purposes set forth.

4. The pug-mill, made with the division *e*, and steam-jacket, combined with the pipe *s*, and passage from the upper part of the mill into the steam space, for the purposes set forth.

Signed by me this 22d day of September, A. D. 1870.

Witnesses:

THOS. GEO. WALKER.

CHAS. H. SMITH,

GEO. T. PINCKNEY.