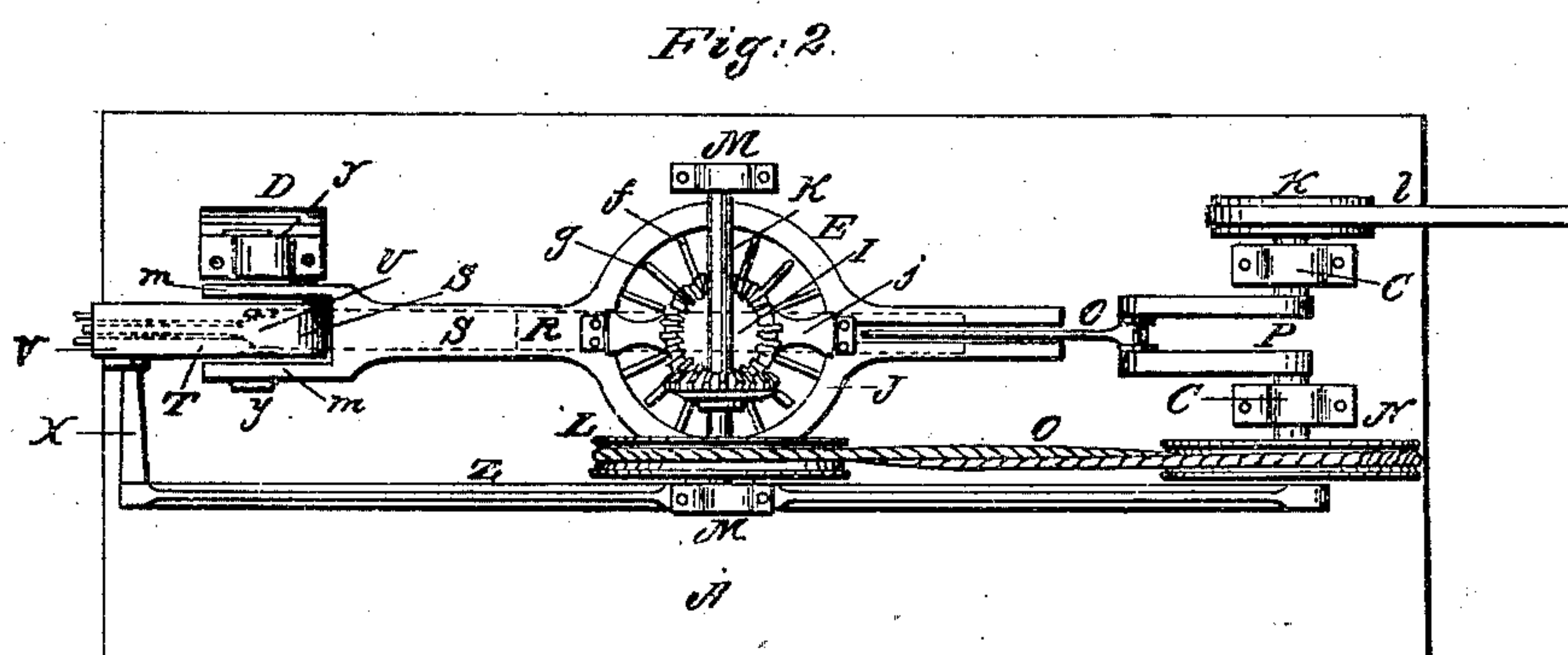
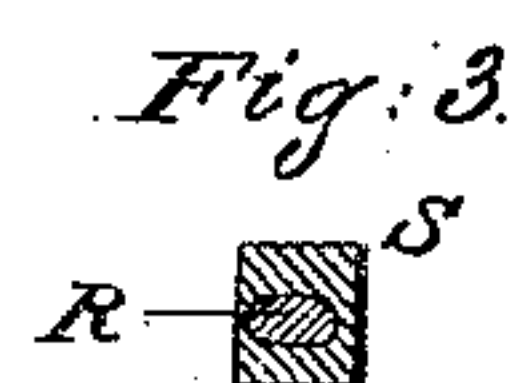
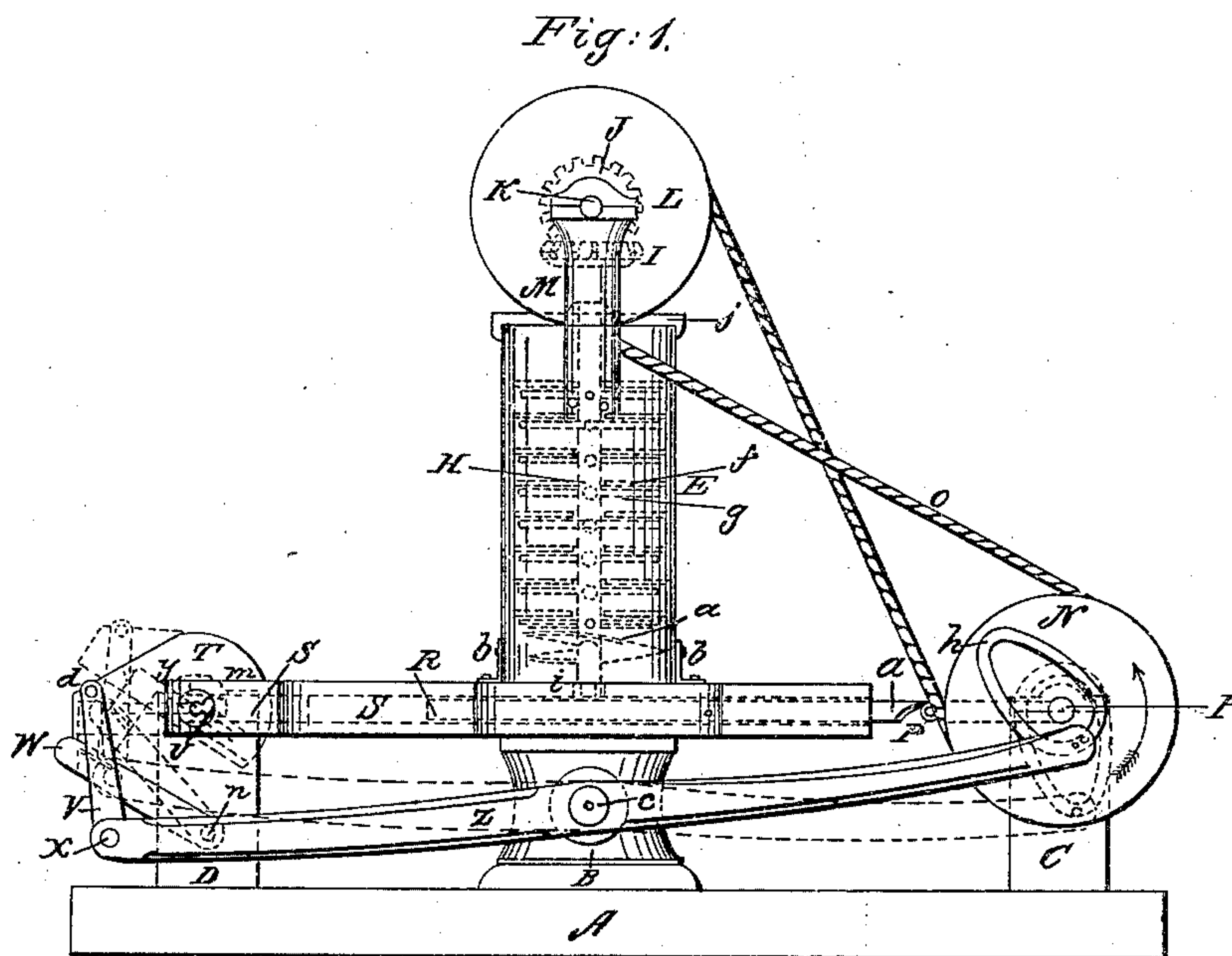


N. C. SAWYER.
Peat Condenser.

No. 44,557.

Patented Oct. 4, 1864.



Witnesses:
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UNITED STATES PATENT OFFICE.

N. C. SAWYER, OF BOSTON, MASSACHUSETTS.

IMPROVED MACHINE FOR CONDENSING PEAT.

Specification forming part of Letters Patent No. 41,557, dated October 4, 1864.

To all whom it may concern:

Be it known that I, N. C. SAWYER, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Peat-Condenser; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a side elevation; Fig. 2, a top view; and Fig. 3 a transverse section through the pipe S and piston R.

Like parts are indicated by the same letters in all the drawings.

The design of my invention is to condense peat and form it into blocks of a peculiar shape, whereby it is more rapidly dried and better adapted for transportation, burns more freely, and produces a more condensed and hotter fire, as well as better coke, than peat prepared in the usual way.

To enable others skilled in the art to make and use my invention, I will now proceed to describe its construction and operation.

A is the foundation or platform of the machine.

E is the cylinder, of cast-iron or other suitable material, the inside of which is provided with a series of arms or cutters, *f*, after the manner of a "pug-mill," such as is commonly used for grinding clay, &c. The cylinder E rests upon the expanded portion of the pipe S, being confined thereto by means of the iron knees and screws *b b*, and the pipe S rests upon the block or standard B, as shown in Fig. 1.

H is a vertical shaft provided with a series of arms or cutters, *g*, similar to those in the cylinder E. The lower end of the shaft H turns in a step or beam, *i*, which passes at a right angle to the pipe S across the center of the cylinder E, as shown by dotted lines in Fig. 1, the bottom of *i* being flush with the top of the bore of the pipe S. The upper end of the shaft H turns in the cross-piece *j*, (see Fig. 2,) which, extending across the center of the cylinder E, is firmly secured thereto by pins or screws. To the top of the shaft H is attached a bevel-pinion, I, which is actuated by a similar pinion, J, which is attached to the shaft K, as shown in Fig. 2, the latter, K, turning in suitable bearings in the upper ends of the arms

M M, which are attached to the outside of the cylinder E, as represented in Figs. 1 and 2.

a (see Fig. 1) is a screw or propeller shaped plate of metal, fast to the lower end of the shaft H, for the purpose of forcing down the peat into the pipe S, the top of which is open; or all the arms or cutters *g* may be slightly inclined, so as to operate, in place of the propeller *a*, as a screw to carry down the peat.

L is a pulley attached to one end of the shaft K.

N is another pulley attached to one end of the crank-shaft P, as shown in Fig. 2.

O is a rope, belt, or chain passing from N to L, by which the latter is driven.

k is a pulley attached to one end of the crank-shaft P, to be driven by a belt, *l*, or any equivalent device.

C C are studs, the upper ends of which are provided with suitable boxes or bearings for the crank-shaft P.

S is a horizontal metallic pipe arranged as shown in Figs. 1 and 2, and shaped as shown in the cross-section, Fig. 3. This pipe is open at both ends, and that part which is in the cylinder E is uncovered on the top side for the reception of peat.

R is a piston (a cross-section of which is shown in Fig. 3) which fits the bore of the pipe S closely, like the piston of an engine. The length of the piston is shown in Figs. 1 and 2.

Q is a pitman connecting the crank-shaft P with the piston R, by means of which a reciprocating motion is communicated to the latter, the end of the pipe S nearest to the crank-shaft P being slotted vertically, so as to allow the pitman to play with freedom through it, while at the same time it operates as a guide and support for the piston R.

T is a vibrating arm or segment the shape and position of which are clearly shown in Figs. 1 and 2, *y y* being fulcrum pins or pivots extending from the arms or continuations *m m* of the pipe S part way into the segment, as shown in dotted lines in Fig. 2.

S' is the mold or a bore in the segment T, of exactly the same area and shape as that of the pipe S, and when the segment is in the position shown by black lines in Fig. 1 this mold S' is intended to be a direct continuation of the bore in S, so that the peat compressed by

the piston R will be forced directly into it. The mold S' extends nearly to the center of the segment, and is of the same size as the bore in S; but from the center to the back end of T it is diminished in size, as represented in Fig. 2.

U is a piston, a transverse section of the head of which is shaped exactly like the piston R. (See Fig. 3.) The body of this piston back of the head is smaller and slides freely in the diminished bore in T.

W is a link one end of which is pivoted at *n* to the stud D, the opposite end being provided with a longitudinal slot, *o*, in which plays a pin, *t*, projecting from an arm or continuation of the piston U, the under side of the segment T being provided with a vertical slot for said arm to slide in.

h is a cam-groove in the side of the pulley N.

Z is a lever which vibrates on the fulcrum-pin *c*.

e is a pin passing through one end of the lever Z and into the cam-groove *h*.

X (see Fig. 2) is a continuation or arm of the lever Z.

V is a link, one end of which is pivoted to the arm X and the other at *d* to the segment T. Thus as the pulley N, with its cam *h*, revolves it is obvious that the lever Z will be made to vibrate, as well as the segment T. One-half of the cam-groove *h* being the arc of a circle, it follows that a part of the time the lever Z will be stationary, and this is while the peat is being forced into the mold or bore of the segment T, as shown by the black lines in Fig. 1; and as the eccentric part of the cam *h* acts upon the pin *e* it is also obvious that the segment T will be vibrated into the position represented by the red lines in Fig. 1, cutting off a compressed brick the exact size of the bore S', the link W at the same time forcing the piston U into the position shown by the red lines, and this operation will obviously discharge the compressed block of peat from the mold S'. The block thus delivered may be received on a moving endless belt or an inclined table and removed to be dried. The longitudinal slot *o* in the link W allows the end of the mold S' to pass by the end of the pipe S before it begins to act upon the piston U. The length of the pipe S from the cylinder E, into which the peat is thrown, to the segment T be-

ing a number of times the length of the mold S', and the piston R passing only a little beyond the cylinder E, it follows that each brick before it enters the mold will have received a number of pressures from the piston R, and be thereby not only condensed, but also freed from most of its moisture, so as to require less time to complete the operation of drying.

The peat, to be condensed to the best advantage, should be about half dry. If too dry, it will crumble after condensation, and if too wet it will not be susceptible of so great a condensation.

I propose to make the peat into blocks about eight inches long, four wide, and three deep, with the corners taken off, as shown at R, Fig. 3, so that when piled up to dry there will be spaces between them for a free circulation of air, and, when burning, of flame. The piston U is also so shaped as to leave a groove across one end of each brick, which will also afford a circulation in a different direction through a pile.

Having thus described the construction and operation of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The vibrating mold or segment T, in combination with the pipe S, piston R, and mill or hopper E, substantially as set forth, and for the purposes described.
2. The combination of the piston R, cam *h*, lever Z, link V, and mold T, substantially as and for the purpose described.
3. The combination of the link W, piston U, and mold T, substantially as and for the purpose described.
4. The slot *o* in the link W, to operate in combination with the piston U, mold T, and pipe S, substantially as and for the purpose described.
5. So constructing the end of the piston U as to leave a groove in one end of the blocks of peat formed in the mold, substantially as described.
6. So constructing the mold S' as to form a cornered or grooved block of peat, substantially as described.

N. C. SAWYER.

Witnesses:

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