

(No Model.)

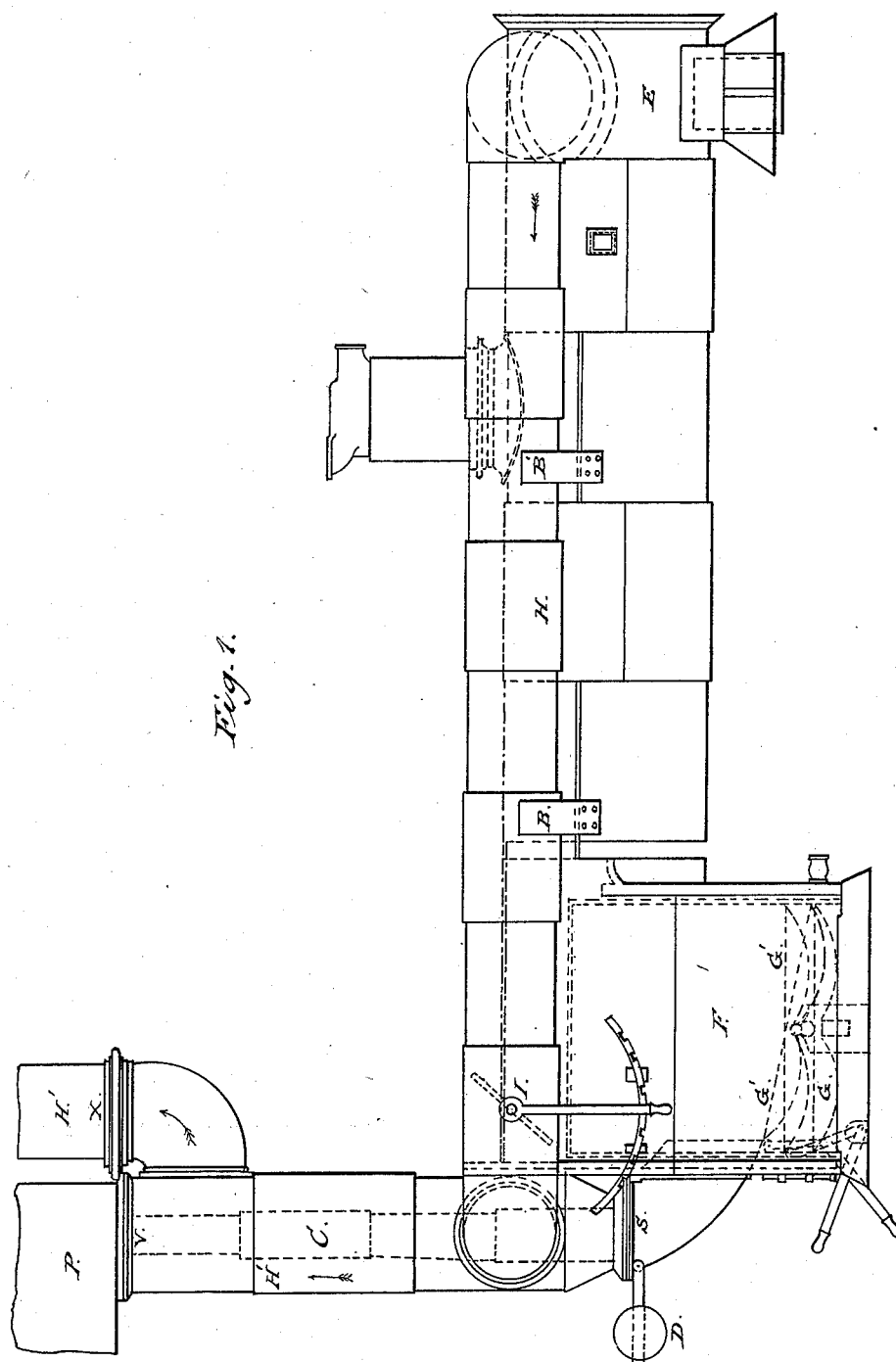
M. GROS-DESORMEAUX.

3 Sheets—Sheet 1.

FURNACE FOR BURNING CANE THRASH, PEAT, OR SIMILAR FUEL.

No. 264,080.

Patented Sept. 12, 1882.



Attest;
F. W. Howard
Edward G. Siggers.

Inventor;
Marius Gros-Desormeaux
by W. H. Babcock
Attorney

(No Model.)

M. GROS-DESORMEAUX.

3 Sheets—Sheet 2.

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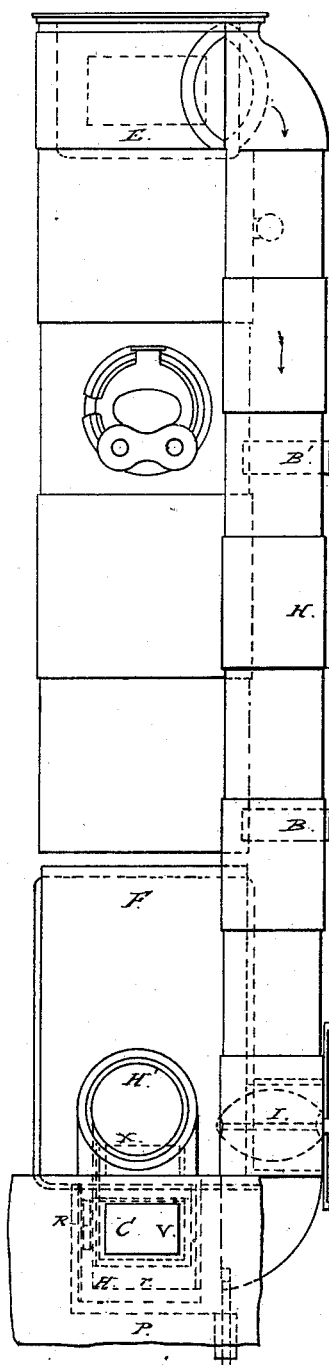


Fig. 2.

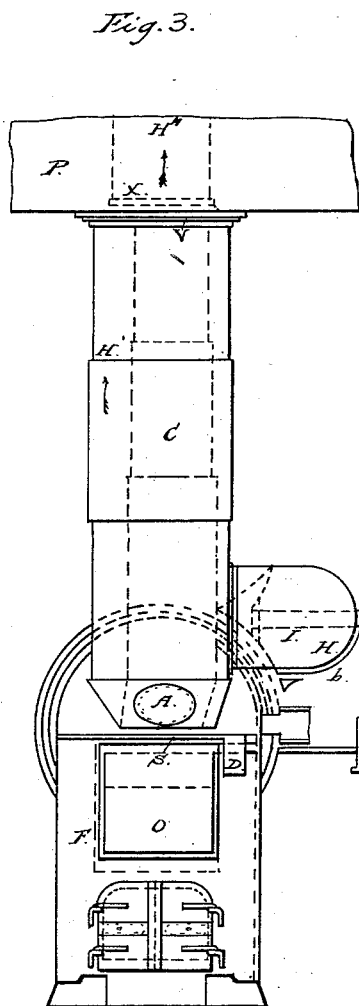


Fig. 3.

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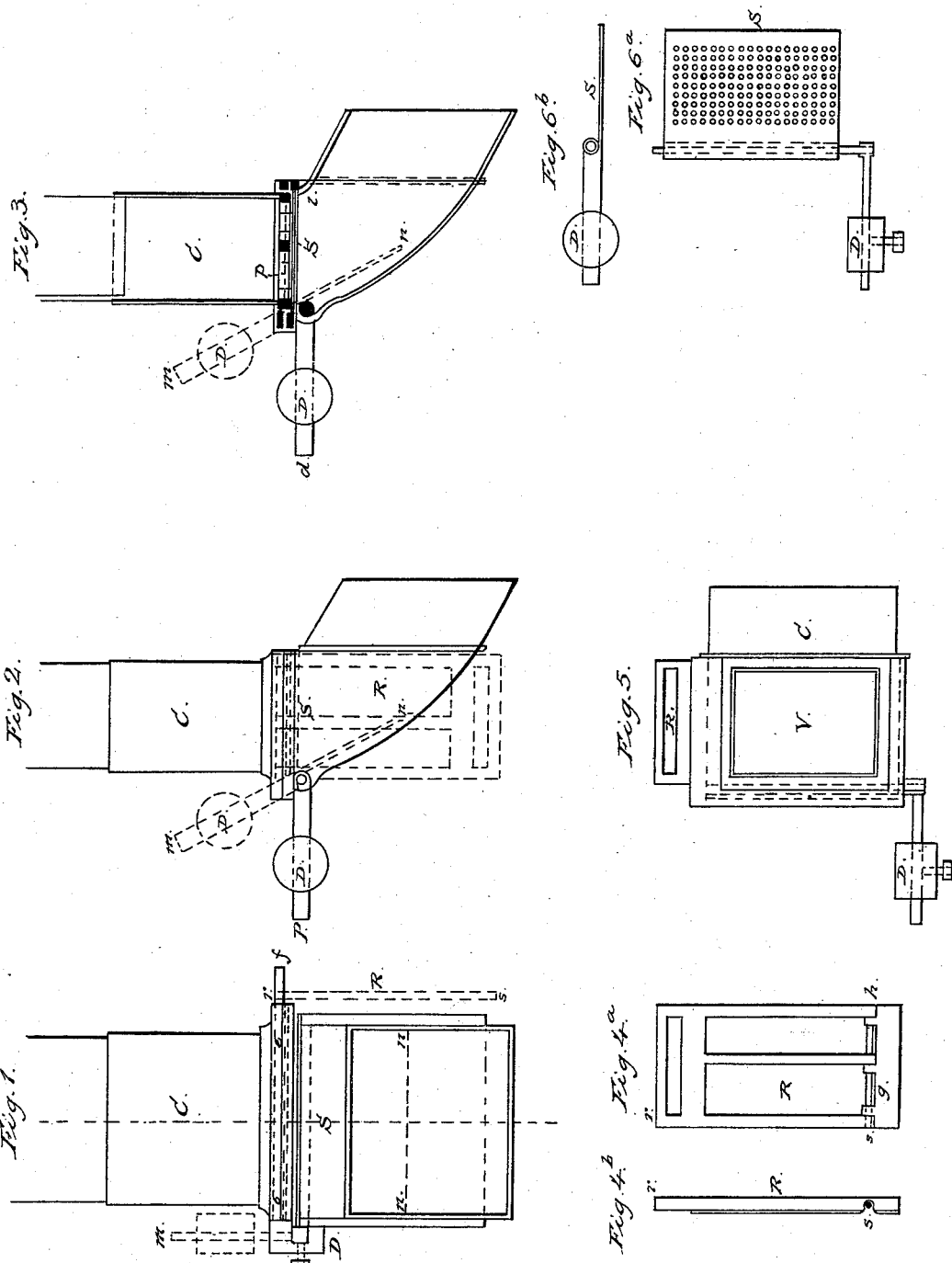
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UNITED STATES PATENT OFFICE.

MARIUS GROS-DESORMEAUX, OF VAUCLIN, MARTINIQUE, WEST INDIES.

FURNACE FOR BURNING CANE-THRASH, PEAT, OR SIMILAR FUEL.

SPECIFICATION forming part of Letters Patent No. 264,080, dated September 12, 1882.

Application filed April 14, 1882. (No model.) Patented in France March 26, 1881, No. 142,608, and Provisional Protection in England March 29, 1882, No. 1,532.

To all whom it may concern:

Be it known that I, MARIUS GROS-DESORMEAUX, a citizen of the Republic of France, residing at Vauclin, Martinique, one of the West Indies, have invented new and useful Improvements in or relating to Furnaces Chiefly for Burning Cane-Thrash, Peat, or Similar Fuel, (for which I have obtained Letters Patent in France, dated 26th March, 1881, No. 142,608, and Provisional Protection in Great Britain, dated the 29th March, 1882, No. 1,532,) of which the following is a specification.

The object of this invention is so to construct a steam-boiler or other furnace that the waste heat from the furnace may be utilized for drying the fuel before its introduction into the furnace; that the fuel so dried may be fed into the furnace in proportion as it becomes dry and as fresh fuel is introduced into the drying-chamber, and that the arrangements or devices for these purposes be so placed as to allow the furnace to be fed with coal in the usual manner, if desired.

This invention is designed more especially for use in cane-sugar factories, where the cane-thrash or waste cane will form a cheap and handy fuel, and I will therefore describe the said invention as applied to a steam-boiler in such a factory, and such modifications thereof as will be requisite to enable the same to be applied to other purposes will be obvious without further description.

In the accompanying drawings, on Sheet I, Figure 1 is a side view of a boiler and furnace with my improvements attached thereto. Fig. 2 is a plan view of the same. Fig. 3 is a front view of the same. On Sheet II, Fig. 1 is a side view of the upper portion of the chute, showing the position of the damper and trap in dotted lines. Fig. 2 is a similar view of the chute, taken lower down, the open position of the trap and damper being indicated in dotted lines. Fig. 3 is a cross-section of the same, the damper and trap being shown as closed, the open position of the trap being indicated in dotted lines. Fig. 4^a is a plan view of the damper. Fig. 4^b is a side view of the same. Fig. 5 is a plan view of the lower portion of the chute. Fig. 6^a is a plan view of the trap, and Fig. 6^b is a side view of the same.

In the said drawings, C is a slide or chute, Sheet I, Fig. 1, fitted to the floor P, and penetrating into the furnace F by an opening, O, Sheet I, Fig. 3, above the fire-doors, Sheet I, Fig. 3, and provided with a damper, R, and with a trap, S, Figs. 1 and 2.

The damper R, Sheet II, Figs. 4^a and 4^b, is formed in two parts, moving on a spindle, *g h*, which allows the part *r s*, when opened, to be laid back against the slide or chute. (Sheet II, Fig. 2.) When closed in the position *e f*, Sheet II, Fig. 1, it intercepts all communication of the furnace with the interior of the chute and allows the heating by coal as if the chute were non-existent. When open in the position *e r s*, Sheet II, Fig. 1, it allows the cane-thrash (which is placed in the chute from the floor P through the opening V) to pass and freely fall through into the furnace F, Sheet I, Fig. 1.

The trap S, Sheet I, Fig. 1, is provided with a counter-weight, D, which constantly keeps it closed to arrest the cane-thrash in its passage from the floor P to the furnace F, so that it accumulates in the chute till the charge, as regulated by the counter-weight D, is attained. As soon as this charge is attained the equilibrium is disturbed and the trap opens into the position *m n*, Sheet II, Figs. 2 and 3, to allow free passage to the excess charge of cane-thrash, which falls into the furnace F and is burned. The excess of weight being removed, the trap resumes its first position, so that while firing by cane-thrash is going on a certain quantity of the fuel will always remain in the chute C and maintain equilibrium with the weight D. By regulating the charge of cane-thrash in the chute C, so as to be four baskets, for instance, then each time that a fifth is poured in the trap will open to allow the first of the four, which is in contact with the trap, to pass. This trap S, Fig. 6, Sheet II, is made like a sieve, and thus allows the heat of the furnace which enters the chute successively to dry the first layers of cane-thrash which touch the trap, so that the thrash falls into the furnace, being dried in proportion to the length of time it remained in the chute. The cane-thrash, in falling into the furnace F, forms heaps, and to spread them without requiring the doors of

the furnace to be opened and to avoid the draft of cold air I make two small doors, *a a'*, in Sheet I, Fig. 3, at about the center of the fire-doors, so as to admit a rake of round iron of fifteen to eighteen millimeters, as used in factories. The stoker provided with this rake can easily spread the thrash in the furnace F. He will open the furnace-doors only at long intervals for cleaning the fire-bars G, Fig. 1, or for putting a few pieces of coal on, so as to keep the fire in. The fixed grate G, or the movable grate G', Sheet I, Fig. 1, may be used at the will of the constructor.

The grate G' may be inclined at will by a lever with which it is fitted, which allows the cane-thrash to be spread even without the use of a rake. It may be placed horizontally for cleaning, and also protects the sides of the furnace against very hot blasts of fire, which generally are produced only at the height of the layer of fuel.

The furnace can at once be transformed into one for coal-firing by closing the damper R. This alteration will frequently be required when the mills stop.

For the purpose of better drying the cane-thrash, I cause the flue H of the boiler, Sheet I, Fig. 1, to lead from the fire-box all along the boiler to the front, where it joins the bottom of a flue, H', surrounding the chute C up to the floor P, to which it is connected by a large plate of sheet-iron, *r s*, which has two openings—one, V, for the chute C and the other, X, for the flue H'. The opening V communicates with a similar opening in the floor, which allows the cane-thrash to descend into the chute. The opening X is outside said floor, and the flue H'' is mounted upon it, so as to communicate with the surrounding flue H' and H, as

indicated by the arrow. The flue H'' communicates with the open air and rises to the usual height. The surrounding flue H' is hermetically closed at the bottom by a collar bolted to the stays of the chute C, and at the top by a sheet-iron plate, which connects it with the floor P. It communicates only with the smoke-box E by the horizontal flue H and with the open air by the vertical flue H''. It has no connection with the chute C, which it surrounds throughout its vertical part. A man-hole, A, Fig. 3, Sheet I, admits to the surrounding flue H' to sweep it.

I is a damper for regulating the draft of the flue.

What I claim, and wish to secure by Letters Patent of the United States, is—

1. In combination with a boiler and its furnace, the flue external to said parts for conveying away the products of combustion, and a feeding-chute within said flue and communicating with said furnace for the purpose of supplying heated bagasse or other fuel thereto.

2. In combination with a furnace and its fuel-chute, a pivoted trap which closes said chute, and a weight, D, applied to said trap and yielding whenever the bagasse preponderates over it, the said trap being made open, like a sieve, to allow the heat of the furnace to dry the lower layers of the bagasse before the latter is dumped into the furnace.

In testimony that I claim the foregoing I have hereunto set my hand this 17th day of November, 1881.

MARIUS GROS-DESORMEAUX.

Witnesses:

JUDE CLIFFORD,
N. MONDORE.