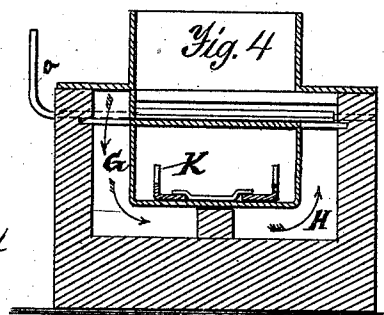
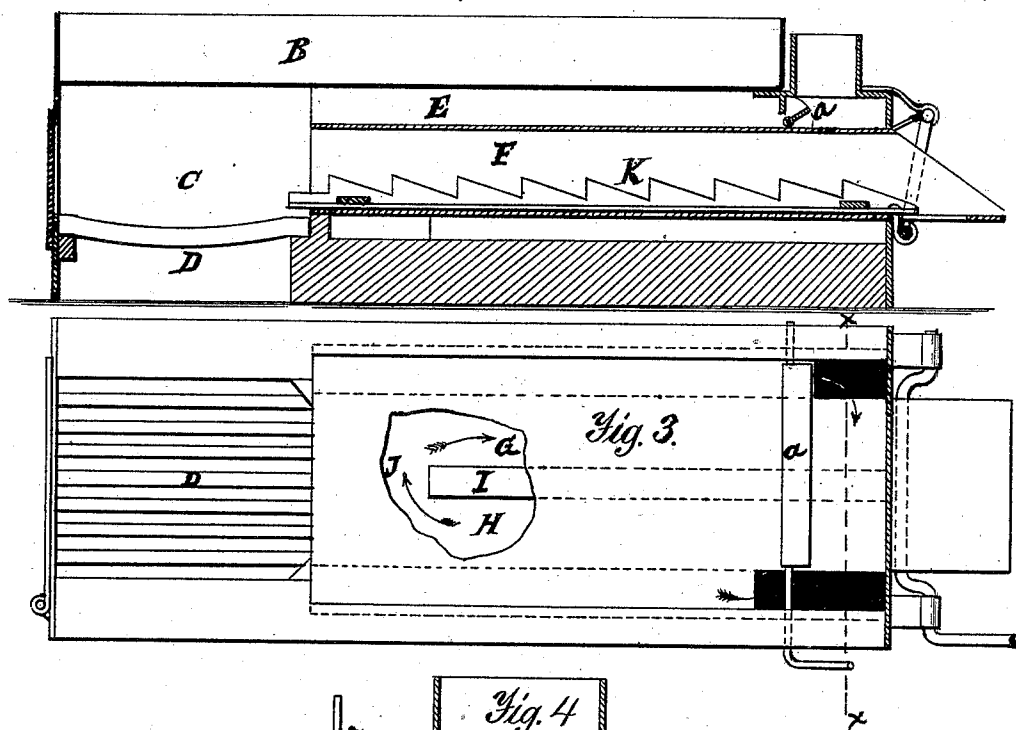
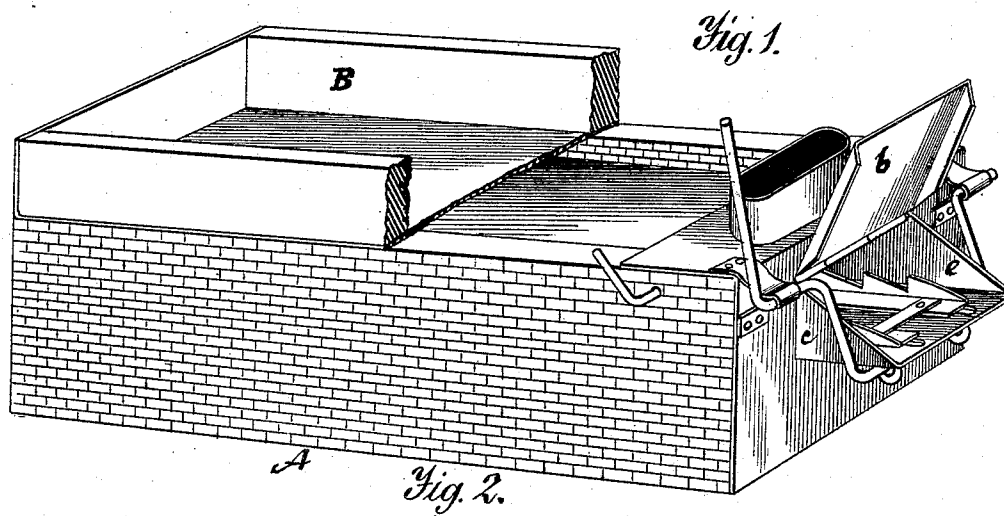


(No Model.)

D. WILDE.
BAGASSE FURNACE.

No. 284,101.

Patented Aug. 28, 1883.



Witnesses.
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UNITED STATES PATENT OFFICE.

DANIEL WILDE, OF WASHINGTON, IOWA.

BAGASSE-FURNACE.

SPECIFICATION forming part of Letters Patent No. 284,101, dated August 28, 1883.

Application filed July 3, 1882. (No model.)

To all whom it may concern:

Be it known that I, DANIEL WILDE, a citizen of the United States of America, residing at Washington, in the county of Washington and State of Iowa, have invented certain new and useful Improvements in Bagasse-Furnaces, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to the class of furnaces known as "bagasse;" and the object is to burn wet fuel—such as sugar-cane stalks, wet tanbark, and other refuse of manufacturing establishments or farms, which would without such furnace be waste. Heretofore bagasse-furnaces have been constructed to burn wet fuel, the material being fed from the front. In such furnaces the fuel becomes conglomerated and packed together to such an extent as to prevent the heat from passing through for drying it as well as to prevent the passage of the products of combustion from the furnace, and hence the heat is not utilized. To avoid this difficulty, and to dry the fuel and to utilize its heat, is a further object of my invention; and to this end it consists in providing the furnace with an elongated fuel-chamber. Said chamber may be surrounded by heating flues or conduits, through which the heat passes on its way to the uptake, this method being pursued until the fuel is dry, when the products of combustion are brought in contact with an evaporating-pan for evaporating saccharine juices, a damper being used for the purpose.

It further consists, in combination with a drying-chamber, of a feeding device, said feeding apparatus being adapted to slide longitudinally for a certain distance upon the floor of the drying-chamber, it being provided upon one of its sides with upwardly-projecting teeth, resembling those of saw-teeth, and acting upon the same principle—that is to say, that the teeth incline backward from the cutting-point in saw-teeth to clear them, while these teeth incline backward from the pushing-point for the same purpose; and it further consists in minor details of construction, as will hereinafter be more fully described.

Referring more particularly to the drawings, and the letters of reference marked thereon, similar letters indicating similar parts, Figure 1 represents a front and side elevation of the furnace in perspective, and also a top floor view of the evaporating-pan, a portion being broken away. Fig. 2 shows a vertical longitudinal section, clearly showing the feeding device in position. Fig. 3 shows a horizontal plan view beneath the pan, clearly showing the position of the heating-flues and the direction of the hot gases in their course while serving to dry the wet fuel; and Fig. 4, a transverse section taken on line *x x*, Fig. 3, across the furnace.

A is the main body of the furnace; B, the evaporating-pan; C, the fire-box, and D the grate-bars. The space below the evaporating-pan is divided into two flues, E F, the flue E being an escape-flue for the products of combustion, and the flue F for the feeding and drying of fuel.

Below the feeding and drying flue or chamber is a series of flame-flues, G H, through which the hot products of combustion are forced to pass. These flame-flues are preferably made L shape in cross-section, so that a very large heating-surface is afforded to the drying-chamber. When the process of drying is going on, the damper *a* is closed. The flame then is compelled to dive on one side of the drying-chamber, passing under its bottom, then passing backward to a return rear flue-connection, then back along the side and under the other side of the drying-chamber, when it ascends to the uptake. The main flue beneath the drying-chamber is divided by a mid-feather, I, which extends nearly to the end of the flue, by means of which the return-flue J is formed.

Within the drying-chamber I locate a feeding apparatus, K, provided with a series of pushers resembling saw-teeth and operating upon like principle—that is, when they push the fuel to the end of their stroke, the incline of the teeth allows their ready withdrawal therefrom without drawing the fuel back with them. The drying-chamber projects outside of the rear end of the furnace-walls, and forms a hopper-like trough, *c*, for the reception of

the fuel. This hopper or trough is provided with a lid, *b*, so that when the drying-chamber is filled the lid is closed, so as to prevent too much cold air from entering to the detriment of the heating or drying process of the fuel in the chamber.

Connected to the feeding apparatus is a compound crank-lever or other device by which the feeder is reciprocated in pushing back the fuel to the furnace. This crank is operated by the attendant, who also attends to the evaporating-pan, so that he can control the quantity of fuel fed to the fire as he may desire.

I am aware of the English Patent No. 7,858, of 1838, the construction and arrangement of its various parts, and therefore do not claim the same, broadly; but

What I do claim is—

1. In a furnace for burning fuel, the flues *E*, *G*, and *H*, formed as described, the trunk *F*, and feeding apparatus *K*, adapted to reciprocate longitudinally therein, substantially as shown and specified.

2. In a furnace for burning wet fuel, the combination of the drying-chamber and feeding apparatus, the flues *E* and flues *G* *H*, and damper *a*, all arranged as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

DANIEL WILDE.

Witnesses:

A. S. FOLGER,
J. J. KELLOGG.