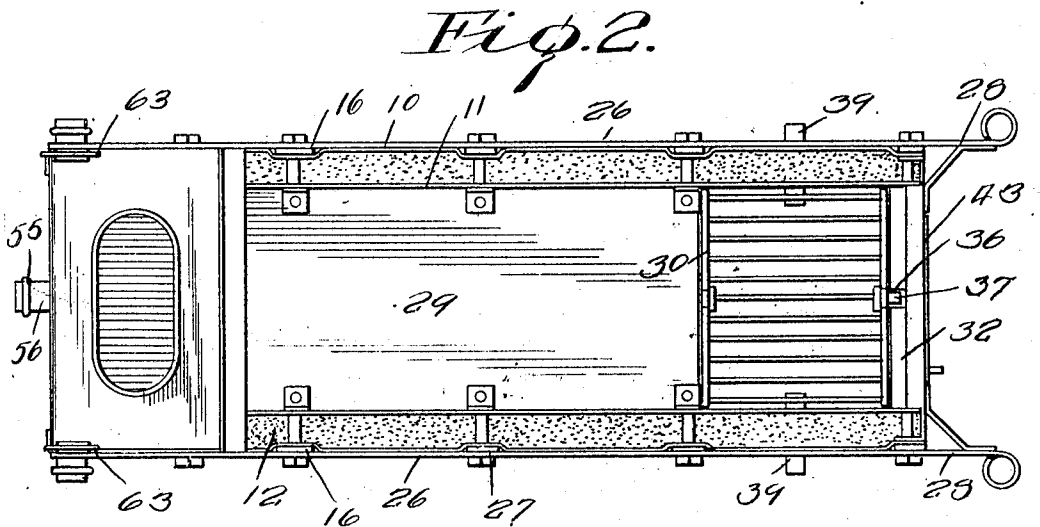
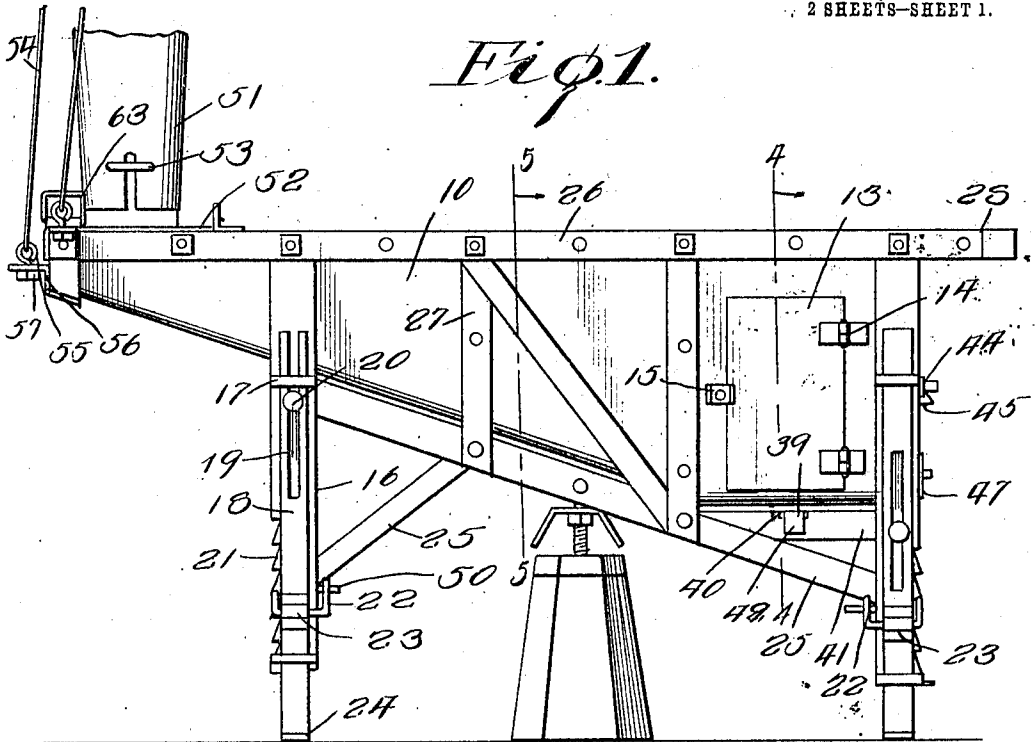


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SUGAR CANE BOILING FURNACE.
APPLICATION FILED MAY 17, 1912.

1,054,264.

Patented Feb. 25, 1913.

2 SHEETS—SHEET 1.



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Fig. 3.

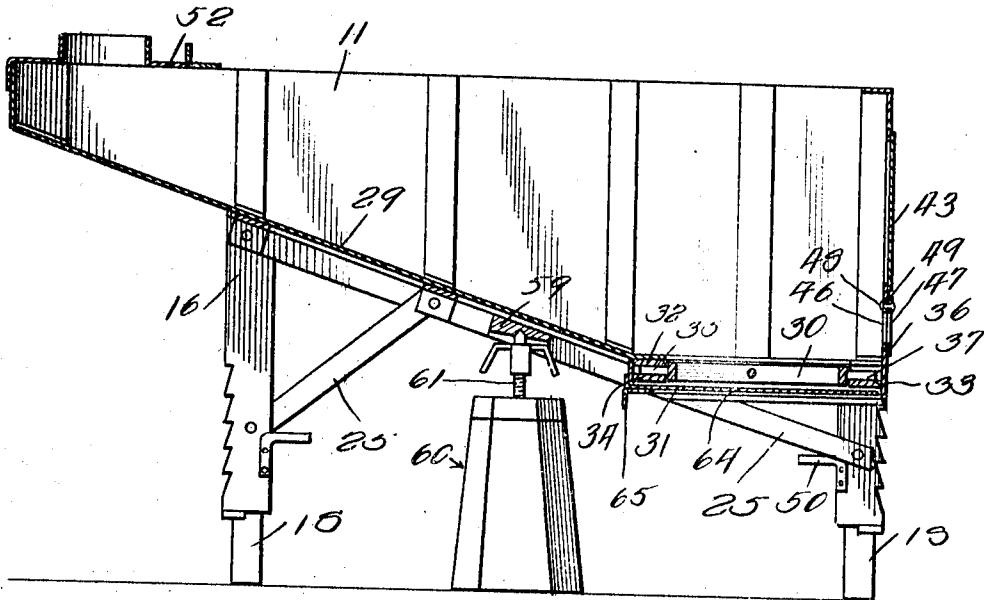


Fig. 4.

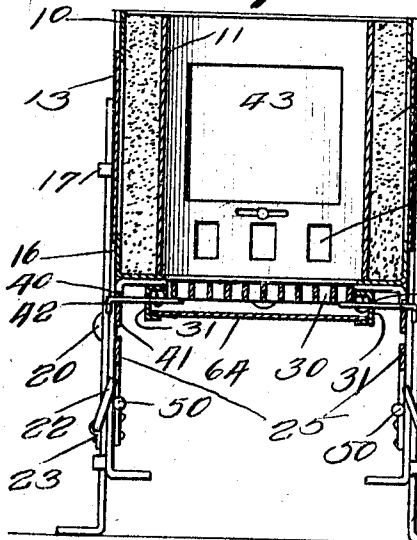
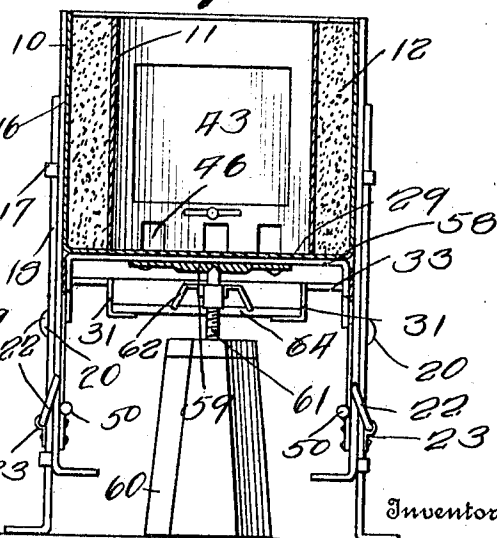


Fig. 5.



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UNITED STATES PATENT OFFICE.

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SUGAR-CANE-BOILING FURNACE.

1,054,264.

Specification of Letters Patent.

Patented Feb. 25, 1913.

Application filed May 17, 1912. Serial No. 697,958.

To all whom it may concern:

Be it known that I, GARFIELD A. ALLEN, a citizen of the United States, residing at Vertrees, in the county of Hardin, State of Kentucky, have invented certain new and useful Improvements in Sugar-Cane-Boiling Furnaces; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to furnaces for boiling sugar cane or sorghum and has for an object to provide a furnace of this character having novel adjustable legs for adapting the furnace to set properly on uneven ground.

A further object of the invention is to provide a furnace having a centrally located jack for elevating the furnace to permit of the same being rotated upon shifting of the wind so that the proper draft will be assured at all times.

A still further object of the invention is to provide a furnace having a casing provided with a space for the reception of dirt or other material to take the place of fire brick and like extensive linings, there being doors located at the lowest points in the casing for the removal of the dirt when it is desired to move the furnace.

A final object of the invention is to provide a furnace having a novel grate and removable ash pan, the grate being revolvably mounted to facilitate dumping and being further capable of being easily and quickly removed from the furnace when desired.

With the above objects in view the invention consists of certain novel details of construction and combination of parts herein-after fully described and claimed, it being understood that various modifications may be made in the minor details of construction within the scope of the appended claim.

In the accompanying drawings forming part of this specification: Figure 1 is a side elevation of the furnace. Fig. 2 is a plan view of the furnace. Fig. 3 is a longitudinal sectional view through the furnace. Fig. 4 is a cross sectional view taken on the line

7—7 Fig. 1. Fig. 5 is a cross sectional view taken on the line 8—8 Fig. 1.

Referring now to the drawings in which like characters of reference designate similar parts, the furnace is shown to comprise an outer casing 10, and an inner casing 11, there being a space between both casings for the reception of dirt 12 or similar inexpensive material. The major portion of the furnace slopes downwardly toward the front of the furnace, and doors 13 are located at the lowest points in the sides of the outer casing to facilitate the removal of the dirt when the furnace is to be moved. The doors are hinged in position as shown at 14 and normally held closed by buttons 15.

The furnace is supported at the front and rear ends by extensible legs each comprising a stationary member 16 which is fixed by riveting or otherwise to the casing and equipped on the outer face with guide straps 17 through which an adjustable member 18 is slidably fitted. A groove 19 is formed in the adjustable member at the top to receive a guide pin 20 carried by the stationary member. The stationary member is provided with a series of notches 21 on one edge, and the adjustable member is provided with a substantially U-shaped locking pawl 22 which is pivotally secured to the member by a strap 23, one leg of the pawl being adapted to engage in any one of the notches 21 and lock the adjustable member in any adjusted position, while the other leg of the pawl constitutes a handle for rotating the pawl into operative or released position.

Both members of each leg are provided with oppositely bent feet 24, the foot of the adjustable member being adapted to rest upon the ground while the foot of the stationary member constitutes a handle for manually raising or lowering the furnace, it being understood that the foot of the adjustable member is rigidly held upon the ground by stepping upon it or otherwise during this manipulation of the furnace. By proper adjustment of the furnace legs the furnace may be maintained level upon uneven ground.

The stationary members of all the legs are connected by inclined braces 25 below the furnace, and are further connected by

horizontal braces 26 at the upper edge of the furnace, these braces being in turn connected by vertical braces 27 which together with the horizontal braces are riveted or otherwise permanently fixed to the outer casing of the furnace. The horizontal braces extend forwardly beyond the front of the furnace and terminate in handles 28 by means of which the front end of the furnace may be lifted bodily and rotated upon the jack hereinafter described to bring the front of the furnace to face the breeze upon shifting of the wind and thus insure a proper draft through the furnace at all times.

Both the inner and outer casings of the furnace have a common bottom 29, and in the front end or fire box end of the furnace the bottom is cut away to receive a horizontally disposed grate 30. Disposed below the cut away portion of the bottom are parallel channel iron guide bars 31, these bars being connected at their rear ends by a cross bar 32 and at their front ends by a cross bar 33. A tubular bearing 34 is centrally disposed on the cross bar 32 to receive a centrally disposed gudgeon 35 carried on the rear end of the grate, and the cross bar 33 is provided in the top face with a groove 36 to receive a gudgeon 37 carried on the front end of the grate. The grate may be rotated bodily on these gudgeons in either direction for dumping, or the front end of the grate may be lifted bodily and then pulled forwardly to remove the grate bodily from the furnace when desired.

The webs of the guide bars 31 are formed with slots 38 in which are slidably fitted locking slides 39 which engage with their inner ends the bottom face of the grate and normally hold the grate in operative position and furthermore the outer ends of these slides bear within guide grooves 40 formed in the top edges of abutment bars 41 carried below the furnace outside of the guide bars, the extreme outer ends of the slides being bent downwardly to provide handles 42 for moving the slides to operative and released position.

A door 43 is hingedly mounted on the front wall of the outer casing to permit of access to the interior of the furnace, the door normally being held closed by a latch 44 engaged in a keeper 45 carried on the front wall. The front wall is provided below the door with a series of draft openings 46, an orificed damper 47 being slidably fitted to the front wall through the instrumentality of guide pins 48 fitting in grooves 49 formed in the wall, to regulate the draft through the draft openings.

It will be noted that arranged on the stationary member of each leg is a stop finger 50 against which the handle of the locking pawl carried by the adjustable member

abuts, this stop finger preventing the pawl from rotating sufficiently to free the working leg from the notches in the stationary member and in this manner the legs are held against collapse.

For promoting the proper draft, a stack 51 is mounted on a supporting plate 52 carried by the top edges of both inner and outer casings and the rear end of the furnace, this stack being equipped with a damper 53 and being furthermore braced by guy wires 54 the lower ends of which are engaged in eye bolts 55 carried by angleiron brackets 56 secured to the outer casing, tightening of these guy wires being effected by manipulation of the nuts 57 of the eye bolts.

In sugar cane boiling furnaces it is essential for the proper working of the furnace that the front of the furnace always face the breeze. To facilitate rotation of the furnace into the breeze upon shifting of the wind, I provide a cross brace 58 which bridges the inclined braces of the legs near the forward end of the furnace and is centrally equipped with a socket member 59. A jack 60 is arranged below the furnace and is equipped with a screw 61 the upper end of which engages in said socket member. The screw is equipped with turning handles 62, and upon rotation of these handles the screw is elevated and raises the forward end of the furnace. Handles 63 are arranged on the furnace casing for rotating the furnace on the jack as a pivot to face the breeze after the feed screw of the jack has been manually raised in the usual manner to elevate the legs of the furnace from the ground.

It will be noted that the furnace is deep at the fire box end and shallow at the smoke stack end, and that the socket member 59 is disposed intermediate these ends so that the deep end of the furnace counterbalances the smoke stack with a resultant even balancing of the furnace on the jack as a fulcrum, whereby the furnace may be easily and quickly rotated when necessary.

For regulating the upward intake of air through the grate to the fire box a plate 64 is slidably fitted on the lower flanges of the channel iron guide bars, this plate being provided with a handle 65 for withdrawing the plate to any desired extent. The plate furthermore performs the function of an ash pan since it is situated below the grate and may be withdrawn from time to time to facilitate the ashes being removed when necessary.

What is claimed, is:—

A sugar cane boiling furnace including a fire box deep at one end and shallow at the opposite end, with the intermediate portion gradually merging from said deep end into said shallow end, a smoke stack rising from

said shallow end, a lifting jack underneath said furnace having a feed screw, a socket on the bottom of said furnace receiving said feed screw and so positioned that the weight
5 of the deep end of said furnace counterbalances the weight of the smoke stack with a resultant even balance of said furnace on said feed screw when the latter is elevated, whereby said furnace may be evenly rotated

on said jack as a pivot, and extensible legs 10 on each side of said fire box.

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

GARFIELD A. ALLEN.

Witnesses:

RAVE THOMAS,
THOMAS DARNELL.