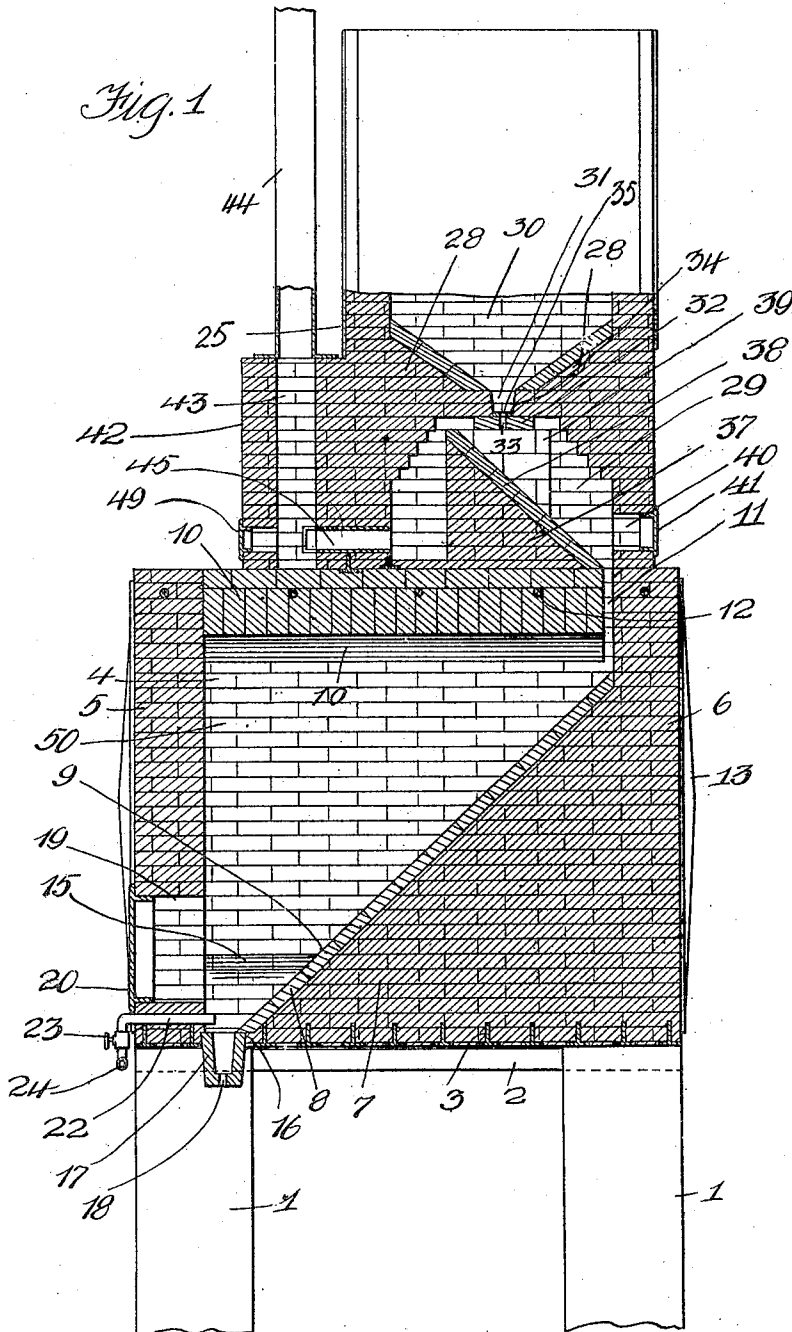


APPLICATION FILED JUNE 15, 1910.

972,023.

Patented Oct. 4, 1910.

3 SHEETS—SHEET 1.



WITNESSES

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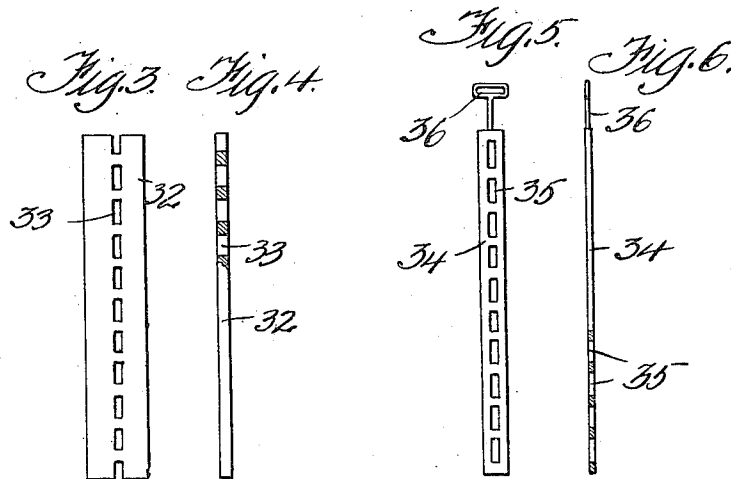
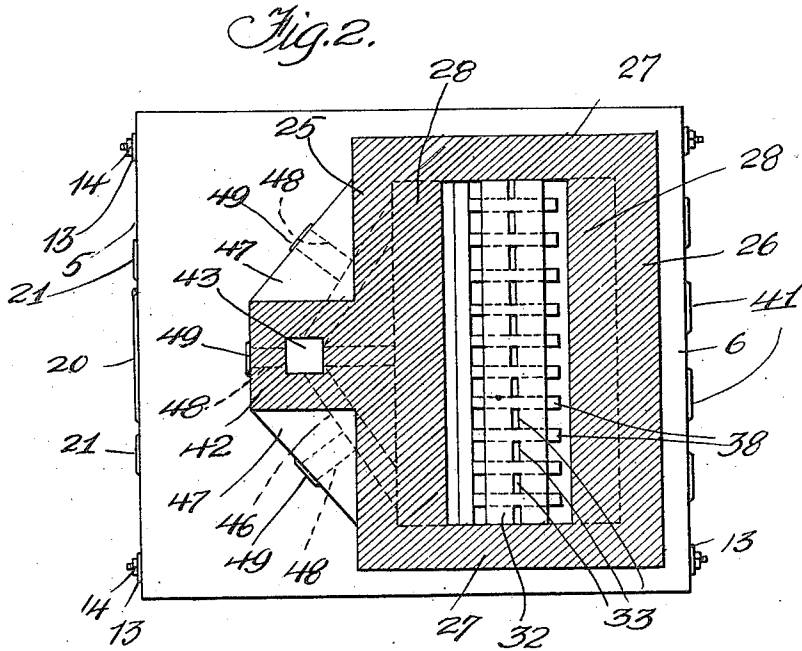
V. O. RITCHAY & F. W. BESSELMAN.
BONE BURNER.

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3 SHEETS-SHEET 2.



WITNESSES

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BONE BURNER.

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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

VINCENT O. RITCHAY AND FRANK W. BESSELMAN, OF CORAOPOLIS, PENNSYLVANIA.

BONE-BURNER.

972,023.

Specification of Letters Patent.

Patented Oct. 4, 1910.

Application filed June 15, 1910. Serial No. 566,986.

To all whom it may concern:

Be it known that we, VINCENT O. RITCHAY and FRANK W. BESSELMAN, citizens of the United States of America, residing at Coraopolis, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Bone-Burners, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to a bone burner, and the primary object of the invention is to provide a novel burner, oven, or retort for thoroughly and automatically subjecting bone to the action of a flame and heat that will disintegrate the bone to that extent that it can be used for fertilizing, filtering, and other purposes.

Another object of this invention is to provide a bone burner for expeditiously burning bone, the burner being constructed whereby gas, oil, or coal can be utilized for burning purposes and the flame carried directly against bone placed in the burner or retort and adapted to pass therethrough by gravity, thus obviating the necessity of handling the bone within the burner and thereby allowing the entire structure to be operated by a single attendant, who regulates the supply of bone to the burner in accordance with the amount of bone that is discharged therefrom.

With these and such other objects in view as may hereinafter appear, the invention consists of the novel construction, combination, and arrangement of parts to be hereinafter specifically described and then claimed.

Reference will now be had to the drawings forming a part of this specification, wherein:

Figure 1 is a vertical sectional view of a burner in accordance with our invention. Fig. 2 is a horizontal sectional view of the same. Fig. 3 is a plan of a tile forming part of the burner. Fig. 4 is a side elevation of the same, partly broken away and partly in section. Fig. 5 is a plan of a slide used in connection with the tile shown in Fig. 3. Fig. 6 is a side elevation of the same, partly broken away and partly in section. Fig. 7 is a front elevation of the burner, and Fig. 8 is a rear elevation of the same.

A burner or retort in accordance with this invention consists of an elevated oven containing the burners and constructed upon the top of the main oven is an auxiliary oven into which the bone or material to be

burned is fed and carried into the main oven. Suitable provision is made, as will hereinafter appear, whereby both ovens can be expeditiously, economically, and easily operated to thoroughly reduce the bone to a powdered or disintegrated condition.

The main oven is constructed upon piers 1 made of concrete or other material and the height of these piers depends on the location of the burner or retort. The piers 1 are connected by longitudinal T-bars 2 embedded in the upper ends of said piers, and these T-bars are connected by a plurality of transverse inverted T-bars 3. Upon the T-bars 3 are erected side walls 4, the front wall 5, and the rear wall 6 of the main oven, said rear wall having an inwardly projecting inclined and transversely arranged enlargement 7, the inclined surface of which is covered with tile 8 providing an inclined conveying surface 9 for bone, said surface extending from within proximity of the upper end of the wall 6 to within proximity of the lower end of the wall 5.

The walls 4 support an arched roof 10, the outer surface of which is filled in flush with the upper edges of the walls 4, 5, and 6, whereby the auxiliary oven can be constructed upon the top of the main oven. The roof 10 at the inner side of the wall 6 is cut away to provide a transverse slot 11 in communication with the upper end of the inclined conveying surface 9. The roof 10 is braced relatively to the walls 4 by tie-rods 12, and the front and rear walls 5 and 6 are braced by bulwarks 13 connected by tie-rods 14. The lower inner sides of the walls 4 are provided with inclined ways 15, these ways terminating at a transverse slot 16 formed in the bottom of the oven, and in this slot it fitted a receptacle-shaped tile 17 having the bottom thereof provided with a plurality of openings 18.

The front wall 5 is provided with a doorway 19 normally closed by a hinged door 20, and at the sides of the doorway 19 are peepholes normally closed by shutters or doors 21. Extending through the wall 5 beneath the doorway 19 are a plurality of burners 22 having the inner ends thereof directly above the tile 17, while the outer ends are provided with regulating valves 23 and are connected to a gas supply pipe 24.

Arranged upon the main oven is the auxiliary or superimposed oven, comprising a front wall 25, a rear wall 26, and side walls

27. The inner sides of the walls 25 and 26 adjacent to the lower end thereof are provided with transverse arched portions 28 providing a chamber 29 and a hopper 30 above said chamber, the hopper 30 being in communication with the chamber 29 by a transverse slot 31 provided by carrying the arched portions 28 into proximity with each other. The confronting sides of the arched portions 28 are supported upon transverse tile 32 having a plurality of vertical slots 33 formed therein and movably mounted upon said tile within the slot 31 is a shaker slide bar 34 having a plurality of vertical slots 35 formed therein adapted to register with the slots 33 of the tile 32. One end of the shaker slide bar extends from the side wall of the oven and is provided with a handle 36, whereby the bar 34 can be reciprocated to shake matter from the hopper 30 into the chamber 29 to control the passage of the matter into the chamber.

Arranged transversely upon the main oven within the chamber 29 is a structure 37 having an inclined feeding surface 38 formed by providing the inclined surface of the structure 37 with tile. The inclined supporting surface of the structure 37 supports a plurality of longitudinal partitions 39 and it is the upper edges of these partitions that support the tile 32. The partitions 39 are arranged in parallelism and are adapted to equally distribute the material from the hopper 30 upon the feeding surface of the structure 37, whereby as the material from the hopper 30 is deposited upon said feeding surface it will descend into the slot 11 formed in the roof 10 of the main oven. The rear wall 26 of the auxiliary oven is provided with a plurality of doorways 40 normally closed by doors 41, these doorways permitting of the inclined feeding surface of the structure 37 being cleaned from time to time. The front wall 25 of the auxiliary oven is provided with an extension 42 having a vertical flue 43 in communication with a stack or chimney 44 mounted upon said extension. The lower end of the flue 43 communicates with the chamber 29 through the medium of a flue 45 formed in the wall 28, also through the medium of branch flues 46 provided therefor in the extension 42, the wall 25 and structures 47 connecting the extension 42 with the wall 25, said structure being in the form of webs connecting the lower end of the extension 42 with said walls. The structures 47 and the extension 42 are provided with openings 48 normally closed by plates 49, said openings permitting of the flues 46 and 43 being cleaned.

In the operation of the burner or retort the contents of the hopper 30 are deposited upon the inclined feeding surface of the structure 37 and is immediately deposited

in the slot 11 onto the inclined conveying surface of the rear wall 6, the material eventually entering the tile 17 and being discharged through the openings 18 thereof. During this movement of the contents of the hopper 30, the gas flame from the burners 22 creates an intense heat within the chamber 50 of the main oven, it being preferable to use the gas under pressure, whereby the flame will travel in an opposite direction from the contents of the hopper 30, the flame extending upwardly along the inclined conveying surface of the rear wall 6 and disintegrating the bone as it is fed upon this surface from the chamber 29. The flame or the heat of the flame traverses the conveying surface of the rear wall 6, passes upwardly through the slot 11, over the feeding surface of the structure 37, downwardly between the front wall 25 and the rear wall of the structure 37, through the flues 45 and 46 into the flue 43 and the stack or chimney 44.

From the foregoing it will be observed that we have devised a structure having superimposed chambers and into the upper chamber is fed a material that is carried into the lower chamber and discharged from the bottom thereof, the movement of the material from the upper chamber to the lower chamber allowing the material to be continuously subjected to the action of a gas flame.

The burner in its entirety is constructed of fire brick and tile.

What we claim, is:

1. A burner of the type described embodying main oven having the inner face of its rear wall formed substantially throughout with an inclined conveying surface, an auxiliary oven located upon said main oven and in communication therewith at the upper end of the conveying surface of said oven, said auxiliary oven having an inclined feeding surface formed therein and a hopper for feeding material onto said surface, said feeding surface being oppositely disposed with respect to said conveying surface, means adapted to control the passage of material from the hopper onto the feeding surface of said auxiliary oven, and means located in the main oven at the bottom of said conveying surface for subjecting the material to the action of fire and heat.

2. A burner of the type described comprising a main oven having the inner face of its rear wall formed substantially throughout with an inclined conveying surface, the lower portion of said surface extending in proximity to the front wall of said oven, means to constitute an outlet arranged in the bottom wall of said oven and in proximity to the front wall thereof, an auxiliary oven located upon said main oven and having an inclined feeding surface formed

therein and a hopper for feeding material to said surface, said feeding surface being oppositely disposed with respect to said conveying surface, the top wall of said main oven provided with a transversely-extending slot in proximity to the upper end of said conveying surface and constituting means for establishing communication between the auxiliary oven and the main oven, and means located in the main oven in proximity to said outlet for subjecting the material to the action of heat.

3. A burner of the type described comprising a main oven having the inner face of its rear wall formed substantially throughout with an inclined conveying surface, the lower portion of said surface extending in proximity to the front wall of said oven, means to constitute an outlet arranged in the bottom wall of said oven and in proximity to the front wall thereof, an auxiliary oven located upon said main oven and having an inclined feeding surface formed therein and a hopper for feeding material to said surface, said feeding surface being oppositely disposed with respect to said conveying surface, the top wall of said main oven provided with a transversely-extending slot in proximity to the upper end of said conveying surface and constituting means for establishing communication between the auxiliary oven and the main oven, means located in the main oven in proximity to said outlet for subjecting the material to the action of heat, and means arranged in the auxiliary oven for controlling the passage of the material from the hopper onto said feeding surface.

4. A burner of the type described comprising a main oven having the inner face of its rear wall formed substantially throughout with an inclined conveying surface, the lower portion of said surface extending in proximity to the front wall of said oven, means to constitute an outlet arranged in the bottom wall of said oven and in proximity to the front wall thereof, an auxiliary oven located upon said main oven and having an inclined feeding surface formed therein and a hopper for feeding material to said surface, said feeding surface being oppositely disposed with respect to said conveying surface, the top wall of said main oven provided with a transversely-extending slot in proximity to the upper end of said conveying surface and constituting means for establishing communication between the auxiliary oven and the main oven, means located in the main oven in proximity to said outlet for subjecting the material to the action of heat, means arranged in the auxiliary oven for controlling the passage of the material from the hopper onto said feeding surface, and partitions supporting said feeding surface.

5. A burner of the type described embodying a main oven having the inner face of its rear wall formed substantially throughout with an inclined conveying surface and further having the lower portion of its side walls extending at an inclination to assist in the discharge of material from said main oven, said inclined conveying surface extending in proximity to the lower portion of the front wall of said main oven, means constituting a discharge outlet for said main oven, said means arranged in the bottom of said oven and in proximity to the front wall thereof, an auxiliary oven located upon said main oven and having an inclined feeding surface oppositely disposed with respect to said conveying surface and further including a hopper for feeding material onto said surface, means for establishing communication between the auxiliary oven and the main oven, and means for subjecting the material as it passes through said ovens to the action of fire and heat.

6. A burner of the type described embodying a main oven having the inner face of its rear wall formed substantially throughout with an inclined conveying surface and further having the lower portion of its side walls extending at an inclination to assist in the discharge of material from said main oven, said inclined conveying surface extending in proximity to the lower portion of the front wall of said main oven, means constituting a discharge outlet for said main oven, said means arranged in the bottom of said oven and in proximity to the front wall thereof, an auxiliary oven located upon said main oven and having an inclined feeding surface oppositely disposed with respect to said conveying surface and further including a hopper for feeding material onto said surface, means for establishing communication between the auxiliary means and the main oven, means for subjecting the material as it passes through said ovens to the action of fire and heat, and means for controlling the passage of material from said hopper onto the feeding surface of the auxiliary oven.

7. A burner of the type described embodying a main oven having the inner face of its rear wall formed substantially throughout with an inclined conveying surface and further having the lower portion of its side walls extending at an inclination to assist in the discharge of material from said main oven, said inclined conveying surface extending in proximity to the lower portion of the front wall of said main oven, means constituting a discharge outlet for said main oven, said means arranged in the bottom of said oven and in proximity to the front wall thereof, an auxiliary oven located upon said main oven and having an inclined feeding surface oppositely disposed with

respect to said conveying surface and further including a hopper for feeding material onto said surface, means for establishing communication between the auxiliary means and the main oven, means for subjecting the material as it passes through said ovens to the action of fire and heat, means for controlling the passage of material from said hopper onto the feeding surface of the auxiliary oven, and partitions dividing said inclined feeding surface.

8. A burner of the type described embodying a main oven having the inner face of its rear wall formed substantially throughout as an inclined conveying surface having the lower portion thereof extending in proximity to the front wall of the oven,

an outlet for the oven, gas burners projecting into the oven, an auxiliary oven located upon said main oven and in communication therewith at the upper end of the conveying surface of said main oven, said auxiliary oven having an inclined feeding surface formed therein, and a hopper for feeding material onto said surface, said inclined feeding surface oppositely disposed with respect to said conveying surface.

In testimony whereof we affix our signatures in the presence of two witnesses.

VINCENT O. RITCHAY.
FRANK W. BESSELMAN.

Witnesses:

MAX H. SROLOVITZ,
KARL H. BUTLER.