Oct. 6, 1925. 1,555,938

H. E. BRETT

MORTUARY FURNACE

Filed April 18, 1922 3 Sheets-Sheet 1

Fig. 1.

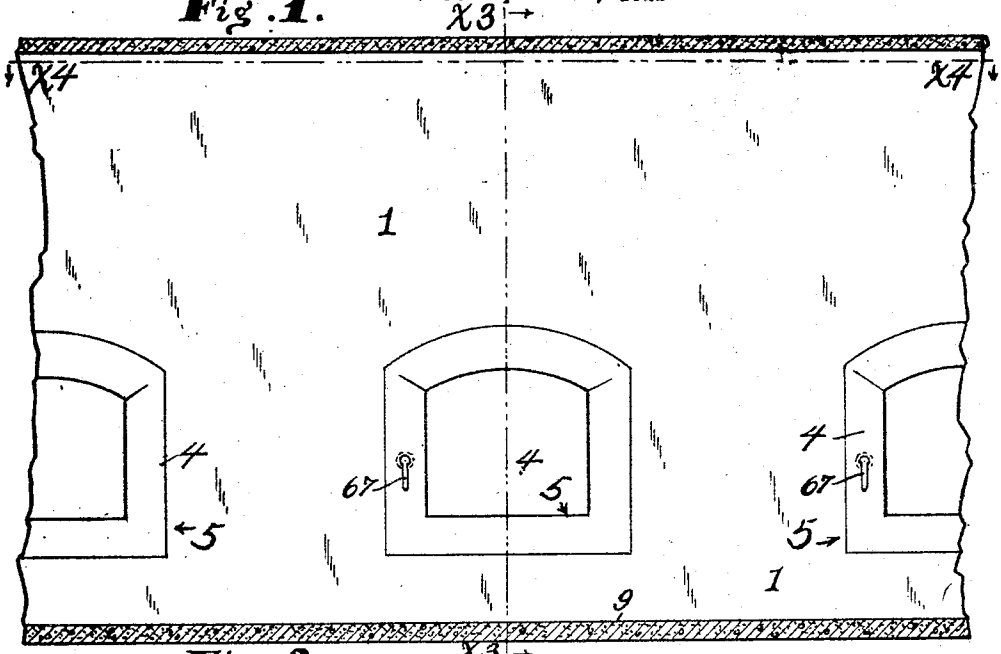
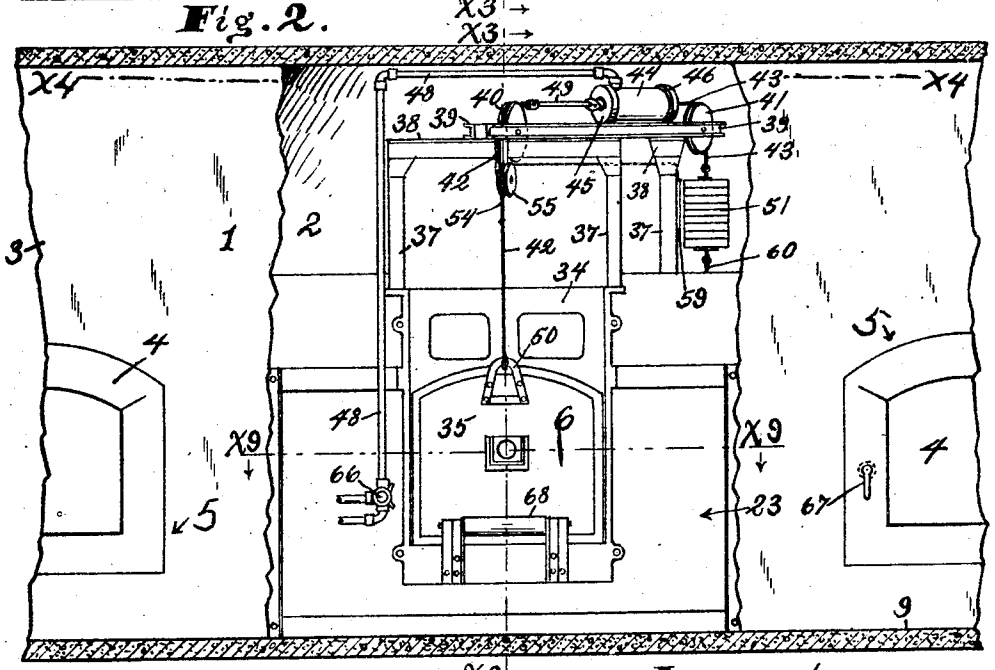


Fig. 2.



Inventor.
Henry E. Brett.
by James R. Townsend
his Atty

Witness:
W. M. Gentle.

Oct. 6, 1925. 1,555,938

H. E. BRETT

MORTUARY FURNACE

Filed April 18, 1922 3 Sheets-Sheet 2

Fig. 3.

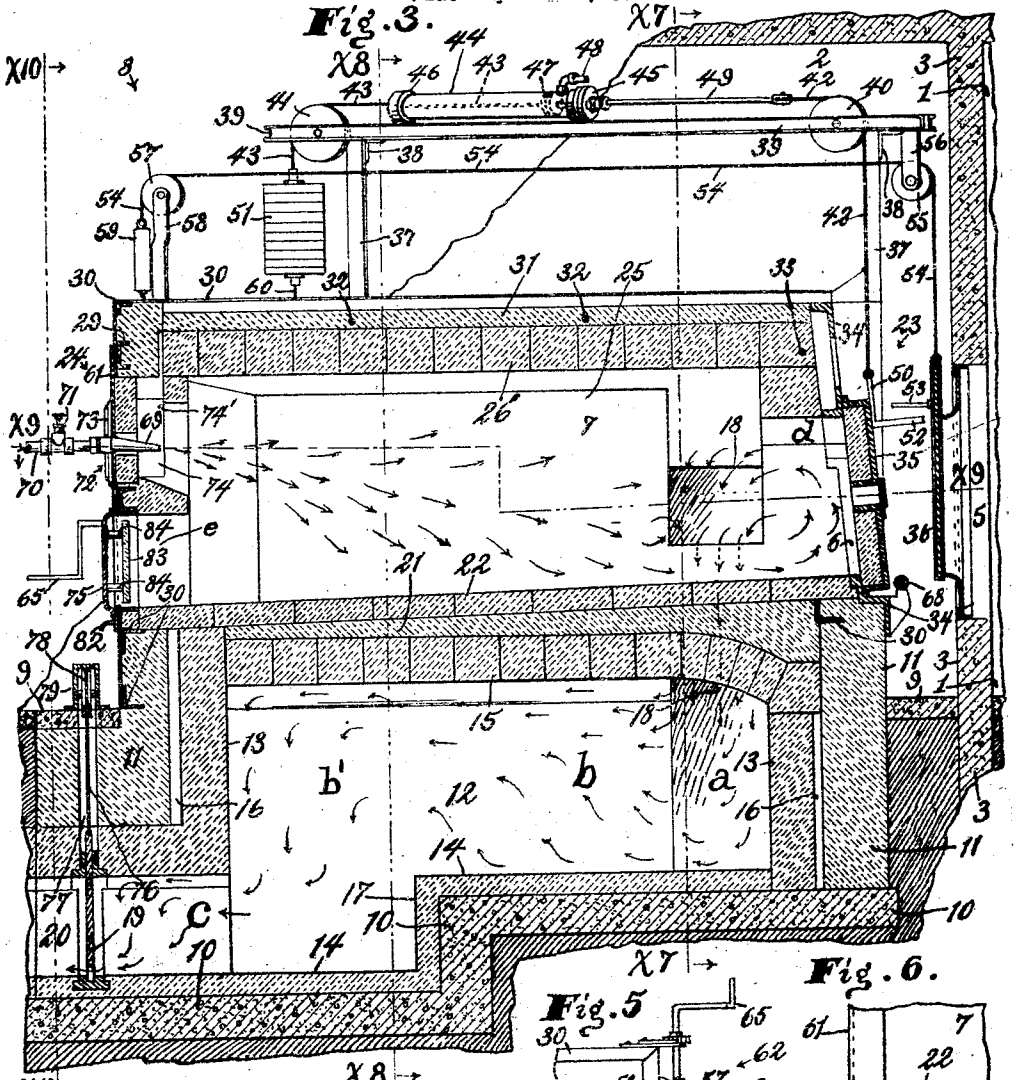


Fig. 4.

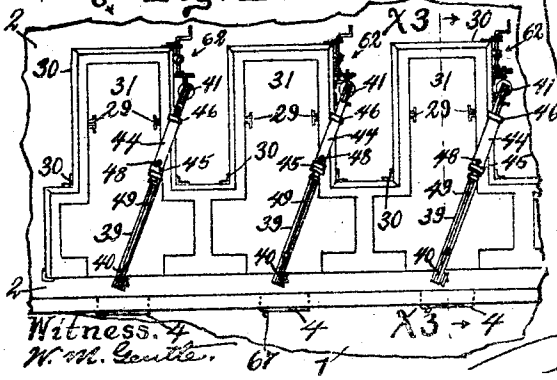


Fig. 5

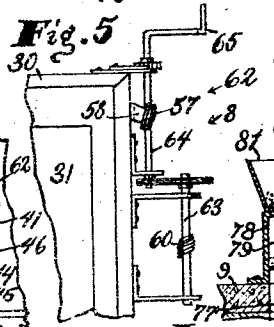
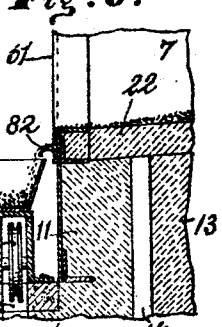


Fig. 6.



Witness.
W. M. Gentle.

Inventor.
Henry E. Brett.
by James R. Townsend
his atty.

Oct. 6, 1925. 1,555,938

H. E. BRETT

MORTUARY FURNACE

Filed April 18, 1922 3 Sheets-Sheet 3

Fig. 7.

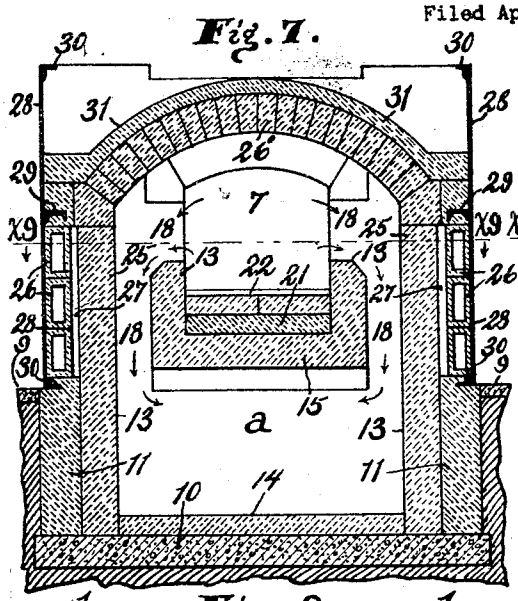


Fig. 8.

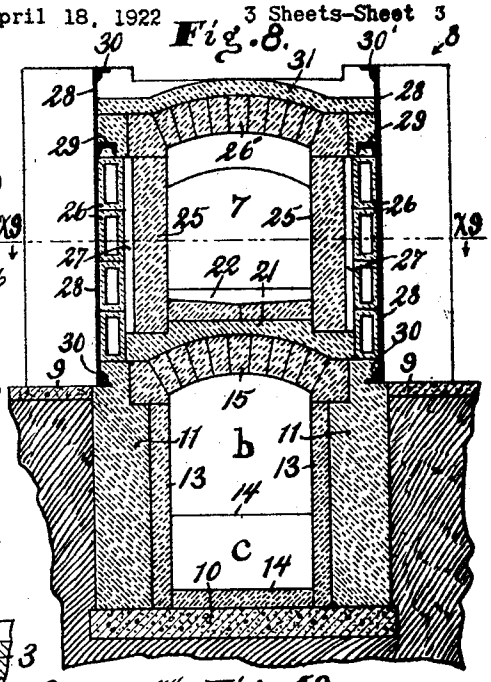


Fig. 9.

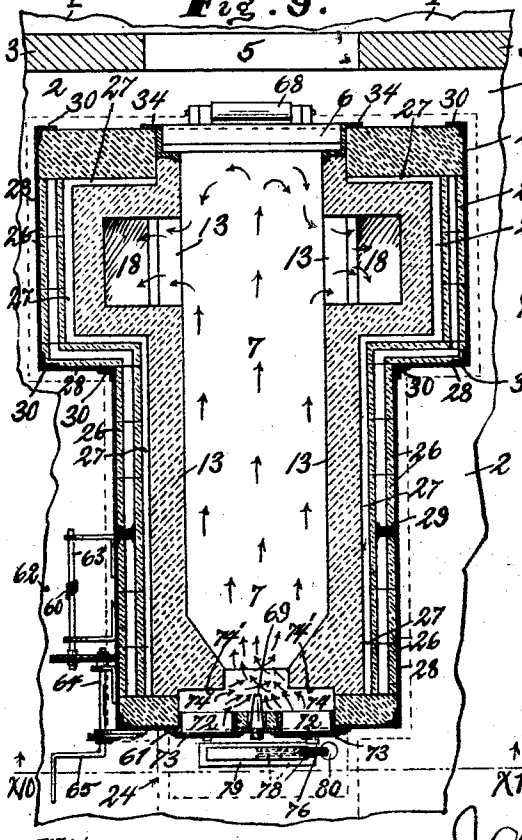
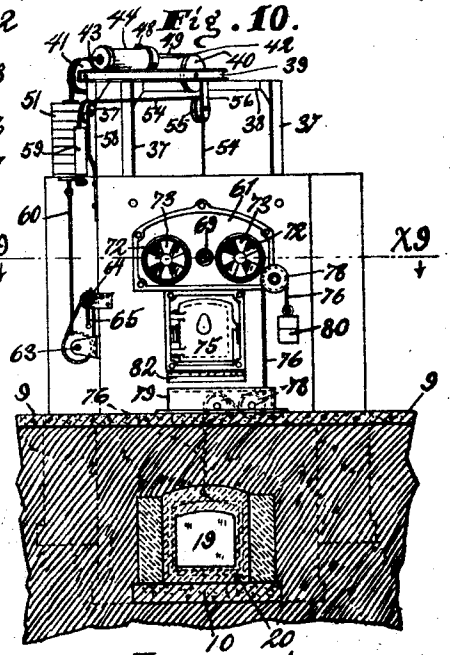


Fig. 10.



Inventor.
Henry E. Brett.
by James R. Townsend
his atty

Witness:
W. M. Gentle.

Patented Oct. 6, 1925. 1,555,938

UNITED STATES PATENT OFFICE.

HENRY E. BRETT, OF LOS ANGELES, CALIFORNIA.

MORTUARY FURNACE.

Application filed April 18, 1922. Serial No. 554,422.

To all whom it may concern:

Be it known that I, HENRY E. BRETT, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Mortuary Furnace, of which the following is a specification.

This invention relates to a mortuary furnace provided with one or more retorts for cremating human bodies and an object is to provide for this purpose, an effective construction that will present a neat, clean and pleasing exterior appearance so constructed as to avoid and overcome any prejudice against cremation as a method for disposing of human remains.

An object of the invention is to provide a down-draft mortuary furnace of simple and durable construction; that will be easy to erect and operate.

Another object is to provide a mortuary furnace that is especially efficient in performing its function of quietly and quickly reducing a human body to ashes; and means in connection therewith for carefully preserving such ashes, which means includes a smooth unbroken floor on which the ashes can remain after cremation, and an arrangement of a down draft through the furnace that will not displace the ashes from the floor, which arrangement comprises inlets to the side flues that are raised some distance above the floor. This arrangement also prevents the accidental loss of any portion of the ashes resulting from the operation of the retort.

In this invention I provide adjacent to a crypt in a mortuary furnace a large combustion chamber in which all combustibles in the remains are fully consumed, and the burned gases are conducted therefrom to an underground conduit; and means are provided in connection therewith for preventing the escape of odors therefrom. This is done by means of a furnace door of great weight that has a face fitted evenly to a like face on the door frame and so inclined that the great weight of the door may operate to effect a practically air tight closure between the door and frame.

In addition to the foregoing I provide a damper that controls the underground conduit, and a casing to enclose the opening to the damper so that cold air is not drawn into the conduit to impair the strength of the chimney draft.

A feature of the invention is shown in the novel construction whereby the furnace may be erected as a single unit, or in pairs or in a battery of any desired number of retorts; and I have also so constructed and arranged the furnace that the units can be operated independently of each other, or can be operated in pairs, or any number of units connected together, as desired.

A feature of the invention is shown in the construction and arrangement of the crypt floor and surrounding walls and down draft side flues that have their inlet openings arranged a distance above the floor for the purpose of carefully preserving the ashes of the dead. The floor is preferably inclined and formed with a perfectly smooth, even and unbroken surface and is surrounded on sides and ends with unbroken walls that positively retain the ashes until a proper time for removing them from the retort. The inclined floor rises slightly upward from the rear toward the front, and there is provided at the rear door of the retort, a lip that is adapted to extend over the edge of a receptacle so that every particle of ashes swept from the floor will fall into the receptacle.

An object of this invention is not only to cremate in a sanitary and efficient manner, but also in a manner showing the greatest respect to the dead and with a careful consideration for the comfort, feeling and tender sensibilities of the living.

The flow of burned gases is regulated by a damper plate so constructed and arranged as to force the burned vapors to a very low level in the bottom of an auxiliary compartment before the products escape into the conduit; by which arrangement a very complete combustion of all the gases is effected.

A feature of invention is shown in inclining the crypt floor from the forward end downward toward the rear; and then arranging the fuel inlet so that the nozzle is inclined downward from the rear toward the front whereby the flame is inclined slightly downward so that its direction of force has a tendency to bring the heat into close contact with the remains.

Also a feature of the invention is shown in the construction of the rear door frame in which are arranged air inlets adjacent to the fuel inlet with controlling means so that a proper amount of air will mix with the fuel; also the rear door is arranged to function when necessary as an auxiliary air inlet; and the air inlets and rear door are arranged around the fuel inlet so that their currents of air converge with a mixing effect slightly in advance of the nozzle.

An object of the invention is to provide a mortuary furnace having a crypt into the rear end of which a fuel nozzle is directed centrally and slightly downward with air inlets adjacent thereto, with controlling means connected therewith whereby equal volumes of air can be admitted on opposite sides of the nozzle to hold the flame centrally through the crypt; or the controlling means can be adjusted to admit unequal volumes of air at opposite sides of the nozzle whereby the flame can be directed to one side or the other of the crypt as may be required.

A further object of the invention is to provide a furnace, the outer walls of which are of light construction, strong, free from fissures, efficiently insulated against loss of heat, and readily erected, in which construction the outer wall is formed of light cellular tile that is enclosed by a steel jacket or shell.

Other objects, advantages and features of invention may appear from the accompanying drawings, the subjoined detail description and the appended claims.

The accompanying drawings illustrate the invention as applied in a mortuary provided with a battery of furnaces.

Figure 1 is a fragmental sectional view showing a wall of the receiving room and a front elevation of three closed portals of a battery of furnaces.

Fig. 2 is a fragmental view of the wall shown in Fig. 1, broken away to expose one unit of said battery of furnaces.

Fig. 3 is an enlarged fragmental central longitudinal section on line x^3, Figs. 1, 2, 4.

Fig. 4 is a fragmental plan viewed from line x^4, Fig. 2, of the battery of furnaces; some of the parts being omitted.

Fig. 5 is a fragmental detail on a larger scale, of a rear corner of a furnace with the winch for opening and closing the portal and the front door pertaining to one of the furnaces.

Fig. 6 is an enlarged fragmental view of the rear end of the furnace showing a receptacle in position to receive ashes from the crypt.

Fig. 7 is a fragmental vertical cross section on line x^7, Fig. 3; showing the inlets to the side flues raised some distance above the floor.

Fig. 8 is a fragmental vertical cross section on line x^8, Fig. 3, showing a crypt floor slightly depressed at its longitudinal center so that melted metal from a casket will converge at the center and run downward and discharge at the rear door.

Fig. 9 is a fragmental horizontal section on line x^9, Figs. 2, 3, 7, 8, 10.

Fig. 10 is an elevation partly in section on line x^{10}, Figs. 3, 9.

The mortuary comprises a receiving room 1 that is separated from the furnace room 2 by a wall 3. Room 1 can be arranged and decorated to have a pleasing effect to the living that desire to accompany their dead into the mortuary.

Portals 4 comprising orifices 5 with closure of any suitable construction and appearance are provided in the wall 3 for admission of bodies.

Within the furnace room 2 there are arranged one or more batteries of mortuary retorts 8, of any desired number, with the receiving door 6 of each crypt 7 arranged adjacent a corresponding portal 5. Any number of retorts may be provided, and they can be built together or erected in separate cremating units, or in pairs of units or in batteries of three or more units; and all the units are substantially alike in construction and operation.

In erecting a battery of retorts an excavation is made the full length and width of the battery at a proper depth below the floor line 9 of the furnace room 2; and in this excavation there is laid a concrete base 10 formed therein as a monolith on which are erected the outside walls 11 of the retorts that are preferably constructed of red brick; but may be formed of concrete or of any other suitable material as desired. The walls 11 are extended upward slightly above the floor line 9; and within them are arranged the combustion chambers 12 of the retorts. Each of these chambers is provided with lining walls 13, floor 14 and roof 15 formed of fire bricks and blocks. Preferably the lining walls 13 are set away from the outer walls 11 to form heat insulating spaces 16. The floor 14 descends to form a step 17.

Each combustion chamber 12 is formed with openly connected stations a, b. b', c. The station a is at the forward end of the retort and is laterally extended; being spacious in width and is adapted to receive through the lateral descending flues 18, a large volume of gases from the crypt 7. The down draft side flues 18 have their inlets arranged a distance above the floor 22 as previously stated so that the draft therethrough will not displace the ashes of the dead from the floor below. The space within this laterally spacious station is sufficiently large for an extensive combustion therein of the gases as the contents of the chamber are forced by

draft rearwardly into the narrower station *b* where combustion is practically completed before the contents reach the deeper station *b'* where they descend downward into station *c* from whence the contents of the chamber at the end of *c* are eventually discharged under the lower edge of damper 19 into the underground conduit 20.

On the arch or roof 15 of chamber 12, and extending over the side walls is a filler bed 21 of brick on which is laid the crypt floor 22 and this floor is preferably inclined downward from front to rear and extends the full length of the crypt; and its upper surface is entirely smooth so that the ashes can rest thereon without possibility of being lost in cracks or crevices.

The floor 22 may be laid with a slight downward inclination from the side walls toward the longitudinal center to form a channel for the run-off of molten metal from the trimmings of the casket.

The front end 23, rear end 24, side wall 25 and arch roof 26' are built of fire brick and blocks that are properly arranged to form the crypt 7 with front and rear openings *d* and *e* for suitable doors.

The arrangement of the walls 13 and 25 is such that at the forward end of the retort the walls 25 are simply upward continuations of the walls 13. At the rear and narrower portion of the crypt, the walls 25 are erected on extensions of the red brick bed 21.

Outside of walls 25 are arranged the tile walls 26 which may be spaced apart from walls 25 to form the heat insulating spaces 27 said walls 26 are preferably made of cellular tile that effectively prevents a loss of heat; and the tile walls are enclosed by a sheet steel shell or jacket 28 that is properly secured to channel plates 29 and angle irons 30, that are arranged at the corners or are set into the walls at convenient places for attaching the steel plates of the shell 28. The tile is preferably the common hollow building tile, which may be quickly erected and will sustain a considerable weight.

The arch 26' is overlaid with a facing 31 of red brick through which extends tie rods 32. A tie rod 33 extends through the upper row of fire blocks at the front end of the retort, thus to reinforce the structure.

An iron frame 34 is fitted to the front end of the retort, and through this frame is provided the opening 6 that is normally closed by a sliding door 35, which is lined with fire brick and provided with a smooth face for contacting evenly with the face of the end frame 34; the contacting faces are inclined sufficiently to cause the great weight of the door to maintain the closure in tight condition.

Automatic means are provided for opening and closing the crypt door 35 simultaneously with the opening of its adjacent portal; and to also automatically raise and lower an asbestos screen 36 that is normally interposed between portal and crypt.

On the top of each retort is erected a frame comprising uprights 37 provided with angle plates 38 that support parallel channel irons 39, between which and at the ends thereof are mounted sheave wheels 40, 41 for chains 42, 43. There is also mounted on the top of channel irons 39, a cylinder 44 that can be operated by hydraulic or pneumatic power. Said cylinder has closed and open ends 45, 46, respectively; and there is normally positioned at the closed end a piston 47 that is adapted to be actuated toward the open end 46 by a pressure pipe 48. Connected to piston 47 is a rod 49, one end of which is connected to one end of chain 42 that has its other end connected to a strap 50 on door 35 so that when the piston 47 is actuated toward the end 46 as by air, steam or water pressure, it will slide the door 35 upward on its frame. One end of chain 43 is connected to piston 47 and the other end is attached to a counterweight 51 to assist in opening the door 35.

Door 35 is provided with an extension 52 that is adapted to engage an arm 53 on the frame of an asbestos screen 36 so that the upward movement of the door 35 will elevate the screen.

Screen 36 is normally supported in position over the opening 5 by a chain 54 that extends upward over a pulley 55 supported by a plate 56 secured between channel irons 39, and said chain is then extended back over the retort to a wheel 57 on the upper end of an upright 58 and has its other end connected to a counterweight 59.

Counterweight 51 is connected by a chain 60 to hand winch 62 attached to the rear outer wall of the retort. This winch is of common construction and is not described in detail except that chain 60 is connected to winding shaft 63, that is actuated by movement of hand crank 65. Each retort is provided with a winch and the described connections.

Pipe 48 of each retort is extended over and down to three way valves 66 in the portal wall adjacent the portals so that the handles 67 for opening and closing the crypt doors 4 will actuate these valves. The connection of the handle to the valve and also construction and operation of the valves are of well known character and are therefore not shown as described in detail.

At the front of the crypt a noiseless roller 68 is provided over which a casket is passed when being moved from the receiving room to the crypt.

At the rear of each crypt there is a frame 61 provided with an opening through which is extended a fuel nozzle 69 that is connected with supply pipe 70 that has a control valve

71; and this nozzle is adapted to discharge fuel into the crypt 7. Adjacent to and on each side of nozzle 69 are the air inlets 72, having control plates 73 by which they are operated to admit air into recesses 74.

The recesses 74 are formed in the rear end of the retort wall so that the faces 74′ of the wall form baffles to deflect the air from inlets 72 across and slightly in advance of nozzle 69 as indicated by arrows in Fig. 9. By independently adjusting the control plates 73 on each side of the nozzle 69, equal or unequal volumes of air may be admitted into the right hand and left hand recesses 74 from the two inlets 72, and by such means the flame from the nozzle may be directed straight through the center of the crypt or deflected to one side or the other as the progress of cremation may require.

The rear door 75 is arranged under the nozzle 69 so that it can be slightly opened to admit additional air to the crypt; and when this door is opened there are three currents of air meeting and mixing in advance of the fuel nozzle.

At the rear of such retort there are provided means for raising or lowering the damper plates 19. To each damper there is connected a chain 76 that extends upward through an opening 77 over pulleys 78 mounted in a cover box 79 on the rear of the retort, and said chain is provided with a counterweight 80 adapted to hold the damper 19 in any desired position. The box 79 seals the opening through which the damper valve is operated.

The box 79 serves as a seat for the ash-receiving receptacle 81 when the rear door 75 of the crypt 7 is opened to remove the ashes; an integrally connected to the rear frame 61 of the retort is a curved lip 82 that extends toward box 79 and over the receptacle so that ashes may be swept thereover from the floor of the crypt into the receptacle.

The door 75 is provided with a baffle plate 83 that is spaced away from the iron door by spacing blocks 84.

In operation the receiving room is arranged as stated so that the living who desire to do so, can accompany their dead to the portal door, after which the portal and crypt doors are opened and the asbestos screen raised as described and the casket passed into the crypt over a noiseless roller. Then the doors are closed and the asbestos screen lowered and the incineration performed, leaving the ash remains on a smooth unbroken floor so that all particles thereof can be removed and preserved.

I claim:

1. The mortuary furnace set forth comprising a retort formed with a crypt in said retort; said crypt having a receiving end and a discharge end; a smooth floor having its top surface inclined downwardly from the receiving to the discharge end; and extending the full length of said crypt doors for opening and closing the ends of said crypt, side walls continuous with said floor, said walls and doors fitted to said floor to retain the ashes from a human body thereon until cremation of said body is completed.

2. The furnace set forth comprising a base; a steel shell above said base; a cellular tile wall lining the inside of said shell to form a heat insulating structure; and a fire brick wall inside of said tile wall.

3. The mortuary furnace set forth comprising a base; a steel shell above said base; a hollow tile wall lining the inside of said shell; a fire brick wall inside of said tile wall; and a crypt inside of said fire brick wall.

4. The mortuary furnace set forth comprising a retort; a crypt in said retort, said crypt having a receiving end and a discharge end; a smooth unbroken floor having its top surface inclined downwardly from the side walls toward its longitudinal axis and also inclined downwardly from the receiving toward the discharge end of said crypt and continuous with the sidewalls thereof; doors for opening and closing the ends of said crypt, said walls and doors fitted to said floor to retain ashes of a human body thereon until cremation of such body is complete.

5. A mortuary furnace comprising a crypt adapted to receive a human body said crypt having a smooth unbroken floor and side walls and doors fitted closely to the ends of the crypt for retaining the ashes from the body on the floor of said crypt until cremation of a human body is completed; and means for discharging fuel into said crypt.

6. A down-draft mortuary furnace comprising a crypt adapted to receive a human body said crypt provided with a smooth unbroken floor and side walls; end doors to said crypt, said walls and doors arranged and fitted to retain the ashes from the body on the floor of said crypt until cremation of a human body is entirely completed, and means for cremating a body in said crypt.

7. A mortuary furnace comprising a crypt adapted to receive a human body, said crypt provided with a smooth and unbroken floor and side walls; end doors to said crypt; said walls and doors being fitted to the floor of said crypt to retain the ashes of the body thereon until cremation is completed; means for discharging fuel into said crypt; means for consuming the gases of a human body after the same are discharged from said crypt; and means for discharging the burned gases.

8. A mortuary furnace comprising a retort formed with a crypt in said retort; said crypt having a receiving end and a discharge end, a smooth floor having its top surface

inclined downwardly from the side walls toward its longitudinal axis; doors for opening and closing the ends of said crypt, said walls and doors fitted to said floor to retain the ashes from a human body thereon until cremation of such body is completed; means for discharging fuel and air into said crypt to cause combustion therein; a combustion chamber under said crypt; means for conveying the gases from said crypt to said combustion chamber, and an outlet from said combustion chamber.

9. A mortuary furnace comprising a retort; a crypt in said retort, said crypt having a receiving end and discharge end, and a smooth unbroken floor having its top surface inclined downwardly from the side walls toward its longitudinal axis and also inclined downwardly from the receiving toward the discharge end of said crypt and continuous with the side walls thereof; doors for opening and closing the ends of said crypt said walls and doors fitted to said floor to retain ashes of a human body thereon until cremation of such body is completed; means for discharging fuel into said crypt; means for regulating the discharge of fuel in said crypt; a combustion chamber under said crypt; flues opening through the side walls of said crypt and connected to said combustion chamber; an underground conduit connected to the bottom of said combustion chamber; and a damper for regulating the discharge of burned gases from said combustion chamber to said conduit.

10. The mortuary furnace set forth comprising a crypt adapted to receive a human body, said crypt provided with a smooth and unbroken floor and side walls; end doors to said crypt, said walls and doors being fitted to the floor of said crypt to retain the ashes of the body thereon until cremation is completed; means for discharging fuel into said crypt; means for regulating the discharge of fuel into said crypt; a combustion chamber under said crypt; flues opening through the side walls of said crypt at a distance above the floor line thereof and connected to said combustion chamber; and an underground conduit for carrying away the burned gases from said chamber.

11. A mortuary furnace comprising a retort; a crypt in said retort; means for discharging fuel into said crypt; a combustion chamber of large dimensions under said crypt, said chamber having a low level outlet; side flues opening into the side walls of said crypt at a point above the floor line thereof and connecting said crypt with said combustion chamber; and a damper controlling the low level outlet from said combustion chamber.

12. A mortuary furnace comprising a retort formed with a crypt in said retort, said crypt having enclosing walls and a receiving end and a discharge end; a smooth unbroken floor to said crypt; doors for opening and closing the receiving and discharge ends of said crypt, said walls and doors fitted to said floor to retain the ashes from a human body thereon until cremation of such body is completed; a combustion chamber under said crypt; side flues connecting said crypt and combustion chamber, said side flues enter the side walls of said crypt at points above the floor line thereof; means for discharging fuel and air into said crypt to cause combustion therein; and an outlet from said combustion chamber.

13. A mortuary furnace comprising a retort; a crypt in said retort having a smooth unbroken floor; a combustion chamber below the crypt; flues connecting the sides of said crypt with the sides of the combustion chamber said flues constructed in the side walls with their inlets arranged above the floor line of said crypt; and means for applying fire to cremate a human body in said retort.

14. A mortuary furnace comprising a retort; a crypt in said retort, said crypt having a receiving end and a discharge end, and a smooth unbroken floor having its top surface inclined downwardly from the side walls toward its longitudinal axis and also inclined downwardly from the receiving toward the discharge end of said crypt and continuous with the side walls thereof and adapted to discharge molten metal from said crypt; doors for opening and closing the ends of said crypt, said doors and walls fitted to said floor to retain ashes of a human body thereon until cremation of such is completed; and means for discharging fuel into said crypt.

15. A furnace comprising an inner wall formed of fire resisting material and enclosing a fire chamber; outer walls to said furnace, said outer walls constructed of cellular tile to form a heat insulating structure; and an outer metallic shell for said tile walls.

16. A mortuary furnace comprising a retort having a smooth, unbroken floor; inner walls to said retort said walls constructed of fire brick and blocks that are arranged to form down draft side flues from said retort to a combustion chamber arranged under the floor of said retort; an outer heat insulation wall formed of hollow tile; and a shell formed of steel plates secured to and enclosing said tile wall.

In testimony whereof, I have hereunto set my hand at Los Angeles, California, this 10th day of April, 1922.

HENRY E. BRETT.