

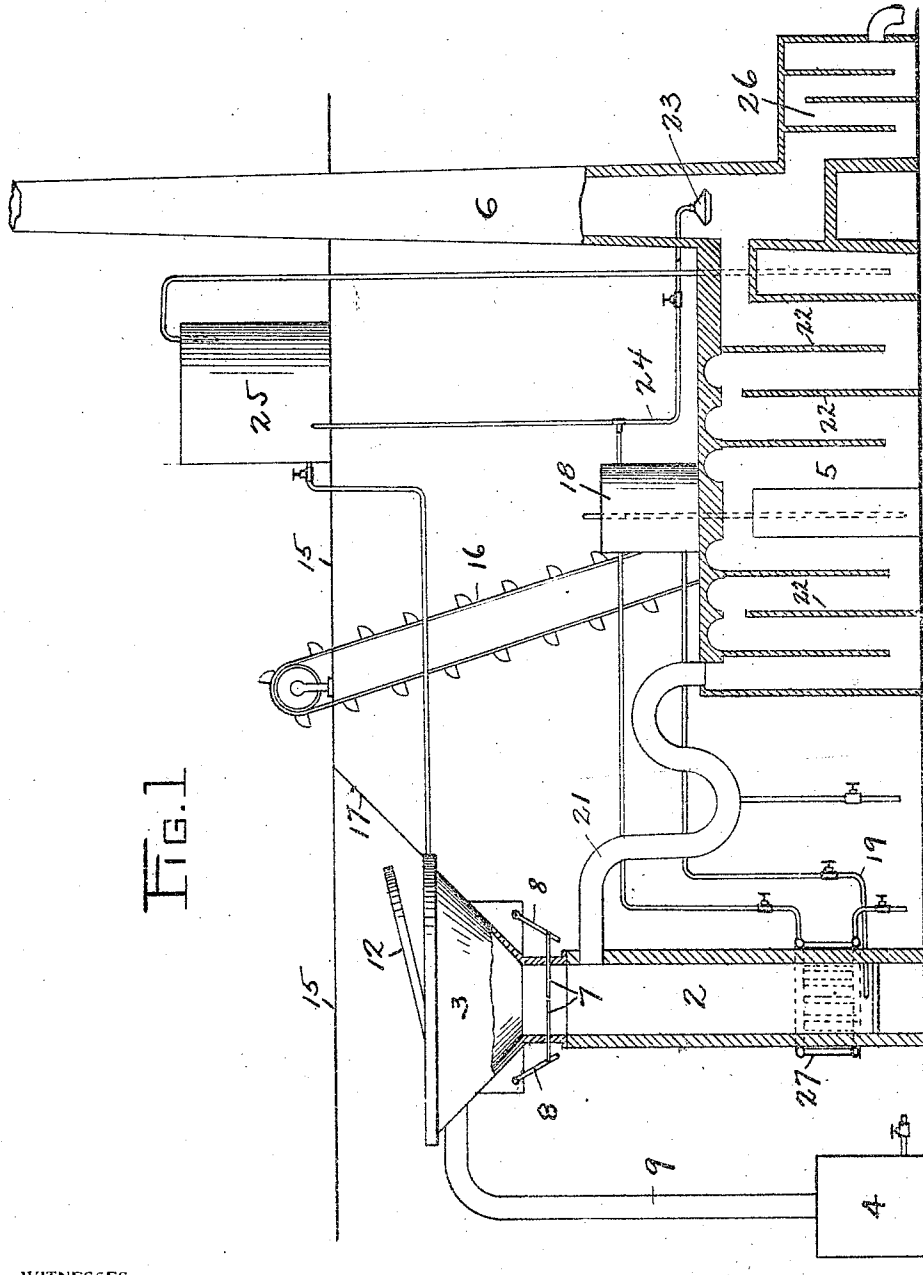
T. E. WASLEY.
 APPARATUS FOR INCINERATING REFUSE MATERIAL.
 APPLICATION FILED MAY 16, 1911.

1,094,503.

Patented Apr. 28, 1914.

2 SHEETS—SHEET 1.

FIG. 1



WITNESSES
H. G. Pratt.
P. S. Caldwell

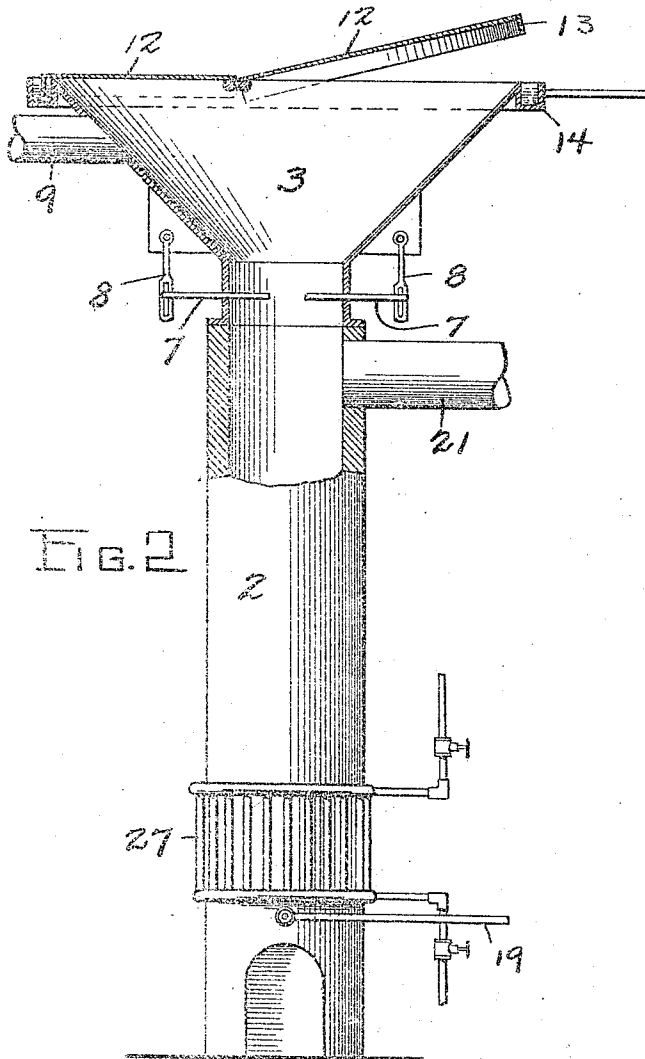
INVENTOR
 THOMAS E. WASLEY
 BY *Miller & White*
 ATTORNEYS

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H. F. Pratt
C. S. Edwards

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THOMAS E. WASLEY
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ATTORNEYS.

UNITED STATES PATENT OFFICE.

THOMAS E. WASLEY, OF SAN JOSE, CALIFORNIA.

APPARATUS FOR INCINERATING REFUSE MATERIAL.

1,094,503.

Specification of Letters Patent.

Patented Apr. 28, 1914.

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To all whom it may concern:

Be it known that I, THOMAS E. WASLEY, a citizen of the United States, and a resident of San Jose, county of Santa Clara, and State of California, have invented certain new and useful Improvements in Apparatus for Incinerating Refuse Material, of which the following is a specification.

The invention relates to an apparatus for reducing and destroying refuse material and for collecting the products of reduction and combustion.

The object of the invention is to provide an incinerator plant in which the products of reduction and combustion are segregated and collected.

Another object of the invention is to provide a plant in which the products of combustion are thrown down and not allowed to escape into the atmosphere.

A further object of the invention is to provide a plant in which the water vapor and volatile matter is driven off from the material before it enters the incinerator proper.

Heretofore, as far as I am aware, in the operation of incinerator plants, the refuse material has been deposited directly into the incinerator and the products of combustion allowed to escape into the atmosphere. This arrangement has not only been very objectionable and unhealthy to persons living in the neighborhood of the plant, but has been a wasteful process of reduction. In the reduction and combustion of animal and vegetable matter, many valuable products are obtained, and it is one of the objects of this invention to collect these products.

The apparatus possesses other advantageous features which, with the foregoing, will be set forth at length in the following description, where I shall outline in full that form of embodiment of the invention which I have selected for illustration in the drawings accompanying and forming part of the present specification. The novelty of the invention will be included in the claims succeeding said description. From this it will be apparent that I do not restrict myself to the showing made by such drawings and descriptions, as I may adopt many variations within the scope of my invention as expressed in said claims.

Referring to the drawings: Figure 1 is an elevation of the incinerator plant, several of the parts being shown in section. Fig. 2 is an elevation of the incinerator and feeding

and drying hopper, the upper part being shown in section.

The plant illustrated consists of an incinerator 2 having disposed upon the top thereof a hopper or drying chamber. In none of the references are the two condensers or collecting chambers 4 and 5 shown. In order that one condenser, namely 4, be employed so that it will receive the volatilized matter, it is necessary that the conductor 9 communicate with the same and that the hopper or chamber 3 and the connection between the incinerator and chamber be cut off. By means of this construction the material in hopper 3 is first thoroughly dried before discharge into the incinerator. Thus it will be realized that there is no chance for the gases resulting from the volatilization escaping into the incinerator and thence into the conductor 21, condenser 5 and through chimney 6. After the material is dried in chamber 3 the same is discharged into the incinerator 2. Upon combustion thereof the products of course, pass through the conductor 21 and condenser 5 and are removed in the condenser and thence escape through the stack 6 first being washed thoroughly by the spray from nozzle 23 so that any uncollected products will pass into the chamber 26. Thus in applicant's device, the volatilized matter is collected in a separate chamber without danger of the escape of gases resulting from volatilization into the atmosphere. At the same time dried material is being burned in the incinerator and the products of combustion treated in separate parts and collected in a separate condenser. In order to enable such action to be carried out, the pipe 9 must be arranged so as to communicate only with the hopper or chamber 3, namely, above the bottom provided by the slides 7, and the pipe or conductor 21 communicate only with the incinerator 2, namely, below the slides 7. Thus material is being incinerated and being dried simultaneously in separate parts or chambers, namely, the incinerator 2 and 3. Material is adapted to be dried in this chamber simultaneously with incineration of material in the incinerator 2, as more specifically set forth hereinafter. From the drying chamber or hopper 3, the products of volatilization are conducted to the condenser 4. The products of combustion are led to and treated in separate condensers, as will be more definitely described hereinafter.

The incinerator 2 is preferably made cylindrical in form and is constructed of fire brick or other similar material. Mounted on top of the incinerator 2 is the hopper 3 into which the material is placed and from which it enters the incinerator. Communication between the hopper and the incinerator is established or cut off by means of the slides or shoes 7 which are operated by the levers 8. The slides are constructed to allow heat from the incinerator to pass upward into the hopper when the slides are closed but to prevent the material in the hopper from entering the incinerator. The material in the hopper is therefore thoroughly heated before it enters the incinerator. The effect of the heat is to distil or drive off the volatile matters which are conducted to the condensing chamber 4 through the pipe 9. The material in the hopper is therefore dried before it enters the incinerator and the valuable products of distillation are collected. From these products of distillation may be obtained alcohol, carbolic acid and other substances.

To prevent the loss of any of the volatilized matter, the hopper is provided with a cover 12 which is preferably hinged to the hopper. The cover is provided with a depending flange 13 which engages in a channel 14 around the rim of the hopper which contains a quantity of water, thereby providing an efficient water seal. The material to be destroyed is conveyed to the floor 15 by means of a conveyor 16, from whence it slides down the inclined chute 17 into the hopper. This arrangement is not necessary however, and the material may be conveyed directly to the hopper. When the slides 7 are drawn outward the material from the hopper falls down into the incinerator where it is reduced by the process of combustion. Combustion is preferably supported by means of fuel oil which is drawn from the supply tank 18 and enters the incinerator through the pipe 19.

The products of the combustion pass from the incinerator through the conductor 21 into the condensing chamber 5. The condensing chamber is formed with a series of vertical walls 22, spaced apart alternately from the top and bottom of the condenser so that the products of combustion pass through in a tortuous course. The area of the passage through the condenser is much larger than the area of the conductor 21 and the movement of the products of combustion is thereby greatly retarded, which causes a precipitation of the material held in suspension. This material contains many valuable substances which form another series of by-products obtained by the use of this invention. After leaving the condenser 5 the remaining products of combustion enter the stack 6. Arranged in the stack 6 above the

inlet thereto is a spray nozzle 23 which projects a fan of water into the remaining products of combustion removing further products therefrom. The water sprays outward from the nozzle 23 so that all of the gases are thoroughly washed before they ascend in the stack. Water is supplied to the nozzle 23 through the pipe 24 connected to a supply at a sufficient height, as the tank 25. The water containing the products flows into the settling chamber 26, which is preferably provided with staggered vertical walls, in which the products settle, to be removed when convenient. The tank 25 also supplies water to the channel 14 surrounding the hopper, and to the water-back 27 surrounding the incinerator. The hot water obtained from the water-back is used for sanitary purposes about the plant.

I desire it to be understood that I may make slight changes in the construction and arrangement and combination of the several parts, within the spirit and scope of the appended claims.

Having thus fully described my said invention, what I claim as new and desire to secure by Letters Patent is:—

1. A plant of the class described comprising an incinerator, a drying chamber directly over said incinerator, a bottom closure member for the drying chamber upon which the material rests while drying normally closing communication between the drying chamber and the incinerator, said closure member being movable to permit discharge of dried material from the drying chamber to the incinerator, a condenser for volatile products in communication with the drying chamber, a condenser in communication with the incinerator, said second condenser being separate from the first condenser and provided with baffle walls therein to cause the products of combustion to follow a tortuous path, a stack leading from the second condenser, and a water spray in said stack.

2. A plant of the class described comprising an incinerator, a drying chamber directly over said incinerator, a thin bottom closure plate for the drying chamber upon which the material rests while drying normally closing communication between the drying chamber and the incinerator, said plate being movable to permit discharge of dried material from the drying chamber to the incinerator, a condenser, a conductor in communication with said drying chamber and said condenser to conduct volatile products to the condenser, a second condenser, a second conductor, said second conductor leading from said incinerator to said second condenser, said second condenser being separate from the first condenser, a stack leading from the second condenser and a water spray in said stack.

3. A plant of the class described comprising an incinerator, a drying chamber mounted on and directly over said incinerator, a cover device for said chamber, a plurality of relatively slidable thin bottom closure plates for the drying chamber upon which the material rests while drying normally closing communication between the drying chamber and the incinerator, said closure plates being slidable to permit discharge of dried material from the drying chamber to the incinerator, a condenser for volatile products in communication with the drying chamber, a condenser in communication with the incinerator, said second condenser being separate from the first condenser, a stack leading from said second condenser, a water spray in said stack, and a settling chamber for sprayed material. 15

THOMAS E. WASLEY.

Witnesses:

W. C. KENNEDY,
H. A. BLANCHARD.