C. A. GIBBS.

INCINERATOR.

APPLICATION FILED FEB. 2, 1918.

1,305,710.

Patented June 3, 1919.

2 SHEETS—SHEET 1.

Fig. 1.

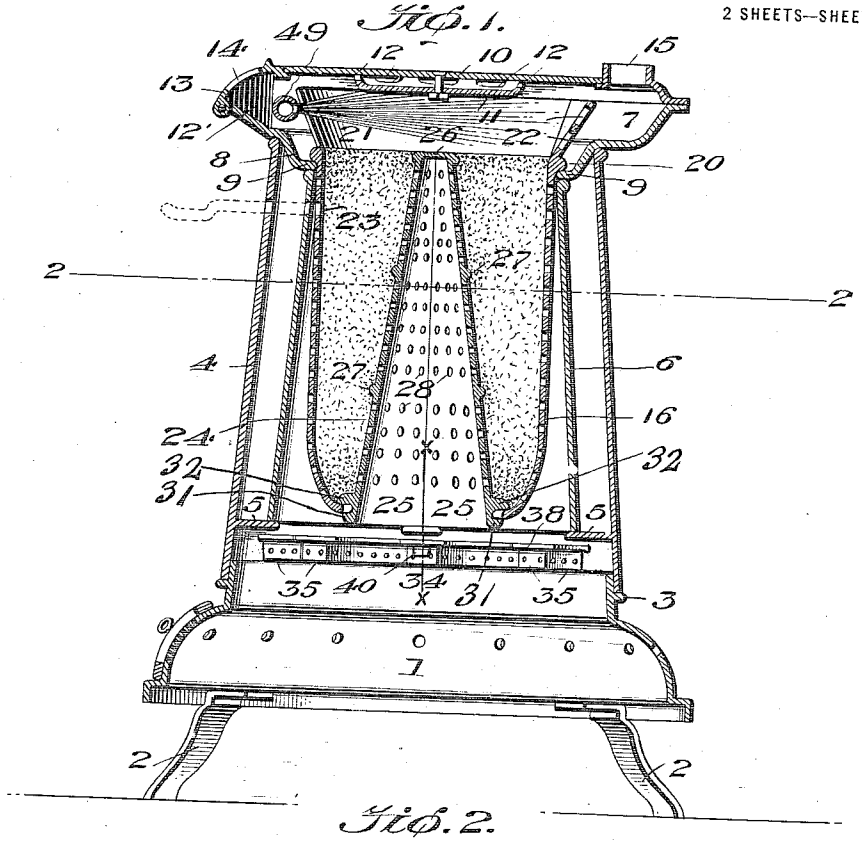
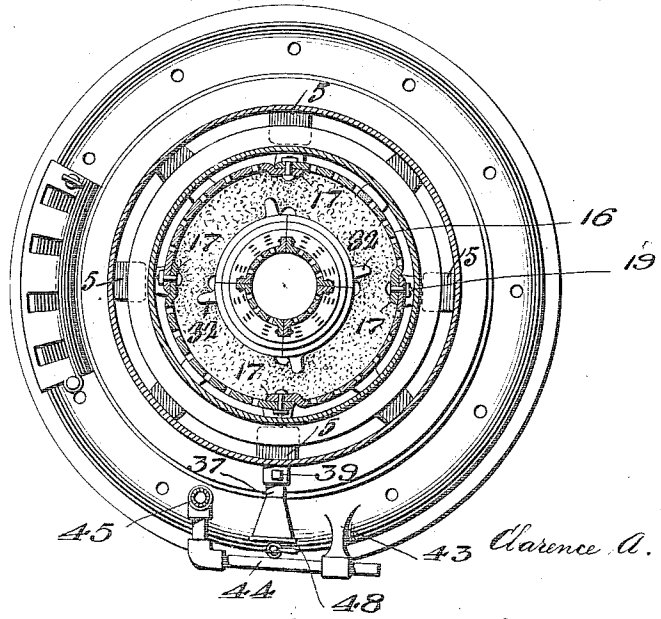


Fig. 2.



Inventor,

Clarence A. Gibbs

By Jas. L. Skidmore

His Attorney

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2 SHEETS—SHEET 2.

Fig. 3.

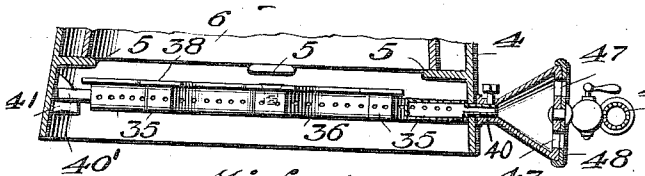


Fig. 5.

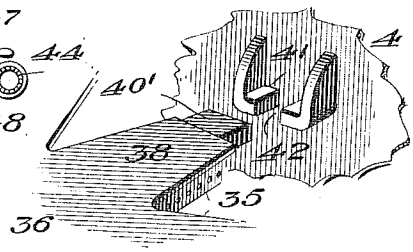


Fig. 4.

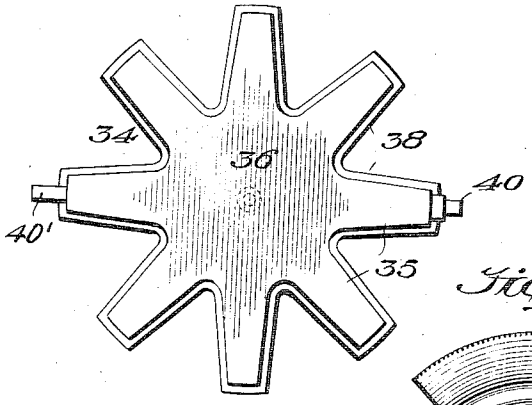


Fig. 6.

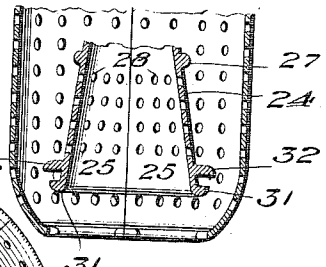


Fig. 7.

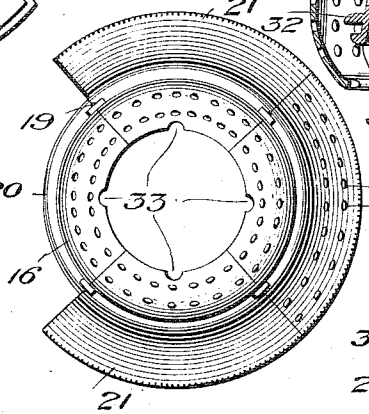


Fig. 8.

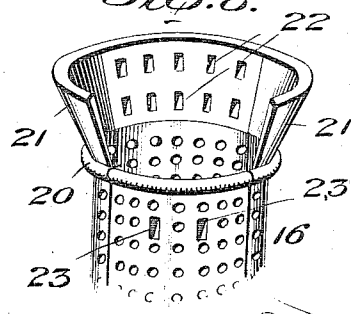


Fig. 9.

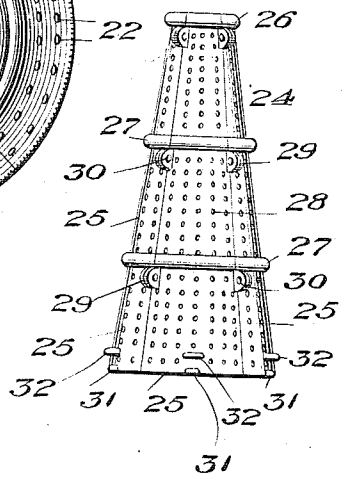
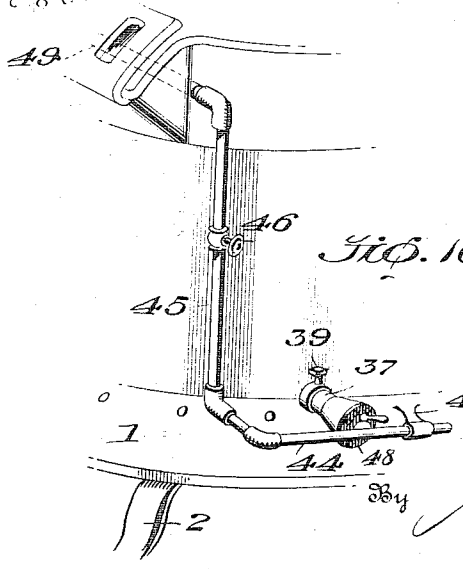


Fig. 10.



Inventor,

Clarence A. Gibbs,

By Jas. L. Skidmore

his Attorney.

UNITED STATES PATENT OFFICE.

CLARENCE A. GIBBS, OF WILLIAMSPORT, PENNSYLVANIA.

INCINERATOR.

1,305,710 Specification of Letters Patent. **Patented June 3, 1919.**

Application filed February 2, 1918. Serial No. 215,022.

To all whom it may concern:

Be it known that I, CLARENCE A. GIBBS, a citizen of the United States, residing at Williamsport, in the county of Lycoming and State of Pennsylvania, have invented certain new and useful Improvements in Incinerators, of which the following is a specification.

This invention relates to an incinerator, and is especially designed for the consumption and destruction of refuse of various kinds, that are capable of being destroyed by fire, more particularly garbage in dwellings, apartment houses, hotels, hospitals, sanatoriums and various other places.

The present invention includes improvements upon the device shown in my prior patent granted under date of November 13", 1917, No. 1,246,416.

The main object of this invention is to provide a simple, durable, economical, and thoroughly efficient device for the incineration of garbage and other refuse matter, and at the same time the consumption of the odorous and carbonaceous fumes which emanate therefrom.

Another object of the invention is to construct a grateless incinerator, which will quickly and economically reduce all animal and vegetable garbage to a fine ash under hygienic conditions, eliminating all smoke and odors.

Another object of this invention is to so construct my novel and improved device, that it may be readily and quickly assembled and disassembled for the repair and removal of the several parts or members.

And further objects of this invention are to provide a gas burner, in combination with the incinerator, so constructed that no moisture or foreign matter emanating from the garbage or refuse can clog the gas outlet parts; to provide a burner that may be quickly removed for the purposes of cleaning, repairing or renewal; means for shaking the ashes from the refuse receptacle, and means for destroying all odorous and carbonaceous matter which may accumulate during the destruction of the refuse matter.

The foregoing and such other objects as may appear from the ensuing description are attained by the construction, combination, location and arrangement of the parts hereinafter more fully described, illustrated in the accompanying drawings, and particularly pointed out in the claims appended hereto, it being understood that slight changes in the form, proportions and minor details of the construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings which form a part of the specification it will be seen that:—

Figure 1, is a vertical section taken from the front to the rear of the incinerator embodying my invention showing the burner in elevation.

Fig. 2, is a horizontal section taken on the line 2—2, Fig. 1.

Fig. 3, is a detail sectional view of the lower portion of the casing, taken on the line *x*—*x* Fig. 1, showing the gas burner partly in elevation.

Fig. 4 is an inverted plan view of the burner removed from the casing.

Fig. 5, is a detail perspective showing the lower portion of the inside of the casing broken away, and showing a portion of one end of the burner removed from its support.

Fig. 6, is a detail sectional view of a portion of the refuse receptacle and cone member, showing the cone detached from the receptacle.

Fig. 7, is an inverted plan view of the refuse receptacle.

Fig. 8, is a detail perspective view of a portion of the refuse receptacle.

Fig. 9, is a side elevation of the cone member removed from the incinerator, and

Fig. 10, is a detail perspective showing the fume and smoke consumer attached to the incinerator.

Similar numerals of reference are employed to designate corresponding parts throughout the several figures of the drawings.

The numeral 1 indicates the base portion preferably in the form of a casting such as usually utilized in the construction of stoves and the like, said base portion being mounted upon legs 2 to elevate it above the floor or other suitable support upon which the invention rests.

Mounted upon an annular outwardly projecting portion 3, formed integral with the base 1, is an exterior casing 4, of any suitable material, preferably cast iron, provided near its lower end with a plurality of inward extending extensions 5 constituting means for supporting an inner casing or

frusto-conical member 6, the lower end of which rests upon the said extensions, and resting upon and carried by the casing 4 is a top 7 having a depending portion 8 within the casing provided with a plurality of inwardly projecting extensions or lugs 9, for the purpose hereinafter described. The said top member is preferably made of cast iron having an opening in the top provided with a removable lid 10, to which is suitably secured a flame deflecting plate 11 provided with a series of notches 12 at its upper edge, said top having a front chute or opening 12′ provided with a door 13 having a plurality of elongated air passages 14 therethrough, and the rear portion of the top is provided with an exit flue collar 15.

The garbage or refuse receptacle 16, is formed of a plurality of sections having outwardly flaring portions and inwardly curved conveying lower portions each section being provided with a plurality of ears 17 which overlap the adjacent section and are adapted to receive the securing bolts 19, for rigidly securing the sections together. Near the upper portion of said receptacle and surrounding the same is formed an integral outward extending extension or bead 20 adapted to rest upon the lugs 9 formed on depending portion 8 of the top and thereby properly support the receptacle within the casings. The outwardly flaring top portion of one of the sections above the said extension or bead 20 is omitted to form a free passage for the entrance of air, and to permit gas flames to be projected across the open top portion of said receptacle, while each side section is provided with an outwardly flaring solid portion 21, projecting above the bead 20, and the rear section is provided with an outwardly and upwardly flaring portion having a series of openings 22 therethrough leading to the exit flue. The front section of the receptacle 16 is also provided with elongated openings 23, adapted to receive a shaking tool, shown by dotted lines in Fig. 1, which engages with said openings, and is adapted to impart a back and forth rotary movement to the receptacle for the purpose of shaking the ashes therefrom which may accumulate, when in use, and the body portion of each section of the receptacle is provided with numerous openings or perforations therethrough.

The numerals 24 designate the cone member which is also formed of a plurality of sections 25, which form a closed top portion 26, said cone member having intermediate its length a plurality of outwardly projecting ribs 27, and numerous openings or perforations 28 therethrough, said ribs serving to prevent the garbage from packing too closely against the said openings, each section being also provided with an outwardly projecting ear or lug having an opening 30 therethrough adapted to register with the lug on the adjacent section to receive the securing bolts or pins for securing the sections together. The lower end portion of the cone member is provided with a plurality of outwardly extended lugs 31 and 32, the lowermost lugs 31 being adapted to be passed through the recesses 33 formed at the bottom of the garbage receptacle, when by turning the cone member slightly to the right or left, the said cone member will be removably secured to and supported by the receptacle resting between the lugs 31 and 32, as clearly shown in Fig. 1.

The gas burner 34 is of star form having radial branches 35 extending from a central chamber 36, both the radial branches and the central chamber being provided with numerous outlet openings through each side thereof for the escape of the gas. The arrangement of the burner branches about the central portion furnishes air passages between the said branches, so that the burning gas issuing from the outlet or exit openings has a sufficient air supply, thus causing the gas fed into the burner through the gas supply pipe 37 to be so distributed as to burn with a hot flame. On the top of the burner is suitably, yet rigidly and removably secured a cover or cap plate 38, which projects slightly beyond the radial branches 25 and the central chamber 36, to the extent of about one-eighth of an inch on either side thereof, thereby preventing moisture, dirt, or other foreign matter emanating from the refuse from clogging up or partly closing the gas ports or exit openings. The hollow end bearing portion 40, forming a part of the burner, projects through an opening formed in the outer casing, and rests within the gas supply pipe 37 where it is secured by a suitable set-screw 39, while the opposite solid bearing end 40′ of the burner rests within a pocket 41 formed integral with or secured to the inner surface of the lower end portion of the outside casing, said pocket being formed with an opening 42 in the bottom thereof, so that when it is desired to remove the burner for the purpose of repair or renewal it is simply necessary to release the set screw 39, then tilt the burner sidewise into the vertical position when the solid bearing end portion 40′ will immediately fall through the said opening 42, thereby releasing the burner and permitting its withdrawal from within the incinerator.

Supported by a bracket arm 43 suitably secured to the base portion 1, is a manifold gas supply pipe 44, to which is suitably connected an upright gas supply pipe 45 provided with a suitable cut-off and regulating valve 46, said supply pipe 45 being connected to a transversely arranged pipe lo-

cated across the front chute or opening 12, formed in the top 7, said transverse pipe 49 having a series of outlet gas openings from which a series of jets of flame are projected across the top portion above the garbage, which flames are deflected by the deflecting plate 11, thus causing the flame to intimately mix with, consume and destroy the odorous and carbonaceous fumes emanating from the refuse within the garbage receptacle, before said fumes are led to the exit flue at the rear of the incinerator.

It will be seen that the outer end of the gas burner supply pipe is provided with a series of air openings 47 adapted to register with the openings formed through the cover plate or cap 48, and that the base portion is provided with a series of air openings formed therethrough entirely around the same and at its front portion, while the front portion of the top is also provided with a plurality of elongated air openings thereby supplying an ample amount of air to the incinerating device for all of the required purposes.

It will be perceived that the cone member is shown as extending substantially to the top portion of the garbage receptacle, but I desire it to be understood, that the top of said cone member may terminate at any suitable or desirable distance from the top portion of the receptacle within the body portion of the same.

It will be understood that the capacity of the incinerator may be readily increased or diminished in order to properly serve the conditions and requirements of various establishments, and domestic purposes. Further, the novel construction permits the several parts to be readily detached and removed for the renewal of parts or sections which may be easily and rapidly reassembled, and the incinerator may be utilized for other heating purposes.

When the incineration has been completed and the parts have cooled the garbage receptacle and cone member may be readily removed together by grasping the top portion of the cone and lifting it upward and through the top opening; after which the cone may be readily detached from engagement with said garbage receptacle by turning the cone so that the lowermost lugs 31 will register with the recesses 33, when it may be lifted away from contact with the said receptacle.

When the parts are assembled and the garbage or refuse introduced as shown in Fig. 1, the garbage is lodged against the cone and between the latter and the walls of the receptacle, the projecting ribs formed on the cone keeping the garbage from too close contact with the openings in the cone, thus forming a hollow mass of garbage, and when the gas issuing from the burner is lighted the flames find access to the chamber formed around the garbage receptacle and the jets of flame issuing from the burner openings find ready access to the exterior of the receptacle through the perforations formed therethrough and throughout the entire filled portion of the receptacle 16, and contact with the outer portion of the garbage so that a great portion of the garbage is subjected to the direct action of the gas flames. Further, by making the flames intense the garbage basket rapidly becomes heated to a red or higher heat and the incineration quickly proceeds.

The gas flames from the burner also enter the cone member through the conical extension and are directed against the inner wall thereof and rise, therealong gaining access to the garbage within the receptacle in the hollow central portion by way of the numerous perforations formed throughout the entire length. It will thus be seen that the garbage is attacked both interiorly and exteriorly and is formed within the receptacle into a relatively thin-walled hollow mass which becomes rapidly dried and then consumed to ashes, and as the odorous and carbonaceous fumes arise from the top of the garbage they are met and consumed by the intensely hot gas flames projected across the top of the receptacle from the transversely arranged gas burner located across the front of the top portion within the incinerator.

The operation of my improved incinerator will be readily obvious from the construction hereinbefore described, and as illustrated in the accompanying drawings.

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

1. An incinerator comprising a base member having air inlets, an exterior casing supported upon said base member and provided with a plurality of inward extending projections near its lower end, a burner supported within said casing at the lower end thereof, a top member supported by said casing having an outlet, an inner casing supported by said projections, a garbage receptacle within the inner casing and suspended from the top member provided with upward and outwardly extending flaring portions with a clearance space formed between said portions for the admission of an auxiliary gas flame, and a perforated cone member supported centrally and removably within said receptacle adapted to direct the gas flames to the inner walls of the garbage.

2. An incinerator comprising a base member provided with air inlets, an outer casing supported at its bottom by said base member and having a plurality of inward extending projections near its lower end, a top member supported by the casing provided with an

outlet, an inner casing supported by said projections, a perforated garbage receptacle within the inner casing and suspended from the top member having an upward and outwardly extending flaring solid portion at each side thereof and an outwardly flaring perforated portion for the exit of the products of combustion with a clearance space formed between the solid portions for the admission of an auxiliary gas flame, a perforated cone member supported within the receptacle adapted to direct the gas flames to the inner walls of the garbage, and a burner within the outer casing below the inner casing.

3. An incinerator comprising a base member provided with a series of air inlets, an outer casing supported at its bottom by said base member and having a plurality of inward extending projections near its lower end, a top member supported by the casing provided with an outlet, an inner casing supported by said projections, a perforated garbage receptacle within the inner casing and formed of a series of sections united together and provided with an annular extension for suspending said receptacle from the top member, a perforated cone member formed of a plurality of sections united together and supported within said receptacle adapted to direct the gas flames to the interior walls of the garbage, and a removable burner within the outer casing below the inner casing.

4. An incinerator comprising a base member having a series of air inlets, an outer casing supported by said base member and having a plurality of inward extending projections near its lower end, a top member supported by said casing having an outlet, an inner casing supported by said projections, a perforated garbage receptacle suspended from the top member having an upwardly and outwardly extending solid portion within the outer casing with a clearance space formed between for the admission of an auxiliary gas flame and an upwardly and outwardly extending perforated portion for the exit of the products of combustion, a perforated cone member removably supported within the receptacle adapted to direct the gas flames to the interior walls of the garbage, and a removable burner mounted within the outer casing below the inner casing.

5. An incinerator comprising a base member provided with air inlets, an outer casing supported upon said base member, and having a plurality of inward extending projections formed near its lower end, a top member supported by said casing provided with an outlet, an inner casing supported by said projections, a garbage receptacle within the inner casing and suspended from the top member formed of a plurality of sections, each section formed with a plurality of ears which overlap the other section, a cone member formed of a series of sections, each section having a plurality of perforated ears adapted to register respectively with ears of adjacent sections, said cone member being centrally supported within the receptacle adapted to direct the gas flames to the inner walls of the garbage, and a removable burner mounted within the outer casing below the inner casing.

6. An incinerator comprising a base member having a series of air inlets, an outer casing mounted upon said base member provided with a plurality of inward extending projections formed near its lower end, a top member mounted on the outer casing having an outlet, a perforated garbage receptacle within the inner casing and consisting of a plurality of sections united together and having an outward extending extension at its top portion on each side of the receptacle with a clearance space for the admission of an auxiliary gas flame, and a perforated portion for the exit of the products of combustion, a perforated cone member removably secured within the receptacle adapted to direct the gas flames to the inner walls of the garbage, and a removable burner mounted within the outer casing below the inner casing.

7. An incinerator comprising a base member provided with air inlets, an outer casing mounted upon said base member and having a plurality of inward extending projections formed near its lower end, an inner casing mounted upon said projections, a top member mounted on the outer casing provided with an outlet, a perforated garbage receptacle within the inner casing and consisting of a plurality of sections united together with an outward extending extension for suspending the receptacle from the top member, solid portions projecting above said extension with a clearance space formed between said portions to admit an auxiliary gas flame, and a perforated portion projecting above said extension at its rear for the exit of the products of combustion, a perforated cone member provided with securing lugs removably mounted within the receptacle adapted to direct the gas flames to the inner walls of the garbage, and a removable burner supported within the outer casing below the inner casing.

8. An incinerator comprising a base member provided with air inlets, an outer casing mounted upon said base member and having a plurality of inward extending projections formed near its lower end, an inner casing mounted upon said projections, a top member mounted upon the outer casing formed with a front opening and an outlet, an opening formed in the top member, a lid for closing said opening, a flame deflecting

plate removably secured to said lid, a perforated garbage receptacle within the inner casing and suspended from said top member, a perforated cone member removably supported within the receptacle adapted to direct the gas flame to the inner walls of the garbage, means located in the top member for projecting a sheet of flame across the top member above the garbage to consume the odorous and carbonaceous fumes before passing to the exit flue, and a removable burner mounted within the outer casing below the inner casing.

9. An incinerator comprising a base member having air inlets, an outer casing mounted upon said base member and provided with a plurality of inward extending projections, an inner casing mounted upon said projections, a top member mounted on the outer casing provided with an outlet, a perforated garbage receptacle within the inner casing and suspended from the top member, a perforated cone member centrally and detachably secured within the receptacle adapted to direct the gas flames to the inner walls of the garbage, means mounted within the top member for projecting a sheet of flame across the top member above the garbage, and a removable gas burner mounted within the outer casing.

10. An incinerator comprising a base member having air inlets, an outer casing mounted upon said base member and provided with a plurality of inward extending projections, an inner casing supported by said projections, a top member mounted on the outer casing having an outlet, a garbage receptacle within the inner casing and suspended from the top member, a perforated cone member detachably secured within said receptacle adapted to direct the gas flames to the inner walls of the garbage, a removable burner mounted within the outer casing, and an inward extending extension formed on the outer casing to support one end of the burner, said extension having an opening formed in its bottom to permit the end of the burner to pass therethrough when tilted in upright position for the removal of the burner from the incinerator.

11. An incinerator comprising a base member having a series of air inlets, an outer casing mounted upon said base member and provided with a plurality of inward extending projections, an inner casing mounted on said projections, a top member mounted on the outer casing provided with an outlet, a perforated garbage receptacle within the inner casing and suspended from the top member, a perforated cone member centrally and detachably secured to said receptacle adapted to direct the gas flames to the inner walls of the garbage, a removable burner within the outer casing provided with a solid end portion, and an inner pocket extension formed on the outer casing for supporting the solid end of the burner, said extension having an opening in its bottom to permit said solid end to pass therethrough when the burner is tilted in upright position for removing the burner from the incinerator.

12. An incinerator comprising a base member having air inlets, an outer casing mounted upon said base member and provided with a plurality of inward extending projections, an inner casing mounted upon said projections, a top member mounted on the outer casing provided with an outlet, a garbage receptacle within the inner casing and suspended from the top member, a cone member detachably secured within the receptacle adapted to direct the gas flames to the inner walls of the garbage, a removable burner mounted within the outer casing below the inner casing, and a gas burner mounted within the top member transversely across the front thereof for projecting a sheet of flame across the top to consume the odorous and carbonaceous fumes.

CLARENCE A. GIBBS.