

Aug. 16, 1938.

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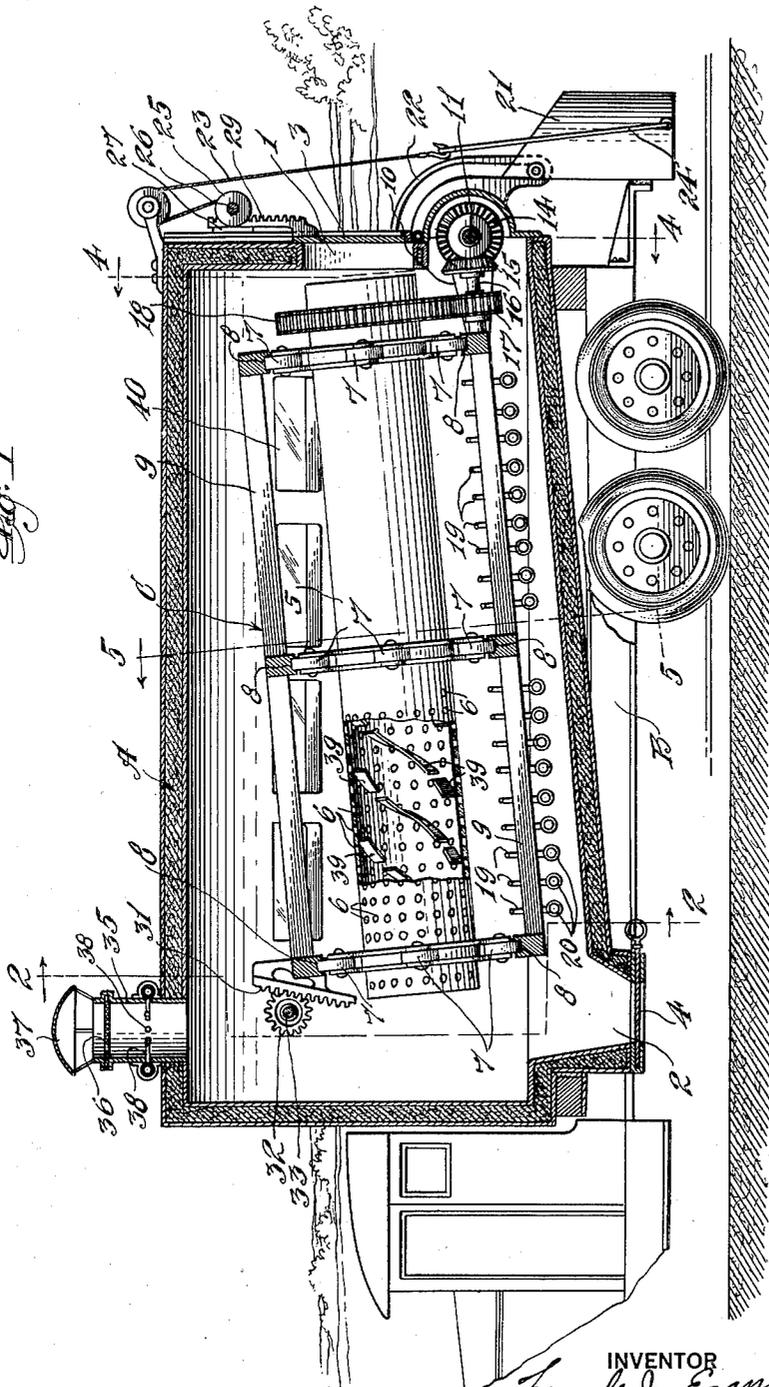
2,127,328

TRAVELING INCINERATOR

Filed March 23, 1937

2 Sheets-Sheet 1

Fig. 1



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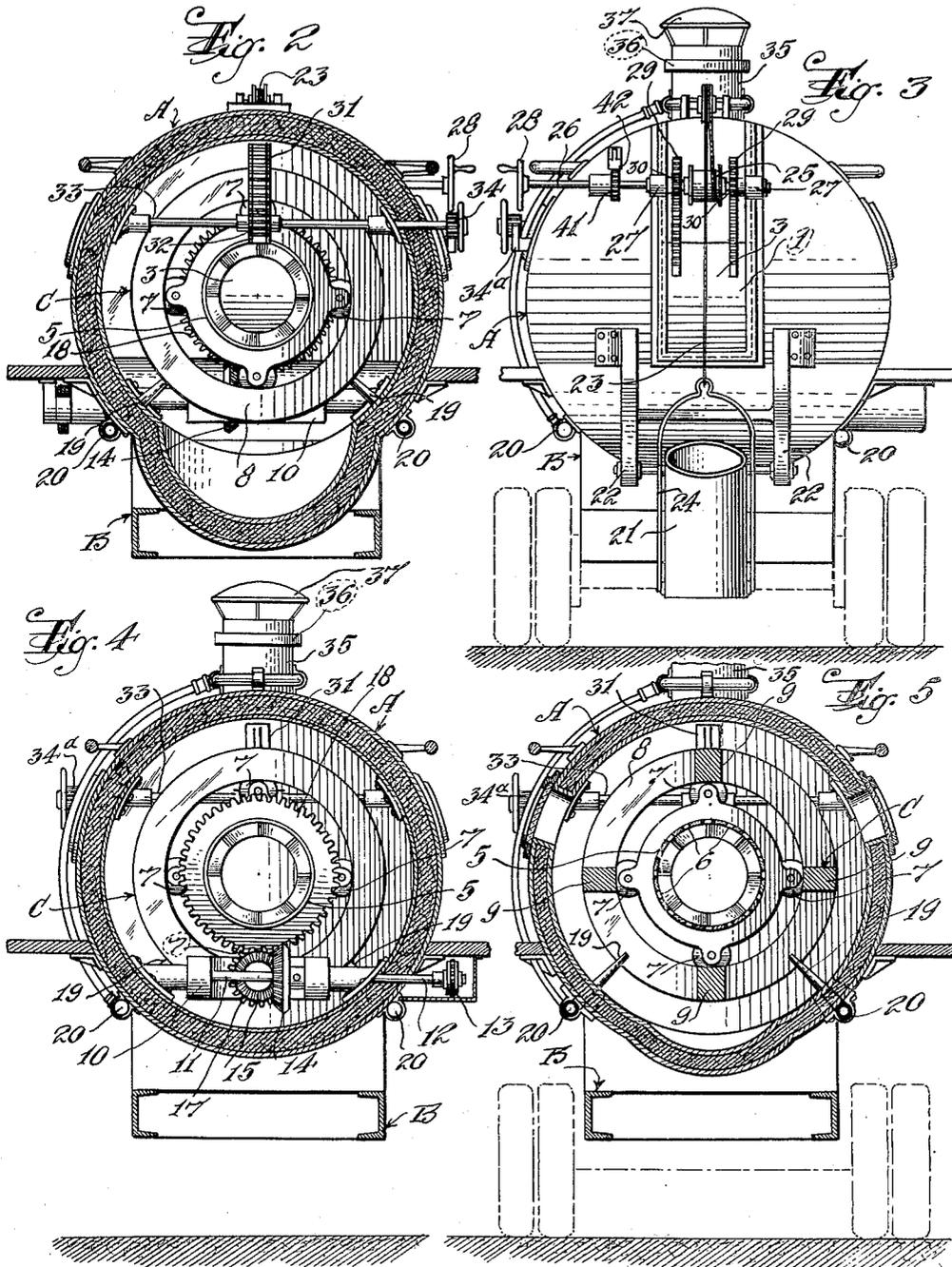
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2 Sheets-Sheet 2



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2,127,328

TRAVELING INCINERATOR

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Application March 23, 1937, Serial No. 132,467

3 Claims. (Cl. 110-14)

This invention relates in general to incinerators and particularly to incinerators for burning refuse, the invention contemplating an incinerator mounted on a motor truck whereby refuse may be burned on the route and during collection thereof from houses and buildings.

One object of the invention is to provide an incinerator of this general character which shall embody novel and improved features of construction whereby the refuse can be quickly and thoroughly consumed by combustion during the travel of the incinerator through city streets so as to avoid the necessity for frequent trips to the dumping ground as is generally required.

Another object is to provide such an incinerator which shall include a novel and improved perforate revoluble grate drum to receive the material to be burned, and means for projecting flames against and through the perforations in said grate drum so as to quickly and thoroughly burn the combustible material.

A further object is to provide in such an incinerator a novel and improved revoluble perforated grate drum and means for mounting it within a housing, whereby the material to be burned may be deposited in one end of the grate drum and the ash and incombustible material may be automatically discharged from the other end of the drum by action of gravity so that the drum may be continuously charged and discharged.

Another object is to provide a novel and improved mounting for the revoluble grate drum whereby the drum may be disposed with its axis inclined to the horizontal and the inclination of the axis may be varied from time to time to compensate for travel of the truck carrying the drum upon inclined surfaces such as hills.

Other objects, results and advantages of the invention will appear from the following description when read in conjunction with the accompanying drawings wherein

Figure 1 is a vertical longitudinal sectional view, partially in side elevation, of a traveling incinerator embodying my invention.

Figure 2 is a transverse vertical sectional view on the line 2-2 of Figure 1 showing the grate drum adjusted with its axis horizontal.

Figure 3 is a rear end view of the incinerator, and

Figures 4 and 5 are transverse vertical sectional views on the lines 4-4 and 5-5, respectively, of Figure 1.

Specifically describing the illustrated embodiment of the invention, the incinerator includes

a housing A preferably having heat insulated walls, the housing being shown as mounted on a motor truck chassis B so that the incinerator may be transported through city streets and used upon the regular collection routes of city refuse collectors. The rear end of the housing has an opening 1 through which the refuse to be burned may be deposited in the incinerator, and at the bottom of the housing adjacent the forward end thereof is a discharging opening 2 for the ashes and incombustible material. These openings 1 and 2 are formed with respective closures or doors 3 and 4 which are normally closed.

Within the housing is a revoluble grate drum 5 which is preferably in the form of a cylindrical tube of suitable material, for example steel, having perforations 6 throughout its circumference and length. The shape of the drum and the material of which it is formed may be widely modified without departing from the spirit or scope of the invention.

The drum is mounted with its axis inclined, and the mounting is adjustable so that the angle of inclination of the axis may be varied to compensate for travel of the truck upon the inclined surfaces such as hills. As shown, the drum carries three series of circumferentially spaced rollers 7 on its outer periphery, said series being spaced longitudinally of the drum and the rollers of each series riding in tracks 8 which are supported by longitudinal bars 9 of a supporting frame C.

The drum is arranged in the housing so that one end is disposed in juxtaposition to the charging opening 1 of the housing and the other end is disposed adjacent and above the discharging opening 2. One end of the supporting frame is mounted to swing about a horizontal axis which is transverse to the axis of the drum, and as shown, said end of the frame has a yoke 10 which is pivoted on a transverse shaft 11 journaled in the housing A. For swinging the supporting frame about the shaft 11, I have shown the other end of the frame provided with a quadrant rack 31 with which meshes a pinion 32 mounted on a shaft 33 journaled in the housing and projecting therefrom with a hand wheel 34 for rotating the shaft. A pawl and ratchet mechanism 34^a is provided to hold the frame in adjusted positions.

The shaft 11 also serves as a power transmitting shaft for revolving the drum 5, and has one end projecting from the casing at 12 and connected by suitable driving means such as a chain and sprocket 13 with a suitable source of power, for example the motor of the truck on

which the housing is mounted. On the shaft 11 within the housing is a bevel gear 14 which meshes with a bevel gear 15 that is journaled on a stub shaft 16 mounted on the end of the supporting frame. On the shaft 16 is also mounted a pinion 17 which meshes with a ring gear 18 secured to the exterior of the drum coaxially therewith. With this construction, it will be observed that upon application of power to the shaft 11, the drum 5 will be revolved.

If desired a plurality of drums may be provided.

Means is provided for burning the material in the drum 5, and as shown, this means includes a row of burner nozzles 19 projecting into the housing at each side of the longitudinal median plane of the drum so that the flames from the nozzles will be directed against the drum and through the perforations thereof. Fuel may be supplied to the nozzles 19 in any suitable manner as by pipes 20 extending along the outside of the housing. It is contemplated to use oil for fuel and any suitable fuel mixing and air distributing apparatus may be utilized. Other types of heaters or burners may be used within the spirit and scope of the invention.

Means is also provided for charging the drum 5 with material to be burned. As shown, this means includes a bucket 21 mounted to slide vertically and horizontally in guides 22 suspended from the rear wall of the housing. The bucket is shown as elevated by a cable 23 having one end connected to a bail 24 on the bucket and the other end wound upon a drum 25 carried by a shaft 26 journaled in bearings 27 on the rear wall of the housing. With this construction, the refuse or material to be burned may be deposited in the bucket by the individual collectors and when the bucket has been filled, the drum 25 may be rotated by a hand wheel 28 on the shaft so as to elevate the bucket. The upper ends of the guides 22 direct the mouth of the bucket inwardly through the opening 1 and the bucket will be tilted by the cable 23 as it reaches the opening 1 so as to dump the material through the opening into the drum.

Means is also provided for opening the door 3 immediately before the arrival of the bucket at the dumping position. This means is shown as including rack bars 29 on the door with which mesh pinions 30 mounted on the shaft 26. Upon rotation of the shaft 26 in the direction to rotate the drum 25 to elevate the bucket, the door will be opened or slid upwardly, and the ratio of the movement of the door and the elevation of the bucket is such that the door will be completely open as the bucket reaches the dumping position. Should it be desired to hold the door in open position without manual attention, a ratchet 41 may be provided on the shaft to cooperate with a pawl 42 mounted on the end of the housing. After the bucket has been dumped, rotation of the shaft in the other direction will lower the bucket and simultaneously close the door.

At the end of the housing opposite the charging opening 1 is a smoke stack 35 to permit the gas of the combustion to pass from the housing, a screen 36 being provided in the stack to prevent sparks from flying from the smokestack. Also preferably a cowl 37 is provided to protect branches of trees from direct contact with a stream of hot gases issuing from the smoke stack and to prevent rain from entering the housing.

For more completely burning the unburned combustible gases and small particles, a plurality of burner nozzles 38 project into the smoke stack,

these nozzles being supplied with fuel from the same source as the nozzles 19. This reduces to the minimum odorous gases from escaping from the housing.

The operation of the incinerator will be evident from the foregoing, the material to be burned being deposited from the bucket 21 into the higher end of the grate drum 5, the drum being continuously rotated so as to continuously agitate the material and gradually lead it by action of gravity toward the discharge end of the drum. As the material passes through the drum, the combustible portions are burned by the flame contacting with the drum and entering through the perforations 6. The ashes and incombustible material are deposited by gravity into the discharging opening 2 from which they may be withdrawn upon a dump or into suitable receptacles by opening of the door 4. Preferably the inner walls of the drum will have agitating devices such as segmental helical ribs 39 to insure against packing of the material at the bottom side of the drum in such a way as to impede combustion, and to insure that the material will travel through the drum.

When the truck is traveling upon an inclined surface such as a hill, the inclination of the drum may be varied by adjustment through the hand wheel 34, shaft 33, pinion 32, and rack 31, and preferably the housing will have sight openings or windows 40 closed by heat resistant transparent material through which the operator may view the position of the drum and the state of combustion of the material therein.

It should be understood that I have illustrated and described the preferred embodiment of my invention in schematic form, and the details of structure of the incinerator may be widely modified and changed without departing from the spirit or scope of the invention.

Having thus described my invention, what I claim is:

1. A traveling incinerator, comprising a wheeled truck, a housing on said truck, a perforated tubular grate drum to receive at one end material to be burned and discharge the burned material at the other end, means mounting said drum in said housing with its axis inclined and to permit the angle of inclination to be varied about a horizontal axis transverse to the axis of the drum and adjacent the upper end of the latter, said housing having a charging opening juxtaposed to said upper end of the drum, means for swinging said drum about said horizontal axis whereby the inclination of the drum can be varied to compensate for movement of said truck over inclined surfaces, and means for projecting flames against and through the perforations in said drum to burn the combustible material in the drum.

2. An incinerator comprising a housing, a perforated tubular grate drum revolubly mounted on an inclined axis in said housing to receive at its upper end material to be burned at one end and discharge the ashes and unburned material at the other end, means for revolving said grate drum, and means for projecting flames against and through the perforations in said grate drum to burn the combustible material in said grate drum, said housing having a charging opening and a discharging opening in juxtaposition to the first-mentioned and second-mentioned end of the grate drum respectively, closures for said openings, charging means for elevating material and dumping it through said charging opening into said grate drum, and means for simultaneously operat-

ing said charging means and said closure of the charging opening.

3. An incinerator comprising a housing, a perforated tubular grate drum to receive and support material to be burned, a frame revolubly supporting said drum in said housing, a horizontal shaft in said housing transverse to the axis of the drum and below the drum, means mounting said frame to swing at one end about said horizontal shaft to adjustably support said drum with its axis

at different angles of inclination, means for adjusting and holding said frame at different angles of inclination, means for rotating said shaft, a driving connection between said shaft and said drum to revolve the latter, and means for projecting flames against and through the perforations in said grate drum to burn the combustible material in said grate drum.

FRANK J. EGAN. 10