

(No Model.)

2 Sheets—Sheet 1.

C. J. DE BERARD.
TRAVELING GARBAGE CREMATORY.

No. 581,686.

Patented May 4, 1897.

Fig. 1.

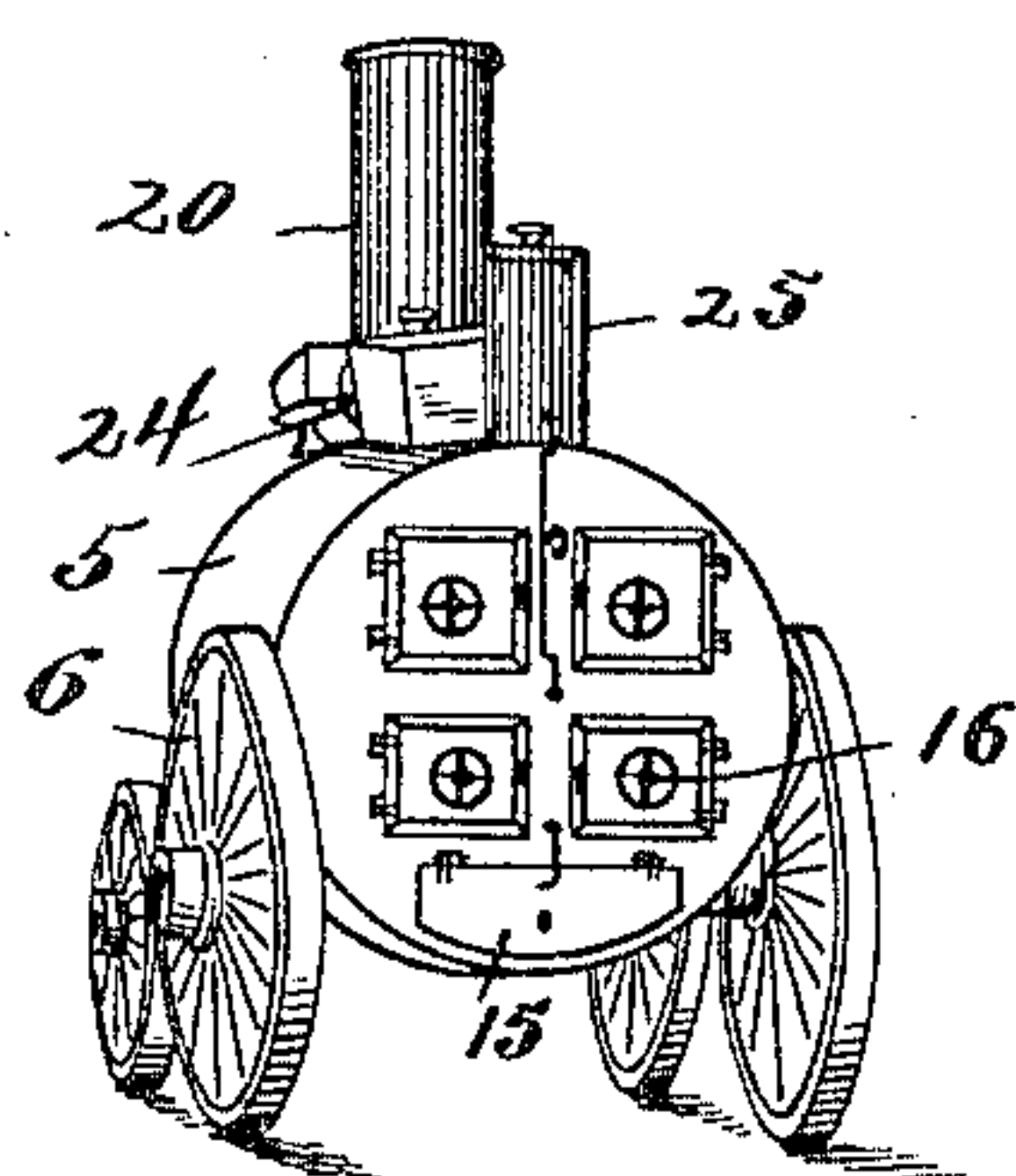
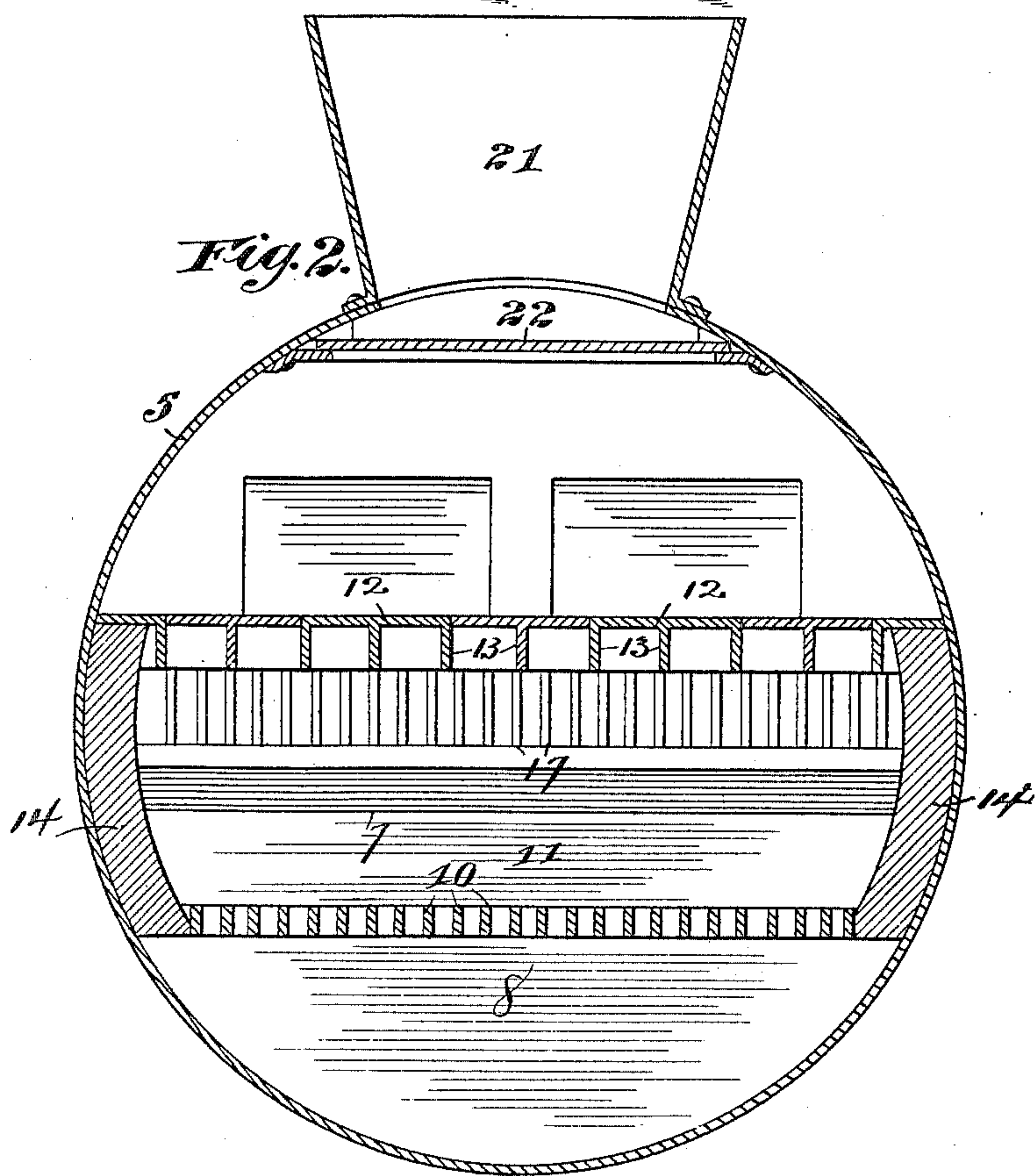


Fig. 2.



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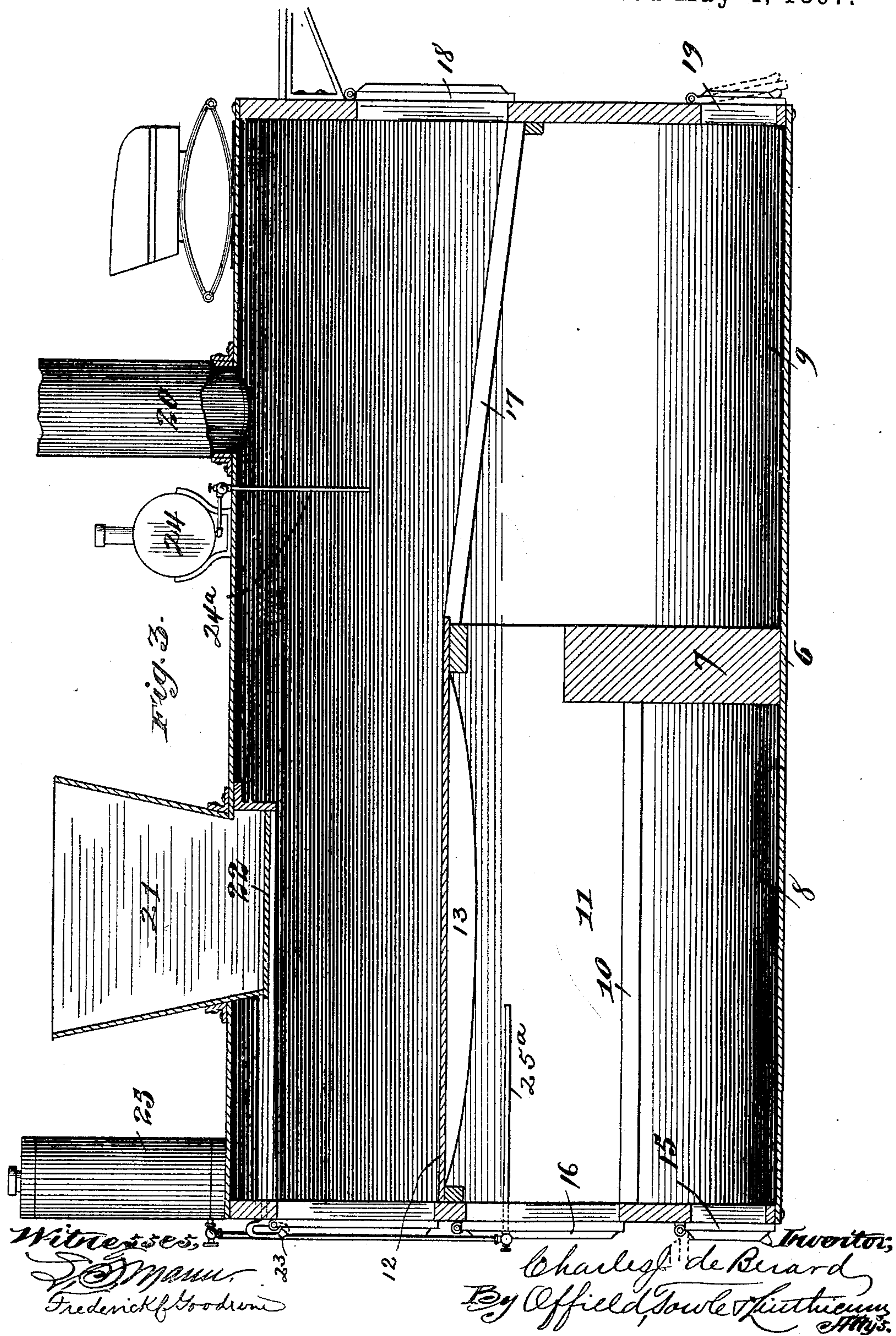
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UNITED STATES PATENT OFFICE.

CHARLES J. DE BERARD, OF CHICAGO, ILLINOIS, ASSIGNOR TO GEORGE S. WELLES, OF SAME PLACE.

TRAVELING GARBAGE-CREMATORY.

SPECIFICATION forming part of Letters Patent No. 581,686, dated May 4, 1897.

Application filed December 17, 1896. Serial No. 615,988. (No model.)

To all whom it may concern:

Be it known that I, CHARLES J. DE BERARD, of Chicago, Illinois, have invented certain new and useful Improvements in Traveling Garbage-Crematories, of which the following is a specification.

It is the object of this invention to provide an apparatus whereby the carting of garbage through the streets may be entirely obviated. The transportation of garbage involves a number of objectionable features. Among these may be mentioned the expense attendant upon the cartage, which is a considerable item in all cities covering a considerable territory. It is estimated that in the city of Chicago the average distance which garbage must be moved is about five miles and the average number of wagon-loads moved in a day by one team about two; but the item of expense, although considerable, is not the chief objection. Where garbage is collected about the city in wagons and moved to a stationary crematory, a train of evils follow. The wagons moving through the city with their loads give off the most unpleasant odors, polluting the atmosphere, and littering the streets through which they pass by reason of the droppings from the wagons. The wagons themselves are at all times, whether loaded or emptied, in use or standing idle, a source of contamination and in every way objectionable and offensive. The collection of the garbage of a large district at a single place pollutes the atmosphere for blocks around, breeds disease, and renders residence in the vicinity of such aggregations almost impossible. The burning of large masses of garbage in stationary crematories necessitates the rehandling of the mass, and thus again all of the evils of pollution of the atmosphere follow.

The carrying of garbage to farms in the vicinity of large cities, while practiced to some extent and possibly at a cost which enables it to be profitably done, when considered in all its relations is probably more objectionable than the method of disposing of it by burning in stationary crematories.

My invention affords a means of disposing of garbage which has not, so far as I am aware, been put into practice before my invention;

but practical tests thereof have demonstrated its availability as an economical method, free from all of the objections above alluded to.

To this end my invention consists in a traveling or perambulating garbage-crematory embodying a furnace of peculiar construction and of suitable size to be mounted upon a wheeled frame and capable of being drawn through streets and alleys. The furnace is provided with means for disposing of garbage both dry and wet, and to this end is provided with a fire-box wherein the materials dry enough to burn are fed directly. A second chamber above the fire-box receives the wet garbage through a suitable hopper in the top wall of the furnace, and on the floor of this furnace the wet garbage is dried, and when in condition to burn is moved onto a second set of grate-bars, where it is consumed. The arrangement of the furnace is such that the products of combustion of the dry material in the first-mentioned fire-box are made not only to dry the wet garbage in the chamber above, but are also made to pass through it when it is dried, thus consuming it and at the same time burning off the foul gases or odors arising from the drying garbage, so that the smoke which escapes through the smoke-pipe is not more offensive than that of the dry material raked from lawns or yards.

The capacity of a single furnace of this kind is equal to that of the combined work of teams and men, and the apparatus itself is inexpensive as compared with the stationary crematories, which if effective are always expensive in the first cost of erection and also in operation.

The described construction of the interior of the furnace is such that it consumes all of the gases which would produce objectionable odors and thereby prevent the moving of the furnace about the streets. Unless these odors can be effectually suppressed the traveling crematory is not practicable, and therefore my invention relates to and consists in a traveling garbage-crematory of the peculiar construction hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings I have shown the invention embodied in practical

form, the drawings representing a traveling furnace which is now in actual use.

In said drawings, Figure 1 is a perspective view. Fig. 2 is a cross-section through the body or shell of the furnace and through the hopper on top thereof, looking toward the front of the furnace; and Fig. 3 is a longitudinal sectional elevation through the furnace and hopper, some of the parts appearing in elevation and other parts omitted.

In the drawings, 5 represents a furnace of cylindrical form and not unlike in appearance and construction the ordinary steam-boiler. This furnace is mounted on the carrying-wheels 6, which will be provided with a tongue, so that it may be drawn through the streets or alleys, a single team of horses being sufficient to move it.

The machine now in use and to which I have before alluded has a furnace about eight feet long and five feet in diameter. The lower part of this shell is divided transversely by the bridge-wall 7 into two compartments 8 9, and above the former are placed the grate-bars 10, above which is the primary fire-box 11. Arranged above this fire-chamber is a horizontal diaphragm 12, of metal, preferably of steel plates, strengthened so as to prevent their warping by the bars or flanges 13. This diaphragm extends from side to side of the shell and may be supported interiorly by the braces 14, as seen in Fig. 2. The chamber 8 furnishes an ash-pit provided with a door 15, and the chamber 11 has the door 16, through which dry material is charged into the chamber. Above the chamber 9 are arranged a second set of grate-bars 17, whose forward ends are supported upon the inner side of the front end wall and whose rear ends are supported in the plane of the floor or partition 12. The grate-bars 17 are preferably inclined from rear to front, and a hinged door, is provided above the plane of their front ends, so that drag-bars may be inserted for moving the dried garbage from the floor 12 forward onto such bars. The chamber 9 constitutes an ash-pit to receive the ashes from the grate-bars 17, and said pit is provided with a door 19.

20 represents the smoke-stack, and 21 a hopper through which the wet garbage is charged into the furnace. The lower end of this hopper is preferably closed by a slide 22, controlled by an operating-rod 23, extended through the rear end wall of the furnace. I have also provided the oil-tanks 24 25, having pipes 24^a and 25^a, opening, respectively, into the space above the grate-bars 17 and 10.

In use this traveling crematory is drawn through the alleys or streets and stopped at the garbage-boxes or other receptacles for garbage, refuse, and other rejected material. A considerable portion of the refuse collected in all large cities is paper, light wooden and pasteboard boxes, and other materials of this kind, which are bulky, but light and usually sufficiently dry to burn. All such materials

are charged directly into the primary fire-chamber and upon the grate-bars 10, where they are consumed, the heat being sufficient to dry the wet garbage, which is charged down upon the floor 12 through the hopper 21, the slide enabling the holding of the hopper full until such time as the mass previously deposited upon the floor has been sufficiently dried to ignite. When brought to this condition, the dried garbage is pushed or drawn forward from the floor 12 upon the grate-bars 17, and the products of combustion from the primary chamber passing up through this dried material on the last-mentioned grates ignites it, and the mass is thus reduced to ashes. All of the offensive odors and foul gases are driven off from the wet garbage while it remains on the floor 12, and these gases and odors are mingled with the flame arising from the burning material on the grate-bars 17, being thus intercepted and consumed in their passage to the stack 20.

The handling of the drafts will vary somewhat with the character of refuse which is being treated, but I have found it expedient to admit air through ash-pit door 19, and that when said door is left slightly open the fires on the grate-bars 10 and 17 will burn freely, and that all noxious vapors or odors arising from the burning material are destroyed. Sufficient material of a character that will burn readily is found in the course of travel, and thus no fuel other than that which is collected *en route* is necessary. The total residuum of a day's operation of the furnace is so small that it may be collected in a single wagon following the furnace and collecting therefrom the ashes and all non-combustible materials, such as bottles, scrap-iron, and the like. This material is inoffensive in character and may be used in filling streets or as a foundation for more substantial pavements.

The employment of a hydrocarbon fuel may be found expedient as an aid to the rapid combustion of the garbage, and to this end the oil may be conducted into the primary fire-chamber and sprayed therein, and either burned when the fire is first started or continuously, as desired. The feeding of a spray of oil at the point indicated above the secondary set of grate-bars is useful in securing the complete combustion of the odors and gases passing from the drying garbage and also for completely eliminating any offensive vapor that may pass through the furnace on the way to the smoke-stack without being consumed in the fire below.

The form and arrangement of the furnace may be very greatly modified. I have shown my present apparatus as mounted upon four wheels and adapted to be propelled by animals, but the manner or means of moving it about may be varied, and the principle of the invention may be applied on a smaller scale and mounted so that it can be pushed or drawn by the operators.

The most bulky materials are usually those

which burn the most readily, and the economy of burning them where found as compared with transporting them for miles through a crowded city will be instantly apparent upon reflection; but while my invention is designed to reduce the cost of disposing of garbage its principal value will be found to consist in the obviation of the unsanitary methods heretofore in vogue.

10 The form of the furnace and its interior arrangement may also be considerably modified; but I regard as important the division of the furnace into the several compartments mentioned, so that the burning of the dry
15 material may be carried on simultaneously with the drying of that which is too wet to burn without treatment and without any additional cost or appreciable loss of time.

I claim—

20 1. A traveling garbage-crematory, comprising a furnace mounted on wheels and having its interior at one end divided horizontally by a tight partition to provide a drying-compartment above and a combustion-chamber
25 below said partition, a set of grate-bars below said partition and an ash-pit below said

bars, a second set of grate-bars arranged at the end of the drying-compartment, a smoke-stack arranged above the second set of grate-bars, and suitable apertures in the furnace-walls for charging and moving the garbage and removing ashes, substantially as described. 30

2. A traveling garbage-crematory, comprising a furnace mounted on wheels and provided with openings for charging and moving the materials and for removing the ashes, a primary combustion-chamber in which the dry materials are burned, a drying-chamber located immediately above the primary combustion-chamber and separated therefrom by a tight diaphragm or partition and on which the wet materials are dried and a set of grate-bars located at the end of the drying-compartment and communicating therewith and
45 through which grate the products of combustion from the primary fire-chamber must pass, substantially as described.

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Witnesses:

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