

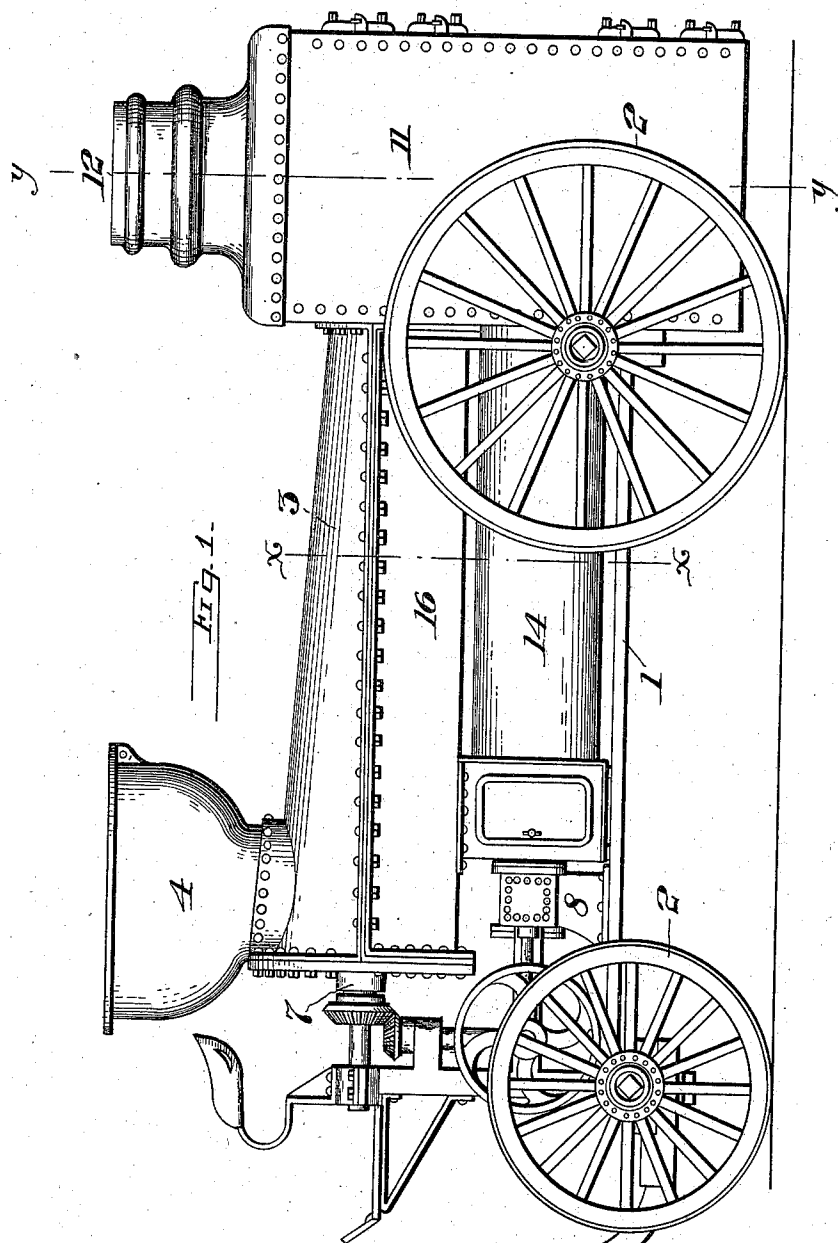
(No Model.)

3 Sheets—Sheet 1.

O. D. McCLELLAN.
APPARATUS FOR TREATING GARBAGE, &c.

No. 558,974.

Patented Apr. 28, 1896.



Witnesses:

Jesse B. Heller.
J. H. Davis.

Inventor.

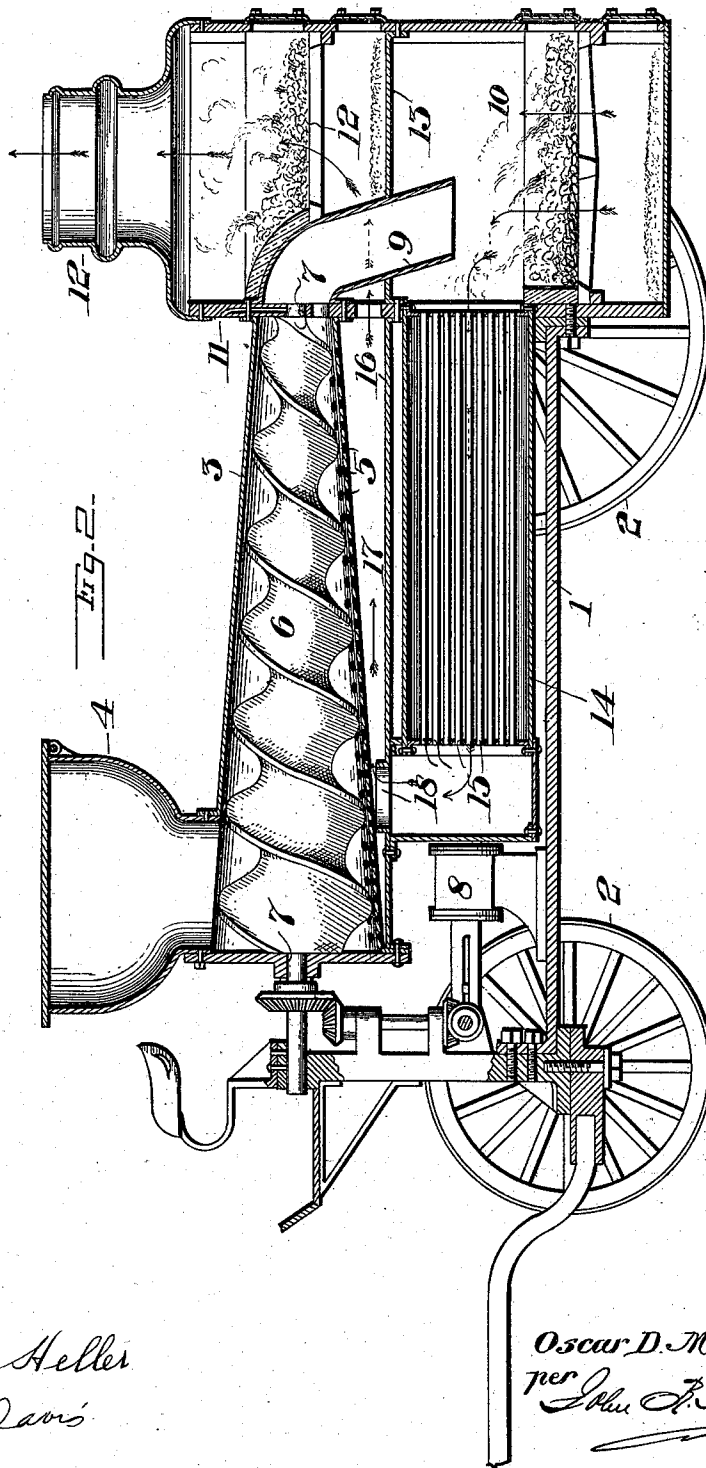
Oscar D. McClellan,
per John P. Nolan,
Attorney.

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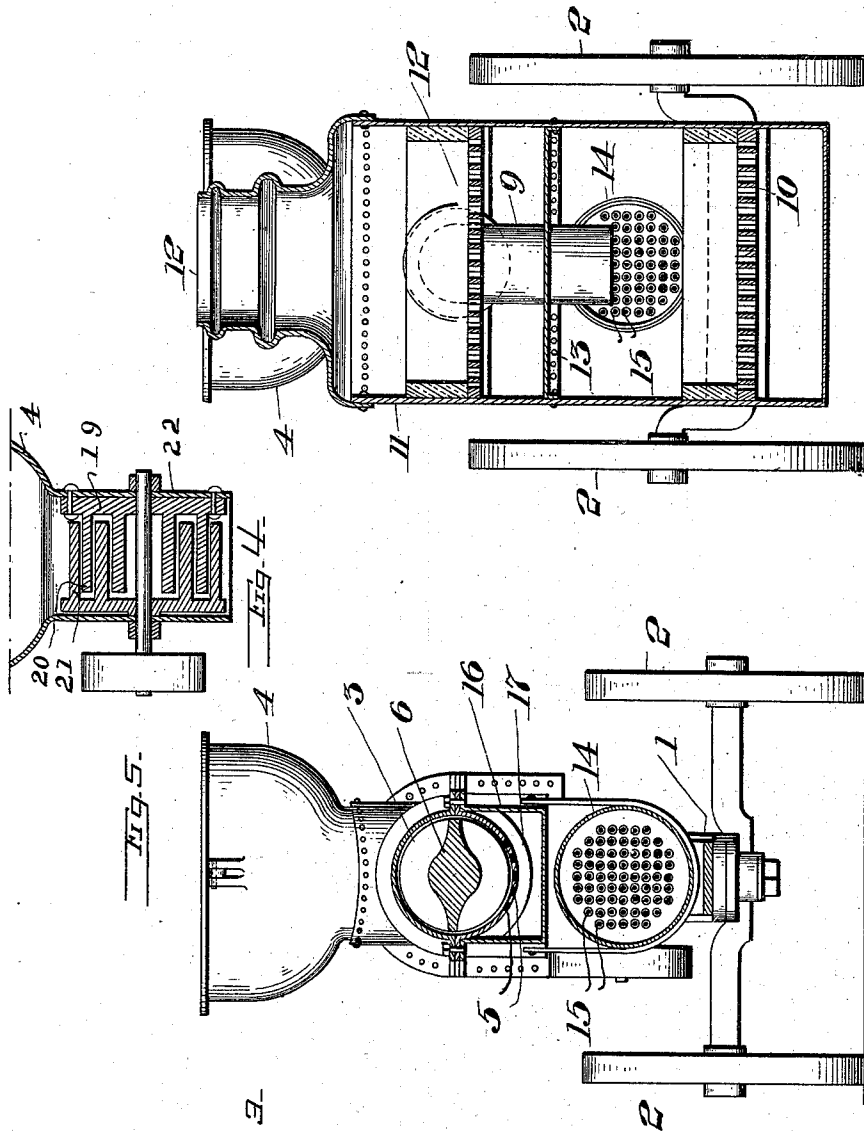
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No. 558,974.

Patented Apr. 28, 1896.



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Jesse B. Heller,
J. B. Harris.

Inventor.

Oscar D. McClellan,
per John T. Nolan,
Attorney.

UNITED STATES PATENT OFFICE.

OSCAR D. McCLELLAN, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR, BY
DIRECT AND MESNE ASSIGNMENTS, OF TWO-THIRDS TO JOHN HAND
PARKE AND FRANCIS DOUGHERTY, OF SAME PLACE.

APPARATUS FOR TREATING GARBAGE, &c.

SPECIFICATION forming part of Letters Patent No. 558,974, dated April 28, 1896.

Application filed August 3, 1893. Serial No. 482,264. (No model.)

To all whom it may concern:

Be it known that I, OSCAR D. McCLELLAN, a citizen of the United States, residing at the city and county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Apparatus for Treating Garbage, &c., of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

The nature of this invention is an apparatus of novel construction for treating waste vegetable and animal matter, the same being designed, more especially, to destroy, quickly and effectually, kitchen-garbage and all manner of refuse without the emission to the outside atmosphere of noxious vapors or products of combustion.

In the annexed drawings, Figure 1 is a side elevation of the apparatus. Fig. 2 is a longitudinal vertical section thereof. Figs. 3 and 4 are transverse vertical sections, as on the lines *x x* and *y y* of Fig. 1, respectively. Fig. 5 is a section of the hopper as equipped with a grinder.

The numeral 1 indicates the supporting-frame of the apparatus, which is preferably mounted upon carrying-wheels 2, so that it may be readily drawn from place to place. Supported longitudinally upon this frame is a tapering receiver 3, with the forward or large end of which communicates a hopper 4, whereby garbage or other matter may be introduced to the receiver. The under portion of the latter is foraminated, as at 5, from end to end to permit of the escape of contained liquids therefrom. Within this receiver is mounted a correspondingly-tapering screw 6, the shaft of which is journaled in centrally-disposed bearings 7 in the ends of the receiver, whereby the screw may be rotated from an adjacent engine 8, with which it is geared. The forward or larger end of the receiver is headed, while the rearward or smaller end, which is open, is provided with a downwardly-directed chute 9, that leads to a furnace 10. This furnace and the chute are confined in a suitable casing 11, which is equipped with a smoke-stack 12. The furnace-chamber is provided with a suitably-dis-

posed crown-sheet 13, through which the chute extends. Located below the receiver is a horizontal boiler 14, in which the steam-supply for the engine is generated, the usual fire-tubes 15 of the boiler communicating with the furnace-chamber 10.

The lower portion of the receiver is inclosed by means of a casing 16, so as to form a chamber 17, the bottom plate of which is provided near its forward end with an opening 18, through which the products of combustion pass as they leave the fire-tubes, thence enveloping the bottom of the receiver and entering the casing 11 above the crown-sheet.

In the upper portion of said casing, in the path of the escaping vapors and products of combustion, is located a supplemental furnace 18, which opens into the smoke-stack.

The above is a description of one form of the apparatus. Its operation, briefly described, is as follows:

At the outset the boiler is supplied with water and the furnaces fired, the heat and products of combustion following the course above mentioned and as indicated by the arrows in Fig. 2. Steam being generated in the boiler the engine is operated thereby, whereupon the power is communicated by the intermediate gearing to the screw device in the receiver. The garbage or other refuse to be destroyed is then introduced to the receiver, the rotating screw therein immediately acting upon the matter and conveying the same toward the contracted mouth of the receiver. As the matter is forced outward it is compressed against the tapering walls of the receiver, the water and liquid components of the substance thus being expressed. This expressed liquid, escaping through the numerous perforations in the receiver, falls upon the highly-heated plate 16 below and is thereby vaporized. The resultant gases are drawn rearward to the supplemental furnace and consumed therein before they effect an escape to the outside atmosphere. As the crushed mass is discharged from the screw to the furnace below, the mass is in a practically dry state, the heated surface of the receiver aiding materially in this respect. Hence when the matter reaches the fire it is imme-

diately seized upon and consumed by the flames, the resultant products of combustion being directed to the supplemental fire, as above explained, and being effectually consumed thereby.

Although in the construction thus far set out I have not shown or described the hopper as equipped with a grinding device, yet I contemplate using such a device for service more especially in cases where very hard substances are to be acted upon. In Fig. 5 I have represented a combined hopper and grinder which may be readily substituted for the hopper first referred to. The grinder 19 is constructed of a series of coacting arms 20 21, mounted in a neck or lower extension 22 of the hopper and adapted to crush the solids preparatory to their admission to the receiver. In the form shown there are two sets of opposing arms, one set, 20, being rigidly secured to a plate fast on the side of the extension, and the other set, 21, being fastened to a rotatable plate on the opposite side. The stud of this plate is journaled in a suitable bearing in the wall of the extension and is provided with a pulley or other device, to which power may be transmitted from the engine or other source of energy.

By the construction described it will be obvious that the refuse, whatever be its nature, will be crushed, conveyed to the furnace, and consumed just as rapidly as it is fed to the apparatus, and this without the emission of objectionable odors or gases.

The invention may be carried out on a large or small scale with good results. It may be embodied in a wheeled or portable construction, as shown in the drawings, for use in the collection and consumption of garbage in cities, or it may be a stationary structure for use in hotels or other institutions.

I claim—

1. In an apparatus for treating garbage, &c., a furnace, a horizontal boiler, a receiver arranged above said boiler so as to form an intermediate space or chamber, the discharging

end of said receiver being arranged above the crown-sheet of the furnace and being provided with a chute that leads to the latter, and the fire-tubes of the boiler communicating at one end with the furnace and at the other or forward end with said space or chamber, which space or chamber communicates with the smoke-stack of the furnace above the said crown-sheet, a screw conveyer in said receiver, and a steam-engine connected with the boiler and geared with the screw conveyer, substantially as described.

2. In an apparatus for treating garbage, &c., two furnaces arranged one above the other and separated by a floor or crown-sheet, a horizontal receiver communicating with the lower furnace, a flue or flues below the receiver constructed and arranged to direct the products of combustion from the lower furnace to the forward end of the receiver, thence rearwardly below the receiver to the lower portion of the upper furnace, and means for conveying to the lower furnace the matter fed to the receiver, substantially as described.

3. In an apparatus for treating garbage, &c., main and supplemental furnaces, a foraminated receiver communicating with the main furnace, an expressing device, a chamber below said receiver communicating at one end with the supplemental furnace, and flues connecting the other end of said chamber with the main furnace, whereby the solid matter is fed from the receiver to the main furnace and the liquid matter is fed to the chamber, and whereby the products of combustion from the main furnace pass by way of said chamber to the supplemental chamber, substantially as described.

In testimony whereof I have hereunto affixed my signature in the presence of two subscribing witnesses.

OSCAR D. McCLELLAN.

Witnesses:

JOHN R. NOLAN,
JESSE B. HELLER.