(No Model.) 2 Sheets—Sheet 1.

G. A. BYOR.

STRAW BURNER.

No. 482,862. Patented Sept. 20, 1892.

Fig. 1

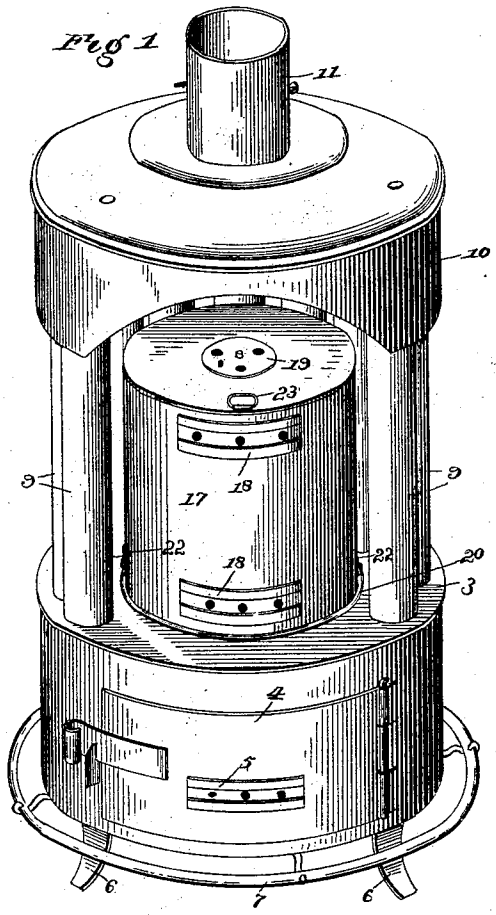


Fig. 4

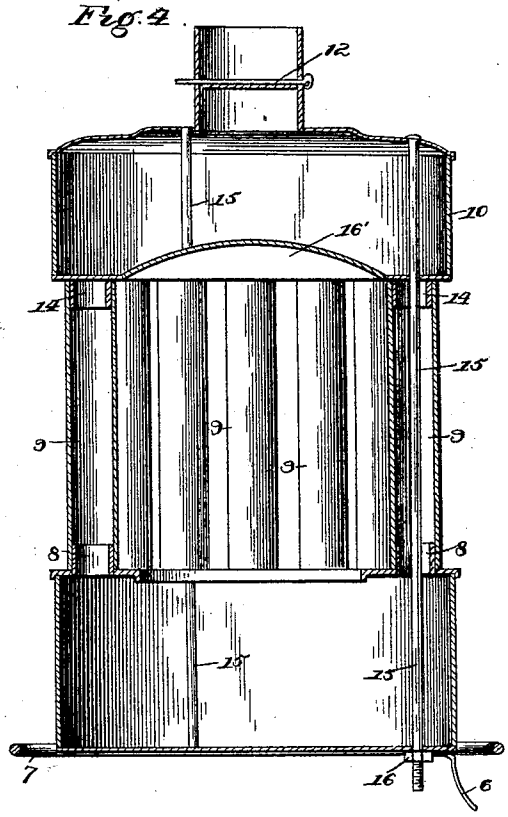
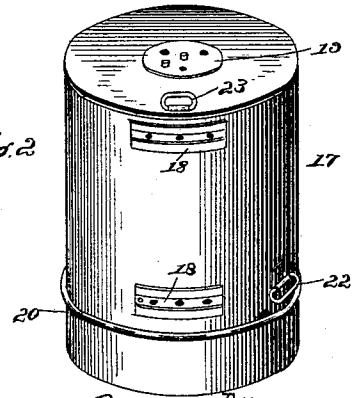


Fig. 2



Witnesses
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Chas. B. Hyer

Inventor
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By his Attorneys,
C. A. Snow & Co.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

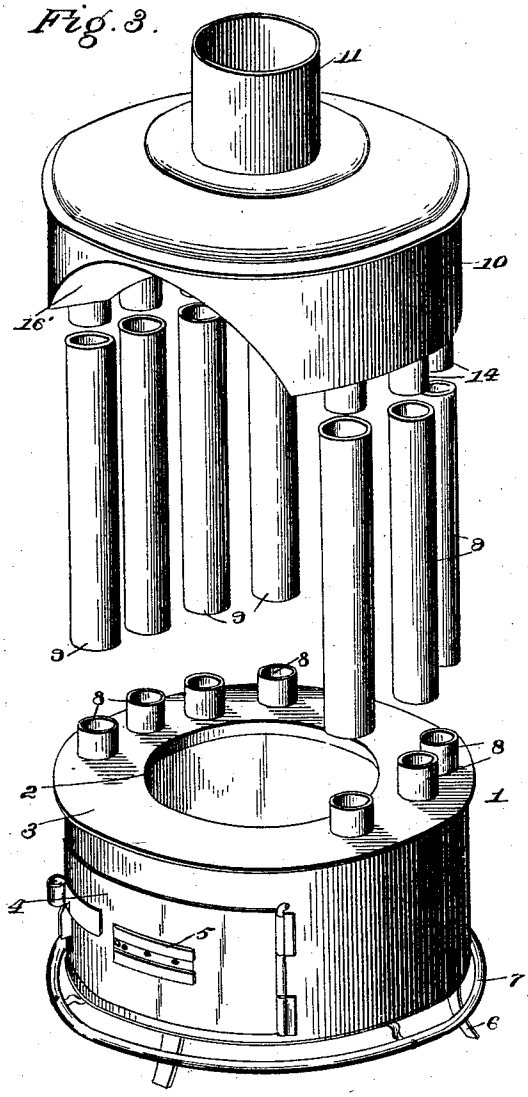


Fig. 5.

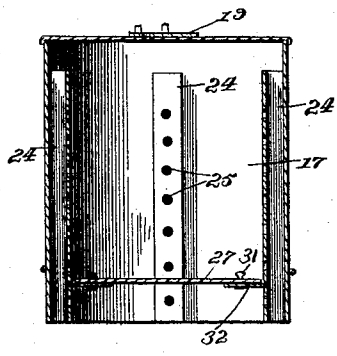


Fig. 6.

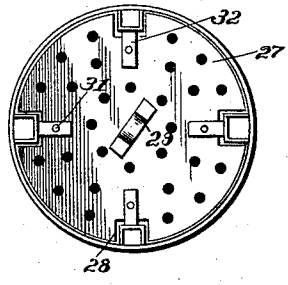
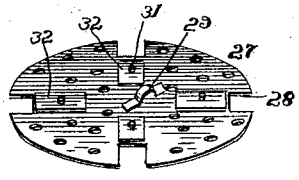


Fig. 7.



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UNITED STATES PATENT OFFICE.

GUSTAV ADOLPH BYOR, OF EDGAR, NEBRASKA.

STRAW-BURNER.

SPECIFICATION forming part of Letters Patent No. 482,862, dated September 20, 1892.

Application filed March 31, 1892. Serial No. 427,246. (No model.)

To all whom it may concern:

Be it known that I, GUSTAV ADOLPH BYOR, a citizen of the United States, residing at Edgar, in the county of Clay and State of Nebraska, have invented a new and useful Straw-Burner, of which the following is a specification.

This invention relates to trash burners or furnaces; and it consists in the construction and arrangement of the parts thereof, as will be more fully hereinafter described and claimed.

The object of the invention is to provide a device of the character set forth which is convenient in its operation by virtue of the employment of independent burning-chambers, which may be filled with the trash to be burned away from the burner or furnace and replace a similar chamber which has become exhausted; further, to avoid smoke or smudging or dangerous consequences by causing the smoke to travel downward and then upward through a series of flues independent of the burning-chamber.

In the drawings, Figure 1 is a perspective view of a straw or trash burning furnace embodying the invention. Fig. 2 is a similar view of one of the burning-chambers. (Shown removed.) Fig. 3 is a similar view of the parts of the furnace. (Shown separated and illustrating the manner of joining the same.) Fig. 4 is a transverse vertical section on the line *x x*, Fig. 1. Fig. 5 is a transverse vertical section on the line *y y*, Fig. 2. Fig. 6 is a bottom plan view of one of the burning-chambers. Fig. 7 is a detail perspective view of the grate of one of the burning-chambers.

Similar numerals of reference indicate corresponding parts in the several views.

Referring to the drawings, the numeral 1 designates the base of the burner or furnace, which is of cylindrical form and has an opening 2 in the top thereof and a flat rim 3 between said opening and the periphery of the same. The said base provides an ash pit or box and has a door 4 with a slide-damper 5 to regulate the draft, as will be understood. The said base is also provided with feet 6 and is surrounded by a foot-rail 7, projecting outward from the lower portion thereof. The rim 3 of the base has a number of collars 8, projecting upward therefrom and which surround openings extending through the said rim. The said collars are arranged in circular form, but do not extend wholly around the said rim, to thereby form an entrance to the opening 2 in the top of the base 1. On the said collars 8 are fitted flue-pipes 9, arranged in vertical position and having intersecting spaces between the same. For different purposes the number of these flue-pipes may be varied, and their size may be increased or diminished, as desired. On the tops of the said pipes 9 is supported a dome 10, which forms a radiator and also has a primary function of receiving the smoke from the said pipes 9 collectively, and from the said dome the smoke passes out through a smoke-pipe 11, centrally located in the top of the said dome and provided with a damper 12, which is employed to regulate the draft in a manner well understood. The under side of this dome, as at 13, is formed or provided with a series of collars 14, in a manner similar to the rim 3 of the base 1. The said collars 14 surround openings in the said lower side of the dome and are adapted to receive the upper ends of the flue-pipes 9. When the parts have thus been connected, they are firmly secured by tie-rods 15, extending upward from the bottom of the base 1 through several of the flue-pipes 9 and the top of the dome 10. To conveniently position these tie-rods, they are inserted from the top of the dome 10 downward through the flue-pipes and through the bottom of the base 1 and have removable nuts 16 on the ends thereof. The dome 10 over the opening 2 and outward through the entrance to said opening is obliquely concaved or arched, as at 16, to provide ready egress and ingress to the said opening, to thereby provide means for the ready insertion and withdrawal of burning-chambers 17.

The burning-chambers 17 are constructed cylindrical in form and form magazines for the reception of the trash to be burned. These chambers are preferably provided in duplicate, so that when one is mounted in position with burning material therein the other may be filled and made ready for the burning operation.

Each chamber is provided with a slide-damper 18 at the upper and lower portions of the front side thereof and a rotating damper

19 in the central part of the top of the same. The said dampers will be operated from time to time to regulate the draft of air to the burning mass within the chamber and are constructed in the simplest possible form. The lower portion of each of the chambers is formed with a rim or flange 20 a short distance above the bottom edge of the same, which is adapted to rest upon a rim 3, surrounding the opening 2 in the top of the base 1, and thereby providing a lower flange 21 below the said supporting-flange 20, which projects inward into the said base 1.

In order to readily remove the chambers, they are provided with handles 22 at the lower portion of opposite sides thereof and an upper handle or grip 23 for assisting in placing the chamber in proper upright position.

Within the chambers are secured a series of closed flues 24, which extend from the bottom thereof to near the top of the same and are open at both ends. The said flues 24 are formed with a series of apertures 25 in their inner opposing sides, and also with slots 26 in the lower portions of the same about in line with the rim or flange 20 on the outer surface of each of the said chambers. A perforate bottom or grate 27 is provided, having slots 28 extending inward from the periphery thereof to fit ever the flues 24 in the chambers, said bottom or grate being provided, also, with a central handle or grip 29 for readily attaching or detaching the same.

In line with the slots 28 and arranged radially are a series of slots 30, through which extend headed pins 31, connected to slide-catches 32 and projecting through said catches form heads for operating the same. When the grate is in position, the slide-catches are operated to engage the slots 26 in the flues 24, to thereby lock the said grate in position within the chamber.

The operation of the device is as follows: One of the chambers or magazines having been filled with trash is placed in position in the opening 2 of the base 1. The dampers having been suitably regulated, the trash is ignited and the smoke therefrom, as well as particles of combustion, pass downward through the flues 24 by exiting through the openings or apertures 25 therein, and also through the tops thereof downward into the base 1. The said smoke and particles of combustion thence ascend through the flue-pipes 9 into the dome 10 and outward through the smoke-pipe 11. It will thus be seen that a greater radiating-surface is provided in that the air may readily circulate between the flue-pipes 9 and become more rapidly heated; also, the dome 10 forms a radiator, and the base 1 as the heat becomes intense will in like manner increase the temperature of the lower strata of air surrounding the same. While the burning operation is going on within the chamber or magazine in position, the ashes may readily drop from the same through the grate 27 into the base 1, from whence they may be removed from time to time as it becomes necessary. One chamber having had its contents consumed it is replaced by another of similar construction which has been filled with a fresh supply of material.

The advantage of a construction as set forth resides in the convenient manipulation of the material to be burned without the resultant danger of feeding the material directly to a burning mass, and by the arrangement of the flues more heat can be obtained, as the exit of smoke and particles of combustion is tortuous and the effect will be readily understood.

It is preferable that the device be constructed of sheet metal to render it cheap in manufacture; but it will be understood that cast or other metal may be employed, if so desired.

Having thus described the invention, what is claimed as new is—

1. In a trash burner or furnace, the combination of a base having an opening in the top thereof, a series of flues extending upward from said base, a dome supported by and connected with said flues, and a chamber or magazine removably fitted in the opening of said base, substantially as described.

2. In a trash burner or furnace, a base having an opening in the top thereof, a series of flue-pipes projecting upward from said base, a dome mounted upon and connected with said flue-pipes and having a centrally-located smoke-pipe, and a magazine or burning-chamber removably fitted in the top of said base, the said flue-pipes extending only partially around the said base to form an entrance to the top thereof, substantially as described.

3. In a trash burner or furnace, the combination of a hollow base forming an ash-pit and having a series of collars projecting from the top thereof and surrounding a centrally-located opening, a dome having a series of collars depending therefrom, pipes detachably connected to the collars of said base and dome, and a burning-chamber having a detachable grate therein and removably mounted in said central opening of the base and communicating with the latter, substantially as described.

4. In a trash burner or furnace, the combination of a base, a dome having the under front side thereof concaved at an upward incline toward the front, pipes detachably connecting said base and dome, and a burning-chamber located between said base and dome, the said concaved inclined portion of the dome permitting access to the top of the burning-chamber while the latter is in position, substantially as and for the purpose set forth.

5. In a trash burner or furnace, the combination of a base, a dome, pipes detachably connecting said base and dome, tie-rods extending through said pipes and holding the parts together, and a burning-chamber removably mounted in said base and surrounded by said pipes, substantially as described.

6. A burning-chamber for a trash-burning

furnace, having a series of internal flues and a grate in the bottom thereof removably engaging said flues, substantially as described.

7. A burning-chamber for a trash-burning furnace, having a series of internal flues with apertures therein and a grate detachably connected to the lower ends of said flues and above the bottom of the chamber, substantially as described.

8. In a burning chamber or magazine for a trash-burning furnace, the combination of a series of internal flues, a grate having peripheral slots to take over the said flues, and sliding catches on said grate to engage the flues, substantially as described.

9. In a burning chamber or magazine for a trash-burning furnace, the combination of a series of internal flues extending partially upward into said chamber and having a series of openings or apertures therein and slots in the lower portions of the same, a grate having peripheral slots to take over the said flues, and sliding catches adapted to engage the slots in the lower ends of the flues, substantially as described.

10. In a trash burner or furnace, the combination of a base having an opening therein, a burning-chamber removably fitted in said opening and having internal flues and a bottom grate, a dome over the said burning-chamber, and a series of pipes connecting the base and dome, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

GUSTAV ADOLPH BYOR.

Witnesses:
C. W. WIBY,
THOMAS J. CRUMP.