No. 683,970. Patented Oct. 8, 1901.

D. W. McDADE.

REFUSE BURNER.

(Application filed July 5, 1900.)

(No Model.)

2 Sheets—Sheet 1.

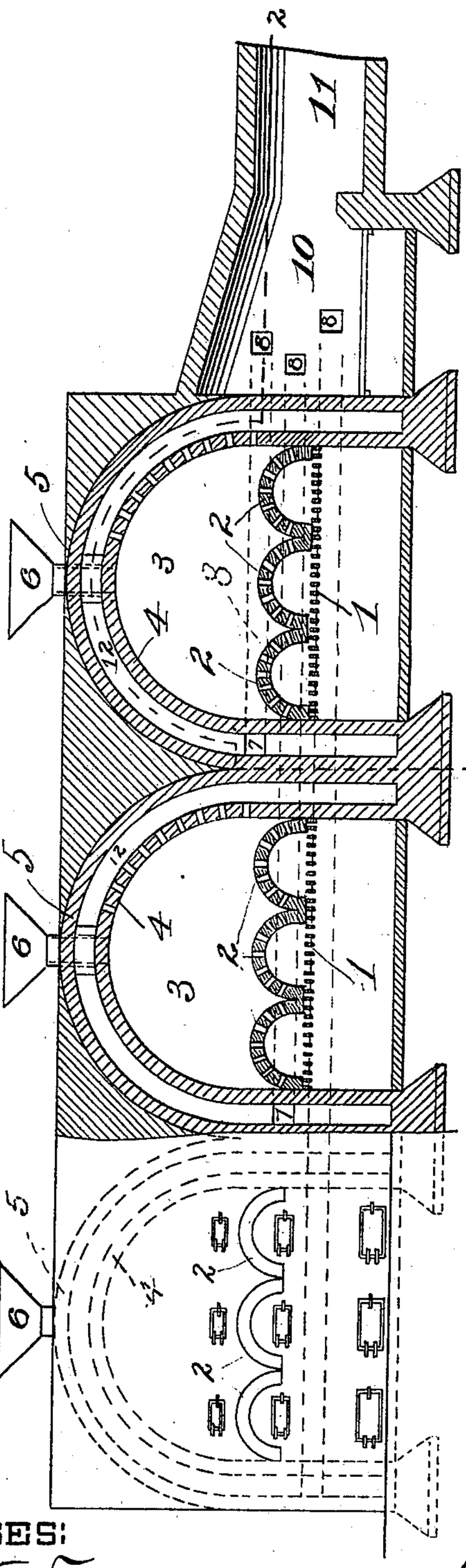

Fig. 1.

WITNESSES:
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Edward R. Wood

INVENTOR
DAVID W. McDADE,
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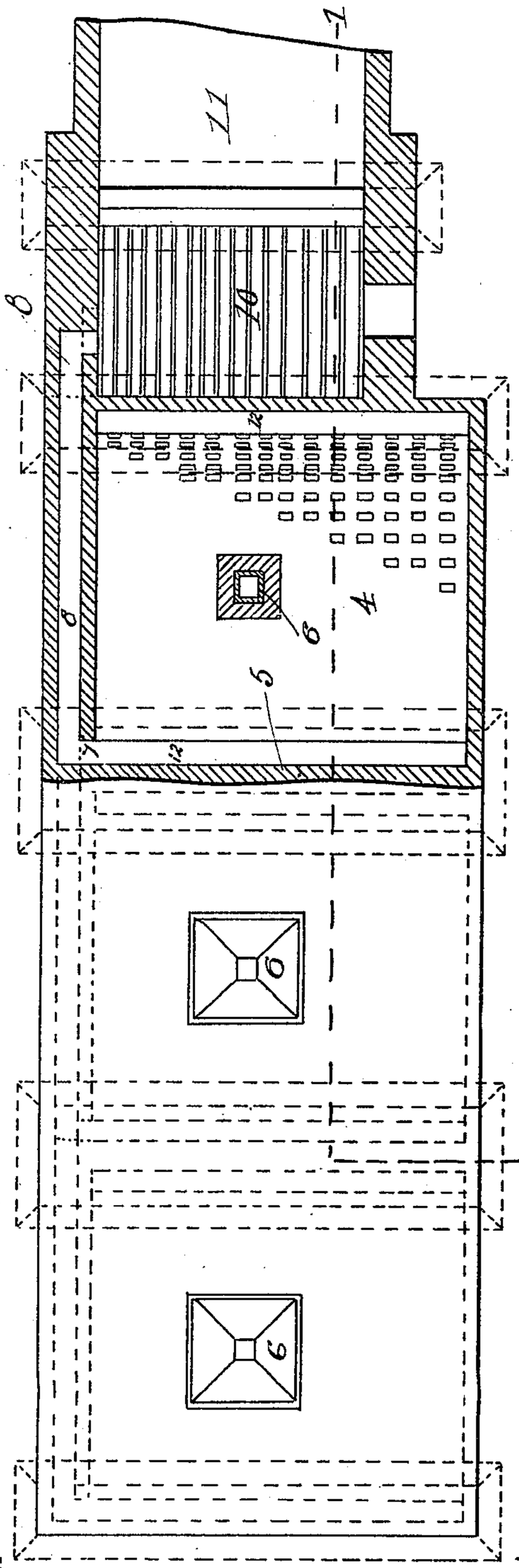

Fig. 2.

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UNITED STATES PATENT OFFICE.

DAVID W. McDADE, OF ATLANTA, GEORGIA.

REFUSE-BURNER.

SPECIFICATION forming part of Letters Patent No. 683,970, dated October 8, 1901.

Application filed July 5, 1900. Serial No. 22,548. (No model.)

To all whom it may concern:

Be it known that I, DAVID W. McDADE, a citizen of the United States of America, and a resident of Atlanta, in the county of Fulton and State of Georgia, have made a certain new and useful Refuse-Burner; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to figures of reference marked thereon, which form a part of this specification.

This device relates to means for the incineration of garbage and night-soil, the object being to provide such a device as will be free from the evolution of disagreeable and odorous gases, vapors, &c., and also complete in its action.

To these ends the invention consists of the device hereinafter fully described, and shown in the accompanying drawings.

In the drawings, Figure 1 is a front view of three of the units, forming a battery thereof into one crematory. This figure is partly in vertical section on the line 1 1, Fig. 2, showing the interior construction. Fig. 2 is a plan view, also partly in section on the line 2 2, Fig. 1.

In the figures like reference characters are uniformly employed in the designation of corresponding elements of construction.

This device consists, primarily, of a furnace or furnaces having the usual grate 1 and being provided with perforated arches 2, forming a perforated corrugated diaphragm over the furnace or furnaces and between them and the cremation or combustion chamber 3, which latter is formed over said furnaces by means of a double-arched wall, consisting of the inner arch 4 and the outer arch 5, with an intervening space or flue. The corrugated form of the arches 2 (otherwise the floor of the combustion-chamber or the garbage-support) provides for the greater radiation-surface and a larger number of fire-box vents or passages between the fire-box above the grate 1 and the cremation-chamber and also a more durable arch fabric than would be provided in a plane floor at this point. The former of the arched walls—that is, the one marked 4—forms the lining of the combustion-chamber and is perforated, as shown in the drawings, the upper line of perforations extending from the top in front to the lower back corner in the rear, so that a large portion of the wall is left unperforated and the upper row of perforations are practically equidistant from the exit 7. This provides for a uniform exposure of the resultant gases to heat in passing from the said perforations to said exit 7, whereby during their mixture by downward draft in a heated condition they will be further burned by coming into contact with the superheated surface of the arch 4. A suitable charging-hole is made in the top of the arches 4 and 5, and the usual trap and hopper 6 is provided. Through this opening is charged the garbage to the chamber 3. An opening 7 is provided at the lower back corner of the flue between the arches 4 and 5, opening into the flue 8, which extends across the back of the furnaces, perforating and protecting the wall and further superheating the gases as the flue passes in the wall along the back end of the grate 1. This flue 8 opens into the chamber 9, which is provided with a grate 10 for a coke fire, the gases and vapors passing thereover, and the last remaining combustible elements being destroyed, the non-combustible portions passing to the stack by way of the flue 11. When the furnaces are arranged as shown in the drawings, these flues 8 will pass through and protect the greater part of the wall at the back end of the furnaces, or, if two of these batteries were placed back to back, the entire wall not only of the furnaces, but the cremation-chambers as well, could be protected thereby.

The operation of the fire-chambers formed by the arches 2 over the grates 1 depends on the nature of the garbage to be cremated. A fire would be used here in any case to start or accelerate the combustion of the garbage; but the quality and quantity of such fuel, as well as the period through which the fire is applied thus to any crematory, will be governed by the nature and combustibility of the material to be cremated. These furnaces would not be required to be fired in case the garbage is sufficiently combustible, as is frequently the case, to burn itself. Residual ash percolates through the openings in the arches 2, passing

through such fires as may be in the furnaces, and thence to the ash-pits under the grates.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a crematory, furnaces provided with perforated top walls, inner and outer arched walls covering same and forming a combustion-chamber thereover said inner wall being perforated on one side and substantially half the arched portion thereof and a flue leading from between said arched walls at a point opposite the perforations, and a charging trap-opening through said arched walls into the combustion-chamber.

2. In a crematory, furnaces provided with perforated top walls, inner and outer arched walls covering same and forming a combustion-chamber thereover, said inner wall being perforated on one side and substantially half the arched portion thereof and a flue leading from between said arched walls at a point opposite said perforations, thence across the back end of the furnaces to the stack, and a charging trap-opening through said arched walls into the combustion-chamber.

3. In a refuse-burner, a combustion-chamber formed of double walls arched at the top with a space between them, a flue leading from the lower back corner of said space, a grate in the lower portion of the said combustion-chamber, said inner wall being provided with a line of perforations, the several perforations of which are substantially equidistant from said flue-opening and said inner wall being perforated from said line of perforations to the grate-line on the side opposite said flue, substantially as and for the purpose specified.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

DAVID W. McDADE.

Witnesses:
A. P. Wood,
S. M. Wood.