

(No Model.)

W. H. PAGE.
HEATING APPARATUS.

No. 559,307.

Patented Apr. 28, 1896.

Fig. I.

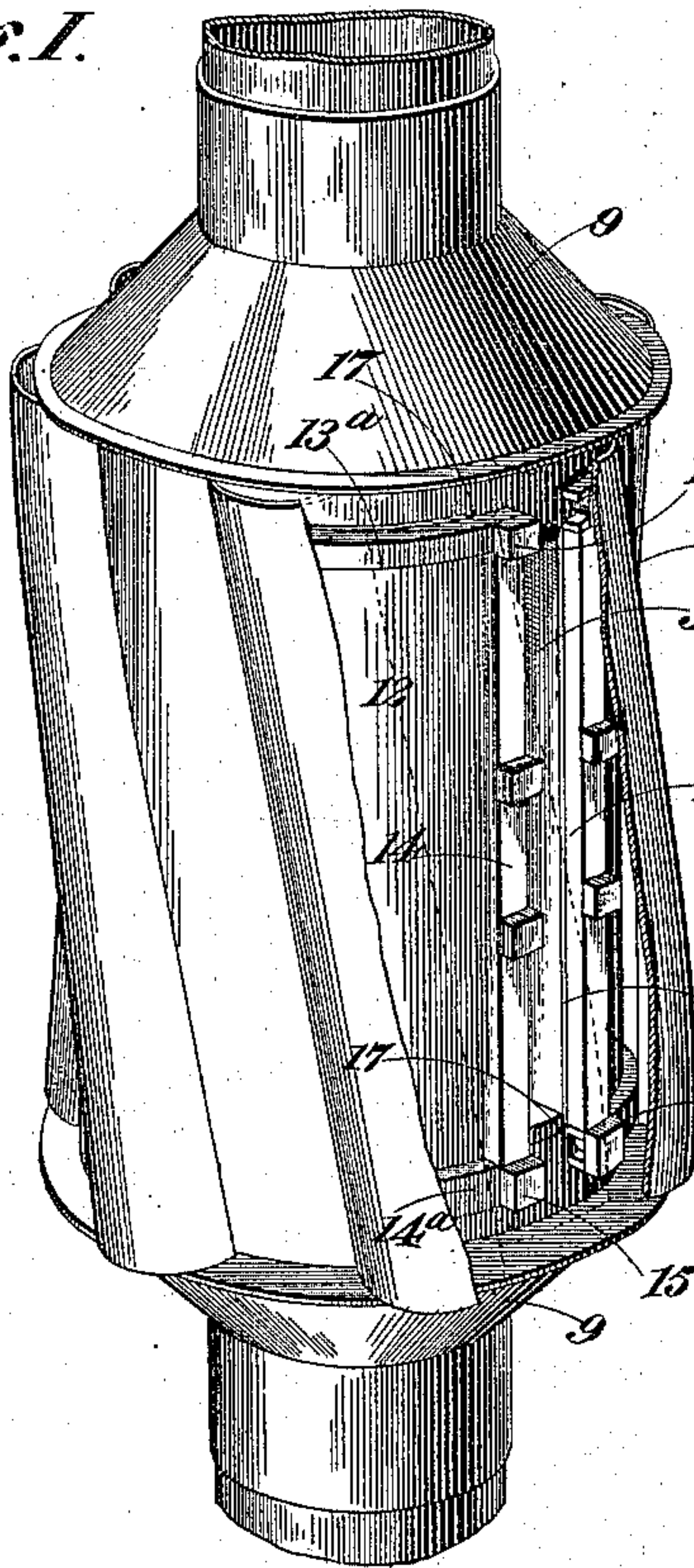


Fig. II.

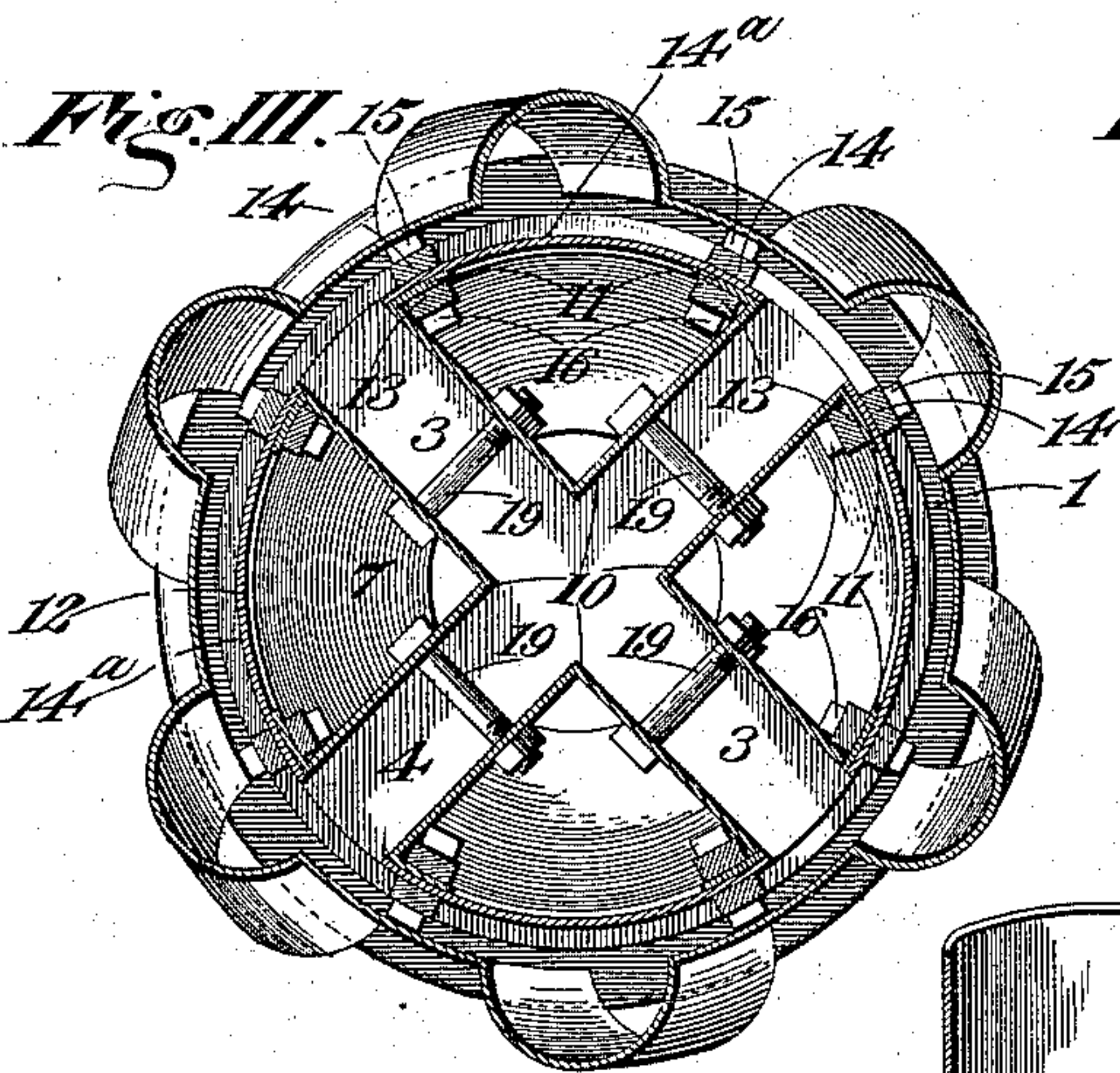
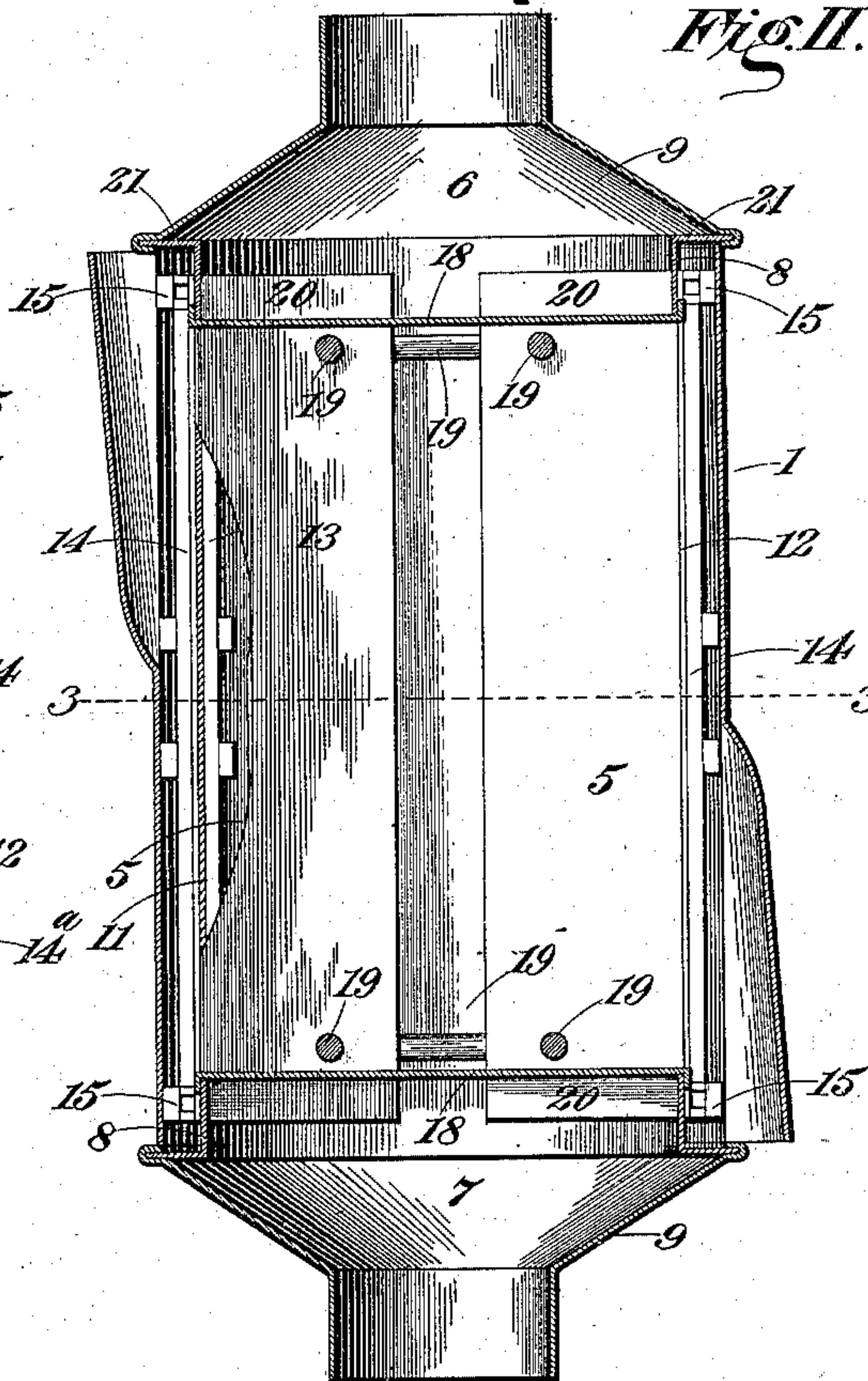


Fig. IV.

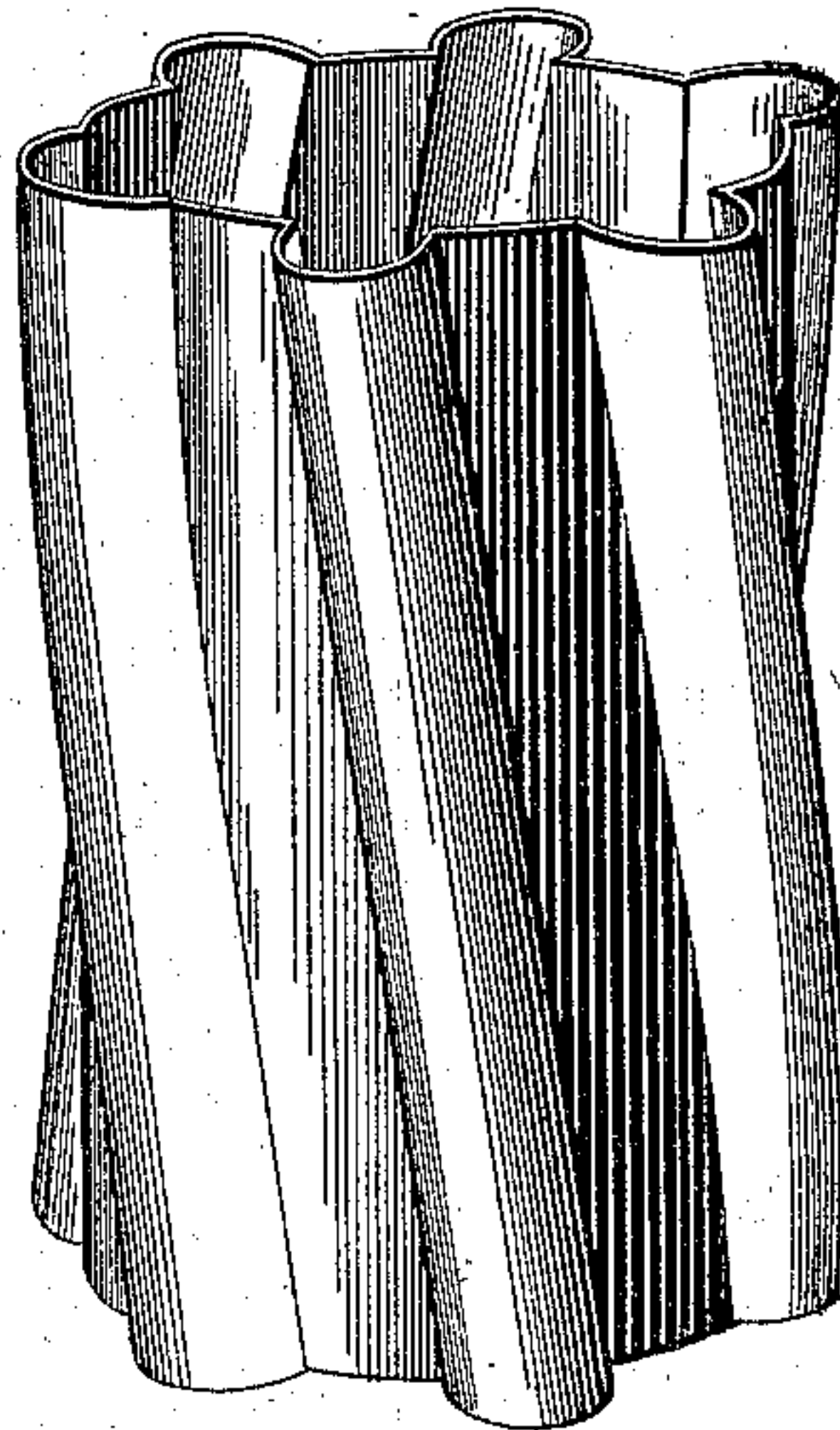
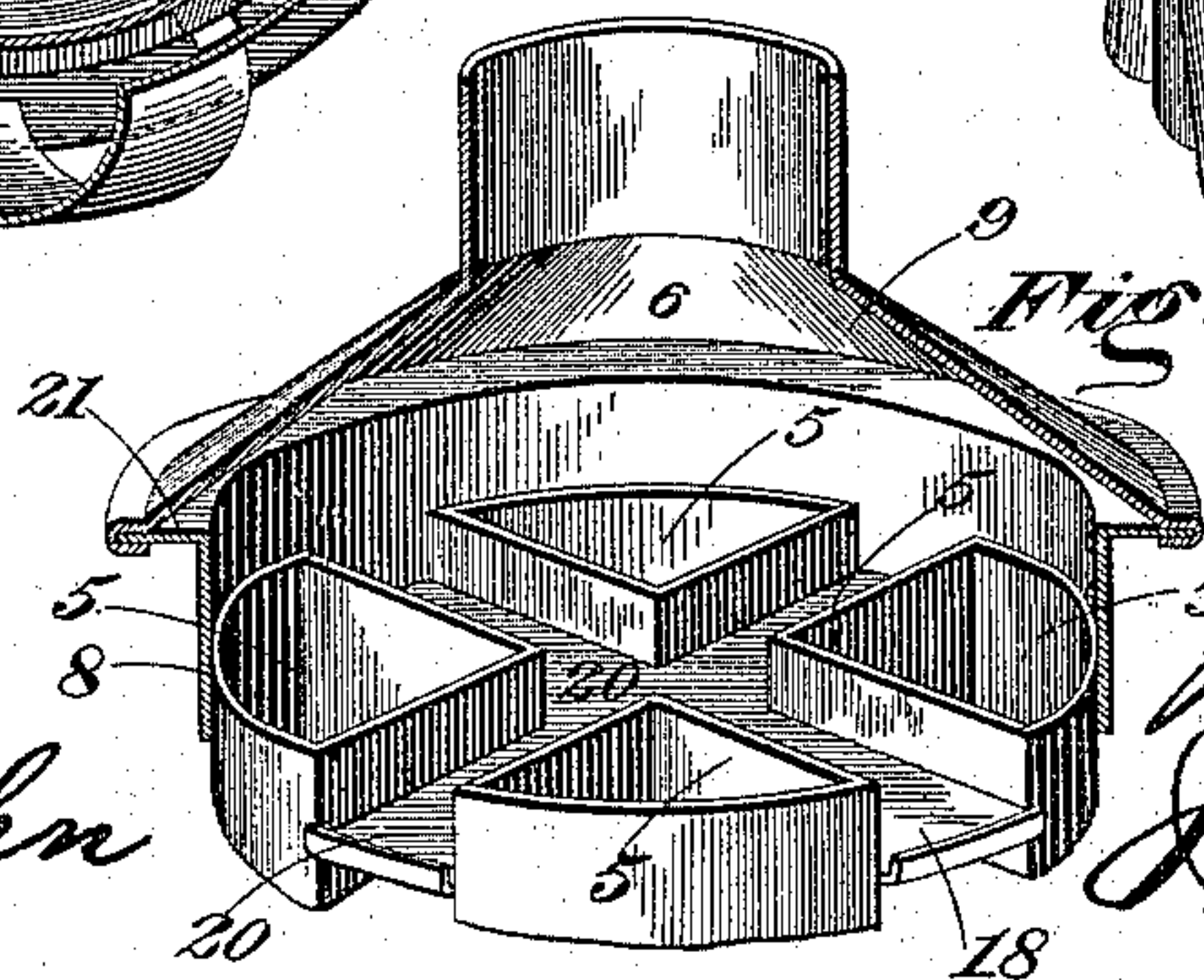


Fig. V.



WITNESSES

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HEATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 559,307, dated April 28, 1896.

Application filed July 17, 1895. Serial No. 556,279. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. PAGE, of Basic City, county of Augusta, State of Virginia, have invented certain new and useful Improvements in Heating Apparatus, of which the following is a specification, reference being had to the accompanying drawings.

The object of my invention is to provide a heat-radiating drum for use in connection with stoves, furnaces, or other initial heaters so constructed that the maximum heat-radiating surface will be obtained in the smallest possible compass and that a free circulation of air over the heated surface will be provided for.

In the accompanying drawings, Figure I is a perspective view of my drum, showing the envelop partially broken away. Fig. II is a central vertical section. Fig. III is a transverse section on the line 3 3 of Fig. I. Fig. IV is a view of the envelop detached. Fig. V is a view of a modified form of my drum.

Referring to the figures on the drawings, 1 indicates the body part of my drum pierced by diametrical air-flues 3 and 4, extending substantially to the top and bottom of the body part and defining a plurality of sector shape longitudinal smoke-flues 5, which latter open at their opposite ends into terminal domes 6 and 7, formed by the collars 8 and caps 9. It is obvious that this general design may be obtained by any suitable construction, the several parts being cast in the most convenient forms and united in the usual manner. In the drawings, however, is illustrated a construction which I have found to be simple, efficient, and inexpensive. In this preferred construction the smoke-flues are formed, respectively, of a plate 10 bent at right angles and constituting a partition-wall between the smoke and air flues and having their lap edges 11 bent to conform to the cylindrical body part. The exterior plates 12 constitute the exterior walls of the smoke-flues and are clamped to the lap edges of the plates 10 by bolts passing through longitudinal brace-rods 13 within the interior and similar rods 14 upon the exterior of the smoke-flues.

The plates 12 extend beyond the edges of

the collars 8 and are clamped thereto by the curved end brace-rods 13^a and 14^a, secured to the collars 8 by terminal bolts 15, which pass through the rods 13^a, collars 8, and the extremities of the rods 13 and are provided with nuts 16 upon their extremities, as usual.

The exterior plates 12 are provided with notched corners 17 for the reception of the bolts 15. By this means it is unnecessary to entirely remove the end brace-rods when it is desired to remove the exterior plates 12 for cleaning, as will hereinafter more clearly appear.

The air-flues are closed at their top and bottom by frames 18, which fit closely between the plates 10, and are securely clamped between them by bolts 19, passing through the adjacent walls of the smoke-flues to secure the parts against displacement and seal the joints without the intervention of solder or similar seals.

The plates 10 preferably extend somewhat beyond the frames 18 to form a soot-receptacle 20, which serves to collect the soot and prevent its accumulating upon the sides of the air-flues.

The caps are formed, as shown, with a conical part and a cylindrical continuation thereof adapted to fit in or around the adjacent sections of a stovepipe through which the products of combustion pass from a stove or initial heater.

The perimeters of the caps project a considerable distance beyond the body part and are preferably turned down upon the annular flanges 21 of the collars 8. The purpose of these projecting perimeters is to securely retain between them a spirally or otherwise fluted envelop, the flutings of which extend beyond the edges of the caps and open into the atmosphere.

Supposing my drum to constitute a section of the escape flue or pipe through which the products of combustion pass, it will be observed that the heated products will pass through the smoke-flues of the drum and out at its upper end. The heating of the drum will cause the atmosphere of the room to pass into the flutes of the envelop at their lower ends and will cause it to circulate over a part of the exterior surface of the body part and

through the diametrical passages, escaping finally at the top of the flutings upon the opposite side of the drum. Not only will a free circulation to the full capacity of the diametrical air-flues be maintained, but a constant circulation will be kept up through the flutes adjacent to the exterior walls of the smoke-flues.

In the event of the accumulation of soot and the like within the smoke-flues it is only necessary to remove the longitudinal brace-rods and loosen the bolts of the end brace-rods, when, as will be apparent, the top and bottom edges of the plate 12 may be slipped from under the last-named rods, the replacing of the plate being accomplished with equal facility after removal of the debris.

As I have hereinbefore mentioned, the details of construction are susceptible of wide variation. For instance, as shown in Fig. V, instead of constructing the smoke-flues from a number of plates and bracing them with longitudinal brace-rods they may be constructed of a single plate bent to produce the required design, the adjacent edges of each flue being seamed together and the various flues being retained in their proper relative positions by the collars of the caps which in this construction encircle the outside plates of the flues. I do not therefore desire to limit myself to the details of construction herein shown and described, but reserve the right to modify and vary them at will within the scope of my invention.

What I claim is—

1. A heating-drum, the body part of which is formed of separate longitudinal smoke-flues open at their opposite ends and defining between their walls a diametric air-flue extending entirely through the body part and continuously from the top to the bottom of the body part, the top and bottom of the air-flue being closed, substantially as specified.

2. The combination with a body part, of a drum composed of a plurality of separate smoke-flues defining between their walls a plurality of diametric air-flues, the smoke-flues and air-flues extending continuously from the top to the bottom of the body part, and the air-flues extending entirely and unobstructedly through the same, caps upon the opposite end of the body part communicating with the smoke-flues and having no communication with the air-flues, substantially as specified.

3. The combination with a drum having its body part composed of separate longitudinal smoke-flues defining a diametric air-flue, the smoke-flues and air-flue extending the entire length of the body part, the air-flue extending entirely through the body part transversely and having its top and bottom closed, of an envelop surrounding said drum and

communicating with the exterior atmosphere and with the air-flues, whereby the air is caused to enter the bottom of the envelop, to circulate through the air-flue of the drum and to finally escape from the top of the envelop at the opposite side of the drum, substantially as specified.

4. The combination with a drum, the body part of which is composed of a plurality of separate smoke-flues defining a diametric air-flue coextensive with the smoke-flues and extending entirely through the body part, of an envelop surrounding said drum and provided with spiral flutings communicating with the exterior atmosphere and with the air-flue and traversing the exterior wall of one or more of the smoke-flues, substantially as specified.

5. The combination with a drum having a plurality of longitudinal smoke-flues defining a plurality of air-flues extending entirely through the drum, of projecting caps from the opposite ends of the drum, and an envelop confined between the perimeters of said caps and having flutings projecting beyond the edges of the caps opening into the atmosphere and communicating with the air-flues, through the drum, substantially as specified.

6. In a heating-drum, the combination with terminal collars and brace-rods secured at their opposite ends to their collars, and smoke-flues composed of a plurality of plates secured to said brace-rods, substantially as specified.

7. In a heating-drum, the combination with terminal caps, of a plurality of smoke-flues secured at their opposite ends, respectively to the caps and separated to define diametric air-flues extending entirely through the drum and longitudinally coextensive with the smoke-flues, substantially as specified.

8. In a heating-drum, the combination with the collars, top and bottom frames 18 and separate longitudinal smoke-flues, of means for securing the frames 18 to the collars, and means for clamping the smoke-flues against the sides of the frames 18, substantially as specified.

9. A heating-drum having a plurality of air-flues provided, respectively with separate, independent, exterior plates, substantially as specified.

10. In a drum, the combination with separate longitudinal smoke-flues, of a frame 18 secured between the smoke-flues slightly below their ends, the extremities of the smoke-flues and the frames 18 constituting a soot-receptacle, substantially as specified.

In testimony of all which I have hereunto subscribed my name.

WILLIAM H. PAGE.

Witnesses:

A. G. HENKEL,
WM. E. TROUT.