

Sept. 4, 1928.

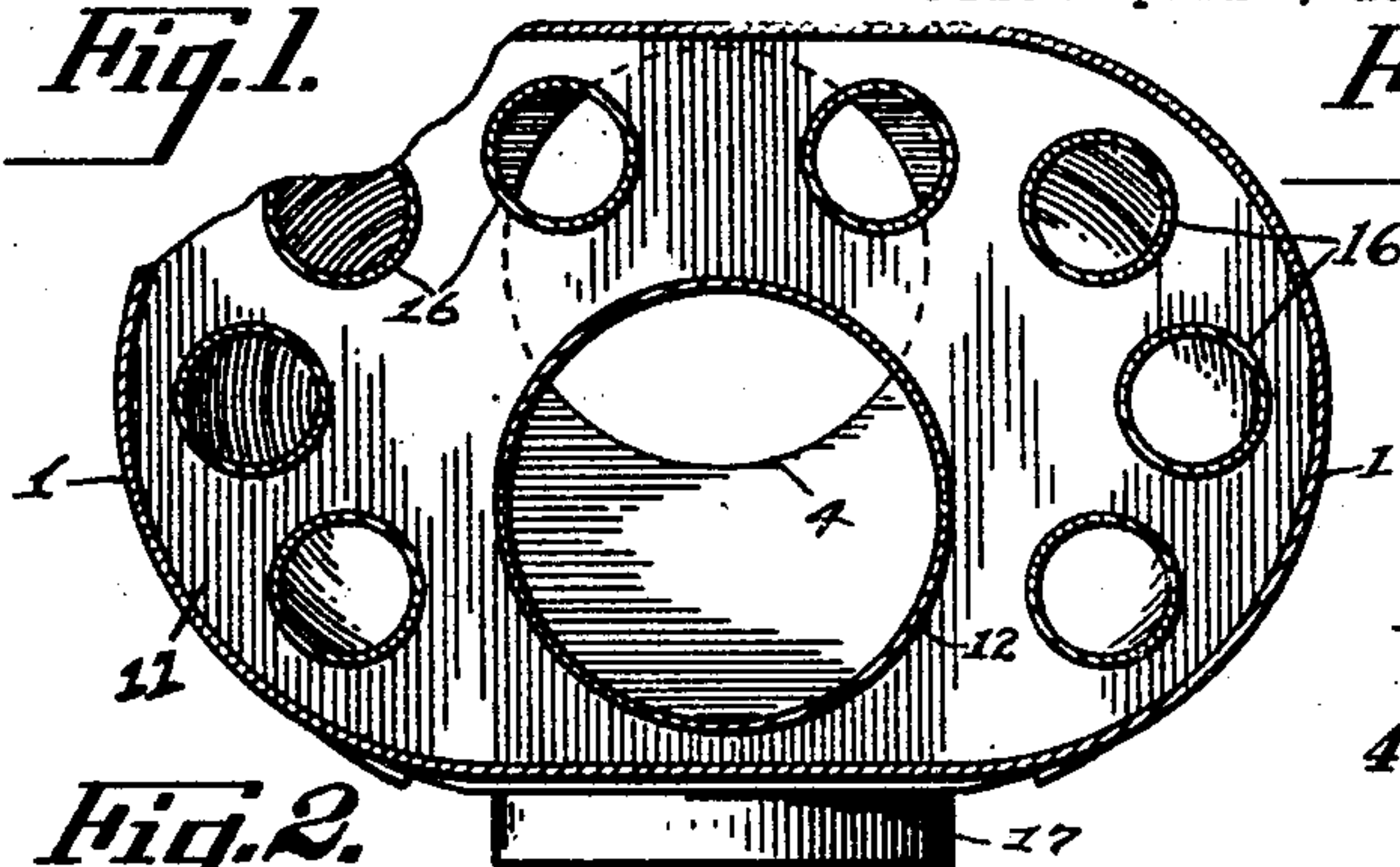
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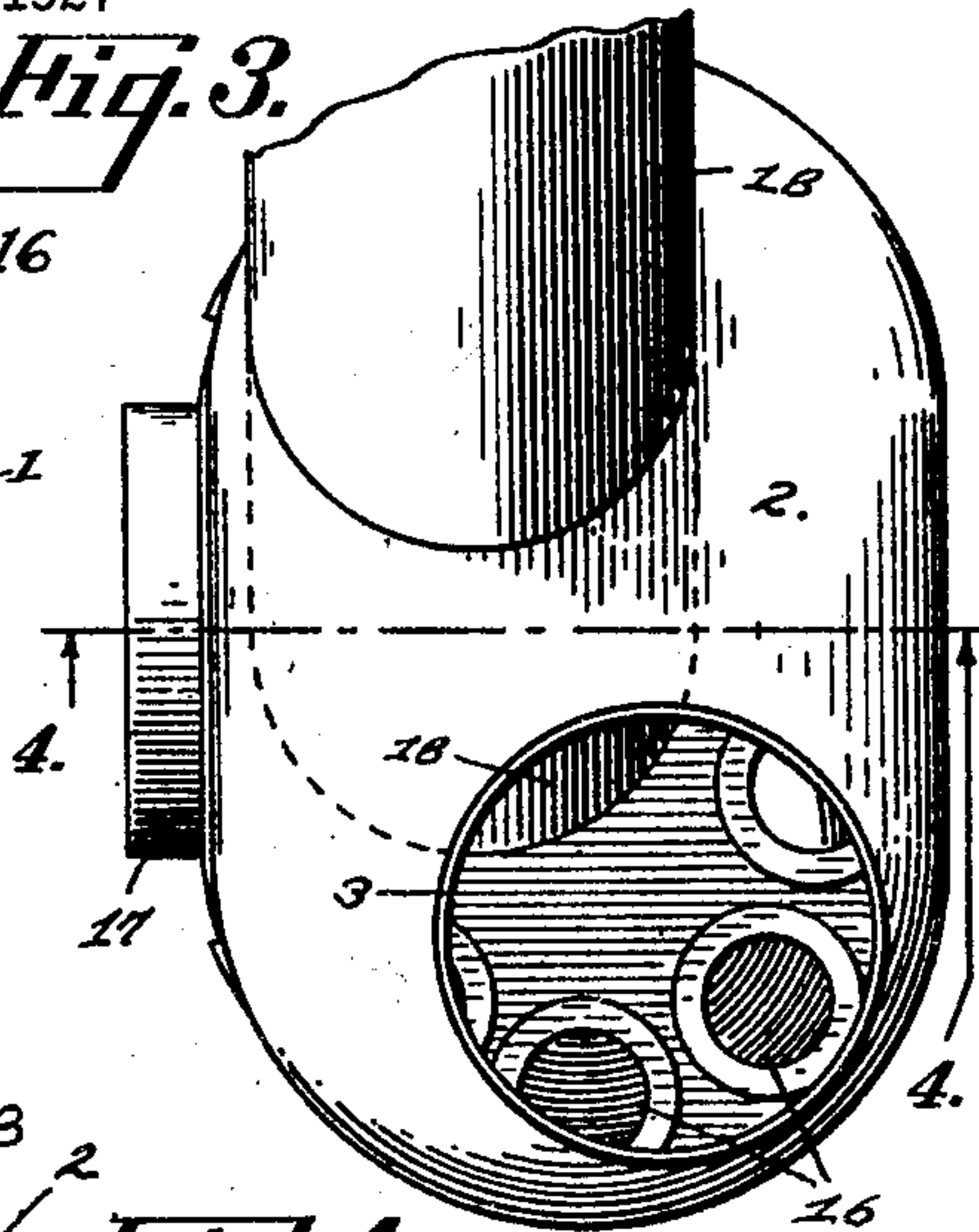
HEATER

Filed April 4, 1927

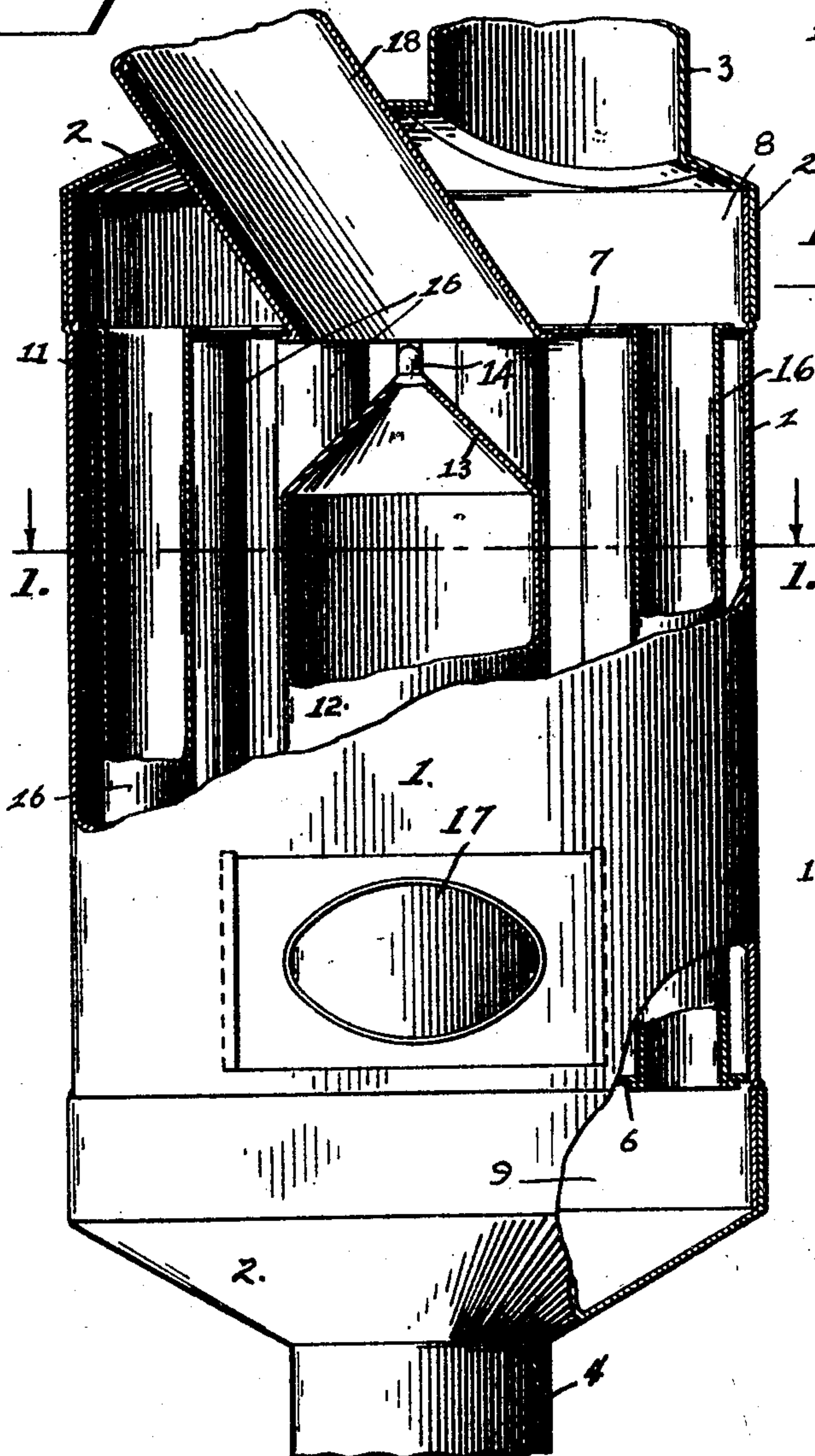
*Fig. 1.*



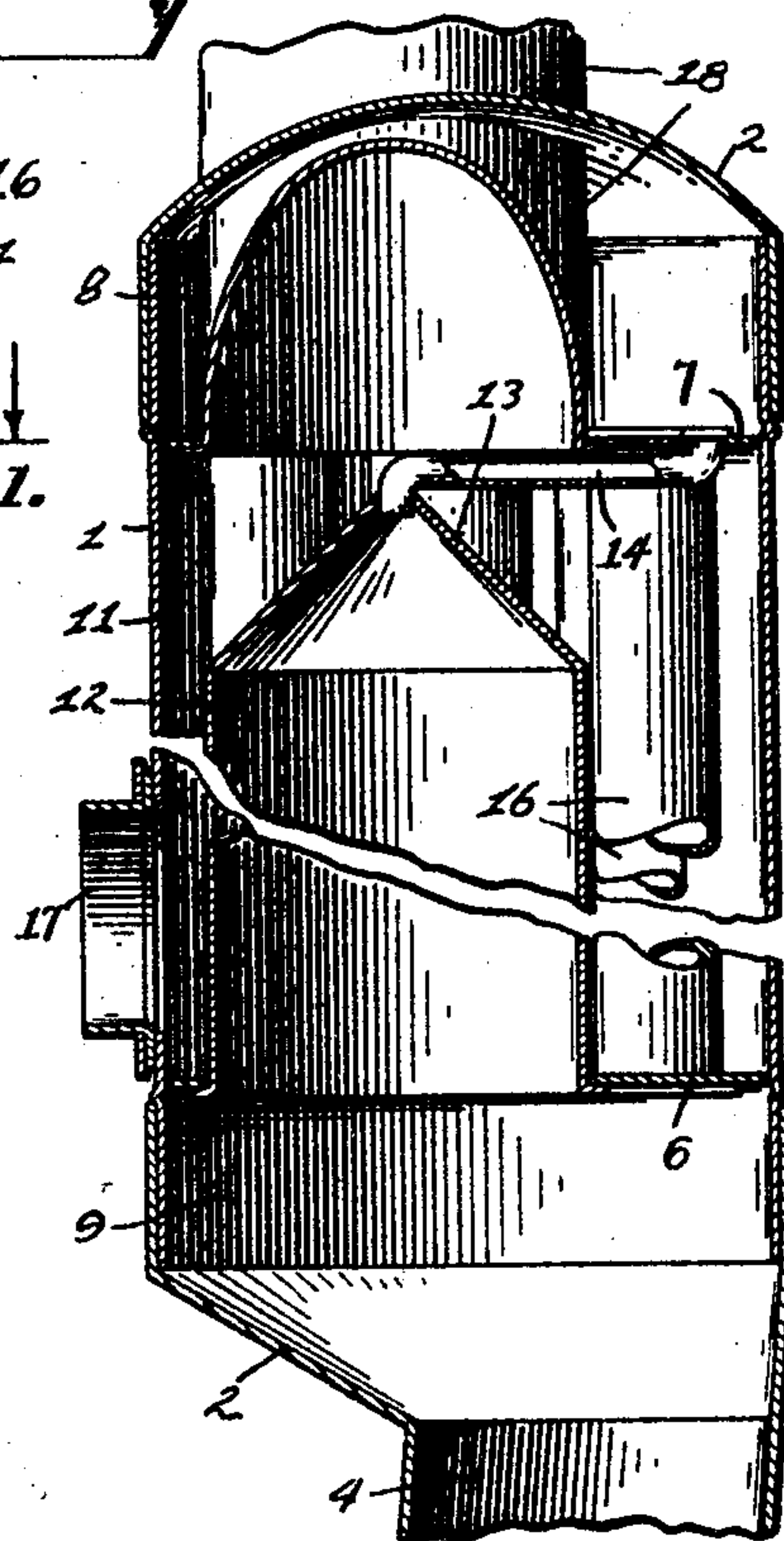
*Fig. 3.*



*Fig. 2.*



*Fig. 4.*



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# UNITED STATES PATENT OFFICE.

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## HEATER.

Application filed April 4, 1927. Serial No. 180,877.

My invention relates to improvements in heaters arranged to be installed in connection with the chimneys from stoves and the like to utilize heat therefrom.

5 The primary object of my invention is to provide an improved heater adapted for utilizing heat, commonly lost from chimneys, for heating adjacent apartments.

10 Another object is to provide an improved device which may be easily connected into an ordinary chimney.

15 A further object is to provide an improved device wherein heat and smoke from a stove or furnace is directed through smoke passages extending through an air heating compartment whereby air passing through the air heating compartment may be heated.

20 Another object is to provide an improved device whereby the passage of smoke and heat upwardly through a chimney is sufficiently retarded to obtain an efficient absorption of surplus heat.

25 A still further object is to provide as a new article of manufacture, an improved device of the character described which is simple and efficient and which can be manufactured economically.

30 I accomplish these and other objects by means of the improved device disclosed in the drawings forming a part of the present application wherein like characters of reference are used to designate similar parts throughout the specification and drawings and in which,

35 Fig. 1 is a broken transverse section of my improved heater taken upon the line 1—1 of Fig. 2 in the direction indicated.

40 Fig. 2 is a broken front elevation of the heater, portions being broken away and shown in section.

Fig. 3 is a broken plan view of the heater.

Fig. 4 is a broken vertical section taken upon the line 4—4 of Fig. 3 in the direction indicated.

45 Referring to the drawings, the numeral 1 is used to designate in general the body of a casing, the ends of which are partially closed by end members 2 having reduced cylindrical extensions 3 and 4 formed therein. The extensions 3 and 4 are arranged to be engaged between adjacent sections of a chimney pipe, not shown, such as commonly provided for stoves, furnaces and the like in homes, said extensions 3 and 4 forming smoke inlets and outlets, respectively, opening into the casing 1.

Partitions 6 and 7 are mounted within the casing 1 in spaced relation to the ends thereof to form smoke compartments 8 and 9, adjacent the ends of the casing, and an intermediate air compartment 11. A heating drum 12 is mounted within the air compartment 11, said drum comprising a body portion, preferably cylindrical in form and opening through the lower partition 6 into the lower smoke compartment 8. The drum 12 is provided with a frusto-conical top 13 having a tubular member 14, of relatively small size, opening into the top thereof. The tubular member 14 is extended in substantially horizontal relation from the top 13 toward the back of the casing and is turned upwardly and caused to open upwardly through the partition 7 into the upper smoke compartment.

A plurality of tubular members 16 are mounted within the air compartment 11, said members opening through the partitions 6 and 7 and forming smoke passages communicating between the upper and lower smoke compartments.

An air inlet 17 is formed in the front of the casing 1, and arranged to admit air into the air compartment 11. An air delivery member 18 is connected into the top of the casing 1, said member extending through the upper smoke compartment 9 and opening into the air compartment 11 through the partition 7 at a point directly above the drum 12. The member 18 is arranged to be connected to a suitable air passage, not shown, extending in any desired manner to a point relatively remote from the heater whereby heated air from the heater may be delivered to heat a desired apartment.

In operation, the heater is connected into the ordinary chimney of a stove or furnace by means of the extensions 3 and 4, said sections being arranged to telescope with adjacent sections of the chimney or stove pipe in the well known manner. Smoke and heat passing upwardly through the chimney enter the lower smoke compartment 8, and the greater portion of said smoke and heat rise directly from said compartment into the heating drum 12. The relatively small tubular connection 14 permits a circulation but retards the passage of smoke and heat upwardly through the drum 12 and causes said drum to become highly heated. The members 16 conduct smoke and heat upwardly through the compartment 11, said members



being heated and affording a relatively large heating surface and at the same time affording sufficient area to prevent any objectionable dampering effect upon the draft.

5 As the drum 12 and members 16 are heated, air admitted into the air compartment through the inlet 17 is heated and is circulated upwardly through the outlet delivery member 18 from which the heated  
10 air is conducted and delivered into a desired apartment whereby said apartment may be heated. The delivery member 18 is arranged to open directly over the drum 12 whereby the air heated by said drum will  
15 rise directly into the delivery connection and the maximum heating efficiency may be obtained.

The entire device is constructed of sheet metal, and forms a light and efficient means  
20 for heating air to be delivered into an apartment relatively remote from the room in which the stove or furnace is heated. The heater may be readily connected into the ordinary chimney at any desired point and  
25 provides a cheap and efficient means of heating an apartment by means of heat which would otherwise pass out through the chimney and be wasted.

While I have illustrated and described  
30 the preferred construction of my improved heater, the device is subject to modification in numerous details, and I desire to avail myself to all modifications which may fall within the scope of the appended claims.

35 Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A heater comprising a chamber arranged to be connected between adjacent sections of a chimney; partitions mounted within the chamber to form smoke compartments within the ends of the chamber and an air heating compartment intermediate the smoke compartments; an air inlet arranged to admit  
40 air into the heating compartment; an air  
45 outlet connected into the heating compartment and arranged to conduct heated air to a point relatively remote from a chamber; a heating drum mounted within the chamber and having one end opening directly through one of the partitions into the adjacent smoke compartment, the opposite end being reduced; a relatively small tubular passage connected between the reduced end of the drum and the smoke passage adjacent thereto; and a plurality of smoke passages connected between the partitions to communicate between the smoke compartments through the heating compartment.

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2. A heater comprising a chamber provided with reduced extensions formed upon the ends thereof to be connected between adjacent sections of a chimney, said extensions forming smoke inlets and outlets; partitions mounted within the chamber to form upper and lower smoke compartments within the ends of the chamber and an air heating compartment intermediate the smoke compartments; an air inlet arranged to admit air into the heating compartment; an air outlet connected into the heating compartment and arranged to conduct heated air to a point relatively remote from the chamber; a heating drum mounted within the chamber and having the lower end opening directly through the lower partition into the lower smoke compartment, the upper end of the drum being made of reduced size; a relatively small horizontal tubular passage connected between the reduced end of the drum and the smoke compartment adjacent thereto to provide a limited circulation therethrough; and a plurality of smoke passages connected between the partitions to communicate between the smoke compartments through the heating compartment.

In witness whereof I hereunto set my signature.

ILARIO CAPRIN.