

No. 847,351.

PATENTED MAR. 19, 1907.

R. A. MAY.
STOVE AND FURNACE.
APPLICATION FILED JULY 20, 1905.

2 SHEETS—SHEET 1.

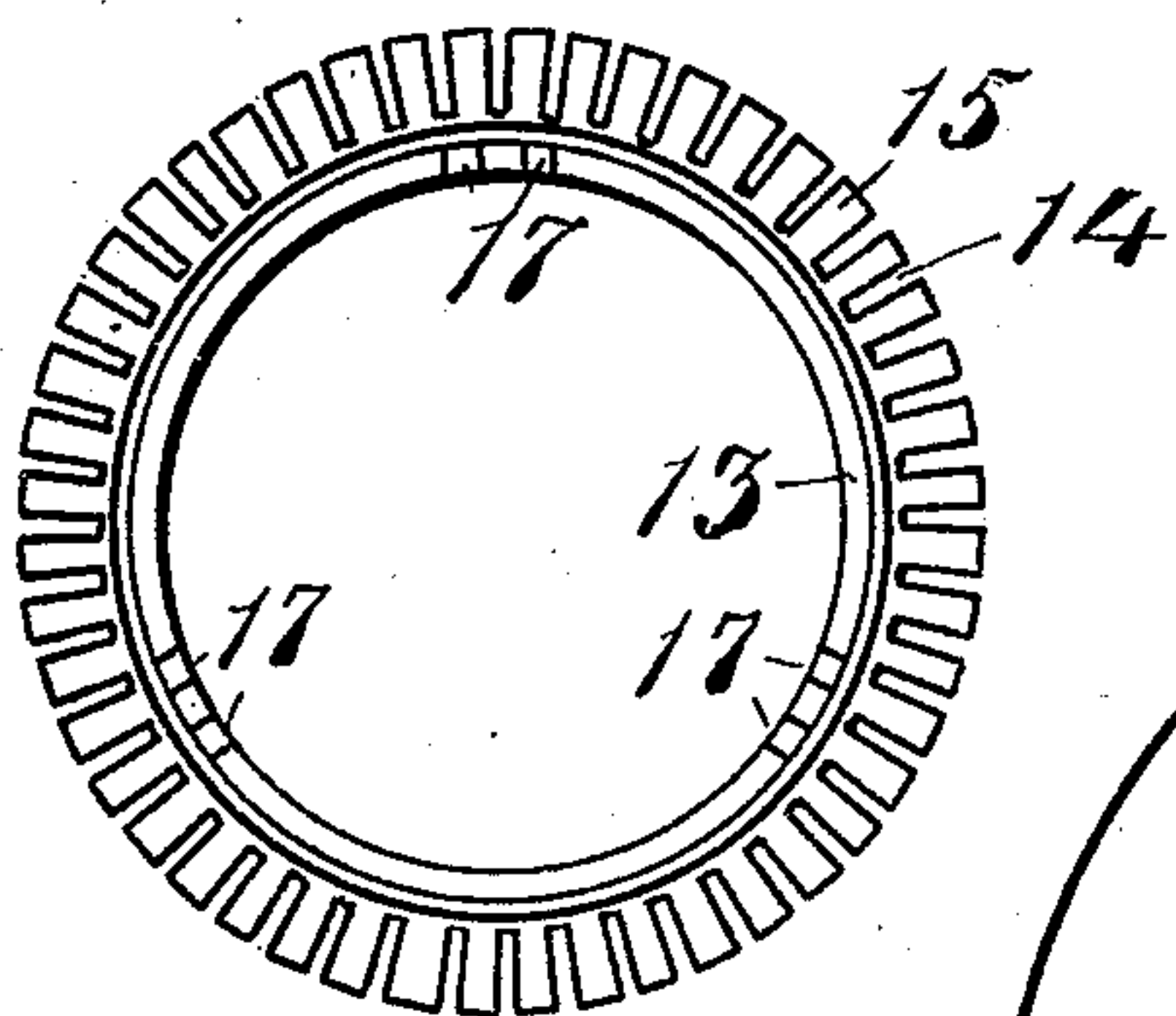
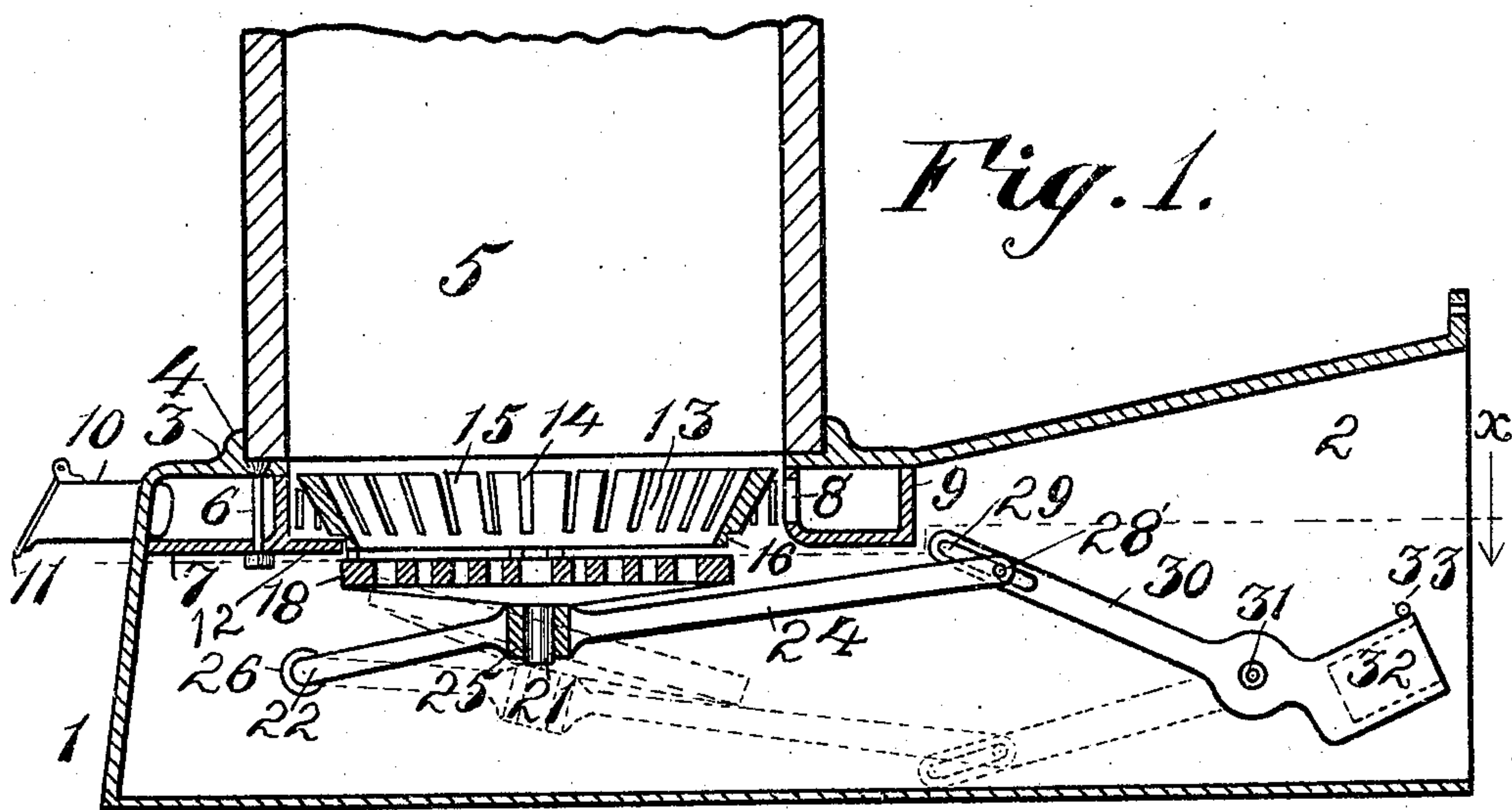


Fig. 2.

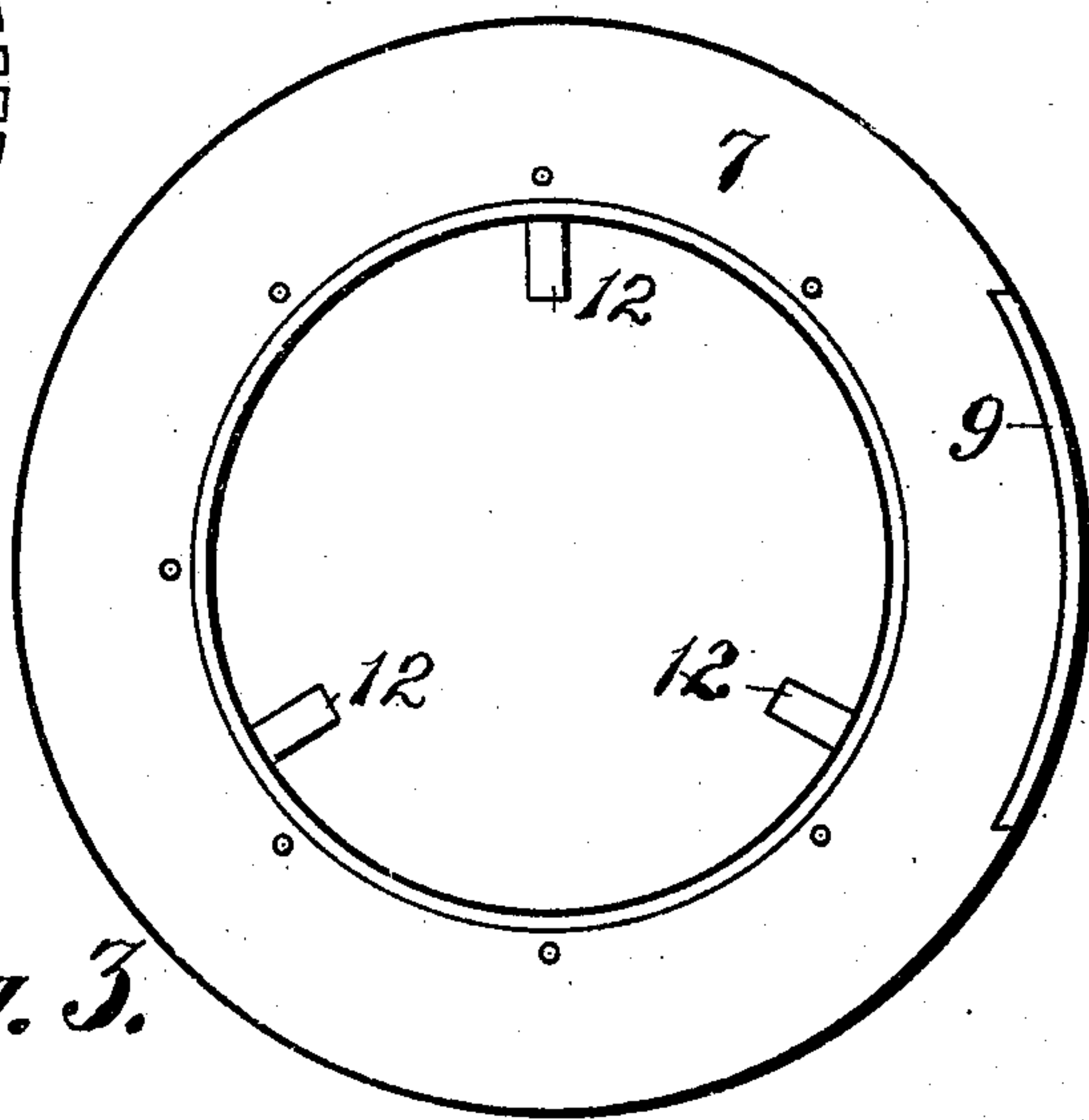


Fig. 3.

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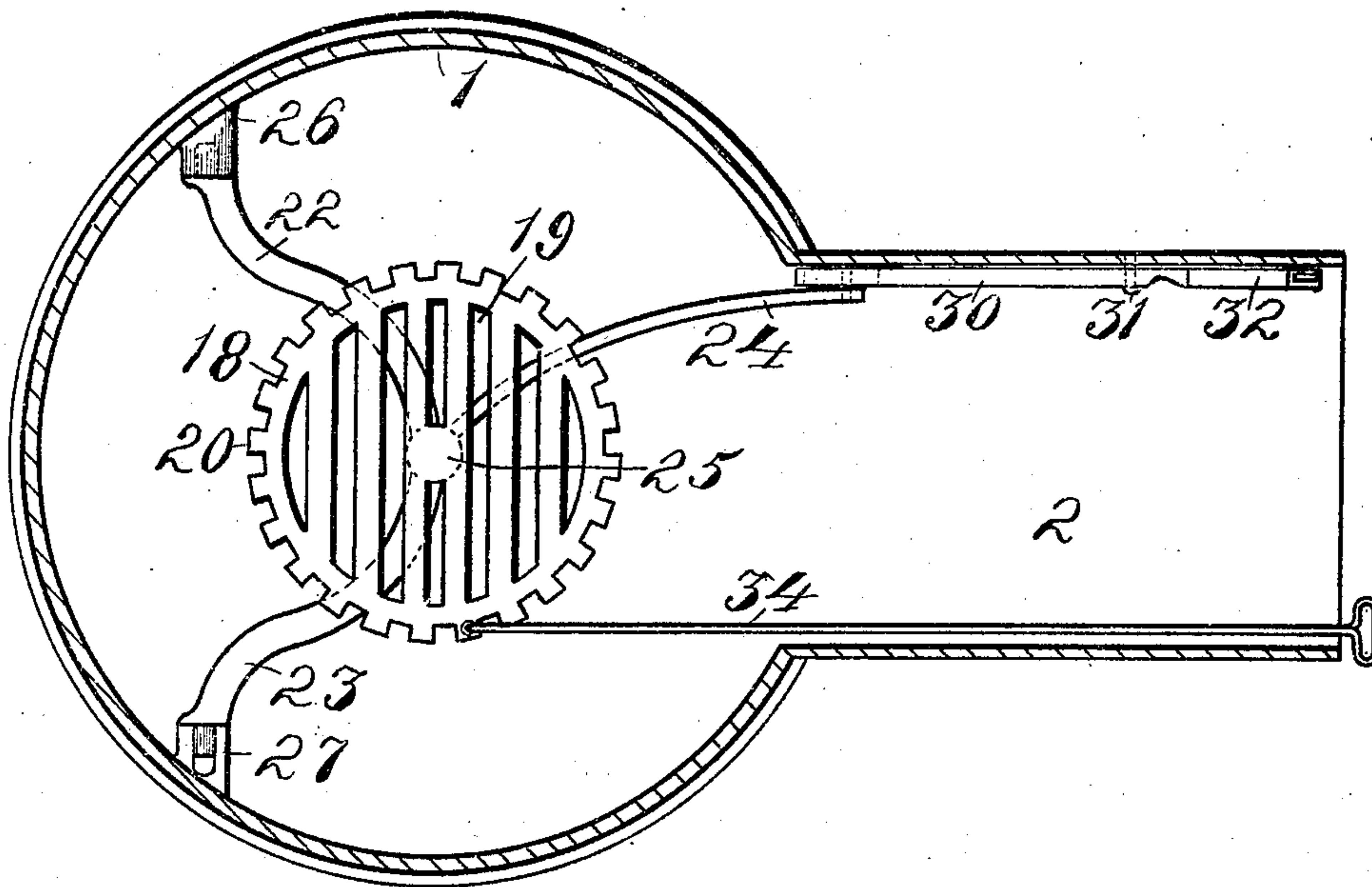


Fig. 4.

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UNITED STATES PATENT OFFICE.

RUDOLF A. MAY, OF AKRON, OHIO.

STOVE AND FURNACE.

No. 847,351.

Specification of Letters Patent.

Patented March 19, 1907.

Application filed July 20, 1905. Serial No. 270,544.

To all whom it may concern:

Be it known that I, RUDOLF A. MAY, a citizen of the United States, residing at Akron, in the county of Summit and State of Ohio, have invented new and useful Improvements in Stoves and Furnaces, of which the following is a specification.

My invention has relation to the construction of combustion devices for stoves and furnaces; and the object of my invention is to provide a new and improved means for causing as nearly as possible the perfect and economical consumption of fuel therein, which will possess all the ordinary advantages of a direct draft to and through the fuel being consumed, as well as the additional advantage of supplying to the fuel an evenly-distributed and readily-regulated amount of oxygen.

The invention further aims to provide a suitable device for effectually burning the supply of fuel contained in the combustion-chamber from the outside thereof, which will be relatively simple, cheap, durable, and readily placed in position, and which will in no wise interfere with the ordinary operation of the stove or furnace.

With the foregoing and other objects in view the invention consists of the novel construction, combination, and arrangement of parts constituting the device to be hereinafter referred to and illustrated in the accompanying drawings, which form a part of this specification, in which is shown the preferred embodiment of the invention; but it is to be understood that changes, variations, and modifications can be resorted to which come within the scope of the claim hereunto appended.

In the drawings, wherein like reference characters denote corresponding parts throughout the several views, Figure 1 is a central vertical section of a combustion device, showing a portion of the fire-pot and ash-pit operated in connection therewith. Fig. 2 is an inverted plan view of a portion of the grate of the device. Fig. 3 is a plan view of my device, by which oxygen is supplied to the sides of the burning fuel; and Fig. 4 is a section of Fig. 1 at the line X.

In the drawings, 1 is the ash-pit of my device, which in general conformation is of the ordinary type used in furnaces, and it will be here stated that the description for the purpose of illustrating this invention will be confined to furnaces, although the device is

equally appropriate with very slight modifications to stoves. This ash-pit 1 has an integral inlet 2 and is provided at the top with a circular opening, around which is an inwardly-extending annular flange 3 integral with the body of the ash-pit, and this flange 3 is further provided with a concentric beading 4.

Mounted upon the flange 3 of the ash-pit and within the confines of the beading 4 is the fire-pot 5. This fire-pot 5 may be cylindrical or upwardly and outwardly flaring or shaped in the form of a frustum of a cone, or any other shape may be imparted thereto which best suits the requirements to which the device is to be put.

Attached, preferably by bolts 6, to the flange 3 of the ash-pit is a ring 7, preferably L-shaped in cross-section, which when in position, as shown in Fig. 1, will constitute, in connection with the side walls and flange 3 of the ash-pit, an annular air-duct. The vertical portions of this L-shaped ring 7 contain at intervals openings or slots 8, by which air is permitted to enter the interior of the combustion-chamber. At the point where this annular air-duct crosses the inlet 2 there is provided a rear vertically-extending partition 9, conforming in contour and integral with the main body of the ring 7, which serves to close the rear of the annular duct from open communication with the interior of the inlet 2.

At some preferred place in the side wall of the ash-pit 1 is placed an inlet-pipe 10, the interior of which is in open communication with the interior of the duct formed by the ring 7, and this inlet-pipe 10 is closed by an ordinary door 11, the construction of which is immaterial to this invention and which may be of any desired or preferred type.

It will be obvious from this description that air admitted through the pipe 10 will circulate freely in the duct formed by the side wall, the annular flange 3 of the ash-pit, and the L-shaped ring 7, and from thence will pass, by means of the openings 8, into the combustion-chamber, and from thence to the fuel therein.

In order to sustain the fuel to be consumed in immediate proximity to the supply of oxygen from the openings 8, inwardly-projecting arms 12 are employed, the ends of which extend into the opening inclosed by the ring 7, and these arms 12 are preferably integral with the ring 7. In Fig. 3 three of

these arms 12 are shown; but the number may be changed sufficiently to sustain the mechanism to be hereinafter described. Arranged to be temporarily sustained by these arms 12 is a basket 13, consisting, preferably, of a conically-formed annulus, the upper portions of which are provided with a series of radial slots 14, thereby constituting between them a plurality of teeth or fingers 15. This basket 13 is provided on its lower outer side with a rabbet 16, into which the arms 12 are arranged to engage and temporarily sustain the basket and the fuel which may be contained thereon. From the lower portion of this basket 13 extends a series of lugs or fingers 17, preferably arranged in pairs, as shown in Fig. 2, for a purpose to be stated. It is arranged to close the opening surrounded by the annularly-formed basket 13 with a grate 18. This grate (shown best in Fig. 4) consists of a body portion preferably provided with a series of perforations or slots 19 and having on its outside edge a series of lugs or fingers 20 and further provided on its under central portion with a depending pin 21. This grate 18 is sustained by a tripodal structure, consisting of rearwardly-extending legs 22 and 23 and a forwardly-extending leg 24, all preferably formed integral with each other and uniting at the center into a socket 25, through which is a vertical perforation in which the pin 21 of the grate is arranged to enter and the grate be thereby sustained.

The leg 22 is provided on its outer end with a pin which enters an opening in a lug 26, formed in the inner face of the side wall of the ash-pit 1, and the leg 23 is also provided with a pin at its outer end, which enters a semicircularly-formed lug 27, also attached to the inner face of the ash-pit and oppositely disposed with respect to the position of the lug 26, and the legs 22 and 23 are thereby sustained pivotally in position.

Projecting laterally from the outer free end of the arm 24 is a pin 28, which engages in a slot 29 in the outer end of a rocking member 30. This rocking member 30 is pivoted on a pin 31, attached to one of the side walls of the inlet 2 of the ash-pit, and it is further provided at its opposite end with a socket portion 32, in which is inserted a bar by which it may be conveniently actuated. A pin or catch 33 is attached to the side wall of the ash-pit to retain the socket end 32 of the member 30 at the bottom of its downward movement, and thereby maintain the slotted end of the member 30 in an upright position, which also sustains the leg 24 of the tripodal structure on which the grate 18 is mounted. The grate 18 is capable of being rotated on the pin 21, which has been before described as being journaled in the perforation in the socket portion 25.

In order to cause the rotation of the grate

18, a rod 34 is suitably connected with one side of the grate, and it is further provided at its outer end with a handle for convenience in operation. This rod 34 is generally carried out through the inlet 2 of the ash-pit and may be suitably supported at its outer end; but as this is an ordinary construction the support for the rod 34 is not shown, as it is believed to be unnecessary for the complete understanding of this invention.

The operation of this device is as follows: The members being in the position shown in Fig. 1, a suitable supply of fuel is placed upon the grate 18 and basket 13, and the same is ignited in the ordinary way. In order to aid the combustion of the fuel thus sustained, the gate 11 is opened and air is permitted to circulate through the duct formed by the ring 7, and it passes therefrom through the openings 8 to the outer portions of the mass of burning fuel. When it is desired to remove ashes or clinkers from the fuel, a bar is inserted in the socket portion 32 of the member 30 and the catch 33 released, allowing the slotted end of the member 30 to swing downward, carrying with it the tripodal structure which supports the grate 18 until the slotted end of the member 30 encounters the floor of the ash-pit. When this has been done, the grate and its supporting mechanism will assume the position shown in dotted lines in Fig. 1. Access may then be had to the bottom of the fuel through the opening inclosed by the annularly-formed basket 13. It will be here stated that by reason of the coking and matting together of the fuel while being consumed it will be readily sustained by the basket 13 and unless roughly attacked from below will not fall through the opening therein. At the time the grate 18 is lowered its forward end is tipped down sufficiently so that a person, with the aid of a suitable tool, can remove therefrom all ashes and clinker which may exist thereon. When this has been properly done, the socket end 32 of the member 30 is depressed by means of the bar inserted therein and the grate raised to the position shown in Fig. 1. This grate 18 and basket 13 are so arranged with respect to each other that when the grate 18 is raised the fingers 20 on the outer periphery of the grate 18 will interlock with the lugs 17 on the bottom face of the annularly-formed basket 13 and the grate 18 will raise the basket 13 a slight distance from engagement with the inwardly-extending arms 12, on which it is temporarily sustained while the grate 18 is being lowered, as before described. This raising of the basket 13 from engagement with the arms 12 practically causes the basket 13 and grate 18 to become a unitary article, and the interlocking of the fingers 20 on the outer edge of the grate 18 with the depending lugs 17 on the basket 13 will cause the two to revolve in unison when the rod 34 is employed.

It will be seen from the foregoing description that at the same time the grate 18 is lowered, as has been already described, the basket 13 will be lowered sufficiently to rest on 5 and be sustained by the arms 12 until the return of the grate to its former position, and yet when raised by the grate 18 the basket 13 may be revolved in connection therewith.

What I claim, and desire to secure by Letters Patent, is—

The combination with the ash-pit of a stove or furnace provided with an opening for establishing communication between the ash-pit and a fire-pot, of a flange surrounding 15 said opening, a perforated detachable

member positioned within the ash-pit and forming in connection with the outer side wall and the flange of the ash-pit an air-passage surrounding the grate of the stove or furnace, said member having inwardly-extending 20 protuberances for supporting a grate-section, and means for connecting said member to said flange.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses. 25

RUDOLF A. MAY.

Witnesses:

C. E. HUMPHREY,
GLENARA FOX.