

No. 747,674.

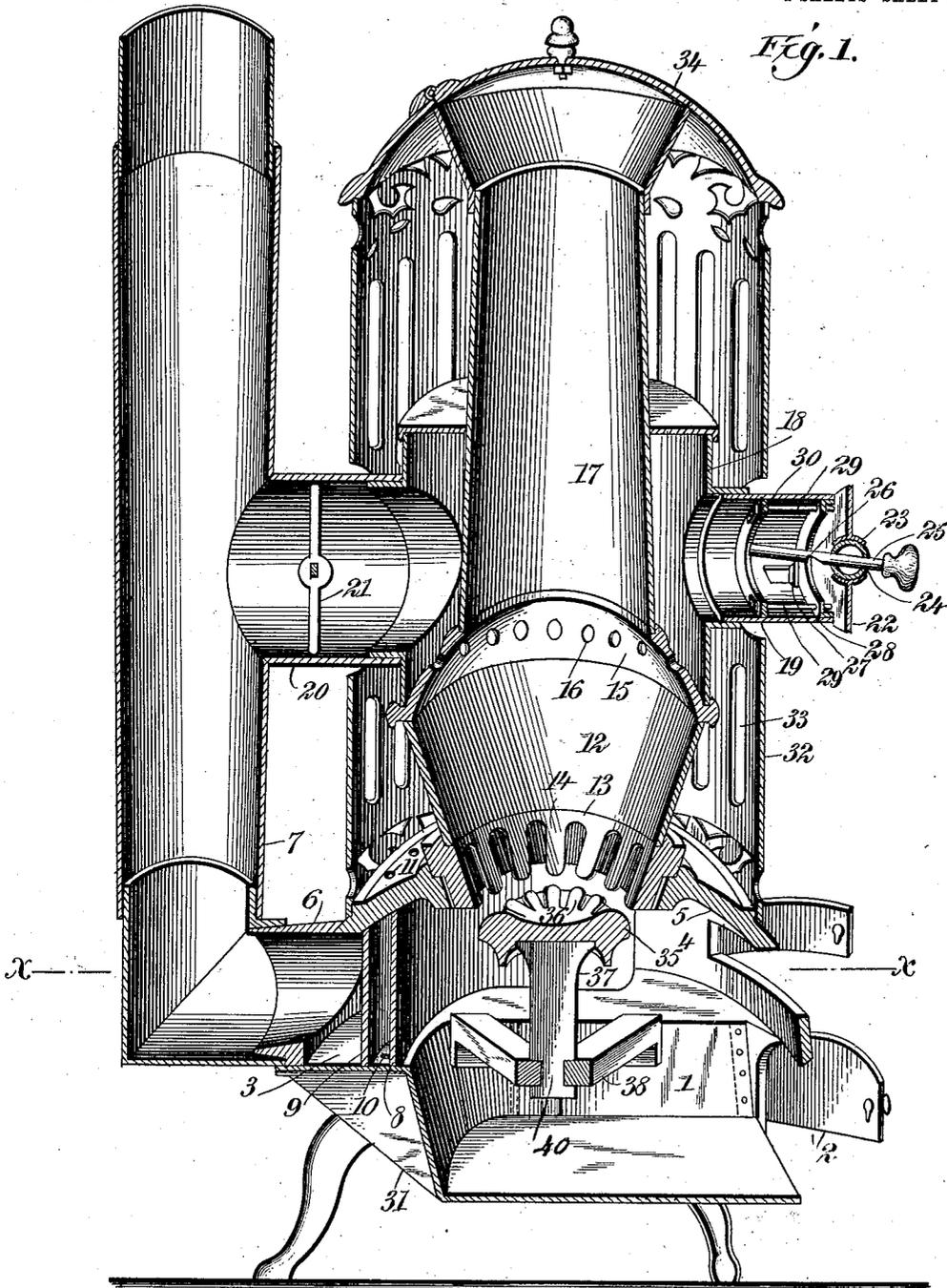
PATENTED DEC. 22, 1903.

H. BEACH & J. B. COE.  
HEATING STOVE.

APPLICATION FILED JUNE 1, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES:

*Paul Hunter*  
*C. R. Ferguson*

INVENTORS  
*Henry Beach*  
*James B. Coe*

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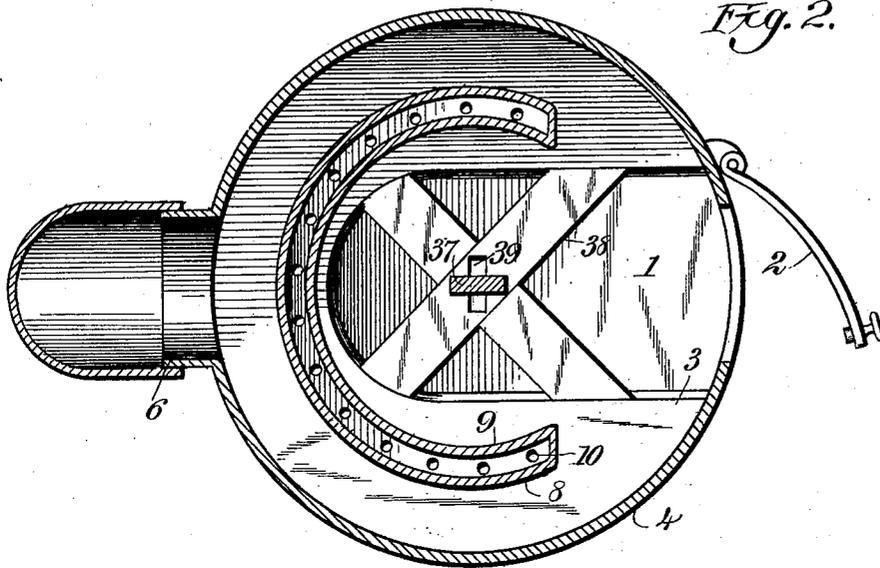
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# UNITED STATES PATENT OFFICE.

HENRY BEACH, OF CARTHAGE, AND JAMES B. COE, OF CLAYTON, ILLINOIS.

## HEATING-STOVE.

SPECIFICATION forming part of Letters Patent No. 747,674, dated December 22, 1903.

Application filed June 1, 1903. Serial No. 159,480. (No model.)

*To all whom it may concern:*

Be it known that we, HENRY BEACH, a resident of Carthage, in the county of Hancock, and JAMES B. COE, a resident of Clayton, in the county of Adams, State of Illinois, citizens of the United States, have invented new and useful Improvements in Heating-Stoves, of which the following is a full, clear, and exact description.

This invention relates to improvements in heating-stoves of the base-burner type in which bituminous or other coal is used as fuel, an object being to so construct a stove that the evolved gases are driven through the live coals in the fire-pot into the space below the same, where the gases are burned to give out heat instead of consuming the gases in the fire-pot. By this arrangement we find that such perfect combustion is attained that there are practically no cinders, and smoke and soot are practically eliminated, resulting in economy of fuel.

Other objects of the invention will appear in the general description.

We will describe a heating-stove embodying our invention and then point out the novel features in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in both the figures.

Figure 1 is a sectional elevation of a heating-stove embodying our invention, and Fig. 2 is a section on the line *x x* of Fig. 1.

Referring to the drawings, 1 designates the ash pit or box, having a door 2 for its opening, and above this ash-pit is the base or combustion-chamber, consisting of the bottom wall 3, the surrounding wall 4, and the top wall 5. This top wall is in the form of an arched ring and is quite thick, which gives it the necessary strength to support the base mounted thereon. The combustion-chamber communicates through a flue 6 with an uptake 7, and arranged in the base and extending partly around the same is a cold-air chamber having spaced side walls 8 9, and there is a space between the wall 9 and the wall 4 of the combustion-chamber or base. The bottom wall 3 of the base is provided with perforations 10 to admit air into the cold-air chamber, and this air passes out

through perforations 11 in the top wall or ring 5. This double wall flue or air-chamber gives more radiating-surface and at the same time exposes one surface to the air for protection.

Supported on the top or ring 5 is a fire-pot 12. This fire-pot 12 is seated on a ring 13, which engages directly with the ring 5, and this ring 13 is made heavy, so as to withstand heat, and it is provided with vertically-disposed fingers 14, through the spaces between which the gases may pass to the base. On the top of the fire-pot section 12, it being understood that the part 13 is practically a continuation of the fire-pot, is a dome-shaped ring 15, provided with perforations 16, and extended upward from this dome-shaped ring 15 is a magazine 17, from which the fuel passes to the fire-pot.

Supported by the dome-shaped ring 15 and surrounding the magazine is an air-drum 18, from one side of which a damper-flue 19 extends outward, and at the other side a flue 20 connects said drum with the uptake 7. In this flue 20 is a damper 21, which is designed to be closed when the fire is well under way. The damper for the flue 19 consists of a plate 22, movable outward and inward at the outer end of said flue. The plate 22 is provided at its center with a socket member 23, in which a ball member 24 is arranged to swing, and extended through this ball member is a latch-rod 25, having a shoulder 26 for engaging with a lug 27, extended inward from the wall of the flue 19. Attached to the inner side of the flue 19 near its outer end is a ring 28, provided with perforations through which guide-rods 29 may move. The outer ends of these guide-rods are connected to the damper-plate 22, and the inner ends are connected to a ring 30, slidable in the flue. By this arrangement it is obvious that by releasing the shoulder 26 from the lug 27 the damper may be moved outward, so as to admit air to the air-drum, and it may be held closed by engaging said shoulder with the lug.

To give additional supporting strength, there are bracket connections 31 between the wall of the ash-pit and the bottom wall 3 of the base or combustion-chamber.

Supported by the base and surrounding the fire-pot and magazine is a shell 32, which is

provided with variously-placed openings 33, through which hot air may readily pass. The top opening of this shell above the magazine is provided with a door 34. Below the fire-  
 5 pot is a concaved or dish-shaped grate 35, having radial fingers 36, through the spaces between which gases may pass to the combustion-chamber. This grate is attached to a pedestal 37, supported by crossed bars 38,  
 10 attached to opposite walls of the ash-pit. This pedestal 37 is rectangular in cross-section, and the crossed bars 38 have at the center an opening 39, which is similar in shape and size to the pedestal. The pedestal near its lower  
 15 end has a reduced portion 40, providing shoulders for engaging, respectively, on the upper and lower sides of the crossed supporting-bars 38. To lower the grate when it is desired to clean out the fire-pot, it is to be turned, so  
 20 that the pedestal may readily pass through the opening 39. It will then drop until its lower end engages the bottom wall of the ash-pit. Of course in replacing the grate it is to be raised and the pedestal given a one-  
 25 quarter turn to cause the shoulders to engage with the crossed bars 38, as indicated in the drawings.

In the operation when starting a fire the damper 21 is to be opened and the damper-plate 22 closed, so that a draft may be created upward through the fire-pot. When well started, the damper 21 is to be closed and the damper-plate 22 opened, and then atmospheric air will pass into the drum 18 and  
 30 thence through the perforations 16 through the burning coal. The dome-shaped ring 15 will cause the air to be spread and pass down the inner side of the fire-pot wall. The evolved gases will be driven through the live  
 35 coal, where they become ignited. Very little flame or heat takes place in the fire-pot, the gases being almost entirely consumed in the base. What little product may remain passes out between the walls 4 and 9 to the uptake.  
 40 Atmospheric air will pass through the cold-air chamber through the perforations 11, and in passing through said cold-air chamber it will become heated and will pass out through the distributing-openings 33 of the shell. As  
 50 practically all the blazing flame is in the base the fire-pot or fuel-pot 12 has more room for fuel than is the case when combustion takes place in the fire-pot.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. A heating-stove comprising a combus-

tion-chamber having a ring-like and arched top, an air-box extending partially along the chamber, the said top having perforations 60 communicating with the box, and the bottom of the box also having perforations communicating with the box, a shell supported by said top wall and having openings, a fire-pot 65 supported on said top, an arched ring forming the top of the fire-box and having perforations, a magazine extended upward from said arched ring, an air-drum surrounding said magazine and supported by said arched ring, means for controlling the admission of 70 air to said drum, a damper-controlled outlet for said drum, and a grate arranged below the fire-pot.

2. A heater comprising an ash-pit, a combustion-chamber above the ash-pit, a fire-pot 75 above the combustion-chamber and having vertical corrugations at its lower end, a magazine communicating with the fire-pot, means for directing air into the fire-pot, and a concaved or plate-like grate arranged underneath 80 the fire-pot.

3. In a heater, an ash-pit, a combustion-chamber comprising a bottom wall extended outward from the upper end of said ash-pit, brackets connecting with the ash-pit and said 85 bottom wall, a fire-pot supported on the upper wall of the combustion-chamber, supporting-bars extended across the ash-pit, and a grate removably supported on said bars.

4. The combination with a base-burning 90 heater, of a fire-pot supported therein, a ring-like and arched top for said fire-pot, the said top having perforations, a magazine supported by said top, an air-drum surrounding the magazine and supported by said top, a damper-flue extended outward from said drum, a 95 plate-like damper for engaging against the end of said flue, a perforated ring secured within the flue, a ring movable lengthwise of the flue, guide-rods attached to said movable 100 ring and passing through perforations in the first-named ring and connecting with the damper-plate, a lug arranged in the flue, and a latch-rod having swinging connection with the damper and adapted for engagement with 105 said lug.

In testimony whereof we have each signed our names to this specification in the presence of two subscribing witnesses.

HENRY BEACH.  
 JAMES B. COE.

Witnesses:

W. L. HUINS,  
 DAVID CATE.