

No. 711,627.

Patented Oct. 21, 1902.

J. W. HEUER.
HEATING STOVE.

(Application filed Jan. 17, 1902.)

(No Model.)

2 Sheets—Sheet 1.

FIG. 2.

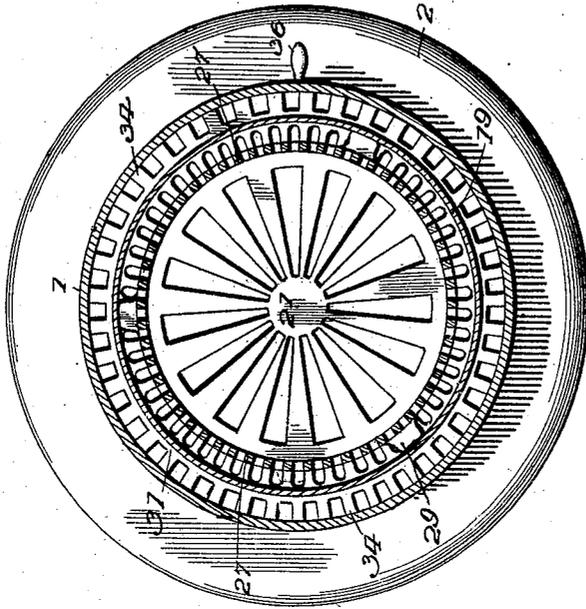
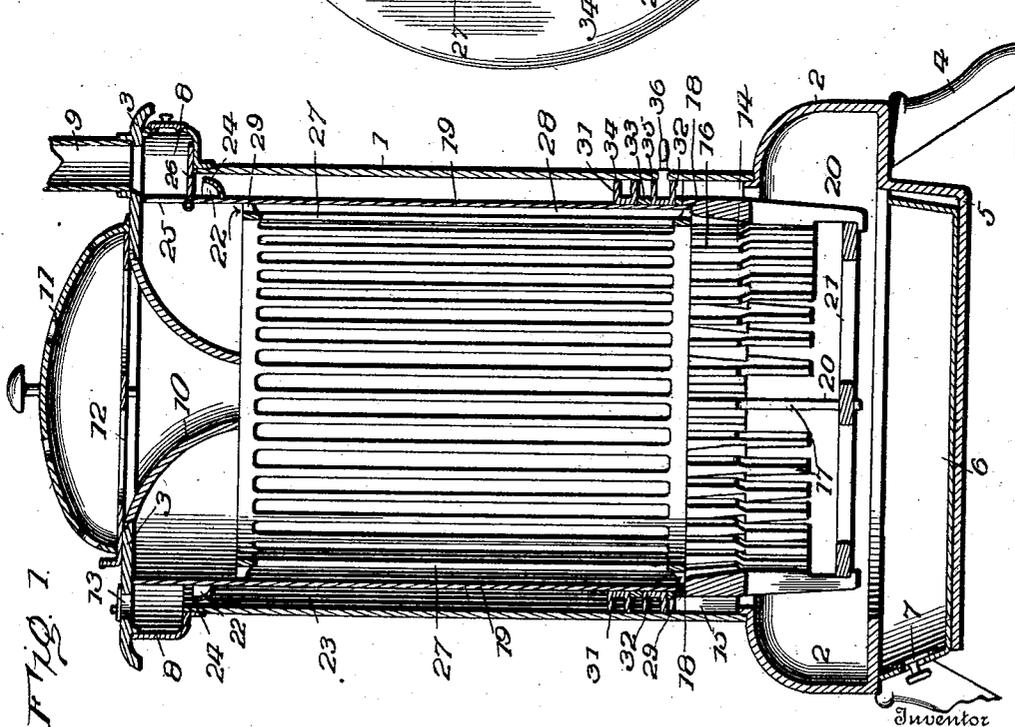


FIG. 1.



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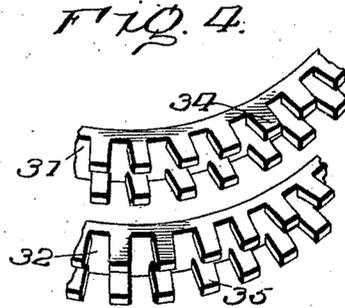
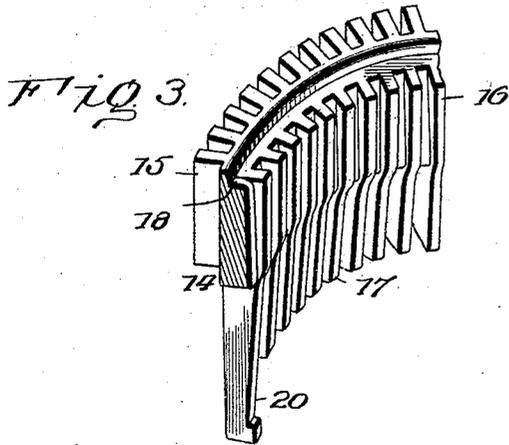


FIG. 5.

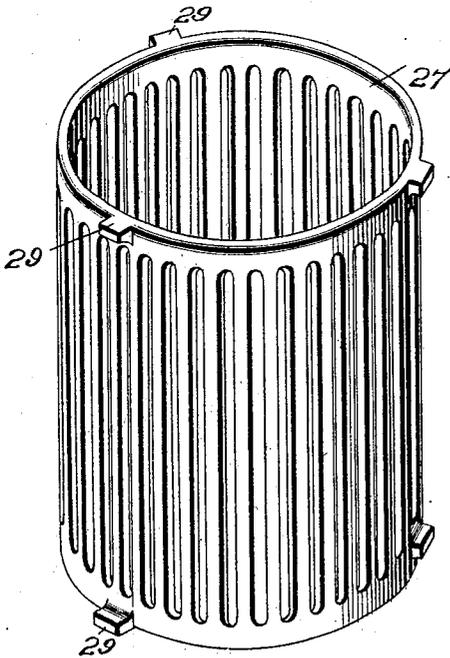
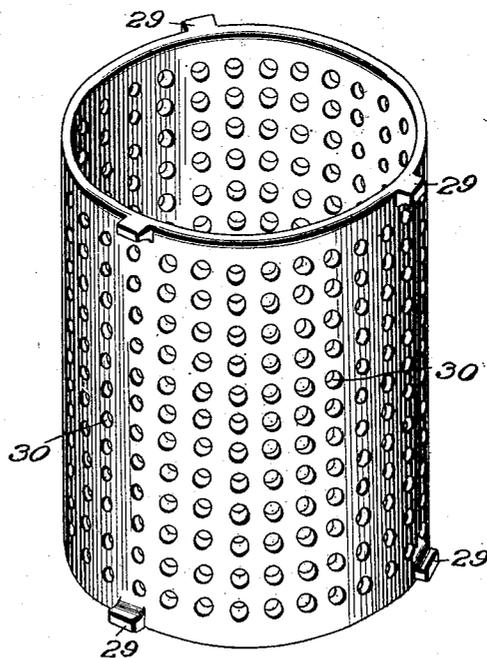


FIG. 6.



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UNITED STATES PATENT OFFICE.

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HEATING-STOVE.

SPECIFICATION forming part of Letters Patent No. 711,627, dated October 21, 1902.

Application filed January 17, 1902. Serial No. 90,199. (No model.)

To all whom it may concern:

Be it known that I, JOHANN W. HEUER, a citizen of the United States, residing at Dixon, in the county of Scott and State of Iowa, have invented certain new and useful Improvements in Heating-Stoves; 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.

This invention has relation to the type of heating-stoves provided with a magazine forming a reservoir for holding fuel in reserve to be automatically fed to the fire as consumption progresses, thereby obviating frequent feeding of the stove.

The primary object of the invention is to utilize a maximum percentage of the fuel and to consume the gas evolved from the fuel held in the magazine and prevent the same passing off and becoming lost. The stove is provided with a direct draft in the usual way and with a downdraft, the latter passing through the magazine or fuel-holder and carrying the gases to the fire for consumption in the production of caloric for use in heating. In accordance with this invention provision is had for what may be properly termed a "double downdraft," one circuit being through the fuel and the other around the magazine or fuel-holder, so as to take up any gas tending to escape laterally and carry it to the fire for consumption.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result reference is to be had to the following description and drawings hereto attached.

While the essential and characteristic features of the invention are susceptible of modification, still the preferred embodiment of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is a vertical central section of a heating-stove embodying the invention. Fig. 2 is a top view thereof, a portion being broken away. Fig. 3 is a fragmentary view of a portion of the fire-pot. Fig. 4 is a fragmentary view of the baffle-rings. Figs. 5 and 6 are perspective views of different forms of magazines or fuel-holders.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The stove comprises a body or outer shell 1, a base 2, and a top 3 and is mounted upon legs 4. The base has a depressed portion forming an ash-pit 5, in which is slidably fitted an ash-pan 6, provided at its front with a damper 7 for controlling the direct draft in the well-known manner. An offset 8 is provided at one side of the shell or body 1 near the top and constitutes a smoke-box, with which a smoke-pipe 9 connects, being fitted to a collar forming a part of the top 3. The stove-top is centrally apertured, and a hopper 10 is suspended from the opening and is contracted at its lower end, so as to direct the fuel to the center of the stove when supplied thereto. A cover 11 is fitted to the opening and is of any suitable design, so as to give a neat and finished appearance to the stove. A damper 12 is provided for controlling the downdraft. A damper 13 is provided at one side of the top 3 to provide a check for regulating the downdraft when it is not desired to change the position of the damper 12.

The fire-pot 14 comprises an outer series of vertical ribs 15, a corresponding inner series of vertical ribs 16, and pendent fingers 17. This fire-pot is supported within the lower portion of the stove in any convenient way, preferably by means of the outer ribs 15, which have their lower ends resting upon the upper edge of the base 2, which enters the lower end of the shell or body 1. The outer edges of the ribs 15 touch the inner wall of the shell 1, and the spaces between the ribs constitute a plurality of vertical air-passages. A seat 18 is provided at the upper end of the fire-pot to receive the lower end of a shell or drum 19, arranged within the shell 1 concentric therewith, and serves to prevent lateral displacement of the said drum. The inner ribs 16 are wider than the fingers 17, and the spaces formed between them constitute air-passages through which air and gas find their way to the fire. Hooks 20, pendent from the fire-pot, support the grate 21 and are preferably extensions of certain fingers 17.

The shell or drum 19 extends from the up-

per end of the fire-pot, upon which it is seated, to the top 3 and is provided near its upper end with an outer flange 22, which extends into the space 23, formed between the parts 1 and 19. The space 24, formed between the outer edge of the flange 22 and the inner wall of the shell 1, is about equal to the area of the smoke-outlet. An opening 25 is formed in a side of the shell 19 and communicates with the smoke-box 8 and is controlled by means of a damper 26, which when turned into the position shown by the full lines in Fig. 1 provides a direct draft through the stove upon opening the damper 7, but which when closed, as shown by the dotted lines in said figure, shuts off the direct draft when the damper 7 is closed and permits the draft to enter above the fuel and pass downward therethrough and up through the space 23.

The magazine or fuel-holder 27 is concentric with the shell or drum 19 and is located therein and spaced therefrom, as shown at 28, spacing-lugs 29 being provided at the upper and lower ends to come in contact with the inner wall of the drum 19 and hold the said magazine in place. This magazine or fuel-holder is supported, preferably, by means of the fire-pot and rests upon the upper ends of the inner ribs 16. Hence the space 28 is in communication at its lower end with the vertical passages formed between the ribs 16. The magazine may be composed of a series of bars connected at their upper and lower ends, as shown in Figs. 1 and 5, or it may consist of a cylinder or drum having a vertical series of openings 30, as shown in Fig. 6, the openings 30 performing the same office as the spaces between the bars of the construction shown in Figs. 1 and 5.

Rings 31 and 32 encircle the lower portion of the shell 19 and are held apart by means of an interposed spacing-ring 33. Lugs or cogs 34 project outwardly from the upper and lower edges of the ring 31 and extend across the space 23 and aline vertically. Corresponding cogs 35 project outward into the space 23 from the upper and lower edges of the ring 32 and are in vertical alinement. These rings 31 and 32, with their series of cogs, constitute baffles for controlling the circulation of the hot air and products of combustion through the space 23. One of the rings, as 32, is adapted to be turned with reference to the ring 31 so as to throw its cogs or lugs 35 out of line with the cogs 34 of the baffle-ring 31, thereby preventing a direct draft through the space formed between the respective cogs. A handle 36 is applied to the baffle-ring 32 and projects through an opening in the shell 1, so as to be grasped when it is required to turn the ring 32 to position the cogs 35 in any relation with reference to the cogs 34, so as to regulate the draft through the space 23. When the cogs 34 and 35 are in vertical alinement, the spaces formed between the respective cogs also aline vertically,

and as a result the draft being unobstructed has a maximum circulation; but upon turning the rings 32 to throw the cogs 34 and 35 out of alinement more or less the air-spaces formed between the said cogs are thrown out of vertical alinement to a greater or less degree, thereby serving the direct circulation and checking the draft more or less, as will be readily appreciated.

When starting the fire or when from any cause it is required to have the fire burn briskly, the damper 26 is turned so as to uncover the opening 25, and the damper 7 is open, thereby giving a direct updraft through the stove; but when it is desired to utilize the heater to the best possible advantage the damper 26 is turned so as to close the opening 25, the damper 7 closed, and the damper 12 opened. The dampers being adjusted in the manner last stated, the draft is through the damper 12, magazine or fuel-holder, and around and through said magazine into the fire-pot, thence through and around the latter into the spaces formed between the outer vertical ribs 15 of the fire-pot, thence upward through the space 23, and out through the smoke-pipe 9 to the smoke-flue. This circulation can be controlled either by the baffle-rings or the damper 13, or both, as desired.

Having thus described the invention, what is claimed as new is—

1. In a stove, inner and outer shells spaced apart, a fuel-holder arranged within the inner shell and spaced therefrom, the fire-pot having communication at its upper end with the fuel-holder and the space between the fuel-holder and inner shell and having a space between its outer side and the outer shell, means for supplying air to the upper end of the fuel-holder and the upper end of the space between the fuel-holder and inner shell, and a smoke-pipe in communication with the space formed between the inner and outer shells, substantially as set forth.

2. In a stove, spaced inner and outer shells, the upper end of the space being in communication with the smoke-pipe and the lower end of the space having communication with the lower portion of the fire-pot, and a fuel-holder arranged within the inner shell and spaced therefrom and having openings in its sides to establish communication between the interior of the holder and the space between it and the aforesaid inner shell, substantially as set forth.

3. In a stove, and in combination with spaced shells through which draft is caused to circulate, baffle-rings arranged within the space between the said shells each ring having upper and lower lugs extended across the said space, substantially as specified.

4. In a stove, and in combination with spaced inner and outer shells through which draft is caused to circulate, upper and lower baffle-rings located in the space between the said shells and having corresponding lugs extended across said space, one of the said baf-

flue-rings being movable to throw the lugs out of vertical alinement more or less, substantially as and for the purpose set forth.

5 5. In a stove, spaced concentric shells through which draft is caused to circulate, a damper-controlled opening near the upper end of the inner shell, a smoke-pipe in communication with the upper portion of the space between the two shells, and a flange
10 located immediately below the said damper-controlled opening and extended from one of the shells into the space formed between said shells and terminating a short distance from the inner wall of the other shell to form an
15 outlet about equal in area to the smoke-pipe, substantially as set forth.

6. In a stove, a fire-pot having inner and outer spaced ribs vertically arranged, and spaced shells, the outershell closing the spaces
20 formed between the outer series of ribs and the inner shell seated upon the fire-pot and having the spaces between the inner ribs in communication with the interior thereof, substantially as set forth.

25 7. In a stove, a fire-pot comprising inner and outer ribs having a vertical arrangement and spaced apart, spaced shells having the space formed between them in communication with the passages formed between the
30 outer ribs of the fire-pot, and a fuel-holder spaced from the inner shell and having the space between it and said inner shell in com-

munication with the spaces formed between the inner ribs of the said fire-pot, substantially as set forth. 35

8. In a stove, a fire-pot comprising vertically-disposed inner and outer ribs, spaced shells having the space between them in communication with the spaces formed between the said outer ribs, baffle-rings located in said
40 space one above the other and having cogs extended across the said space, one of the said rings being movable with reference to the other to throw the cogs out of alinement more or less, a flange near the upper end of
45 one of the shells and projected across the space formed therebetween, a damper-controlled opening near the upper end of the inner shell, a smoke-pipe in communication with the said space, a fuel-holder arranged
50 within the inner shell and spaced therefrom and having openings in its sides and having the space between it and the inner shell in communication with the space formed between the inner ribs of the fire-pot, and dampers for controlling either an updraft or a
55 downdraft through the stove, substantially as set forth.

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

JOHANN W. HEUER. [L. s.]

Witnesses:

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W. HICKSON.