

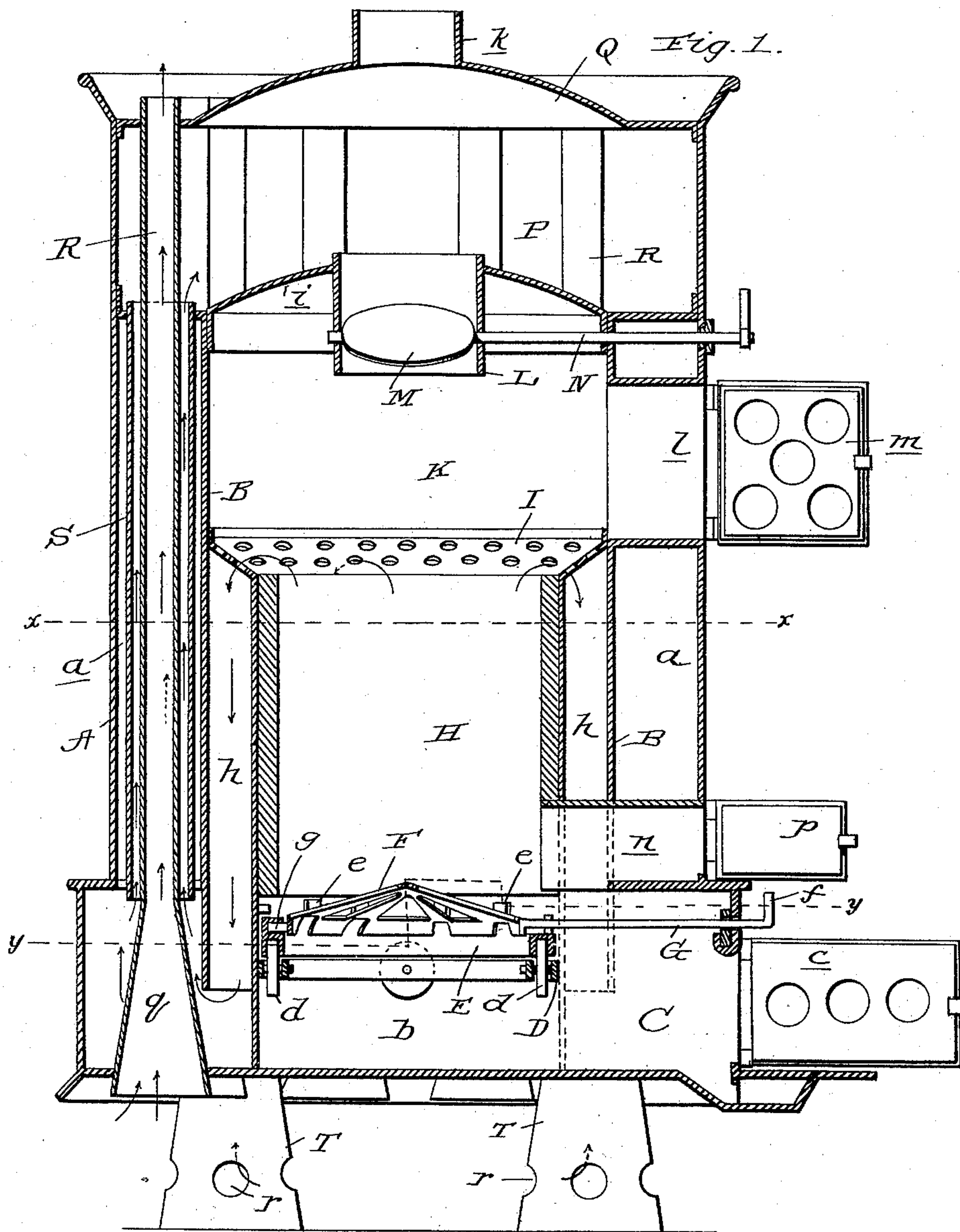
(No Model.)

2 Sheets—Sheet 1.

M. L. LARSON.  
STOVE.

No. 505,772.

Patented Sept. 26, 1893.



Witnesses:

C. A. Raeder  
H. F. Matthews.

Inventor

Martin L. Larson

By

James Shuey

Attorney

(No Model.)

2 Sheets—Sheet 2.

M. L. LARSON.  
STOVE.

No. 505,772.

Patented Sept. 26, 1893.

Fig. 2.

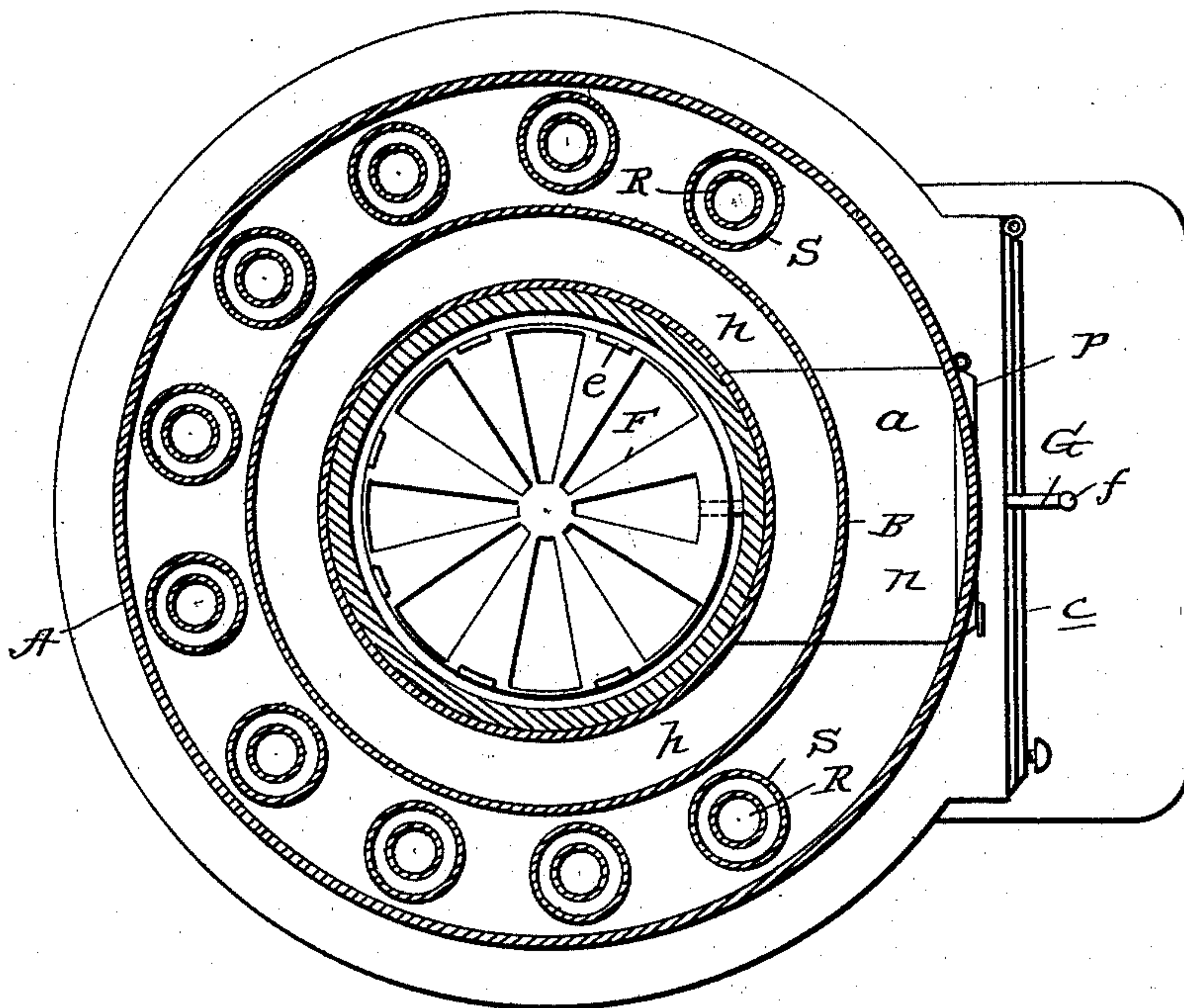
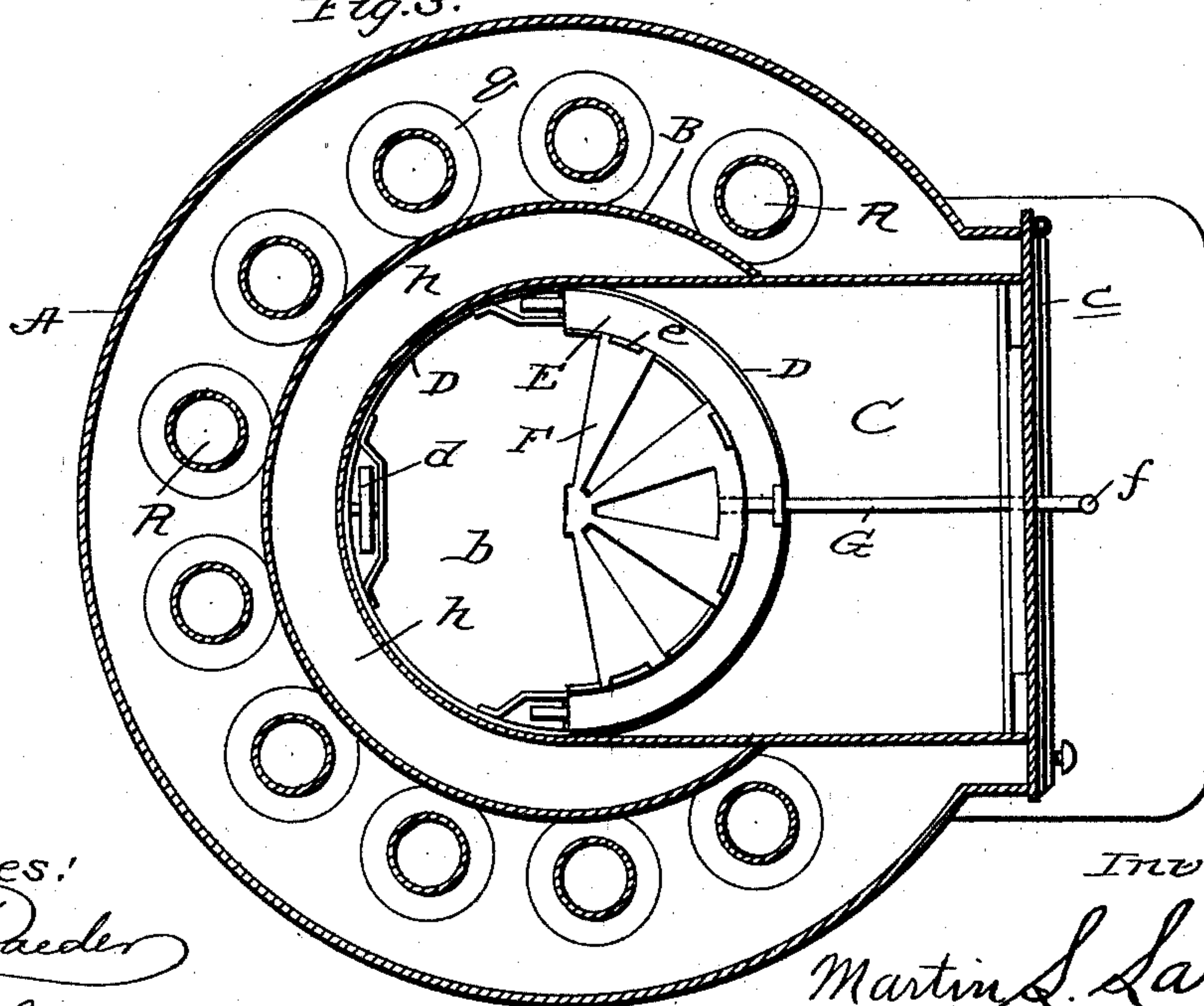


Fig. 3.



Witnesses:

C. A. Paeder  
W. F. Matthews.

Inventor

Martin L. Larson  
BY  
James Sheehy  
Attorney



# UNITED STATES PATENT OFFICE.

MARTIN LAURITZ LARSON, OF WARREN, MINNESOTA.

## STOVE.

SPECIFICATION forming part of Letters Patent No. 505,772, dated September 26, 1893.

Application filed May 6, 1893. Serial No. 473,282. (No model.)

*To all whom it may concern:*

Be it known that I, MARTIN LAURITZ LARSON, a citizen of the United States, residing at Warren, in the county of Marshall and State of Minnesota, have invented certain new and useful Improvements in Stoves; and I do 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 ap-  
10 pertains to make and use the same.

This invention has relation to an improvement in heating stoves, and it has for its object to provide a stove which will be effective for the purposes designed, and which will  
15 give off great heat in proportion to the quantity of fuel consumed; the parts being of a cheap and durable construction and easy to operate.

The invention will be fully understood from  
20 the following description and claims when taken in connection with the annexed drawings, in which—

Figure 1, is a vertical, central sectional view of my improved stove. Fig. 2, is a horizontal  
25 sectional view taken in the plane indicated by the dotted line  $x, x$ , on Fig. 1, and Fig. 3, is a similar view taken in the plane indicated by the dotted line  $y, y$ , on Fig. 1.

Referring by letter to said drawings:—A,  
30 indicates the cylindrical casing or jacket of the stove, which may be made of sheet iron, or other suitable material, and may be of a sufficient height and width. B, indicates the  
35 the inner wall of said casing, which together with the outer wall, forms a vertically disposed annular chamber  $a$ . This casing is mounted upon a base chamber  $c$ , and communicates therewith, as shown. The base which is of  
40 greater diameter than the cylindrical body portion or casing A, may be either formed integral with said body portion or fixedly connected thereto, in any suitable manner. Arranged centrally in this base chamber is the  
45 ash-pit  $b$ , which has a door  $c$ , in one side, as shown, to afford convenient access to said pit or box, and it is obvious that a pan or other suitable receptacle may be placed in the ash pit or box.

Secured at a suitable distance above the  
50 ash pit, is a circular frame D, and in this frame are journaled a suitable number of vertically-disposed rollers  $d$ , to furnish a bear-

ing for a partially rotatable frame E, which carries a dumping grate F. This grate is of an approximate conical form, having its convex  
55 surface-uppermost, and the bars of the grate have vertical lugs or projections  $e$ , at their outer or lower ends. This grate has secured to it, the inner end of a rod G, which has an angular hand piece  $f$ , at its outer end, and  
60 passes through a slot in the front wall of the stove for the convenient grasp of an attendant. The grate is journaled by means of trunnions  $g$ , in the partially rotatable frame E, so that by oscillating the rod  $f$ , the grate  
65 may be partially rotated back and forth, while by turning the rod, the grate may be dumped.

H, indicates the fire pot. This fire pot which is of a circular form in cross section, is quite long or high compared with its circular area, and is arranged centrally within the  
70 stove above the grate, as shown. This fire pot, is separated from the inner wall B, of the casing, by means of an interspace or external annular chamber  $h$ , and is provided at its  
75 upper end with a flaring mouth having a perforated ring or annular plate I, arranged between the top edge of the fire pot, and the wall B, of the casing. Above the fire pot is an enlarged chamber K, which is covered by  
80 a roof wall  $i$ , having a depending tube L, in its center, which extends into the chamber K, and has a damper M, pivoted in said tube, which is provided with an operating rod N,  
85 passing out through the casing, and above the chamber K, is another chamber P, which is covered by a top wall Q, and is provided with a collar or flange  $k$ , for the attachment of a smoke pipe.

The chamber K, is provided with a door-  
90 way  $l$ , and a door  $m$ , and the fire pot is provided with a door-way  $n$ , and a door  $p$ , for closing the same, whereby access may be had to both the grate and the fire pot or chamber.

R, indicates vertical pipes. These pipes  
95 are passed through the chamber or interspace  $a$ , formed by the casing or outer wall, and the inner wall B, of the stove. These pipes are open at opposite ends, and the lower ends are flared downwardly as shown at  $q$ , for the  
100 free admission of air. These pipes are closed from communication with the interior of the stove or smoke and particles of combustion, and are kept from contact with the outer and



inner walls of the casing. The annular chamber *h*, opens into the base chamber at its lower end, as shown, and this base chamber is connected by means of a circular series of  
 5 pipes *S*, with the upper chamber *P*. These pipes *S*, are held from contact with the walls of the casing, and surround the pipes *R*, between the base chamber and the chamber *P*, so that a passage may be formed between  
 10 said pipes for the free circulation of hot air, as well as particles of combustion.

The stove may be mounted upon a suitable base, or the flared ends of the pipes *R*, may be extended to form legs or supports *T*, having apertures *r*, for the admission of air, al-  
 15 though I do not wish to confine myself to this means of support.

The body of the stove may be suitably ornamented.

20 In operation, when the fire has been started, the damper *M*, may be opened for a sufficient time, when the smoke and particles of combustion, will pass out through the tube *L*, and from the chamber *Q*, off through the smoke  
 25 pipe. By closing the damper *M*, the heat and particles of combustion will be directed as they rise in the chamber *K*, down through the perforated plate *I*, as indicated by the arrows, and from the circular chamber *h*,  
 30 down into the base chamber *C*, and from thence up through the pipes *S*, and around the pipes *R*, into the chamber *P*, and off to the smoke pipe where a damper may be provided for regulating such outlet. The pipes  
 35 *R*, are designed to take the air from beneath the stove, and at the floor of a room, and carry it up and discharge it into the room above the stove; the particles of combustion being brought into contact with the outer surface  
 40 of the pipe *R*, will of course heat such air while it is being conducted through the pipes *R*, and by reason of all of these pipes being kept from contact with the outer wall of the casing, they will not be liable to be chilled by  
 45 the outer air. The tubes *R*, are to be constructed in such a manner that they can be easily taken out at the bottom of the stove, when tubes and base require cleaning.

Having described my invention, what I  
 5 claim is—

1. The body or casing, formed with double walls so as to provide a chamber between them, in combination with the base chamber, the fire pot, arranged with an external circular chamber, in communication with the base  
 55 chamber, an upper chamber above the double

walled casing, pipes connecting said upper chamber with the base chamber, and also in communication with the fire pot or chamber, and pipes passing from below the stove to the  
 60 top thereof, and through the pipes which connect the top chamber with the base chamber, substantially as specified.

2. A stove having the base chamber, a fire box therein, a chamber above the fire box  
 65 with a damper for cutting off communication between the fire box and smoke pipe, pipes connecting the base chamber with the passage leading to the smoke pipe, and pipes passing through the latter pipes and open above and  
 70 below the stove respectively, substantially as specified.

3. A heating stove, having the long cylindrical fire-pot, with the perforated plate at its mouth, and surrounded by a chamber, a base  
 75 chamber communicating with the lower end of the chamber around the fire pot, and also having a chamber above the fire pot, in communication with the smoke pipe, the circular chamber or interspace exterior to the cham-  
 80 ber surrounding the fire pot, a circular series of pipes passing vertically through the latter chamber, and connecting the base chamber with the said upper chamber, and a circular series of pipes having flared lower ends pass-  
 85 ing through the first named series of pipes and opening above and below the stove respectively, as set forth.

4. The improved stove, comprising the base chamber, having an ash chamber, the fire pot  
 90 *H*, having the grate therein, and the perforated plate *I*, at the upper end of said pot, and also having the chamber *h*, surrounding the pot, and leading into the base chamber, the chamber *K*, above the fire chamber, and  
 95 the upper chamber *P*, having the tube *L*, and the damper therein, the circular series of pipes passing through the chamber or interspace *a*, and connecting the base chamber with the chamber *P*, and indirectly connect-  
 100 ing the latter chamber with the fire pot, and the pipes *R*, passing through the pipes *S*, and extending from above the stove to beneath the base chamber, and terminating in flaring portions, substantially as specified.  
 105

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

MARTIN LAURITZ LARSON.

Witnesses:

WINTHROP N. POWELL,  
 ALFRED C. SWANDBY.