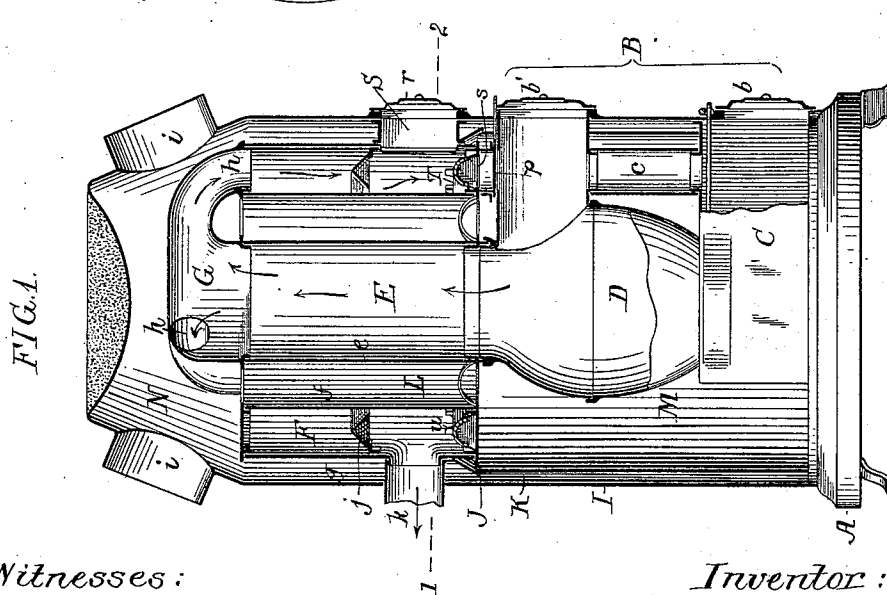
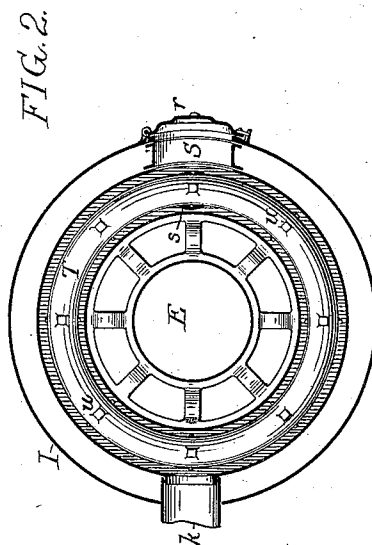
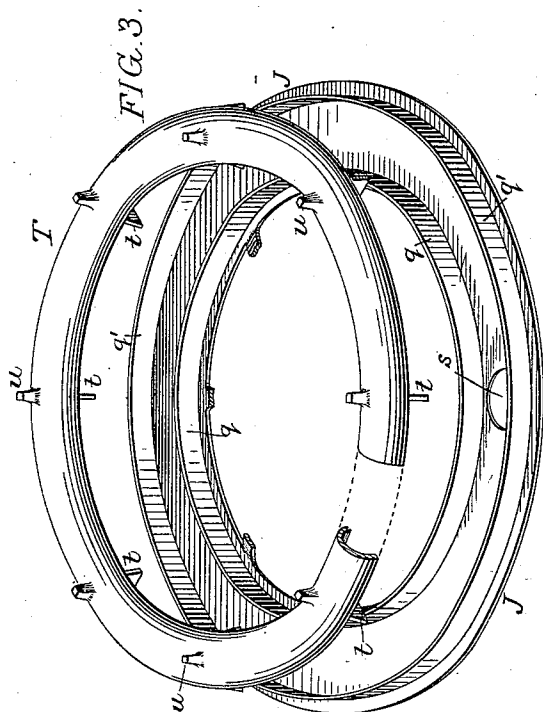


(No Model.)

F. L. SHEPPARD.
HEATING FURNACE.

No. 469,099.

Patented Feb. 16, 1892.



Witnesses:
Edw. D. Goodwin
William D. Conner

Inventor:
Franklin L. Sheppard
by his Attorneys
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UNITED STATES PATENT OFFICE.

FRANKLIN L. SHEPPARD, OF PHILADELPHIA, PENNSYLVANIA.

HEATING-FURNACE.

SPECIFICATION forming part of Letters Patent No. 469,099, dated February 16, 1892.

Application filed November 17, 1891. Serial No. 412,205. (No model.)

To all whom it may concern:

Be it known that I, FRANKLIN L. SHEPPARD, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented certain Improvements in Heating-Furnaces, of which the following is a specification.

The object of my invention is to provide means whereby the second combustion-chamber of a hot-air furnace can be cleaned without dismantling the furnace, as fully described hereinafter, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical sectional view of a portable heating-furnace, illustrating my invention. Fig. 2 is a sectional plan view on the line 1 2, Fig. 1; and Fig. 3 is a detached perspective view illustrating the scraper and the bottom drum-plate.

A is the base of the furnace on which is mounted the cast-section B, and in which are the ash-pit and fire-box openings provided, respectively, with doors *b b'*.

C is the ash-pit, and D is the fire-pot. The fire-box opening is connected with the ash-pit by a vertical passage *c*, through which dust or cinders can be passed directly to the ash-pit from the fire-pot opening.

E is the combustion-chamber surrounded by an inner drum *e*, and surrounding this inner drum is a middle drum *f*, and beyond this drum is still another drum *g*. Between the drums *f* and *g* is the second combustion-chamber F, connected to the first chamber through passages *h* in the head G.

Inclosing the structure above described is an outer casing I, tapered at the upper end and having hot-air outlets *i*. Extending from the base to the bottom drum-plate J is an inner casing K. Between the drums *e* and *f* is the hot-air passage L, communicating with the hot-air space M and the hot-air space N. In the second combustion-chamber is an annular deflecting ring *j*, which directs the products of combustion toward the drums *f* and *g*, and prevents rapid escape of the products of combustion through the smoke-flue.

In the bottom plate J is an opening *s*, which by preference communicates with the fire-box opening, and is directly above the passage *c*, as clearly shown in Fig. 1, and in order to

check the draft through this opening I provide a damper *p*, which is shut at all times, except when it is wished to clean the second combustion-chamber F. Mounted on the bottom plate is a scraping-ring T, having blades *t* of any number, which are preferably the width of the bottom plate J between the flanges *q q'*, and on the upper side of this ring T are a series of handles *u*, by which the ring is turned. The upper surface of the ring T is preferably rounded or tapered, so as to prevent soot from lodging thereon.

In the front of the furnace is an opening S communicating with the second combustion-chamber, as clearly shown in Fig. 1, and this opening is provided with a door *r*, on opening which the operator can pass the hand into the chamber and turn the ring, so that as soot accumulates in this second combustion-chamber it can be readily removed by simply opening the door *r* and turning the ring T one or more revolutions. The soot on the bottom plate is conveyed by the blades to the opening *s* and discharged into the ash-pit through the fire-box opening and passage *c*, the damper *p* being open to allow for the free passage of the soot. By this arrangement it is not necessary to have a practical heater man attend to the cleaning of the furnace, as it is not necessary to dismantle the furnace to clean it.

I claim as my invention—

1. The combination, in a hot-air furnace, of the fire-pot, combustion-chamber, and a second annular combustion-chamber having a perforated bottom plate with a ring and blades thereon, said ring being mounted upon the bottom plate, so that the blades, when the ring is turned, will convey the soot on the bottom plate to the opening, substantially as described.

2. The combination, in a hot-air furnace having an ash-pit, a fire-pot, and a fire-box opening, of a passage between the ash-pit and the fire-box opening, an inner combustion-chamber, a second combustion-chamber surrounding said inner combustion-chamber and connected thereto, a bottom plate for said second combustion-chamber having an opening communicating with the fire-box opening and in line with the passage between the ash-pit and said opening, and an annular scrap-

ing-ring adapted to the bottom plate, whereby on turning which the soot on the bottom plate will be conveyed to the opening therein, substantially as described.

- 5 3. The combination, in a hot-air furnace, of the ash-pit, the fire-box, the first combustion-chamber and the annular combustion-chamber surrounding said first combustion-chamber, a bottom plate J for said chamber, an
10 opening *s* in said bottom plate communicating with the fire-box opening and a damper *p* therefor, a passage *c* between the fire-box opening and the ash-pit, an opening S, communicating with the second combustion-chamber, a door for said opening, said opening S

being in line with the opening *s* in the bottom plate J, an annular scraper T, having blades *t* adapted to the bottom plate and adapted to be turned on said plate from the opening S, so as to carry the soot from the bottom plate J and discharge it through the opening *s*, substantially as described. 20

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANKLIN L. SHEPPARD.

Witnesses:

HENRY HOWSON,
EUGENE ELTERICH.