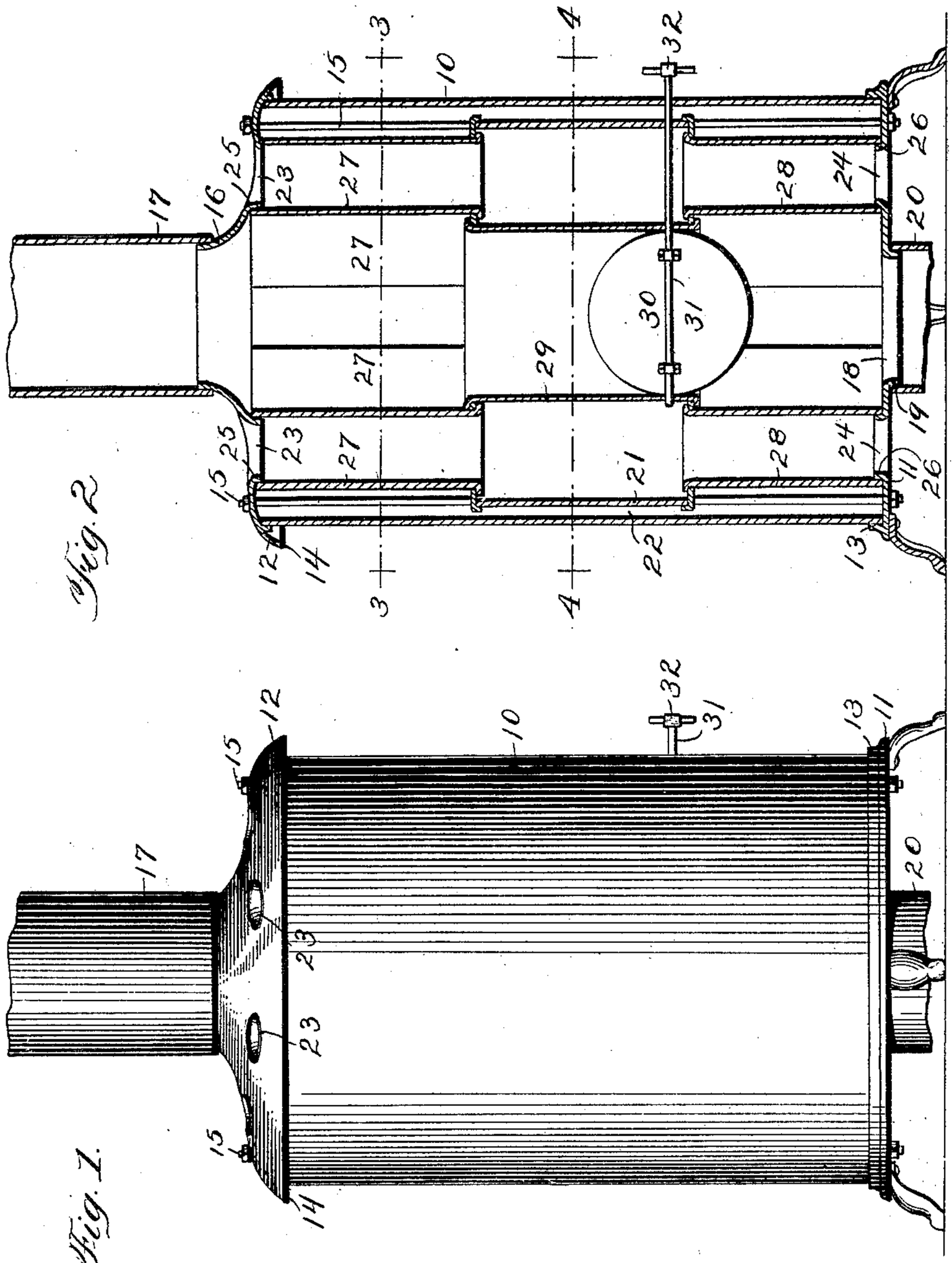
No. 706,161. Patented Aug. 5, 1902.

J. CLEMENTS.

WARM AIR RADIATOR.

(Application filed Mar. 18, 1901.)

(No Model.) 2 Sheets—Sheet 1.



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(No Model.) 2 Sheets—Sheet 2.

Fig. 4.

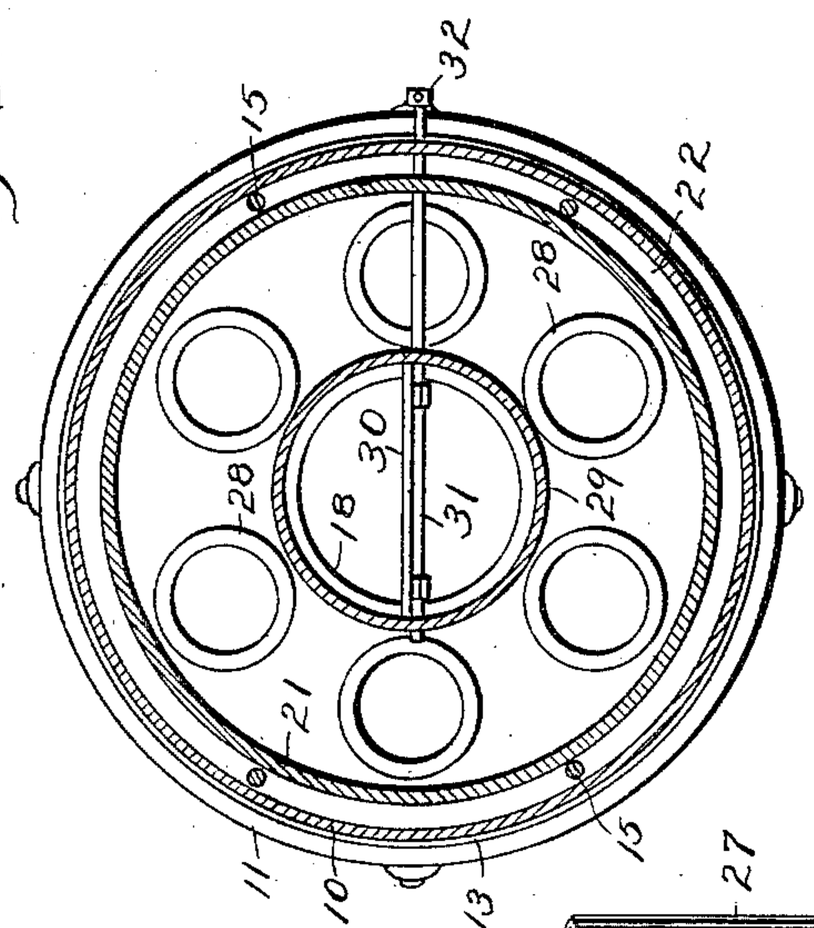


Fig. 5.

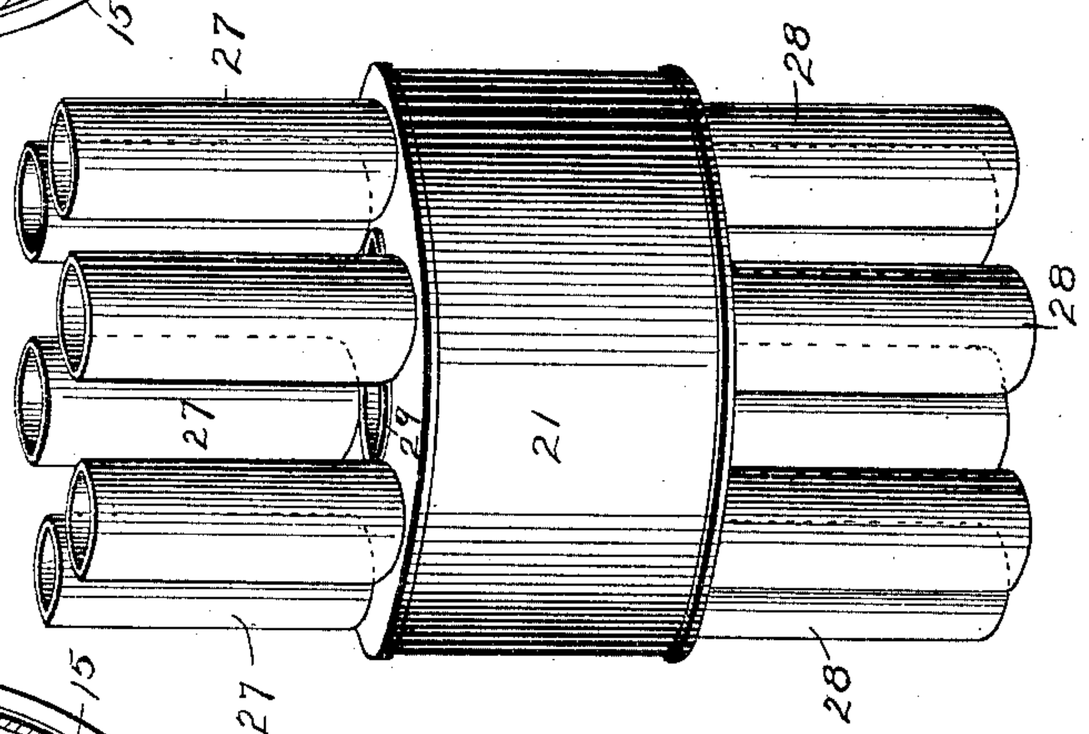
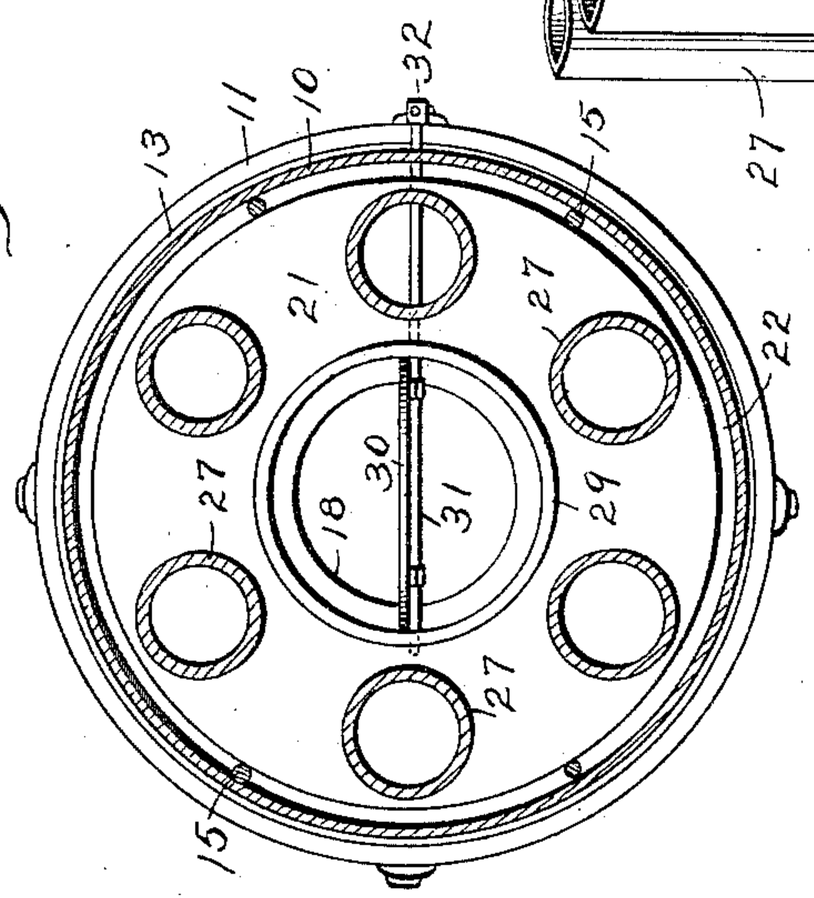


Fig. 3.



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UNITED STATES PATENT OFFICE.

JAMES CLEMENTS, OF EAST CHICAGO, INDIANA.

WARM-AIR RADIATOR.

SPECIFICATION forming part of Letters Patent No. 706,161, dated August 5, 1902.

Application filed March 18, 1901. Serial No. 51,764. (No model.)

To all whom it may concern:

Be it known that I, JAMES CLEMENTS, a citizen of the United States, residing at East Chicago, in the county of Lake and State of Indiana, have invented a new and useful Warm-Air Radiator, of which the following is a specification.

My invention relates to certain improvements in the construction of heating-drums adapted for connection in a stovepipe-line to heat the air in a room; and its principal object is to construct a device which may be readily assembled and disassembled and which may be placed in the upper room of a dwelling or other building to take the place of a heating-stove, the structure being so arranged as to be supported independent of the smoke-pipe and provided with suitable supporting-legs which may rest upon the floor of the room.

In the accompanying drawings, Figure 1 is an elevation showing the exterior of the heating-drum provided with supporting-legs and showing it connected with an upper and a lower stovepipe-section. Fig. 2 is a central vertical section through the drum and portions of the connected pipe-sections, the damper being shown as open to permit of a direct draft. Figs. 3 and 4 are sectional plan views of the device on the lines 3 3 and 4 4, respectively, of Fig. 2. Fig. 5 is a perspective view illustrating the construction of the air-drum and the flues carried thereby removed from the exterior shell.

Similar numerals of reference are employed to designate corresponding parts throughout the several figures of the drawings.

The present heating-drum consists of an exterior cylindrical shell 10, formed of sheet metal and having a lower head 11 and an upper head 12, both of said heads being provided with peripheral flanges, within the inclosure of which the upper and lower ends of the shell are received, the lower head having an upwardly-projecting flange 13 at its extreme outer edge and the upper head having a downwardly-projecting flange 14 arranged at a point just within its edge. The heads are confined in position by vertically-disposed locking-bolts 15, arranged just within the inner wall of the shell 10.

The upper head 12 has a centrally-disposed upwardly-extending tubular neck 16, adapted to receive a smoke-pipe section 17 in position to rest upon the upper head, and in the lower head 11 is a central annular opening 18, having a depending flange 19, with which is engaged the lower smoke-pipe section 20, the centers of the upper and lower pipe-sections and of the shell or casing 10 being coincident.

In the upper head 12 are formed a series of openings 23, arranged in a circular line around the neck 16 and alining with corresponding openings 24 in the lower head 11, and these openings have inwardly-projecting flanges 25 and 26, over which may fit the upper and lower ends of the air-drum flues.

Within the shell or casing 10 is a structure of the character more clearly illustrated in Fig. 5 and comprising, essentially, a cylindrical air-drum 21, carrying air-flues 27 and 28, permanently secured to said air-drum and forming a structure which may be removed from place as a whole when the drum is taken apart for the removal of soot and similar matter. The air-drum 21 is of a height approximately equal to one-third of the height of the shell or casing 10 and is but slightly smaller in diameter than the said shell or casing, a slight annular space 42 extending between the shell and the drum throughout the height of the air-drum and the bolts 15 being arranged close to the exterior of the drum and acting to some extent to prevent lateral displacement of said drum. In the center of the air-drum and in alinement with the upper and lower smoke-pipe sections is a smoke-flue 29, having its upper and lower ends permanently secured to the top and bottom of the drum and affording a passage in direct line between the upper and lower stovepipe-sections. In this flue is a damper 30, fixed on a rod 31 and having a suitable operating-handle 32, by which it may be turned to open or close the flue. The air-flues 27 and 28 have one end permanently secured to the air-drum, the lower ends of the flues 27 and the upper ends of the flues 28 being passed through corresponding openings in the upper and lower heads of the air-drums and being provided with rolled flanges for securing them in position.

The upper ends of the flues 27 are adapted to fit over the flanges 25 in the upper head 12,

and the lower ends of the flues 28 are adapted to fit over the flanges 26 in the lower head 11 and are confined in position by the locking-bolts 15.

In order to support the heating-drum independently of the smoke-flues, the lower head 11 is provided with suitable supporting-legs, which may rest upon the floor of an upper room and present in general the appearance of an ordinary heating-stove.

When the damper in the flue 29 is open, the smoke which enters through the lower head may pass directly through the pipe 29 and out through the central opening of the upper head of the shell. When the smoke takes this direct course, it has of course little heating effect, and to increase said effect a damper in the form of a disk 30 is fixed upon a rod 31, passed inwardly through the shell 10 and the sides of the pipe 29, said rod having a handle 32 at its outer end to facilitate operation of the rod to turn the disk to close the pipe 9 or to open it to the desired degree.

When the damper in pipe 29 is closed, the smoke and heat from the smoke-pipe, as it enters the shell 10 through the bottom thereof, passes radially of the shell around the lower set of air-flues, then upwardly around the outer face of the air-drum 21, and then back across the top of the air-drum and around the upper group of flues, and thence out through the central opening of the upper head. The air is thus heated, as also are the two groups of flues, and a current of air is established upwardly through the lower group of flues and into the air-drum and thence through the upper group of flues and out at the top of the shell, the air being highly heated in its passage.

The device as constructed has four main sections, which may be readily assembled or disassembled without the employment of skilled labor and possesses many advantages over similar devices heretofore employed for the purpose.

Having thus described my invention, what I claim is—

The combination, in a stovepipe heating-drum, of the upper and lower heads having peripherally-disposed flanges, a cylindrical shell having its upper and lower edges disposed within the peripheral flanges, the upper head being provided with a central opening the walls of which are outwardly flanged for the reception of an upper stovepipe-section, and the lower head being provided with a central opening having outwardly-flanged walls for the reception of a lower stovepipe-section and both heads being provided with an annular series of openings having inturned flanged walls, a removable section comprising a drum and a series of upper and lower flues rigidly secured at one end to said drum, the drum being of short vertical height and of a diameter less than the internal diameter of the shell and separated from said shell by an open annular interspace, a centrally-disposed annular smoke-flue 29 carried by the drum in alinement with the upper and lower smoke-pipe sections, the upper ends of the upper flues and the lower ends of the lower flues being removably fitted over the flanges of the openings in the upper and lower heads, and tie-bolts passing through the casing exterior of the drum and engaging with the upper and lower heads for clamping said heads against the shell and flues, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JAS. CLEMENTS.

Witnesses:

HENRY HANNEMANN,

C. H. WILMARTH.