

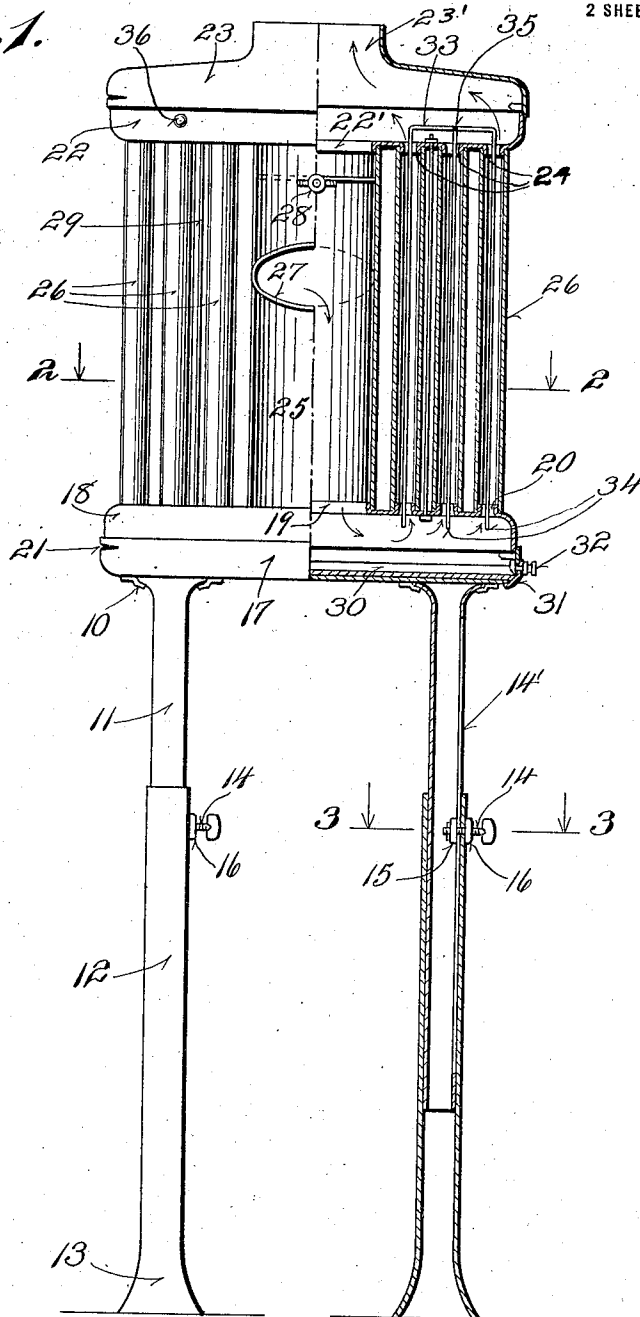
J. KOENIG.  
HEATING APPARATUS.  
APPLICATION FILED JAN. 6, 1919.

1,330,478.

Patented Feb. 10, 1920.

2 SHEETS—SHEET 1.

*Fig. 1.*



WITNESS

*J. P. Brett*

INVENTOR

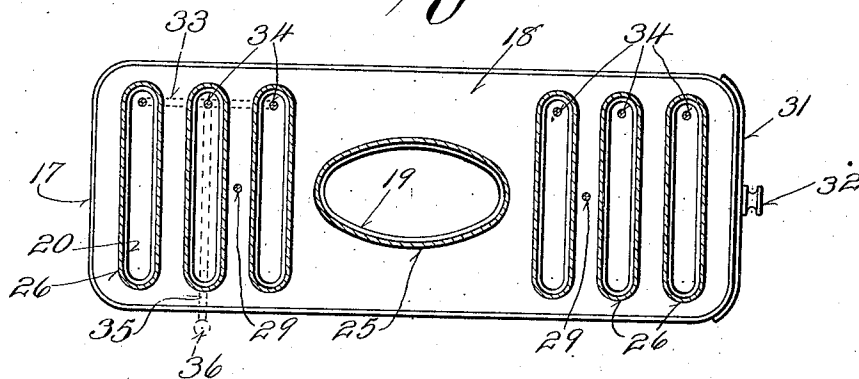
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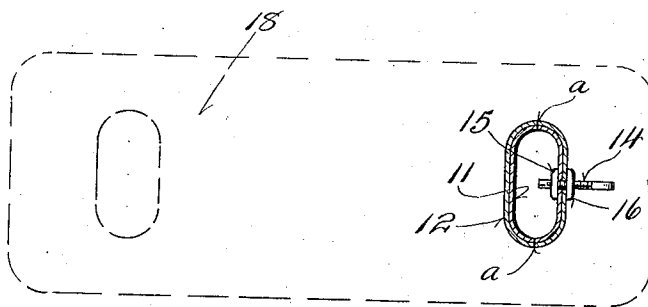
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2 SHEETS—SHEET 2.

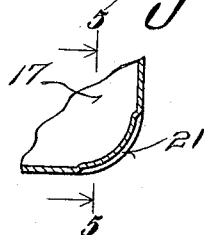
*Fig. 2.*



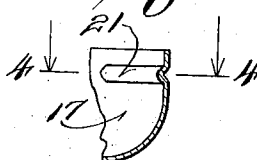
*Fig. 3.*



*Fig. 4.*



*Fig. 5.*



WITNESS

*J. F. Britt*

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# UNITED STATES PATENT OFFICE.

JOSEPH KOENIG, OF TWO RIVERS, WISCONSIN.

## HEATING APPARATUS.

1,330,478.

Specification of Letters Patent.

Patented Feb. 10, 1920.

Application filed January 6, 1919. Serial No. 269,857.

*To all whom it may concern:*

Be it known that I, JOSEPH KOENIG, a citizen of the United States, and resident of Two Rivers, in the county of Manitowoc and State of Wisconsin, have invented certain new and useful Improvements in Heating Apparatus; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to new and useful improvements in heating apparatus, more particularly of that type including a structure presenting large areas of heat diffusing surfaces and adapted for interposition in a smoke pipe line between a furnace or stove and the chimney whereby to utilize the heat units which escape in the exhaust gases of the stove or furnace and which would otherwise pass through the chimney and be lost.

An object resides in the provision of a structure of this character which may be readily cleansed from time to time of the usual accumulations of soot.

With the above and other objects and advantages in view, which will be apparent as the description proceeds, my invention resides in the novel features of construction, combination and arrangement of parts as hereinafter more particularly described and defined by the appended claims.

In the accompanying drawings:

Figure 1 is a view of my device, partly in side elevation and partly in longitudinal section.

Fig. 2 is a transverse sectional view therethrough on the line 2—2 of Fig. 1.

Fig. 3 is a detail sectional view through one of the adjustable supporting legs of the device on the line 3—3 of Fig. 1, the other portions of the device being shown in dotted outline.

Fig. 4 is a horizontal sectional view through a corner of one of the head sections on a plane indicated by the line 4—4 of Fig. 5.

Fig. 5 is a sectional view on the line 5—5 of Fig. 4.

Referring now more particularly to the drawings, my improved heating apparatus comprises upper and lower head casings, the bottom of the lower head casing being provided with clips 10 for securement thereto of the flared upper ends of upper leg sections 11 formed in the present instance of flattened tubes and having their

lower portions telescopically engaged in flattened tubular lower leg sections 12, the bottoms of which are flared to form supporting feet 13. The sections of each leg are adjustably connected by a clamping bolt 14 passed through the upper portion of the lower leg section and through a longitudinal slot 14' in the upper leg section, said bolt 14 having an inner head 15 thereon and being threaded in a nut 16 secured on the lower leg section. As shown in Fig. 3, each of the tubular leg sections is formed of a pair of plates stamped to afford a channel-shape thereto, the side edges of the plates being welded together on the lines *a* at the side edges of the section.

An exceedingly light and economical support is thus afforded for the device. The lower head casing of my device comprises a dished plate 17, the wall portions of which receive the walls of an inverted dished plate 18, this latter plate having a central annular flange or nipple 19 struck upwardly therefrom, also having a series of upwardly struck flanges or flattened nipples 20 at the sides of the nipple 19. To prevent telescoping movement of the walls of the dished plate 18 into the walls of the dished plate 17, the corner portions of the latter are creased inwardly as shown particularly in Fig. 5, to form seating ledges 21. The upper casing comprises a lower dished plate 22, having a depending nipple 22' struck therefrom and corresponding to the nipple 19, said plate also having series of depending nipples 24 at the sides of the nipple 22' and corresponding in shape to the nipple 20. The walls of the dished plate 22 are telescopically engaged in the walls of an inverted dished plate 23, the intermediate portion of said plate 23 merging into an up-standing flue neck 23' for attachment thereto of a pipe line coupling. A supply flue 25 extends between the head casings and its end portions snugly fit about the nipples 19 and 22' and flattened connecting flues 26 are disposed at the sides of the main flue with their end portions fitted about the nipples 20 and 24 of the inner head casing plates, these flues 26 being flattened transversely of the head casings, which are of elongated shape as shown in Fig. 2, while the flue 25 which receives the exhaust gases at their maximum temperature is flattened longitudinally of the head casings, thus procuring a structure of maximum compactness

consistent with a free distribution of heat to the surrounding air. The exhaust gases are admitted to the main flue 25 through a port 27 in the upper portion thereof. The main flue is normally closed above this port 27 by a damper 28 preferably of conventional nature as shown.

Thus, in operation of the device, the chimney pipe line (not shown) communicates with the inlet port 27 and from thence the hot exhaust gases pass downwardly through the main flue 25 into the lower head casing, giving up a large portion of their surplus heat through the walls of said flue and casing. From the lower head casing the gases are branched and pass upwardly through the flattened flue tubes 26 into the upper head casing, giving off a further amount of their available heat so that prior to the passage of the gases back into the smoke pipe line through the discharge neck of the upper head casing a material amount of heat will be recovered therefrom and imparted to the air of the room in which the device is located, this heat being otherwise wasted by direct escape into the chimney. To render the apparatus inoperative, the damper 28 may be opened, thus permitting the exhaust gases to pass from the upper portion of the main flue 25 directly through the intermediate portion of the upper head casing and thus out from the discharge neck 23', avoiding the tortuous path heretofore described.

It is noted that by supporting the lower head casing plate 17 on the leg sections 11, and by the nested relation of its other parts, the device is maintained in assembled position by the weight of its parts, the interfitting relations being snug, although more positive means may be provided to secure the parts together, and in the present structure the inner plates 18 and 22 of the head casing sections are engaged by the bolts 29 disposed between certain of the flues 26 and serving to retain all of the flues in engagement with their receiving nipples. To effect a ready removal of soot which accumulates in the device during operation thereof, a drawer or tray 30 is slidably mounted within the lower head casing, resting on the bottom plate 17, this tray having a front wall 31 closing a corresponding aperture in the wall of the lower casing plate and carrying a suitable latch 32. To cleanse the flues 26, head rods 33 are disposed longitudinally in the end portions of the upper head casing and rods 34 depend from said rods into the flues, these rods being actuated by rods 35 extending laterally from the rods 33

through one side wall of the lower casing plate 22 and terminating in buttons 36. Said rods 35 extend in a direction parallel to the direction of the flattening of the flues. The soot scraped loose by agitation of the rods 34 drops down into the lower head casing and is removed on the tray 30.

An exceedingly simple and efficient device has thus been provided which may be readily cleaned to maintain its operative condition, and which if desired may be readily disassembled to effect a more thorough cleaning. By reason of the extensible support afforded by the telescoping leg sections 11 and 12, the device may be readily adjusted for association with stove pipe lines disposed at different heights from the floor.

What is claimed is:

1. A heating apparatus of the class described including a pair of oblong head casings, a main flue extending between and communicating with the central portions of the head casings and flattened longitudinally of said casings, series of flues extending between the head casings at the sides of the main flue and flattened transversely of said head casing, an outlet port for one of the head casings, an inlet port in the main flue adjacent said head casing, and a damper in the main flue between said inlet port and the specified head casing.

2. A heating apparatus including a pair of head casings, connecting flues extending between said head casings, inlet and outlet ports for gases passing through said flues and casings, a head rod disposed in one of the head casings, cleaner rods extending from said head rod into the flues for cleaning the flues upon movement of the head rod and an actuating rod extending from the head rod through one side of the head casing.

3. A heating apparatus including a pair of head casings, connecting flues extending between said casings and flattened to provide parallel side flue walls, a head rod in one of the casings extending transversely with respect to the construction of flattening of the flues, rods extending from the head rod into the flues for cleaning the flue upon moving the head rod and an actuating rod extending from the head rod through the side of the head casing in a direction parallel to the direction of flattening of the flues.

In testimony that I claim the foregoing I have hereunto set my hand at Milwaukee, in the county of Milwaukee and State of Wisconsin.

JOSEPH KOENIG.