Aug. 4, 1936. H. M. PETZOLD ET AL 2,049,720

FLUE RADIATOR

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FIG. 1.

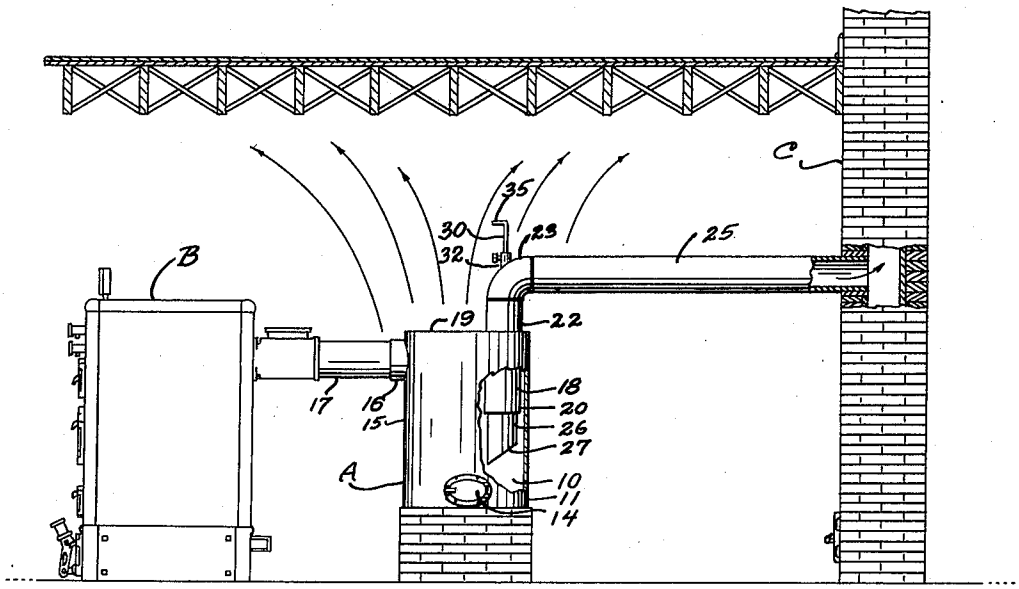


FIG. 2.

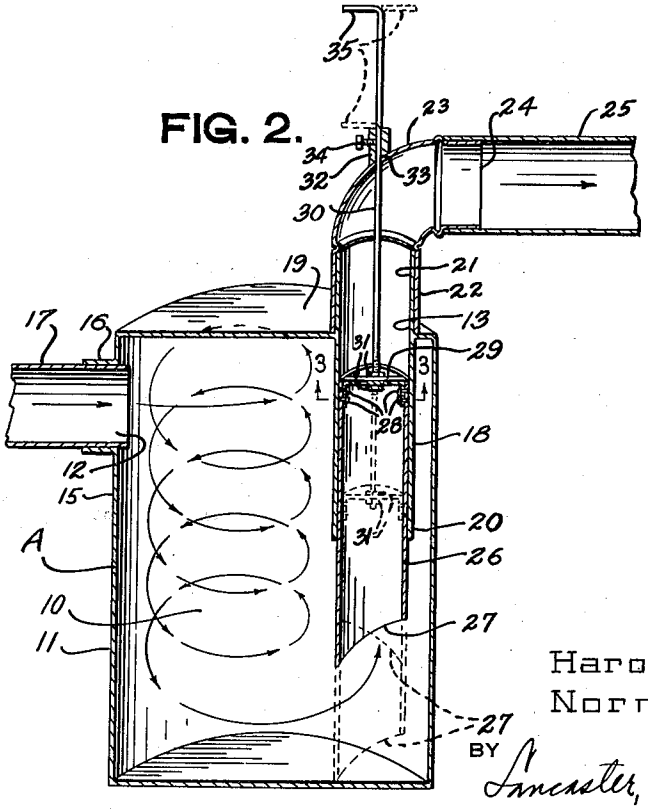
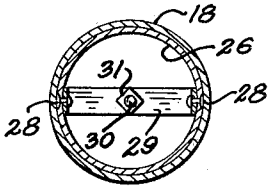


FIG. 3.



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FLUE RADIATOR

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3 Claims. (Cl. 257—172)

This invention relates to improvements in flue radiators and an important object is to provide a radiator adapted to be connected to the stovepipe or flue at a point intermediate the furnace and chimney and which will save fuel by preventing the passage of heat from the stove or furnace to and out of the chimney.

Another object of the invention is to provide a flue radiator which will remove soot from the smoke and allow only relatively clean, light smoke to pass into the chimney flue, thereby greatly reducing the danger of chimney fires.

A further object of the invention is to provide a flue radiator construction which will obviate the use of a smoke pipe damper and which will permit the heating system to produce a more uniform heat.

A still further object is to provide a flue radiator having adjusting means whereby the radiator may be adapted to the various styles and sizes of furnaces, chimneys and fuels.

Another important object of the invention is to provide a flue radiator particularly adapted for use in the basement and which will also eliminate cold floors above the basement.

Other important objects are to provide a flue radiator of strictly fireproof construction, to provide a radiator which may easily be cleaned, to provide a flue radiator having adjusting means so constructed that the flue will always remain open to permit the escape of smoke and gases through the chimney and which adjusting means may not be accidentally actuated to entirely close off the flue leading to the chimney.

Other objects and advantages will be apparent during the course of the following detailed description taken in connection with the accompanying drawing and in which drawing:

Figure 1 is a view partly in side elevation and partly in vertical section showing the application of the improved flue radiator to a flue connecting a furnace to its chimney.

Figure 2 is a vertical sectional view of the improved flue radiator.

Figure 3 is a sectional view looking upwardly as shown by the line 3—3 of Figure 2.

In the drawing, wherein for the purpose of illustration is shown only a preferred embodiment of the invention and wherein similar reference characters denote the same parts throughout the several views, the letter A may generally designate the improved flue radiator which may be connected into the flue at a point intermediate the furnace B and the chimney C.

Referring to the flue radiator A, it may comprise a smoke chamber 10 formed by an upright hollow cylindrical metallic drum 11 and provided with an inlet 12, an outlet 13 and a clean-out door 14. The inlet 12 is preferably located in the upper portion of the cylindrical wall 15 of the drum and it may if desired be provided with a cylindrical flange 16 to facilitate connection of the drum to the flue 17 leading from the furnace B. As for the outlet 13, it may comprise a stationary cylindrical pipe 18 intersecting the top horizontal wall 19 of the drum and preferably remote from the inlet 12. This stationary pipe 18 may be secured to the top wall 19 as by welding or it may be cast or otherwise formed integral with the drum. The lower end 20 of the pipe 18 may project downwardly from the top wall 19 into the smoke chamber and terminate approximately halfway between the top and bottom walls of the drum while the upper end of the pipe may project above the top wall sufficient to form a fastening flange 21 to which one arm 22 of the curved elbow 23 may be connected, the other arm 24 of the elbow being connected to the chimney C as by a horizontal flue 25 of suitable dimensions.

Telescopically mounted within the stationary pipe 18 is a vertically and circumferentially adjustable pipe 26, the lower open end 27 of which may be obliquely truncated in a plane approximately 35° to the horizontal. Secured to opposite interior sides of the upper portion of this adjustable pipe 26 as by countersunk rivets 28 is an inverted U-shaped supporting strap 29 provided with an aperture intermediate its ends for receiving the threaded lower end of a supporting rod 30. A pair of stop nuts 31 on opposite sides of the strap may serve to adjustably secure the supporting rod to the strap. This supporting rod may extend vertically upward axially of the stationary pipe and pass obliquely through the curved surface of the elbow 23. Exteriorly of the elbow it may be encircled by a suitable sleeve 32 provided with a truncated lower face 33 in a plane tangent to the exterior surface of the elbow on which this sleeve is adapted to bear. The sleeve 32 is provided with a set screw 34 whereby the supporting rod 30 may be held in any desired vertically or circumferentially adjusted position. At a point above the sleeve the supporting rod may be bent at a right angle to form a handle 35 and the position of this handle may serve to indicate the degree of vertical and circumferential adjustment of the obliquely truncated pipe 26. The supporting rod 30 may be of a length just sufficient to permit lowering of the adjustable pipe 26 into contact with the bottom

wall of the drum. The furnace B and chimney C may vary in construction from those illustrated in the accompanying drawing.

When a fire is lighted in the furnace B, the smoke generated therein will pass through the pipe 16 and will enter the upper portion of the smoke chamber in a heated condition. The drum will absorb the heat from the smoke and radiate it upwardly and outwardly, as shown diagrammatically by the arrows in Figure 1, not only circulating the heat throughout the basement but also warming the floor above the basement. The cooled smoke will gradually sink towards the bottom of the smoke chamber as shown diagrammatically by the arrows in Figure 2, thereby displacing the air in the bottom of the drum and causing the same to pass upwardly through the pipes 26 and 18, the elbow 23, the flue 25 and the chimney C. The smoke will continue to pass into and out of the drum on account of the natural draft of the chimney and also because of the draft created in the drum by the difference in temperature between the top and bottom thereof.

The height of the adjustable pipe 26 may be regulated to a position considered by the janitor or fireman to be the most satisfactory for the type of furnace and fuel utilized, it being recognized that these factors greatly influence the gravity or density of the smoke generated in the furnace. The adjustment may easily be made by means of the supporting rod 30 and the set screw 34. It will be noted that the adjustable pipe may be temporarily lifted and turned as for loosening and removing soot therefrom and from the interior of the stationary pipe 18 without releasing the set screw 34 and when subsequently lowered the pipe will return to its previous vertical and circumferential position due to the coaction between the obliquely truncated sleeve 32 and the curved exterior surface of the elbow 23. The obliquely truncated open lower end of the adjustable pipe 26 increases the effective area of the pipe opening, thereby increasing the suction of the adjustable pipe. Moreover, when the adjustable pipe is lowered into contact with the bottom wall of the drum, the effective area thereof will not be materially reduced, due to the oblique truncation of its lower end.

A large proportion of the soot contained in the smoke will deposit on the bottom of the smoke chamber while the smoke is cooling and settling therein and this may be periodically removed through the clean-out door 14.

The slow settling motion of the cooling smoke in the smoke chamber will act to check any excessive chimney draft and the adjustable pipe 26 may be regulated to further check the draft if found desirable, thereby rendering the use of a smoke pipe damper unnecessary.

Various changes in the shape, size, and arrangements of parts may be made to the form of invention herein shown and described, without departing from the spirit of the invention or the scope of the claims.

We claim:

1. A flue radiator comprising a smoke chamber having inlet and outlet openings, one of which includes a vertically and circumferentially adjustable pipe, said pipe having an obliquely truncated lower end.

2. A flue radiator comprising a smoke chamber having inlet and outlet openings in the upper portion thereof, at least one of which is provided with a vertically and circumferentially adjustable pipe adapted to extend to the bottom of the chamber, said pipe having an obliquely truncated lower end.

3. In a device of the class described, the combination with a stationary vertical pipe, of a curved elbow having an arm connected to the upper end of the stationary pipe, a movable pipe telescopically slidable with respect to the stationary pipe, a rod secured to the movable pipe and obliquely extending through the curved elbow, a sleeve encircling said rod exteriorly of the elbow, said sleeve having an end face bearing against the exterior of the curved elbow, said end face being substantially tangent to the curved exterior of the elbow, and means releasably securing the rod against movement with respect to the sleeve.

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