May 26, 1936. H. I. PIATT 2,041,779

FLUE CLEANING DEVICE

Original Filed June 25, 1931

Fig. 1

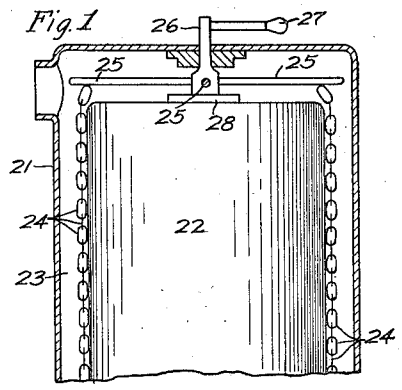
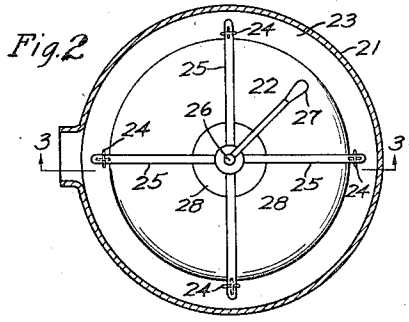


Fig. 2



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FLUE CLEANING DEVICE

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Original application June 25, 1931, Serial No. 546,836. Divided and this application January 28, 1933, Serial No. 654,061

4 Claims. (Cl. 122—379)

My invention relates to the cleaning of flues of heating furnaces, and is herein set forth as applied to water heaters, although obviously applicable to other types. The present application is a division of my earlier application Serial No. 546,836, filed June 25, 1931.

Where the products of combustion pass through constricted passages, particularly where the walls of such passages are cooled by an adjacent body of water, there is a decided tendency to deposit soot on the walls of the passages which acts as an insulating medium to retard the transfer of heat to the water in addition to interfering with the draft. The more restricted the size of the passage, the more tendency is there to deposit soot and the greater the difficulty of cleaning the passage. By reason of the inaccessibility of such passages, cleaning is often neglected with decided loss in efficiency.

The invention will be readily understood upon reference to the accompanying drawing showing a preferred embodiment wherein:

Figure I is a view partly in elevation and partly in vertical section of a heater employing an annular flue taken on substantially the line 3—3 of Figure II; and

Figure II is a top plan view of a heater shown in Figure I with the top of the outer casing removed.

The heater shown consists of an outer cylindrical shell 21 enclosing a boiler 22 of cylindrical formation. The cylindrical shell and boiler are spaced apart to form a vertical annular flue passage 23. The shell 21 is provided with a top wall spaced from the top of the boiler 22 to form an exhaust chamber having an outlet opening adapted to be connected to a chimney. Obviously the invention may be utilized in connection with other types of heater whether employing solid, liquid or gaseous fuel.

A plurality of chains 24 are loosely suspended from arms 25 forming a spider carried by the vertical shaft 26. The shaft 26 is journalled in a foot-step bearing 28 to permit the same to be rotated through a complete circle or to be oscillated as desired. The upper extremity of shaft 26 projects exteriorly of shell 21 and is provided with a handle 27 by means of which it may be rotated or oscillated. The chains 24 rest against the inner wall of the flue 23 where soot is most likely to collect and where it is most disadvantageous as forming an insulating medium. The chains 24 preferably contact the wall of boiler 22 throughout their entire length. The spider 25 and the shaft 26 are arranged whereby upon oscillating the handle 27 the chains will be moved circumferentially of the boiler 22 in rubbing contact therewith. These parts may also be arranged whereby upon oscillating the handle 27 the chains will be agitated vertically as well as circumferentially.

It will be understood that the invention is susceptible of modification within a wide range without sacrificing the true spirit of the invention, such, for instance, as a different design of shaft operation, change of location to adapt the device to the cleaning of different flue constructions, the employment of jointed rod links or flexible cables instead of the conventional link chains here illustrated; the gist of the invention residing in the free suspension of flexible members within the flues and means for agitating the same in such manner as to cause wiping contact with the flue surfaces. By the term "flue" is included any passageway for the gases of combustion.

I claim:

1. A heater comprising a cylindrical inner chamber, a cylindrical outer casing spaced from the inner chamber whereby to form an annular flue therebetween, a rotatable spider mounted within the casing above the inner chamber, means operable exteriorly of the casing for rotating said spider, and a plurality of flexible chains loosely suspended from the spider within the flue in contact with the chamber throughout substantially their entire length.

2. A heater comprising a pair of vertically disposed cylinders located one within the other, the upper end walls of said cylinders being spaced apart to form a flue chamber, a vertical flue communicating at its upper extremity with said flue chamber, a rotatable spider located within said flue chamber, means operable exteriorly of the outer cylinder for rotating said spider, and a flexible element loosely suspended from said spider within said vertical flue.

3. In a heater including a pair of concentrically disposed cylinders having their vertical side walls arranged to form an annular flue and their upper end walls arranged to form a flue chamber, means for cleaning said flue comprising a rotatable spider positioned within said flue chamber and a plurality of flexible elements having their upper extremities attached to said spider radially inwardly of the inner cylindrical wall, and contacting said wall throughout substantially their entire length.

4. In a heater including a pair of concentrically disposed cylinders arranged to provide an annular flue between their vertical walls and a flue

chamber between their upper horizontal walls, means for cleaning said flue comprising a rotatable spider positioned within said flue chamber, means operable exteriorly of said cylinder for rotating said spider, and a plurality of flexible elements having their upper extremities attached to said spider whereby said elements are loosely suspended within said flue in contact with the inner cylinder throughout substantially their entire length.

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