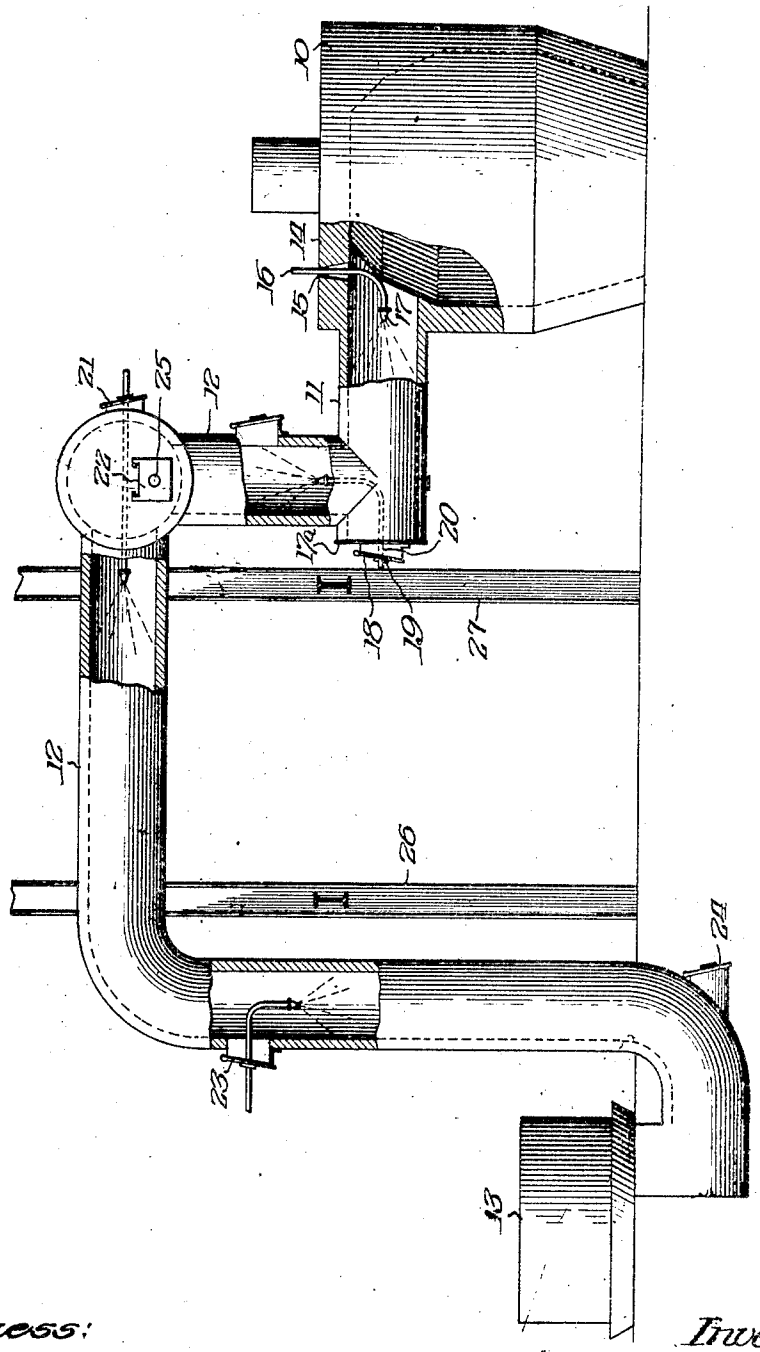
Dec. 29, 1925. 1,567,416

W. F. CAGWIN

METHOD AND APPARATUS FOR CLEANING SOOT OUT OF GAS MAINS

Filed May 26, 1923



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UNITED STATES PATENT OFFICE.

WILLIAM F. CAGWIN, OF CHICAGO, ILLINOIS.

METHOD OF AND APPARATUS FOR CLEANING SOOT OUT OF GAS MAINS.

Application filed May 26, 1923. Serial No. 641,599.

To all whom it may concern:

Be it known that I, WILLIAM F. CAGWIN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in a Method of and Apparatus for Cleaning Soot Out of Gas Mains, of which the following is a specification.

My invention relates to a method of cleaning soot from gas mains and has particular reference to an apparatus of this character for removing soot from the gas mains leading from the gas producers to the open hearth furnaces.

One of the objects of my invention is to provide a method of cleaning soot from gas mains and forcing the soot into the combustion chamber of the furnace where it will be burned and, in addition to securing the removal and destruction of the soot, a considerable quantity of heat is developed from the burning of the soot which is almost pure carbon.

Heretofore in cleaning and removing soot from gas mains of this character large openings have been provided in the gas mains which are closed during the normal operation of the gas mains by doors. The doors are hinged to the gas mains and heretofore in cleaning the mains it has been the practice to discontinue the operation of the gas producer and insert an air hose or a steam pipe through these openings into the gas mains and blow the soot out, the result being that a large part of the soot is blown out through the open hearth stack and also through the doors out into the air and the result has been very unsatisfactory because workmen have been injured by the soot getting into their eyes and have also been burned by the hot soot collecting in piles, so that the practice has been very unsatisfactory from many viewpoints.

In my improved invention I am able to clean the soot out of the gas mains by providing small openings through the doors which have heretofore been used or in the wall of the gas main itself, which openings are closed by means of loam or other sealing material, and when it is desired to clean the main the loam is removed and a small blow-pipe inserted through the opening into the gas main, the first operation taking place adjacent the gas producer and thereafter at successive points in the gas main so that the soot is blown into the combustion chamber of the furnace and there consumed. After the blow-pipe is removed from the pipe the opening is immediately sealed so that there is no loss of gas and the soot is not blown out through these openings. It will also be understood that the operation of the gas producer is not disturbed during this cleaning operation but is continued, so that it is not necessary to stop the operation of the gas producer.

These and other objects of my improved invention will be more fully and better understood by reference to the accompanying sheet of drawings, in which—

The figure is a diagrammatic view partially in section and partially in elevation showing my improved invention.

Referring now specifically to the drawing, a gas producer 10 is shown having a discharge pipe 11 leading therefrom to which a gas main 12 is secured and which leads to the gas valve 13 leading into the combustion chamber of an open hearth furnace (not shown). Through the top 14 of the gas producer 10 an opening is tapped through which an air or steam supply pipe 16 is placed having a nozzle 17 thereon and from which steam or compressed air is thrown in a general direction parallel to the longitudinal axis of the pipe 11. As shown in the drawing, the pipe 16 is in position for blowing the soot out of the gas main 11 and shows the first step in this operation. This pipe is withdrawn and the opening sealed with loam or other suitable material after the soot is blown from this section of the pipe. The pipe 11 has a cover plate 17ª secured thereto and has a door 18 secured thereto which has a small opening 19 therein through which a smaller pipe 20 is inserted as the next step in the cleaning operation. Other doors 21, 22, 23 and 24 are provided, each of which has openings similar to 25 illustrated in the door 22, through which the cleaning pipes are successively placed, so that the entire gas main leading from the gas producer 10 to the gas valve 13 is thoroughly cleaned and all soot and other particles of dirt lodged therein is removed. A pair of support members 26 and 27 are shown for purposes of supporting the gas main 12, but which form no part of my present invention.

It will be understood that the small holes, such as 25, are normally closed with loam

or other sealing material during the normal operation of the gas producer and that this loam is removed and the blow pipes inserted therethrough so that the soot is removed from the entire gas main by beginning at the opening nearest the gas producer 10 and continuing in successive stages until the entire length of pipe has been traversed and the soot removed into the combustion chamber, and that after each successive operation the opening through which the pipe is inserted is sealed, and that the entire operation is completed without discontinuance of the operation of either the gas producer or the furnace.

While I have described more or less precisely the details of construction, I do not wish to be understood as limiting myself thereto, as I contemplate changes in form and the proportions of parts and the substitution of equivalents as circumstances may suggest or render expedient without departing from the spirit or scope of my invention.

I claim:

1. The method of removing soot from mains containing combustible gas and disposing of the soot which comprises progressively blowing the soot from the inlet end of the gas mains toward and out of the outlet end of the said gas main and into a furnace, and burning the soot removed from said gas main in the combustion chamber of the furnace.

2. The method of removing soot from mains containing combustible gas and disposing of the soot which comprises applying in said main at successive spaced points throughout the extent of the main, fluid under superior pressure, said applications being progressive along the direction of flow of the gas, where the soot is blown along with the gas, and blowing the soot out of the outlet end of the main and into a furnace, and burning the soot in the furnace.

Signed at Chicago, Illinois, this 22nd day of May, 1923.

WILLIAM F. CAGWIN.