Oct. 31, 1933. G. W. OSENBURG 1,933,334

SOOT BLOWER

Filed July 9, 1930

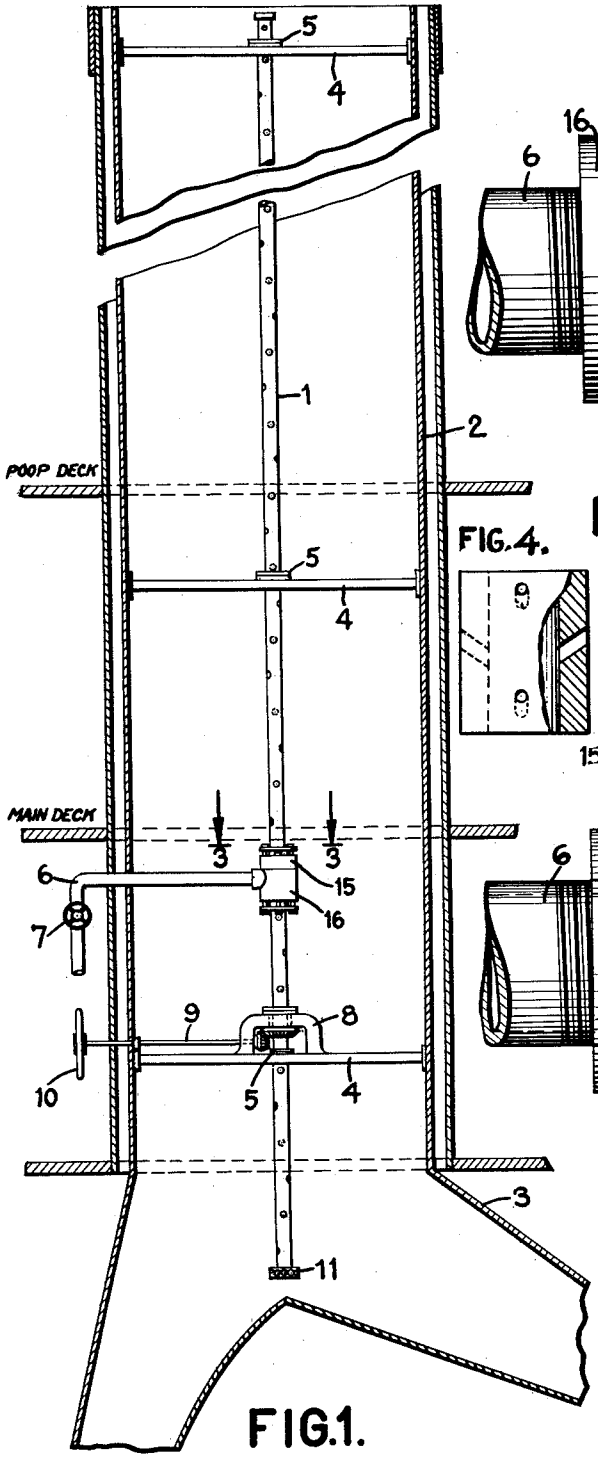


FIG. 1.

FIG. 3.

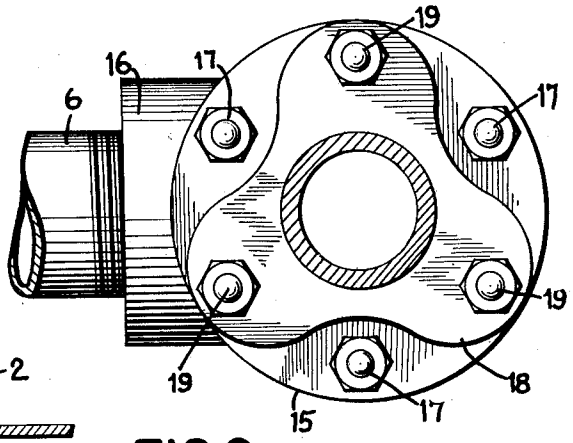


FIG. 4.

FIG. 2.

INVENTOR

George W. Osenburg

BY ATTORNEY

R. J. Dearborn.

Patented Oct. 31, 1933 1,933,334

UNITED STATES PATENT OFFICE

1,933,334

SOOT BLOWER

George W. Osenburg, Fullerton, Md., assignor to The Texas Company, New York, N. Y., a corporation of Delaware

Application July 9, 1930. Serial No. 466,741

2 Claims. (Cl. 15—20)

This invention relates to improvements in method of and apparatus for removing oily carbon and soot deposits from the interior of smoke stacks and the like, and relates more particularly to a method of delivering and distributing a plurality of streams of air or steam to an area to be cleaned and to apparatus for accomplishing the same.

When closing off the fires in the boiler furnaces of a steamship oily carbon and soot will be deposited or lodged on the inner wall of the stack and on adjoining portions of the breeching and frequently some of the deposits grow to considerable size. When the fires are later started up bits of the material, most of which is burnable, will ignite and sparks are thrown out of the stack and occasionally burning masses of the sooty substance which have previously escaped burning may be blown out of the stack and about the deck of the vessel.

The chief objects of this invention are to effectively remove all of the carbon or soot which collects in a stack prior to the firing up of the furnaces and to provide adequate apparatus capable of being operated upon proper occasion for that purpose. These and other objects and uses of my invention will become apparent from the following description and the accompanying drawing which describes and illustrates a preferred embodiment of my invention.

Fig. 1 is a view in sectional elevation of a smoke stack extending upwardly from the breeching through the several decks of a vessel illustrating in full elevation a preferred embodiment of my invention installed therein.

Fig. 2 is an enlarged view partly in section of the swivel T arrangement indicated in the Fig. 1.

Fig. 3 is an enlarged view taken on the line 3—3 of Fig. 1.

Fig. 4 is an enlarged view in elevation of a portion of the perforated pipe illustrated in Fig. 1 with a fragmentary section removed.

Referring now to Fig. 1, a vertical section of perforated pipe or tubing 1 is situated centrally of a smoke stack 2 and preferably extends from an adjoining section of breeching 3 of boiler furnaces, not shown, upwardly to near the top of the stack and is rotatably supported at intervals by appropriate bearings 5 upon brackets 4 which are rigidly secured to the inner wall of the smoke stack. A steam supply pipe 6 having a valve 7 is provided for admitting steam or other cleaning fluid to the perforated pipe 1 while a suitable bevel gear and bracket arrangement 8 together with an extension rod 9 having a crank or hand-wheel 10 situated outside of the stack is provided for rotating the perforated pipe when desirable. A nozzle 11 for directing a plurality of streams of steam to the walls of the breeching is secured to the lower end of the pipe 1.

Referring now to Figs. 2 and 3 as well as to Fig. 1, a swivel T arrangement is provided which is rigidly attached to the inner termination of the steam supply pipe 6, through which the perforated pipe 1 is rotatably passed. The rotatable pipe 1 preferably is provided with collar-like members 20 which are rigidly attached thereto and which support the T arrangement and projection of the pipe 6 so as to maintain the T in proper vertical alignment with the pipe 1. That portion of the pipe 1 which is encased by the T has several slots or openings 6a so that steam supplied from the supply pipe 6 may flow from the chamber of the T into the perforated pipe. The swivel T is provided with suitable packing glands at its upper and lower extremities, that is its running ends, so that substantially no steam will be lost or wasted between the peripheral wall of the pipe 1 and the encasing walls of the T. The upper extension of the T is formed by a ring-like member 15 which rests upon the main body of the T 16 and is suitably secured thereto by stud bolts 17 while packing gland members 18 are suitably secured by stud bolts 19, by which arrangement ready access to the interior of the T may be had.

When operating the apparatus to remove a deposit of the sooty substance from the stack the valve 7 is opened permitting steam to pass through pipe 6 and through the swivel T into the pipe. It is preferable to open the valve gradually but fully so as to deliver the streams of steam through the perforations in the pipe 1 and the nozzle 11 at rather high velocity against the areas to be cleaned. While the blowing or blasting is going on the crank or hand-wheel 10 is rotated, which movement, through the system of gears 8, causes the perforated pipe 1 to rotate and the steam, delivered in small streams at high velocity against the inner wall of the smoke stack and the adjoining breeching, is thereby directed in a circular sweeping path to dislodge any carbon or sooty deposits which may have collected thereon. The amount of steam delivered in this fashion will ordinarily be of such volume that the dislodged particles will be forced out of the stack. To aid the upward movement in the stack of the material being

blown out it may be desirable in some cases to drill the perforations slantingly as shown in Figure 4 so that the streams of steam may be directed slightly upward as well as outwardly against the wall of the stack.

While the steam inlet and the gear arrangement is shown near the base of the stack it may be preferable in some cases to situate these parts near the top, that is, above the indicated poop deck level where the temperature within the stack may be somewhat lower and the deteriorating effect of the flue gases upon these members be less severe.

It is obvious that many minor changes may be made in the form and construction of the apparatus without departing from the material principles thereof. It is not therefore desired to confine the invention to the exact form herein shown and described, but it is wished to include all such forms as come within the scope of the claims.

What I claim is:

1. In combination with a smoke stack, a centrally disposed rotatable pipe mounted within the stack and extending substantially the length thereof, said pipe being provided with upwardly slanting perforations throughout its length, a fluid supply pipe extending through the wall of the stack, a fluid-tight connection between the supply pipe and the perforated pipe, and means for rotating the perforated pipe.

2. In combination with a smoke stack, a centrally disposed rotatable pipe mounted within the stack and extending substantially the length thereof, said pipe being provided with upwardly slanting perforations throughout its length, a fluid supply pipe extending through the wall of the stack, a fluid-tight connection between the supply pipe and the perforated pipe, a rotatable shaft, gearing connecting the shaft and perforated pipe whereby the pipe is rotated as the shaft is operated, and means for operating the shaft.

GEORGE W. OSENBURG.