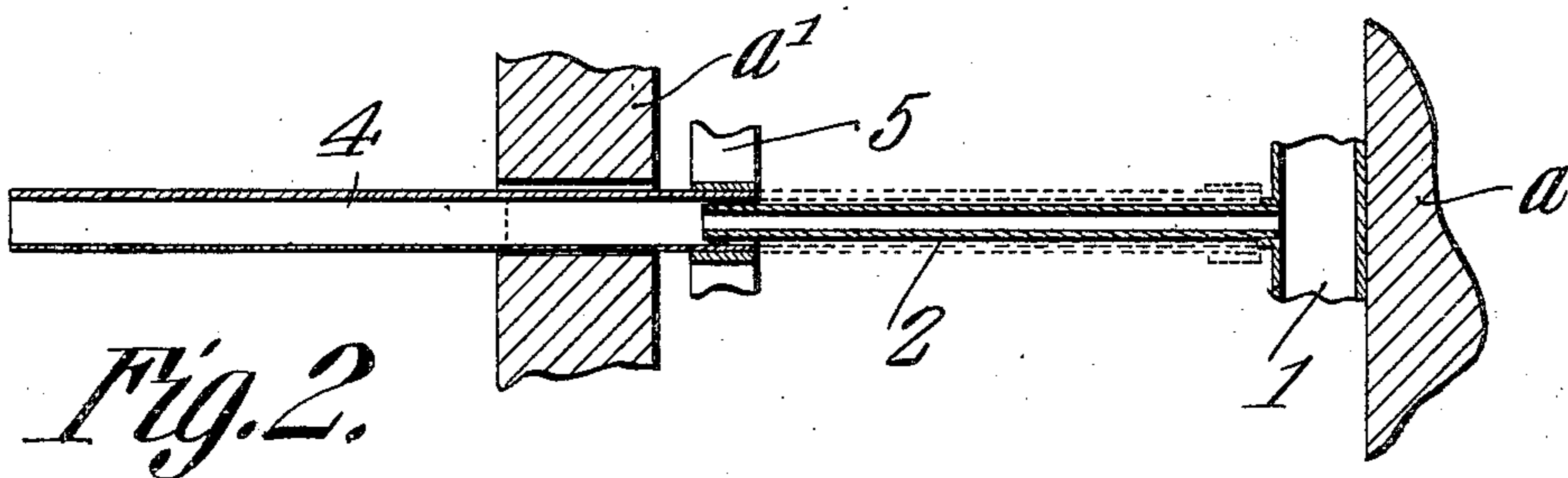
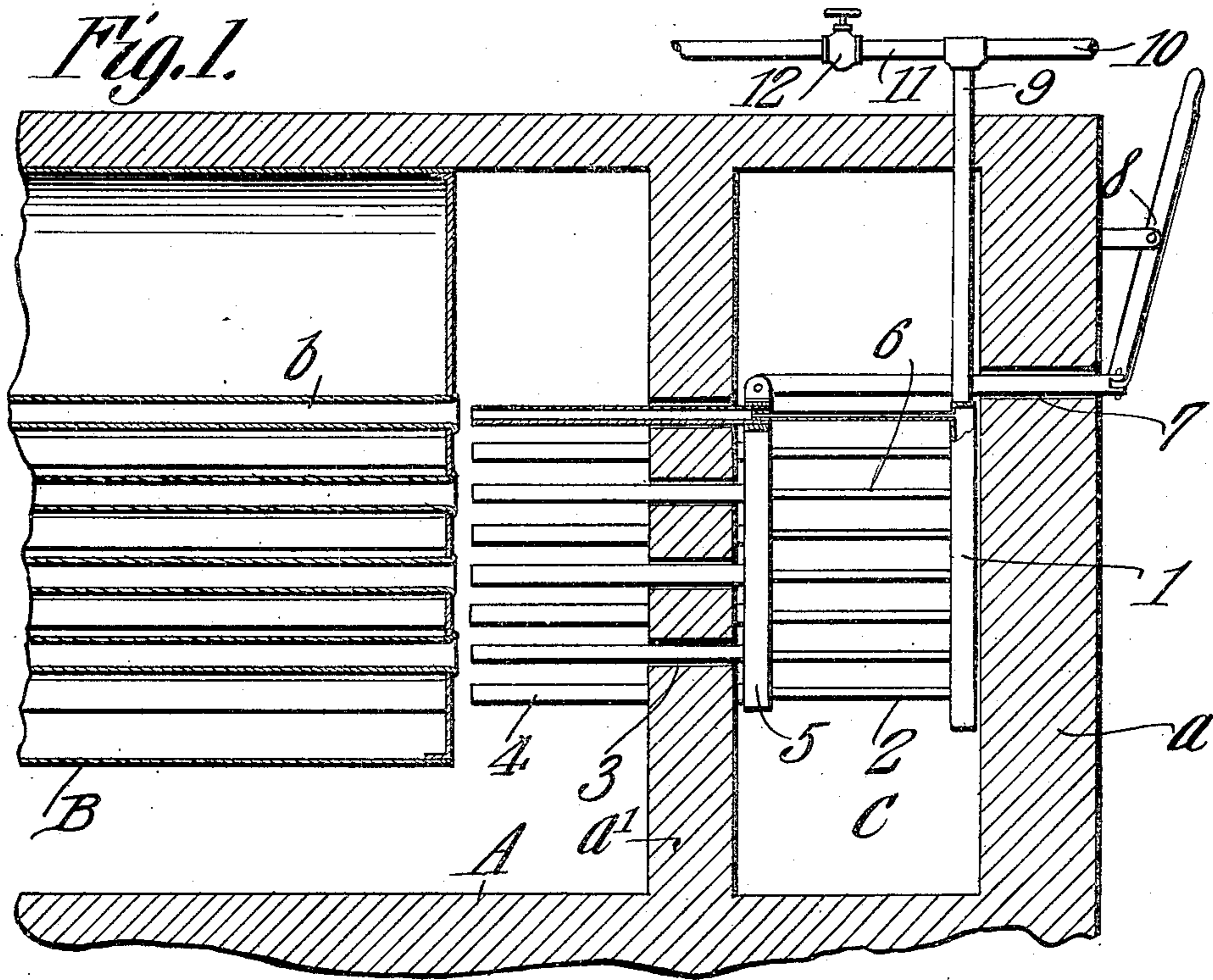


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BOILER FLUE CLEANER.
APPLICATION FILED JUNE 6, 1909.

935,141.

Patented Sept. 28, 1909.



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WILLIAM B. CLOWERS, OF LEHIGH, OKLAHOMA.

BOILER-FLUE CLEANER.

935,141.

Specification of Letters Patent. Patented Sept. 28, 1909.

Application filed June 5, 1909. Serial No. 500,421.

To all whom it may concern:

Be it known that I, WILLIAM B. CLOWERS, a citizen of the United States, residing at Lehigh, in the county of Coal and State of Oklahoma, have invented a new and useful Boiler-Flue Cleaner, of which the following is a specification.

This invention relates to boiler flue cleaners of that type designed to direct jets of steam into the flues for the purpose of driving accumulations of soot, etc. therefrom. Devices of this character such as heretofore designed have been found objectionable because the nozzles employed for directing steam into the flues have been located in the path of the hot products of combustion passing from the fire box to the flues and have therefore soon become burned to such an extent as to render them unfit for use.

The object of the present invention is to provide nozzles which are movably supported and project into the path of the products of combustion only at such times when jets of steam are being directed into the flues.

A further object is to provide a series or "battery" of nozzles which can be readily withdrawn from the path of the combustion products and where they can be supported without danger of injury from the heat.

With these and other objects in view the invention consists in certain novel details of construction and combinations of parts hereinafter more fully described and pointed out in the claim.

In the accompanying drawings the preferred form of the invention has been shown.

In said drawings:—Figure 1 is a longitudinal section through one end portion of a boiler and furnace with the present improvement applied thereto. Fig. 2 is an enlarged longitudinal section through one of the nozzles and its supply tube and through the adjoining parts of the furnace walls. Fig. 3 is a transverse section through a portion of the "battery" of nozzles.

Referring to the figures by characters of reference A designates the rear portion of the furnace structure and B designates a steam boiler having flues *b* arranged longitudinally therein as ordinarily. Interposed between the back wall *a* and the adjoining end of the boiler B, is a partition *a'*, there being a compartment C thus formed between the walls *a* and *a'*.

Supported within the compartment C is a

distributing head 1 from which extends a number of guide and feeding tubes 2, each tube being disposed in alinement with one of the flues *b* of the boiler. These tubes 2 preferably terminate close to the wall *a'* and adjacent openings 3 which are formed within the partition *a'* and also in alinement with the flues *b*. Each tube 2 has a nozzle 4 slidably mounted upon it, all of the nozzles being connected to a plate 5 which serves to hold the nozzles properly assembled at one end. A link 6 extends from the plate 5 and through an opening 7 within the wall *a* and this link is designed to be shifted longitudinally in any preferred manner, as, for example, by means of a lever 8.

The head 1 has a supply pipe 9 opening thereinto and a pipe 10 is designed to direct exhausting steam from an engine and into the pipe 9 while another pipe 11 is designed to direct live steam from the boiler and into the pipe 9, there being a valve 12 for cutting off the supply of live steam when so desired.

It is to be understood that when the nozzles 4 are in their normal positions, their free ends are flush with the face of the wall or partition *a'* which is nearest the boiler *b* and the plate 5 rests close to the head 1. While the parts are thus located exhaust steam from the engine being driven will pass from pipe 10 to pipe 9 and thence to the head 1 from which it will be discharged through the nozzles and into the space between the wall *a'* and the boiler B. Should it be desired to clean the flues *b* by blowing accumulations therefrom, the lever 1 is actuated so as to force the plate 5 longitudinally out the tubes 2. The nozzles 4 will thus be pushed beyond the wall *a'* and close to the open ends of the flues *b* as indicated in Fig. 1. The exhaust steam will thus be directed at once from the nozzles and into the flues. By opening the valve 12 live steam will then be free to rush into the head 1 and thence through the nozzles 4 and into the flues and will, obviously, thoroughly clean the flues by blowing all accumulations from them. As soon as the flues have been cleaned the nozzles 4 can be withdrawn from the smoke box located between the boiler B and the wall *a'*, and they will thus be protected by said wall *a'* against the action of the hot products of combustion passing through the smoke box and into the flues. It will be seen therefore that the nozzles can be used for a long time without being affected by

the heat to such an extent as to be rendered useless.

It has been found that by utilizing apparatus such as herein described it becomes unnecessary to employ a smoke-stack for the purpose of obtaining a draft, because the steam discharged in the flues will cause the proper circulation of the gases through and from the boiler.

It is of course to be understood that various changes may be made in the construction and arrangement of the parts without departing from the spirit or sacrificing the advantages of the invention.

What is claimed is:—

The combination with a furnace and a flue boiler, there being a smoke box extending back of the boiler and a compartment in rear of the smoke box and out of communication therewith, of a distributing head fixedly mounted within said compartment,

valved means for directing steam into the head, parallel guide tubes extending from the head and toward the smoke box, there being apertures in one wall of the smoke box and registering with the tubes, a member slidably mounted on the guide tubes, parallel nozzles fixedly connected to said member and slidably mounted on the tubes and within the openings, means for shifting said member to simultaneously move the nozzles through the apertures toward the tubes of the boiler, or into the compartment and close to the head, and packing interposed between each nozzle and its guide tube.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

WILLIAM B. CLOWERS.

Witnesses:

R. R. CUNNINGHAM,
BOONE WILLIAMS.