T. GRUENWALD.
FLUID JET BLOWER FOR THE CLEANING OF THE TUBES OF WATER TUBE BOILERS.
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To all whom it may concern:

Be it known that I, Teodor Gruenwald, subject of the Emperor of Austria-Hungary, residing at Prague, Bohemia, Austria-Hungary, have invented certain new and useful Improvements in Fluid-Jet Blowers for the Cleaning of the Tubes of Water-Tube Boilers, of which the following is a specification.

The U. S. application filed 23 October, 1914, refers to a fluid jet blower for flue boilers in which a mixture of steam and hot gases created in the fire box is blown through the flues to be cleaned. The present invention relates to the same cleaning principle as the above mentioned application which principle is now applied to water tube boilers. The invention will now be described with reference to the accompanying drawings in which—

Figure 1 in one half is a front view and in the other half is a cross section of a Yarrow water tube boiler with the cleaning apparatus applied thereto.

Fig. 2 is a lateral view of the water tube boiler according to Fig. 1.

Fig. 3 is a detail of a supporting means for the apparatus.

Fig. 4 is a detail of the aspiration head of the apparatus.

In these figures 1 is the aspiration head being substantially of the same construction as the one illustrated and claimed in the above mentioned U. S. application. This aspiration head is connected to a rigid steam pipe 5 which may also be made out of telescopic parts in case the length of the water tube bundle should require this. The aspiration head essentially consists in a double walled tubular piece with an inside passage 1 open toward either end and a second passage 2 communicating by holes 3 with the passage 1 and having a connection 4 adapted to connect with the steam conduit. The aspiration head or the steam pipe 5 connected to it are suspended on pipe 6 by means of a hook 7 or similar attachment and pipe 6 is fastened against the walls of the smoke or fire box. In the inside of the pipe 6 outside air may circulate for cooling said pipe. The aspiration head introduced into the smoke box or fire box by a small opening in the wall and suspended in the described manner on the mentioned pipe 55 may be displaced at pleasure between the walls and turned around the tube 6 whereby the working range of the apparatus may be increased. Tube 5 is provided at its outside end with a handle 8 by means of which it may be revolved and with it the aspiration head. Tube 5 connects by means of a flexible metallic tube 9 to the rigid tube 10 with the steam space of the boiler.

The described kind of suspension of the cleaning apparatus may be advantageously used in all water tube boilers having vertical or vertically inclined water tubes. In water tube boilers with horizontal arrangement of the tubes the tubes will serve themselves as supporting and guiding means for the cleaning apparatus during the operation. In other boiler types convenient detachable tubular supports may be temporarily applied against the wall of the smoke box as shown in Fig. 3 by supporting sleeve 11 during the cleaning operation while these latter supports are always taken off when the cleaning operation is terminated.

I claim:—

1. Means for cleaning the tubes of water tube boilers comprising a longitudinally movable tube adapted to be inserted through a small opening of the smoke box or fire box wall and to be moved along and in the immediate proximity of the water tubes, a steam supply pipe connecting said tube to the steam space of the boiler, an aspiration head arranged on the front end of said tube and provided with means for causing the steam to draw the hot combustion gases into said head and to project the mixture of steam and hot gases from the head in the immediate proximity of and onto the tubes to be cleaned.

2. Means for cleaning the tubes of water tube boilers comprising a longitudinally movable tube adapted to be inserted through an opening in the wall of a boiler smoke or fire box and to be rotatably moved along and in the immediate proximity of the water tubes, a steam supply pipe connecting said tube to the steam space of the boiler, an aspiration head on the front end of the said tube and provided with means to cause steam flowing through the tube and head to
draw hot combustion gases in the head and to project the mixture of steam and gases onto the tubes, and guide means for said pipe comprising a guiding and supporting member secured within the boiler, and a supporting hook carrying said pipe and slid-able on said member.

In testimony whereof I have affixed my signature in presence of two witnesses.

TEODOR GRUENWALD.

Witnesses:

ADOLPH FISCHER,

RUDOLF SCHOUERK.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D.C."