Nov. 18, 1924.

1,516,017

W. F. KEENAN, JR

SOOT BLOWER FOR BOILERS

Filed Jan. 29 1921

3 Sheets-Sheet 1

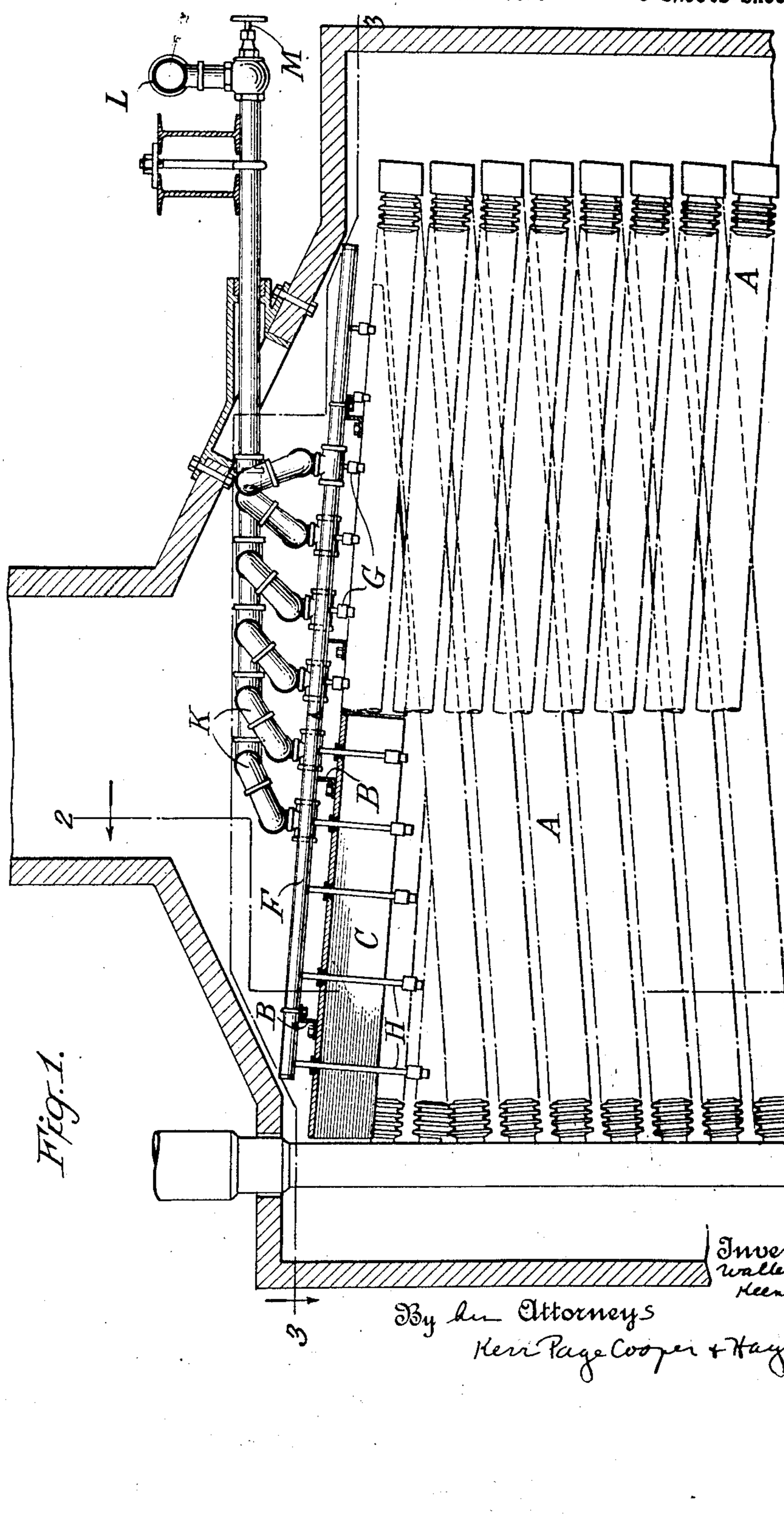

Fig. 1.

Inventor
Waller F. Keenan Jr

By his Attorneys
Kerr Page Cooper & Hayward

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3 Sheets-Sheet 2

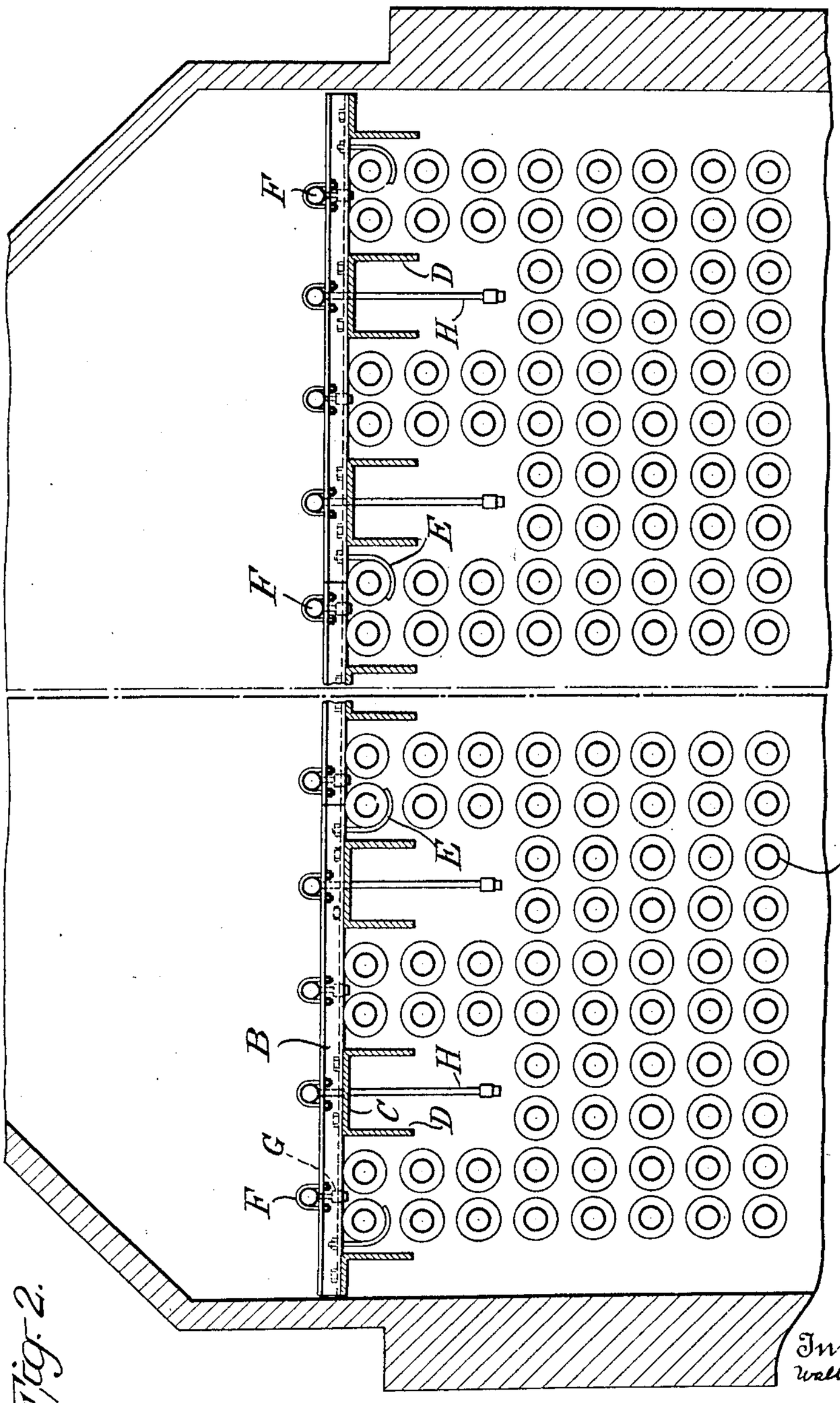

Fig. 2.

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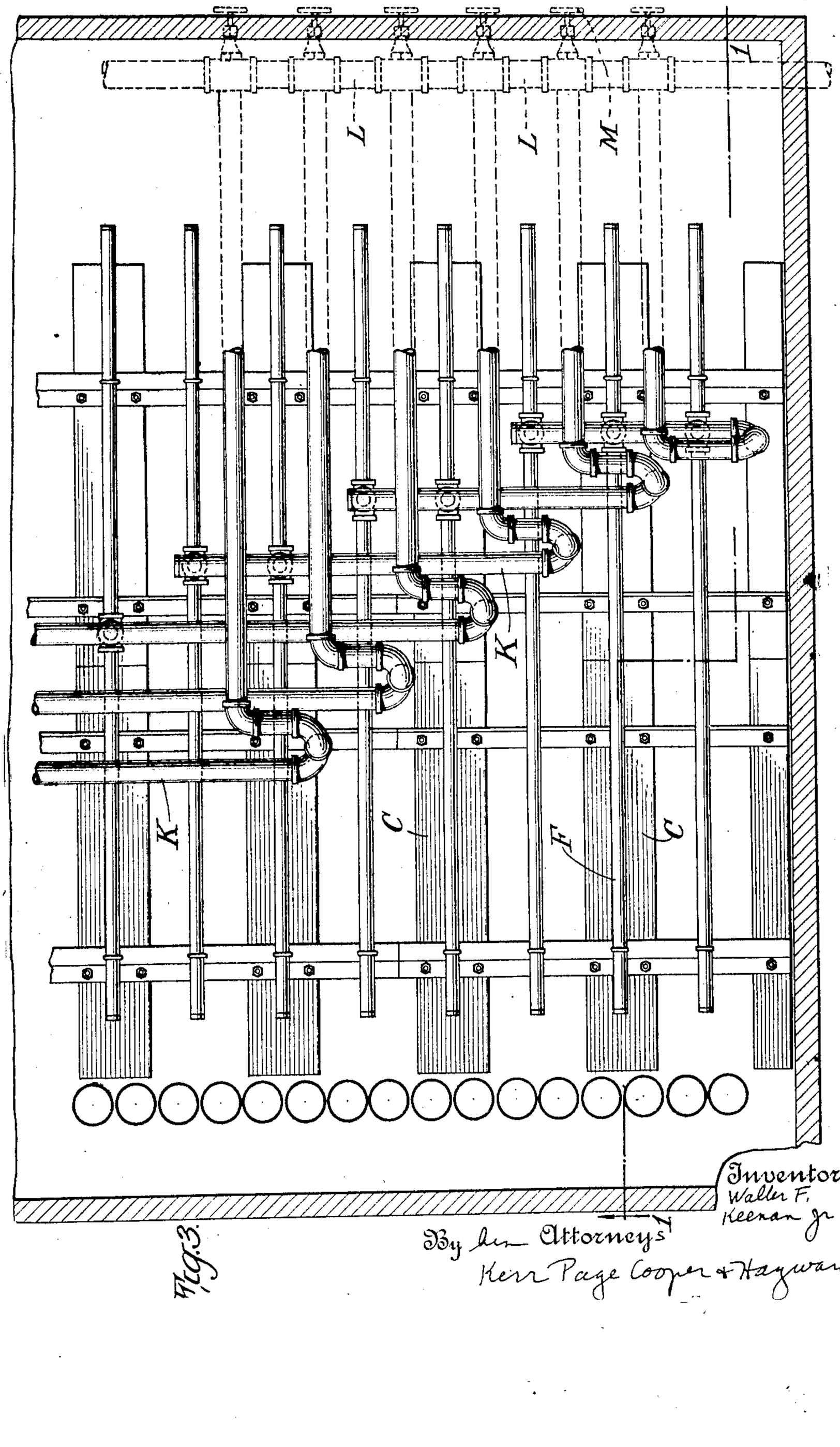

Fig. 3.

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Patented Nov. 18, 1924. 1,516,017

UNITED STATES PATENT OFFICE.

WALTER F. KEENAN, JR., OF NEW YORK, N. Y., ASSIGNOR TO POWER SPECIALTY COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

SOOT BLOWER FOR BOILERS.

Application filed January 29, 1921. Serial No. 440,848.

To all whom it may concern:

Be it known that I, WALTER F. KEENAN, Jr., a citizen of the United States, residing at New York, in the county and State of New York, have invented certain new and useful Improvements in Soot Blowers for Boilers, of which the following is a full, clear, and exact description.

The invention for which I now seek protection by Letters Patent is an improvement in soot blowers designed for use with boilers of a specific form or type.

In the drawings hereto annexed

Fig. 1 is a sectional view on line 1—1 of Fig. 3 of the special boiler to which the improvement is applicable.

Fig. 2 is a section of the same on the line 2—2 of Fig. 1 and

Fig. 3 is a similar sectional view on the line 3—3 of Fig. 1.

The boiler which I have herein shown except for the specific form of baffling employed is not of my devising and in itself forms no part of my invention, but as it is typical of those to which my improvement is especially applicable it will be described so far as is necessary to a full understanding of the present case.

The boiler has a large number of heating tubes A arranged in vertical parallel planes, and above the tubes are beams B, suitably supported to which are secured relatively narrow baffle plates C parallel with the boiler tubes and with depending sides D. Where these baffles are located two or more of the horizontal rows of boiler tubes A are at a lower point and form open spaces and as these spaces are covered by the baffles the hot gases are thereby forced to flow up between the intermediate vertical rows of tubes. As the weight of the beams B with the attached baffles is not excessive, the beams may rest upon the bank of tubes and are secured in position by clips E which embrace a certain number of said tubes.

It is commonly known that all boilers are liable to collect soot and impurities on the tubes from the hot gases which sweep them and in order to prevent this accumulation interfering with the free transfer of heat I combine with tubes a novel form of soot blower which I shall now describe.

Over the beams B and properly secured thereto is a series of parallel tubes F provided with nozzles G, H, placed over alternate spaces between the vertical rows of tubes. This requires every alternate tube F to be provided with long nozzles H which pass down through the baffle plates C, while the other nozzles G are short and lie directly over the spaces between tube rows. The long nozzles extend for the proper distance to bring them close to the tubes as shown in Fig. 1.

Above the beams B and the tubes F are supported a series of pipes K which lead from a main supply pipe L and are provided with cocks or valves M. Each pipe K has a right angled bend in order to allow for contraction and expansion under varying temperature without impairing the connections or interfering with their proper operation and each of said pipes K is connected with one, two or more of the parallel tubes F so as to supply steam or air under pressure thereto.

Whenever it may be required by conditions of use, one or more or all of the valves M are opened to admit steam or compressed air to the pipes K and this, passing to the tubes F, escapes through the nozzles G, H, and creates a powerful blast over the boiler tubes and removes any soot or dust that may have accumulated thereon.

In the boiler shown the number and disposition of the nozzles or jets is adequate for the purpose intended and by the construction described ample provision is made for all contingencies, such as expansion and contraction which are met with in actual practice.

I am aware that soot blowers are not broadly new but my improvement resides in the special design and construction of the device which is hereinbefore set forth.

What I claim is:—

The combination with a boiler having a bank of substantially parallel tubes having beams supported transversely above the same, certain of said rows of tubes being omitted at intervals to provide open spaces in said bank, narrow inverted channel like baffles entirely supported by the said beams and over the open spaces in said bank and vertically spaced from the tubes thereunder, of a plurality of tubes carried by said beams,

nozzles in said tubes, certain of said nozzles being disposed between the baffles and others being disposed in alignment therewith and extended downwardly through openings therein to points below the bottom of said channel baffles and valved controlled connections between said nozzle supplying tubes and a main supply of steam or compressed air so designed as to compensate for contraction and expansion.

In testimony whereof I hereto affix my signature.

WALTER F. KEENAN, JR.