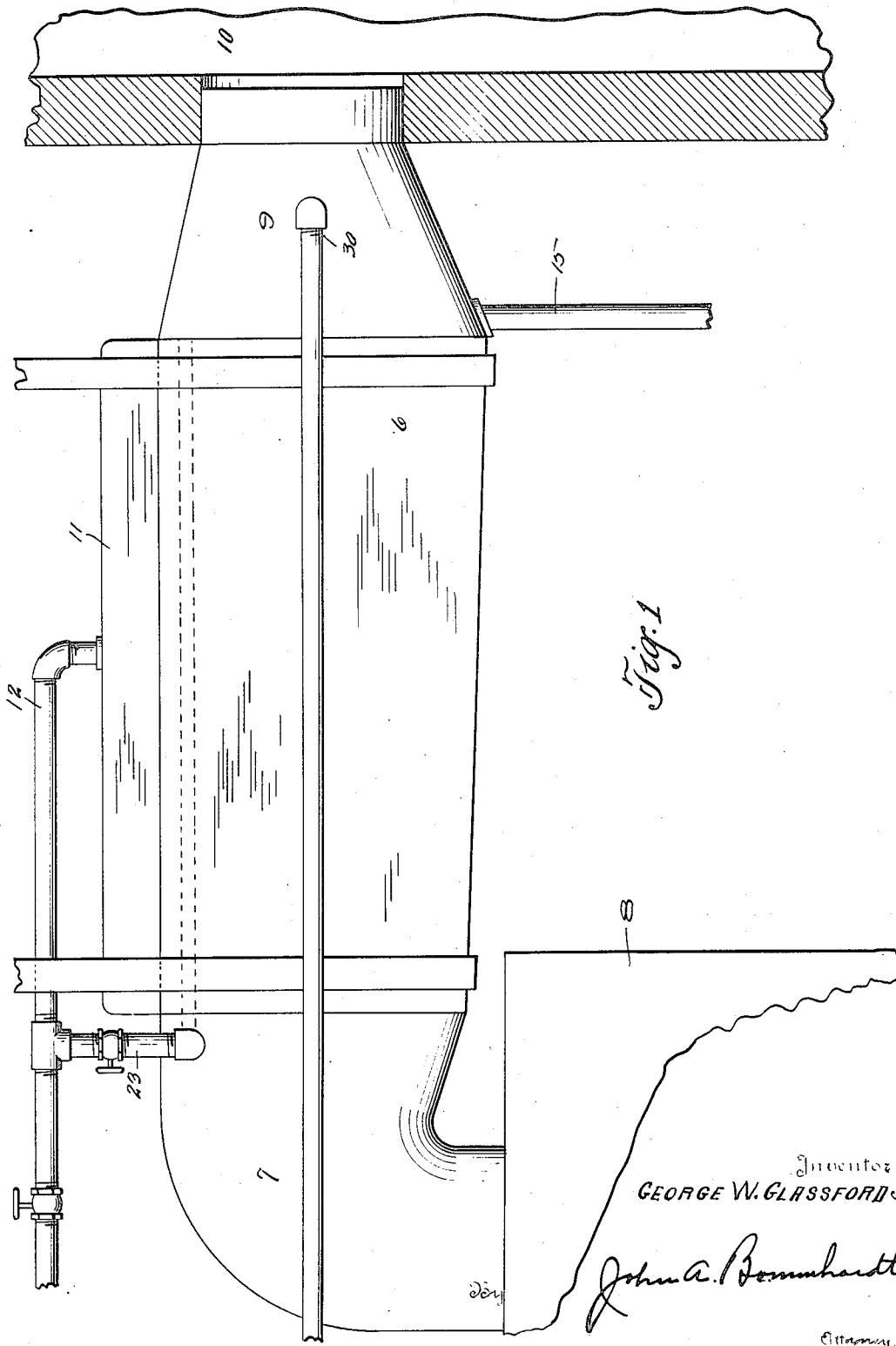


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APPLICATION FILED JUNE 2, 1917.

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Patented Dec. 31, 1918.
3 SHEETS—SHEET 1.



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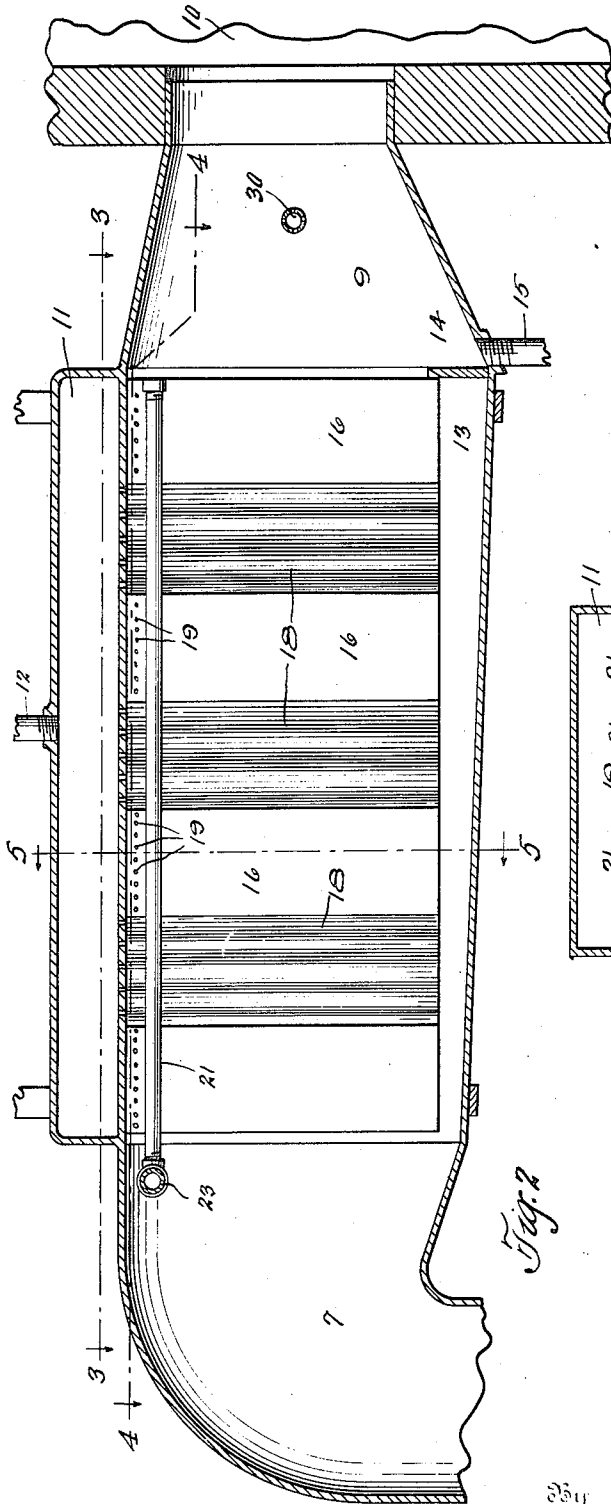


Fig. 2

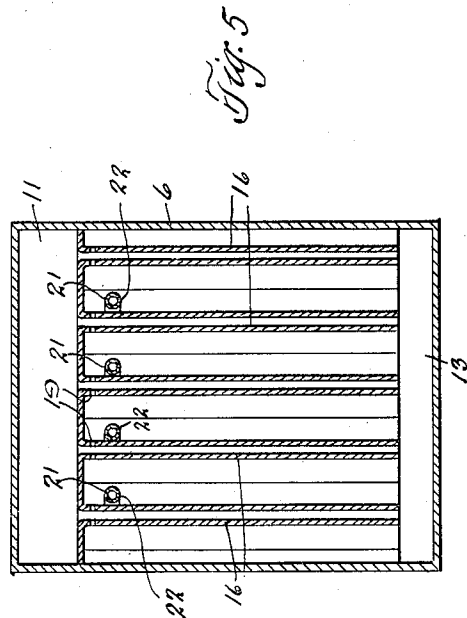


Fig. 5

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Fig. 3

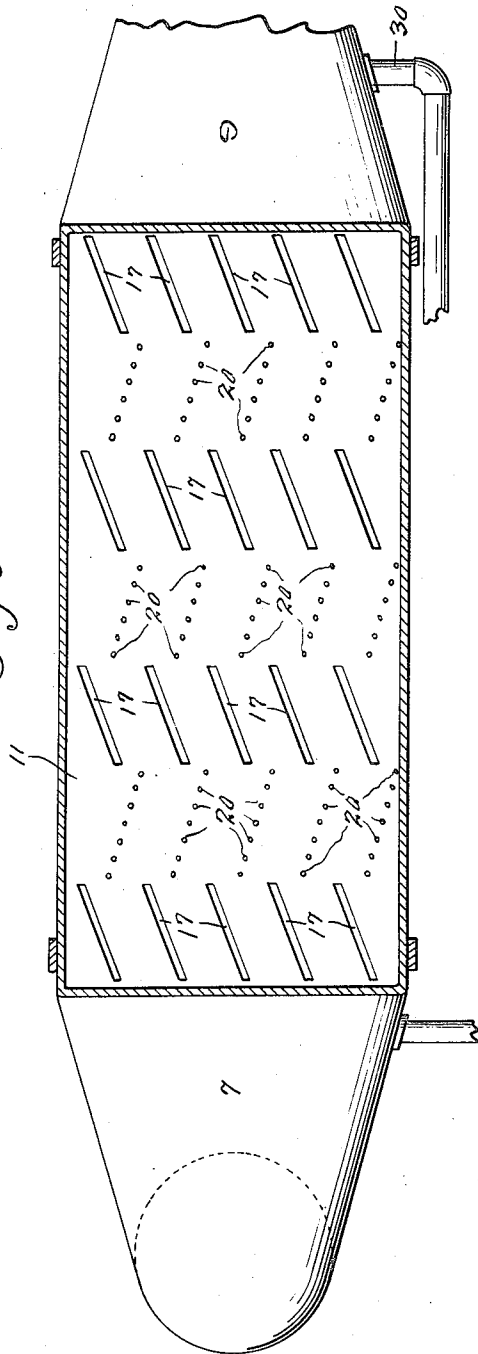
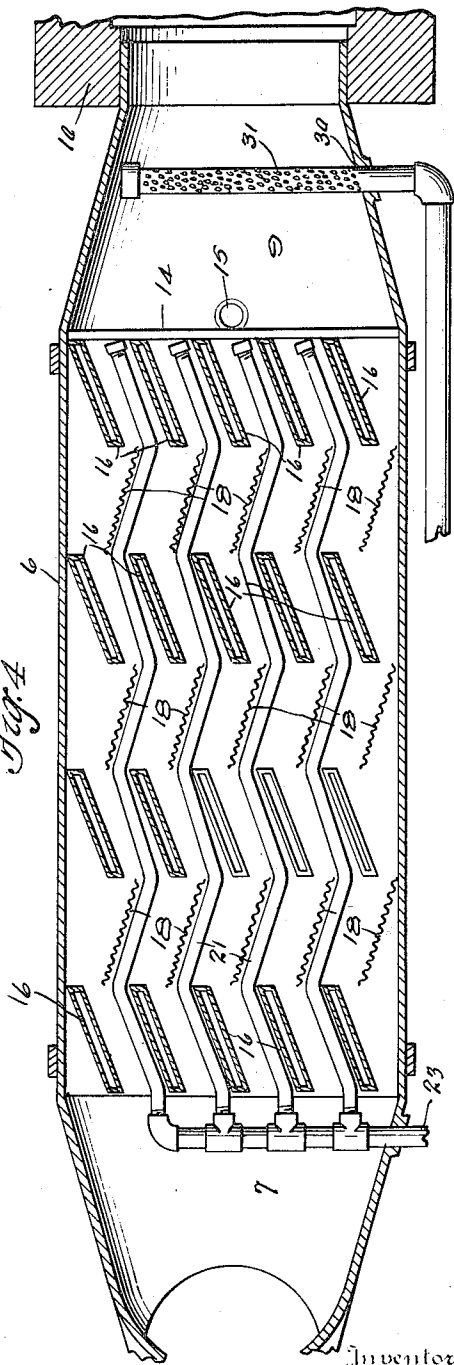


Fig. 4



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UNITED STATES PATENT OFFICE.

GEORGE W. GLASSFORD, SR., OF CLEVELAND, OHIO.

SMOKE WASHER OR PURIFIER.

1,289,439.

Specification of Letters Patent.

Patented Dec. 31, 1918.

Application filed June 2, 1917. Serial No. 172,514.

To all whom it may concern:

Be it known that I, GEORGE W. GLASSFORD, Sr., a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Smoke Washers or Purifiers, of which the following is a specification.

This invention is a washer or purifier for smoke and has for its object to provide an improved device for preventing the discharge from a stack of thick black smoke which is prohibited by many municipal regulations.

The apparatus comprises a conduit or chamber through which the smoke flows, and this chamber has therein a series of baffles of different kinds forming staggered passages, and means are provided for flowing water down the outer surface of the baffles, and in the passages therebetween, whereby the dirty smoke passes through a water spray and across wet surfaces, which washes out the soot, and finally the washed smoke is subjected to the action of steam to correct any dark color due to remaining sooty particles.

The invention is illustrated in the accompanying drawings in which—

Figure 1 is a side elevation of the washer; Fig. 2 is a vertical longitudinal section thereof;

Fig. 3 is a section on the line 3—3 of Fig. 2;

Fig. 4 is a section on the line 4—4 of Fig. 2; and

Fig. 5 is a vertical cross section on the line 5—5 of Fig. 2.

Referring specifically to the drawings, 6 indicates a casing or conduit for the smoke, communicating at one end through an elbow 7 with the smoke box 8 of the boiler and at the other end through a pipe 9 with the smoke stack 10. This casing or conduit is shown as rectangular in cross section, but may be of any shape desired. Mounted upon or forming a part of the casing is a water tank 11 which covers the top of the casing and has a water inlet pipe 12. The bottom of the casing is inclined downwardly toward the stack, and forms a bottom water chamber 13, from which water overflows a ledge 14 to a discharge pipe 15 through which the water and collected soot go to waste.

Extending vertically across the casing 6,

within the same, are a series of rows of hollow baffles 16 the upper ends of which communicate through openings 17 with the water tank 11 and the lower ends of which open into the settling chamber 13. These rows are spaced apart, and in the spaces therebetween are a series of rows of corrugated sheet metal baffles 18, which stand vertically. The hollow baffles 16 are inclined one way with respect to the direction of flow of smoke through the conduit, and the sheet metal baffles 18 are inclined the other way, so that a plurality of zig-zag passages are produced, between the baffles, through which the smoke flows from the inlet to the outlet. Water is flowed over the surfaces of these baffles. With respect to the hollow baffles, this is accomplished by means of a row of small holes 19 near the upper end of each wall, and with respect to the sheet metal baffles 18, water is supplied through rows of small holes 20 in the bottom of tank 11, these holes being located closely adjacent to the upper edge of the baffles referred to. Water thus drips down the outer surfaces of the baffles and washes the soot out of the smoke as it flows therebetween.

A further supply of water is provided in the passages between the baffles, by means of a series of water pipes 21, bent to conform to the zig-zag shape of the passages and located in the upper part thereof. These pipes have spray holes 22 in the lower sides thereof, and water discharged thereover is sprayed into the passages and wash the smoke passing therethrough. The pipes are supplied through a branch pipe 23 from the water main 12.

Finally, in the outlet connection 9 I provide a steam pipe 30 with numerous small perforations 31 through which a spray of steam is discharged into the smoke as it enters the stack, to give it a light or grey color.

When sooty smoke is passed through the apparatus above described the soot is washed therefrom by the action of the water flowing down the surfaces of the baffles and sprayed into the passages therebetween, and the water flows into the lower pan 13 and with the collected soot overflows to the escape pipe 15. It may be noted that the edge of the overflow ledge 14 is sufficiently high to form a water seal for the lower ends of the baffles, so that the smoke is confined to the zig-zag passages between the same.

I claim:

1. A washer for smoke or the like, comprising a conduit for the smoke, a plurality of vertical hollow baffles extending across
5 said conduit, and means to flow water down the outer surfaces of said baffles.
2. A washer for smoke or the like, comprising a conduit for the smoke, a plurality of hollow vertical baffles disposed within the
10 walls of said conduit, said baffles having openings through the same to feed water from the inside to the outside of said baffles, to moisten the external surfaces thereof.
3. A washer for smoke or the like, comprising a horizontal conduit for the smoke,
15 a plurality of hollow baffles having perforations through the walls thereof, a water tank on top of the conduit, communicating with the interior of the baffles, and a discharge outlet for water at the bottom of the
20 conduit.
4. A washer for smoke or the like comprising a horizontal conduit for smoke, a series of vertical baffles within said conduit, forming zig-zag passages through the same, 25 and means to spray water into said passages.
5. A washer for smoke or the like comprising a conduit having a water collecting pan in the lower part thereof, a series of
30 vertical baffles extending across said conduit and depending into the pan below the water level therein, and means to feed water into the passages between the baffles.
6. A washer for smoke or the like, comprising a conduit having a water collecting
35 pan in the lower part thereof, a series of vertical baffles extending across said conduit and depending into the pan below the water level therein, and means to feed water into the passages between the baffles, said
40 means including a series of pipes extending lengthwise in the upper part of the passages.

In testimony whereof, I do affix my signature in presence of two witnesses.

GEORGE W. GLASSFORD, SR.

Witnesses:

JOHN A. BOMMARDT,
ALTON H. BEMIS.