

(No Model.)

C. W. JARRELL.

GAS WASHER.

No. 413,515.

Patented Oct. 22. 1889.

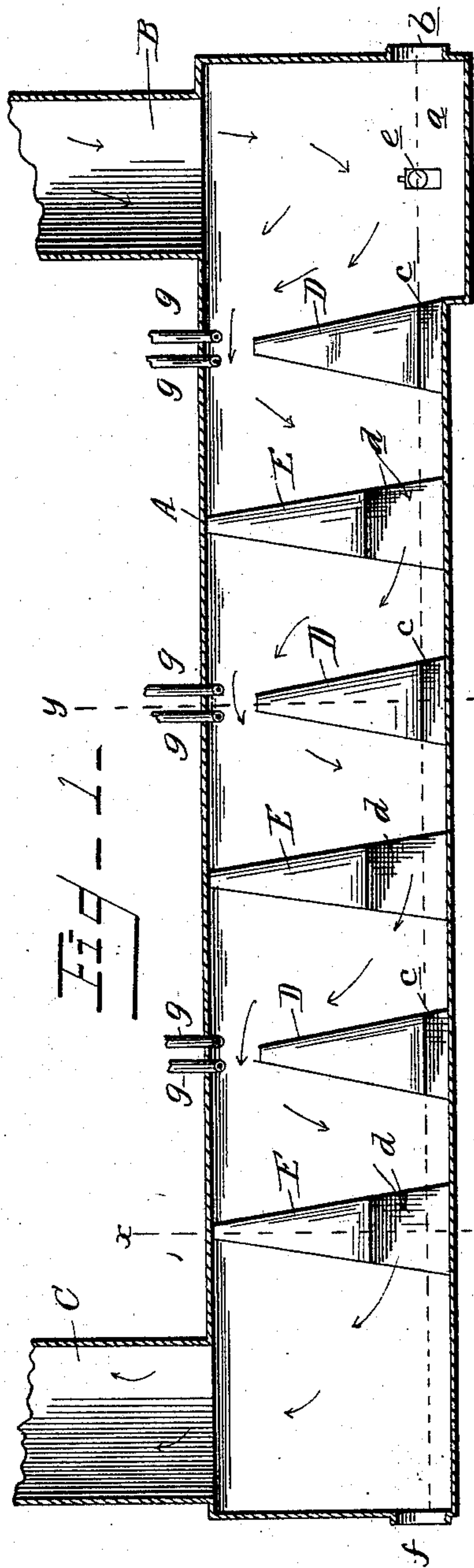


Fig. 1--

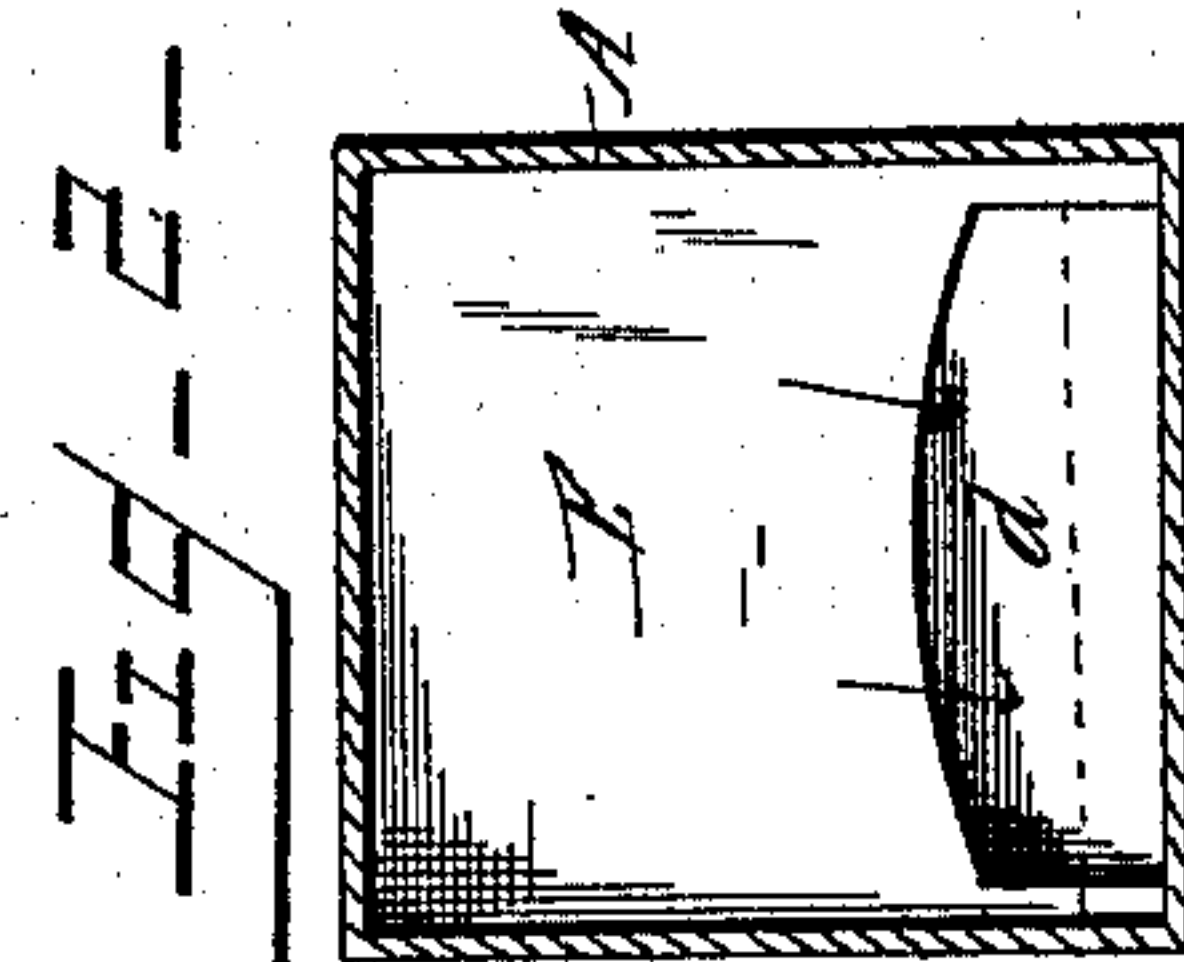
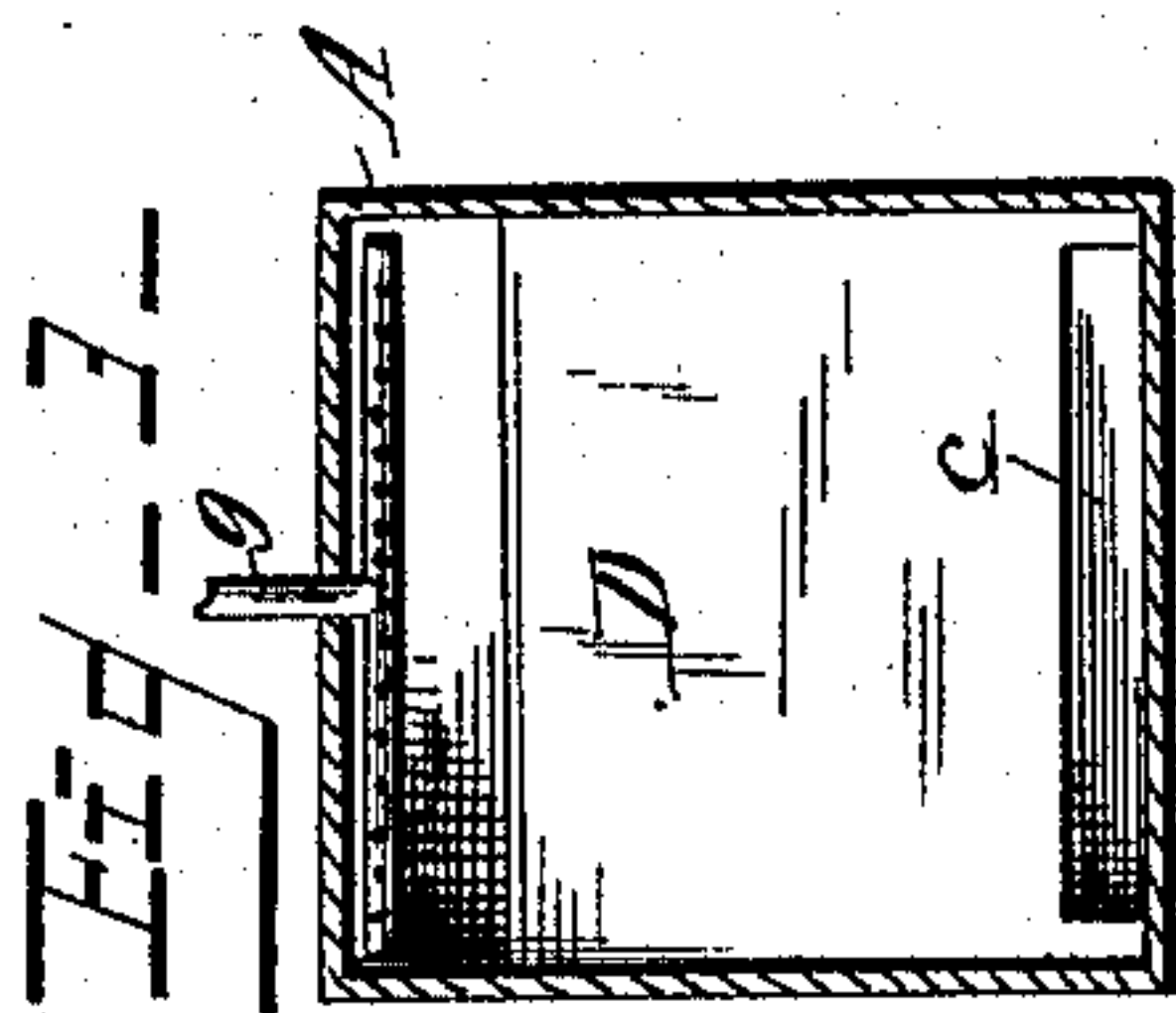
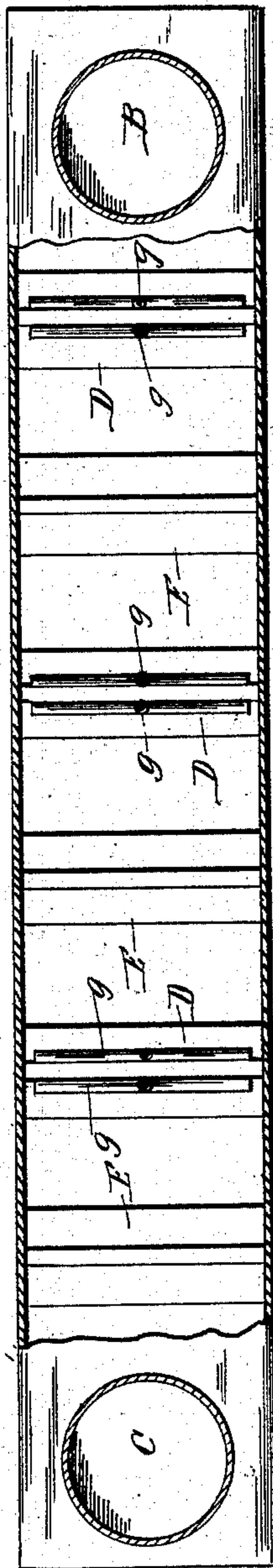


Fig. 2--

Fig. 3--

Fig. 4--



Witnesses

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UNITED STATES PATENT OFFICE.

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GAS-WASHER.

SPECIFICATION forming part of Letters Patent No. 413,515, dated October 22, 1889.

Application filed July 19, 1889. Serial No. 318,041. (No model.)

To all whom it may concern.

Be it known that I, CHARLES WADDY JARRELL, a citizen of the United States, residing at Shelby, in the county of Shelby and State of Alabama, have invented certain new and useful Improvements in Gas-Washers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to certain new and useful improvements in gas-purifying apparatus; and it consists, substantially, in such features of arrangement, construction, and combinations of parts, as will hereinafter be more particularly described and claimed.

The object of the invention is to provide an apparatus for purifying waste gases of furnaces, so as to enable use to be made of such gases for various purposes in the arts.

The invention also has for its object to provide a gas-purifying apparatus possessing marked simplicity in its construction as compared with many former inventions for a similar purpose.

Finally, the invention has for its object to obtain better results in a shorter space of time, all as will more fully hereinafter appear, when taken in connection with the accompanying drawings, wherein—

Figure 1 represents a longitudinal sectional elevation of a gas-purifying apparatus constructed in accordance with my invention. Fig. 2 is a vertical transverse sectional view taken on the line $x x$, and Fig. 3 is a similar view on the line $y y$. Fig. 4 is a top or plan view partly cut out to disclose the interior arrangement.

In carrying my invention into effect I provide a longitudinal conduit or passage-way, in which are arranged or constructed a series of double inclined bridge-walls, which alternate with a series of division-walls throughout the entire length of the apparatus. Sufficient space is left between said bridge and division walls to allow of a free flow or passage of gas, and in order that such gas be subjected to a greater extent of treatment in its passage through the apparatus it is made

to travel in a zigzag path. To enable such a path to be followed, openings or spaces are left between the tops of the bridge-walls and the top of the apparatus, while like openings or spaces are provided between the lower ends of the division-walls and the bottom of the apparatus. Openings are formed in the bridge-walls at the bottom to enable me to have a continuous water-bed along the bottom of the apparatus, such bed being usually maintained on a level with the top of the openings in the bridge-walls, so as not to permit the passage of gas therethrough and compelling it to pass upward over the tops of said walls. The spaces between the lower ends of the division-walls and the bottom of the apparatus are larger than the openings in the bridge-walls, which permit of the passage of the gas through and over the surface of the water-bed.

Above the top of each bridge-wall are two transverse spray-pipes, so arranged as to send a spray of water down upon each inclined side of the said walls, and the result of my whole construction of apparatus is that by the attrition the globules or vesicles are more thoroughly broken up, and consequently a much better purification obtained.

Reference being had to the several parts of the drawings by the letters marked thereon, A represents my improved purifier, B the pipe conveying the gas from furnace, and C the outlet for the purified gas to a main or other source.

In the bottom, at the end to which the pipe B connects, a chamber a is provided, in which heavy particles of dirt and foreign matter fall, and which may be cleaned out at any time through an opening b , provided for that purpose, and closed over while the apparatus is in use.

D represents bridge-walls arranged on the bottom of the shell A suitable distances apart, the sides of said walls being tapering or inclined toward the top, while openings c are formed through them at the bottom, as shown, so as to enable a bed of water to extend all the way through the apparatus.

Depending from the top of A and alternating with the bridge-walls D are the division-walls E, said walls being also preferably in-

clined, and having spaces d between their lower ends and the bottom of the shell A, the said spaces being large enough to admit the water through them, as well as permit the passage of gas in the direction indicated by the arrows. The water is kept at the level indicated in dotted lines, Fig. 1, and may be discharged at any time through the cock e in the side of the casing or shell A. In one end of the shell A, also, there is a man-hole f , for permitting access to the interior for the purpose of cleaning out the accumulations of dirt and foreign matter deposited during the passage of the gas.

15 Above each of the bridge-walls D are two transverse perforated spray-pipes g g , so arranged as that the spray of water from them will strike the inclined sides of such walls, and be thereby broken up and caused to increase attrition of the particles of gas. By inclin-

20 ing the faces of the bridge and division walls reversely with respect to each other contracted or reduced spaces are formed between the two walls at the points where the gas passes over the surface of the water-bed in the bottom of the casing or purifier A and

through the openings in the division-walls. Consequently the gas is made to come in direct contact with the water in the bottom of A each time it passes down. Furthermore, by inclining the faces of the bridge-walls and locating the spray-pipes relatively thereto, as shown, the water in striking such faces is caused to bound off and into the path of the gas, and thereby tend to increased results.

35 Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The shell or casing A, having the double inclined bridge-walls D, formed with the openings c , and the double inclined division-walls alternating with said bridge-walls and having the enlarged spaces d , in combination with spray-pipes so arranged as to cast a spray against the sides of the bridge-walls, substantially as described.

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

CHARLES WADDY JARRELL.

Witnesses:

JOHN P. SPENCER,
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