T. E. MURRAY & C. B. GRADY.

APPARATUS FOR TRAPPING PARTICLES IN SUSPENSION IN GAS CURRENTS.

APPLICATION FILED MAY 15, 1914.

1,132,678. Patented Mar. 23, 1915.

Fig. 1.

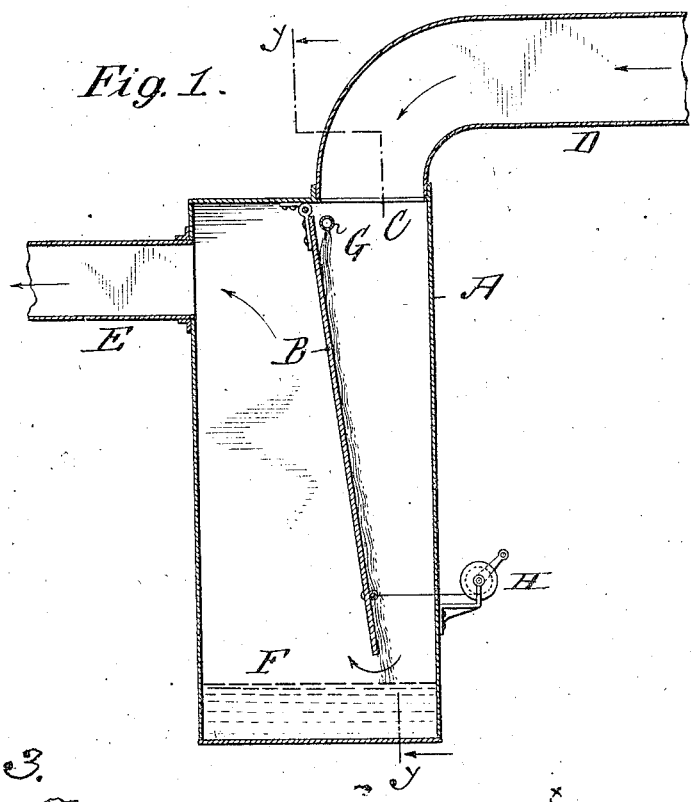
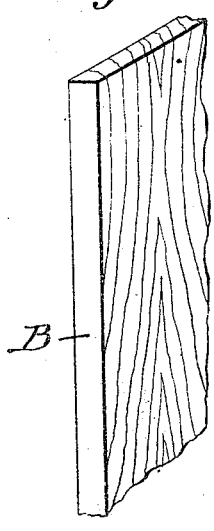


Fig. 3.



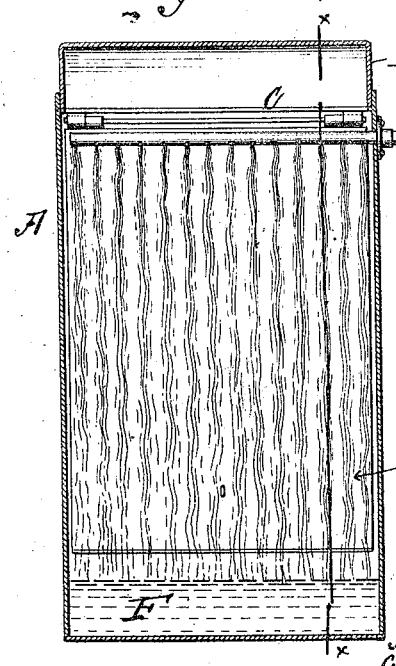


Fig. 2.

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UNITED STATES PATENT OFFICE.

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APPARATUS FOR TRAPPING PARTICLES IN SUSPENSION IN GAS-CURRENTS.

1,132,678. Specification of Letters Patent. Patented Mar. 23, 1915.

Application filed May 15, 1914. Serial No. 838,847.

To all whom it may concern:

Be it known that we, THOMAS E. MURRAY and CHARLES B. GRADY, citizens of the United States, residing at New York, in the county of New York and State of New York, have invented a certain new and useful Improvement in Apparatus for Trapping Particles in Suspension in Gas-Currents, of which the following is a specification.

In U. S. Letters Patent No. 1,073,620, granted to myself and Charles B. Grady, Sept. 23, 1913, we have described an apparatus for trapping particles in suspension in gas currents, wherein the incoming current is directed upon a swinging plate, down which is maintained a flow of liquid, in which liquid said solid particles are engaged. In using this apparatus in actual practice to purify a hot gas current from the flue of a steam boiler, in which apparatus the descending liquid stream is water, we find that the swinging plate, especially if of steel or iron, becomes rapidly attacked and destroyed, this result being apparently due to the chemical union of the gas and water forming a corrosive acid. We have discovered that this difficulty can be prevented by making the plate of wood.

Ordinarily it might be supposed that such a plate would be quickly charred or burned by the boiler gases, but we find this not to be the case, since the water flow sufficiently protects it. Whether from slight carbonization or from the initial attack of the generated acid, the said surface becomes coated with a dark and seemingly refractory film which resists both chemical attack, or the effects of the hot gas current, and the plate lasts indefinitely. We have made such a plate twelve feet long and five feet high, and submitted it to the action of the gas current from one 650 horse power boiler. After four months' use, it shows no evidence of deterioration. We have also made another such plate fifty feet long and five feet high, and submitted it to the action of the gas current from a battery of three 650 horse power boilers. After six weeks' use, it shows no evidence of deterioration.

In the accompanying drawings we show a simple form of cinder-trapping apparatus embodying our above-described invention.

Figure 1 is a section on the line x, x of Fig. 2. Fig. 2 is a section on the line y, y of Fig. 1, and Fig. 3 is a perspective view of a portion of the swinging plate.

Similar letters of reference indicate like parts.

A is a casing, in which is disposed the swinging plate B which, as above explained, is to be made of wood. We find cypress wood to be well adapted for the purpose.

C is the inlet opening communicating by flue D with the source of gas current to be purified, which source, not shown, may be a steam boiler.

E is the outlet duct for the purified gas. A body of water F is maintained in the bottom of casing A. A pipe G connected with a source of water supply enters said casing, extends across the upper part of the plate B and is perforated on its lower side so that the incoming water is delivered upon said plate in a plurality of descending streams. The area of the outlet opening at the bottom of plate B may be varied by means of the cord and hand reel, shown at H, for the purposes fully described in the above named Letters Patent. The hot gas entering from flue D meets the descending water streams on swinging plate B, and proceeding downward is projected upon the water F in the lower part of the casing, wherein the solid suspended particles are entrapped. The purified gas escapes from the casing by the outlet duct E.

We claim:

A device of the type set forth for trapping particles in suspension in a dry gas current, comprising a plate of wood, means for delivering liquid upon the surface of said plate, and means for delivering the dry gas current to be purified upon said wet surface.

In testimony whereof we have affixed our signatures in presence of two witnesses.

THOMAS E. MURRAY.
CHARLES B. GRADY.

Witnesses:
GERTRUDE T. PORTER,
MAY T. MCGARRY.