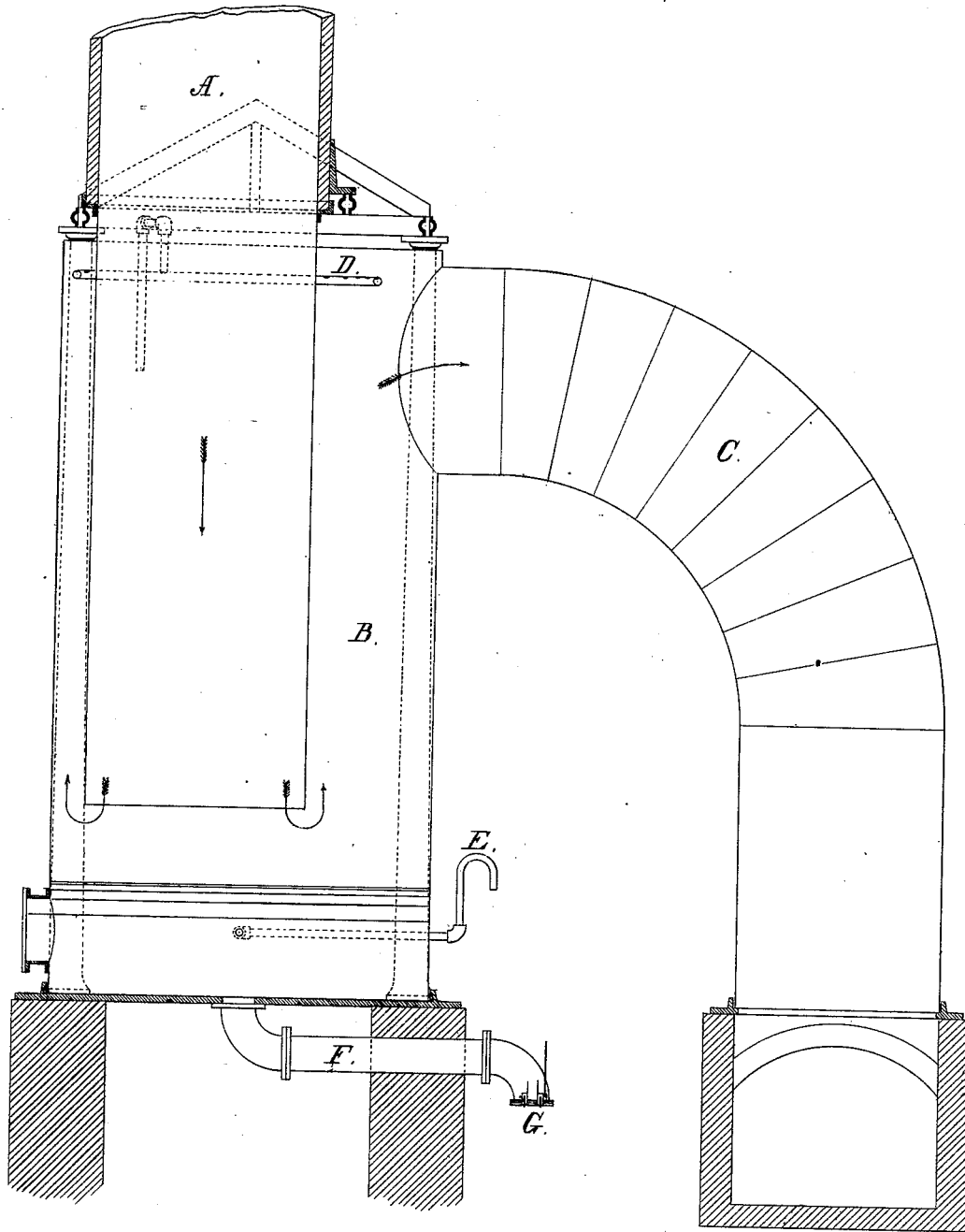


D. N. JONES.
Apparatus for Washing Gases.

No. 204,577.

Patented June 4, 1878.



Witnesses:
Lynn Elder
David Peck

Inventor:
Daniel N. Jones

UNITED STATES PATENT OFFICE.

DANIEL N. JONES, OF JOHNSTOWN, PENNSYLVANIA, ASSIGNOR OF ONE-HALF HIS RIGHT TO CAMBRIA IRON COMPANY.

IMPROVEMENT IN APPARATUS FOR WASHING GASES.

Specification forming part of Letters Patent No. **204,577**, dated June 4, 1878; application filed October 6, 1877.

To all whom it may concern:

Be it known that I, DANIEL N. JONES, of Johnstown, in the county of Cambria and State of Pennsylvania, have invented certain Improvements in Apparatus for Washing Gases, of which the following is a specification:

The object of my invention is to purify the waste gases from blast and other furnaces from dust and other substances contained therein, which I effect by bringing them in contact with water, as hereinafter described.

In the accompanying drawing the figure shows a vertical transverse section of the apparatus invented by me.

A in the figure represents the gas-conduit pipe leading down from the top of the furnace or gas-generator. The lower end of this pipe projects six or more feet into the washing-tub B. By preference I make this tub B cylindrical, out of wrought-iron, and let the pipe A enter it eccentrically, as shown in the figure. The top of the washing-tub B closes upon the pipe A, and close to the top of the tub B is the discharge-pipe C, through which the gases, after having been washed, are drawn off, to be used for heating or other purposes needed. Within and at the top of the washing-tub B are fastened pipes D, which are kept supplied with water from the outside. These pipes D are suitably perforated with small holes, through which sprays of water escape in an upward direction, coming in contact with the top of the washing-tub or some other obstruction, which causes the water to be finely divided or broken up, so that in falling to the bottom of the tub through the ascending gases the descending water and ascending gases are brought more thoroughly into contact with each other. The water collecting in the bottom of the tub B flows off through the siphon-shaped overflow-pipe E, the horizontal leg of which is always submerged.

By lengthening or shortening the vertical leg of the overflow-pipe E the level of the water in the bottom of the washing-tub may be raised or lowered, as desired.

From the bottom of the washing-tub B leads the drain-pipe F, closed by a valve, G, through which the water and dirt collected at the bot-

tom of the tub may be drawn off at proper intervals of time.

The operation of this apparatus is as follows: The gas, passing through the conduit-pipe A and entering into the washing-tub B in the direction of the arrows, is first forced to pass over the surface of the water collected in the bottom of the washing-tub B, and then rises through a spray of falling water to pass out through the discharge-pipe C. The dust mechanically carried along with the gases is thus moistened and falls to the bottom of the tub, where it collects with the water in the shape of mud, and can readily be drawn off by means of the pipe F and valve G. At the same time the water will absorb any ammonia and carbonic acid contained in the gases, and thus increase their value for heating purposes.

The height to which the water is collected in the bottom of the washing-tub depends upon circumstances, and can be readily adjusted by changing the vertical leg of the overflow-pipe E.

My invention will have the most utility when applied to the washing of waste gases from blast-furnaces, which carry a large amount of dust, as is shown not only by the improved combustion of the waste gases, but also by the amount of dirt collected in the drain-pipe F, which is found in practice to be very large.

I am aware that gases from blast-furnaces have been purified by passing them over water, and do not claim this.

I am also aware that the process of washing and purifying gas by passing it through sprays of water is old, and that perforated spray-pipes in apparatus for washing gas are also old, and I therefore make no claim to such process and apparatus, broadly.

I claim as my invention—

The combination and arrangement of the gas-conduit pipe A, washing-tub B, and gas-discharge pipe C with spray-pipes D and waste-pipes E and F, substantially as and for the purpose hereinbefore set forth.

DANIEL N. JONES.

Witnesses:

CYRUS ELDER,
DAVID PEELOR.