

(No Model.)

2 Sheets—Sheet 1.

B. S. DUNN.
AIR AND GAS MIXING MACHINE.

No. 553,517.

Patented Jan. 28, 1896.

FIG. I.

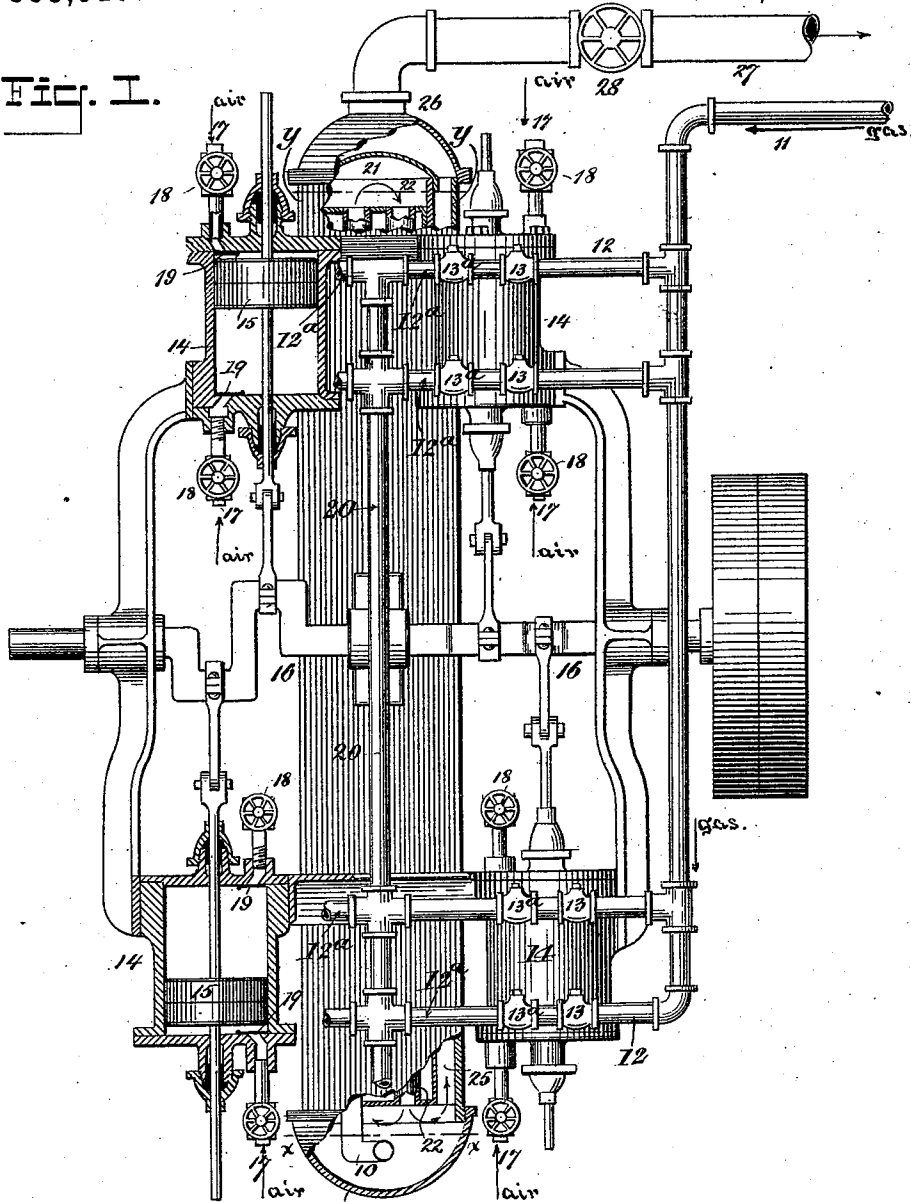
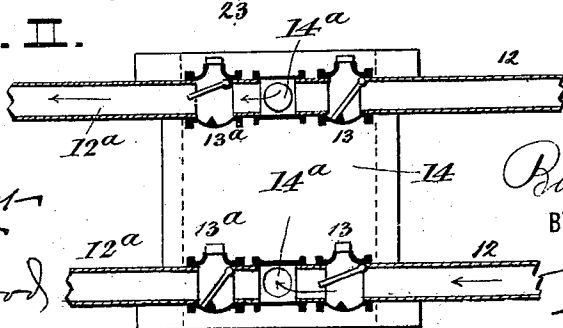


FIG. II.

WITNESSES:

D. D. Mott
C. V. Bedford



INVENTOR

Ballard S. Dunn

BY

Frederick S. Dunn
ATTORNEYS

(No Model.)

2 Sheets—Sheet 2.

B. S. DUNN.
AIR AND GAS MIXING MACHINE.

No. 553,517.

Patented Jan. 28, 1896.

Fig. III.

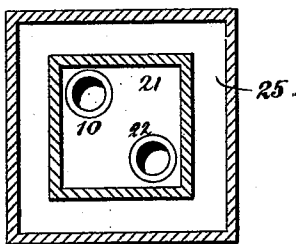
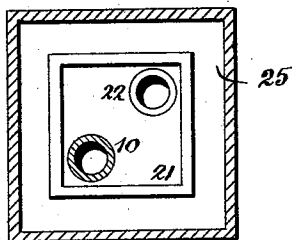


Fig. IV.



WITNESSES:

S. D. Mott
W. V. Bidgood

INVENTOR

Ballard S. Dunn
BY *Wm. G. Mott*

ATTORNEYS

UNITED STATES PATENT OFFICE.

BALLARD S. DUNN, OF BROOKLYN, NEW YORK.

AIR AND GAS MIXING MACHINE.

SPECIFICATION forming part of Letters Patent No. 553,517, dated January 28, 1896.

Application filed February 13, 1895. Serial No. 538,223. (No model.)

To all whom it may concern:

Be it known that I, BALLARD S. DUNN, a citizen of the United States, residing at Brooklyn, county of Kings, State of New York, have invented certain new and useful Improvements in Air and Gas Mixing Devices, of which the following is a specification.

My improvement relates to an air and gas mixing device; and my invention consists in novel features of construction hereinafter described and claimed.

In order that my invention may be fully understood, I will proceed to describe it with reference to the accompanying drawings, in which—

Figure I is a front elevation of my improved device for mixing air and gas. Fig. II is a section in the plane of the pump-valves. Fig. III is a cross-section through the upper end of the mixing-chambers and casing, taken on line *yy* of Fig. I. Fig. IV is a cross-section through the lower end thereof, taken on the line *xx* of Fig. I.

11 is a gas-pipe, which communicates by branch pipes 12 through check-valves 13 and ports 14^a with both ends of the double-acting suction and force pumps 14, whose pistons 15 are driven by any suitable transmitter 16, which is geared or belted to a revolving shaft or axle of the driving machinery.

17 are air-inlets to pump-cylinder 14, controllable by means of throttles 18 and having check-valves 19 by which, at the operator's discretion, volumes of air can be supplied to the said pumps.

20 is a combined air and gas pipe communicating with both ends of the pump-cylinders 14 through the branch pipes 12^a, the check-valves 13^a being interposed therein to prevent a backflow. The pipe 20 connects at its lower end with a pipe 10, which passes up through and discharges into a central mixing-chamber 21, which chamber communicates through a pipe 22, running parallel with pipe 10, with another mixing-chamber 25 surrounding the chamber 21 and formed with a

crown or dome 26, from which extends a supply or discharge pipe 27 having a regulating-cock 28.

The operation of the device is briefly as follows: The air and gas are drawn into the pump-cylinders through their respective pipes and discharged from the opposite ends of the pump-cylinders at the alternate strokes of the pistons into the combined air and gas pipe 20, from which the mixture passes through pipe 10 into chamber 21, through pipe 22 and into chamber 25, when the air and gas will be thoroughly blended and ready for use.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. The combination of the separate and distinct air and gas pipes, means communicating with said pipes for drawing the air and gas therethrough, the combined gas and air pipe communicating with said pipes, through said means, the mixing chamber, into which said combined gas and air pipe discharges, a surrounding chamber or jacket communicating with said mixing chamber through a suitable pipe, a crown or dome to said surrounding chamber or jacket, and a discharge pipe leading from said dome, substantially as set forth.

2. The combination of the combined gas and air pipe 20, the mixing chamber 21, the pipe 10 communicating between the combined gas and air pipe 20 and said mixing chamber, the surrounding chamber or jacket 25 inclosing the mixing chamber 21, the pipe 22 communicating between the mixing chamber 21 and lower end of chamber or jacket 25, a dome 26 to said external chamber or jacket 25, and a discharge pipe 27 having a valve 28, substantially as set forth.

BALLARD S. DUNN.

Witnesses:

M. V. BIDGOOD,
C. M. OTT.