April 6, 1926. 1,579,384

T. E. MURRAY

FORCED DRAFT APPARATUS

Filed Jan. 28, 1921 2 Sheets-Sheet 1

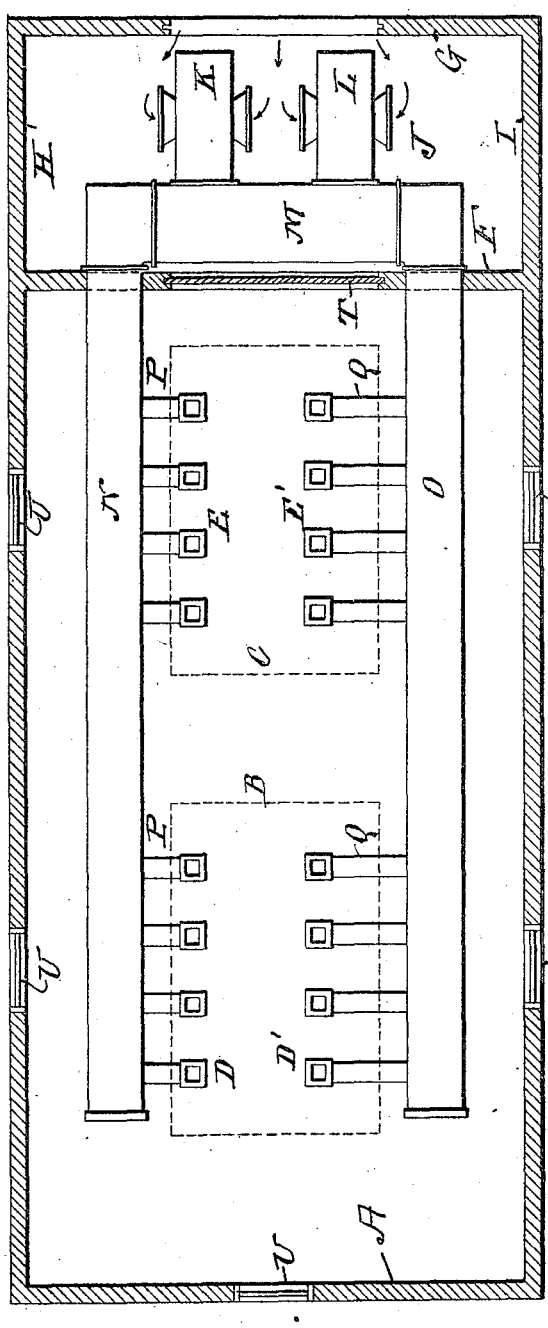

Fig. 1.

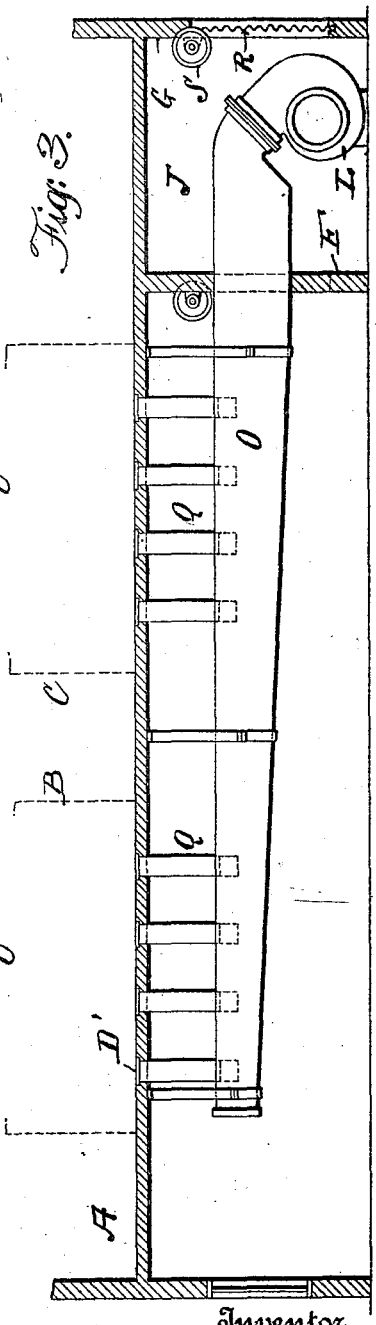

Fig. 2.

Inventor
Thomas E. Murray
By his Attorney Paul Benjamin

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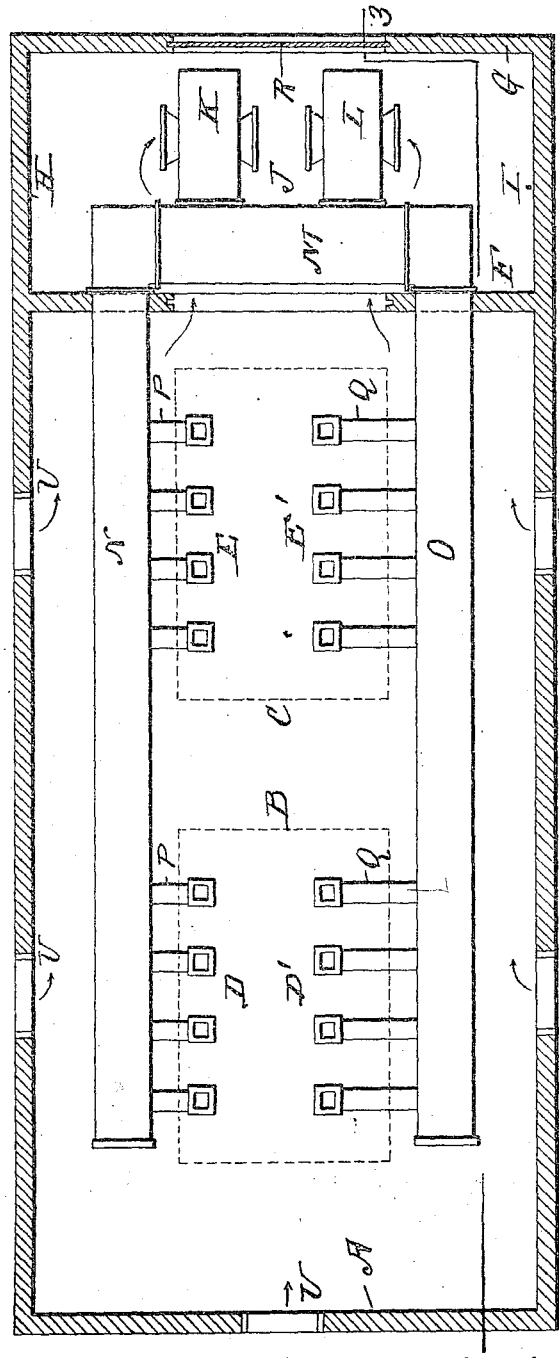

Fig. 2.

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Patented Apr. 6, 1926. 1,579,384

UNITED STATES PATENT OFFICE.

THOMAS E. MURRAY, OF BROOKLYN, NEW YORK.

FORCED-DRAFT APPARATUS.

Application filed January 28, 1921. Serial No. 440,822.

To all whom it may concern:

Be it known that I, THOMAS E. MURRAY, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented a certain new and useful Improvement in Forced-Draft Apparatus, of which the following is a specification.

In installing forced draft apparatus in industrial establishments, such as electric generating stations, it is customary to locate the fans in the basements or on the boiler-room floors and draw the air from the boilerhouse proper. This has resulted in making the boilerhouses uncomfortable for the firemen in cold weather, and causes freezing of gage glasses, water lines, etc. The effect of this arrangement is also to cause a vacuum inside the building due to the operating men refusing to have windows or doors open. The result is that the buildings are generally closed up tight, leaving only the cracks and around doors and windows for the entrance of air which is required by the boilers. In some stations this has resulted in a vacuum of five-tenths to six-tenths of an inch water gage. This results in cutting down the effective draft due to the height of the stack, thereby reducing the available capacity of the boilers if the stack capacity is not amply large.

My present invention eliminates the foregoing difficulties and consists in the construction of the forced draft controlling apparatus, hereinafter described, whereby in cold weather the air may be drawn directly from the outer atmosphere to the boiler furnaces without passing through the rooms or compartments of the building, while in warm weather it may be drawn through said rooms or compartments and so serve to cool and ventilate the same.

In the accompanying drawings—

Fig. 1 is a plan view of the basement of a building in which my apparatus is shown installed, the doors or valves being disposed to permit cold air to be drawn directly to the furnaces without passing through the rooms of the building. Fig. 2 is a similar view, showing the doors or valves disposed to permit of the air being drawn through the rooms before delivery to the furnaces. The floor is omitted in Figs. 1 and 2, in which figures the boilers are shown in dotted lines. Fig. 3 is a vertical section on the line 3, 3 of Fig. 2.

Similar letters of reference indicate like parts.

A is a building in which are located the boilers B, C (dotted lines) to which forced draft is to be delivered. D and D′ are the furnaces of boilers B, and E and E′ the furnaces of boilers C.

In the basement of the building I construct a transverse partition F to form with the end wall G and portions of the side walls H, I, a room or compartment J in which I place the blower fans K, L. Both fans communicate with a transverse duct M in said room. From duct M lead the ducts N and O which pass through the partition F. The duct N by branch ducts P delivers forced draft to the furnaces D and E, and the duct O by branch ducts Q delivers forced draft to the furnaces D′ and E′.

In the end wall G, I install a door or valve R—here shown as a roller door of the flexible type which may be wound upon or unwound from the roller S and so raised or lowered to close the opening in said wall, through which opening air from the atmosphere may pass to the room J. In the partition F is a similar roller door T which can be raised or lowered to close the opening in said partition, through which opening air from the building may pass to the room J.

The operation is as follows:

During cold weather, as in winter time, the partition door T is closed and the door R in the end wall is opened (Fig. 1). Air is then drawn by the fans from the outer atmosphere and forced through the ducts M and N, O to the furnaces directly, no circulation of said forced draft then being caused through the rooms of the building.

In warm weather, the partition door T is opened and the end wall door R is closed (Fig. 2). If the side walls have windows, as U, these also may be opened. The fans will then draw air from the windows and through the building before delivering the same to the ducts M and N, O and so to the furnaces.

In this way, my apparatus protects the workmen and appliances from the effects of cold drafts in winter, while affording ample ventilation and cool circulation through the building in summer.

I claim:

1. An industrial installation comprising a boiler room and boiler furnace, a forced draft duct leading to the combustion cham-

ber of said furnace, means for forcing air for combustion only through said duct and means for bringing the inlet of said duct at will into communication with either the interior of said boiler room so as to take out the warm air therefrom and keep the interior cool, or the outer atmosphere so as to keep the interior warm.

2. An industrial installation comprising a boiler room and boiler furnace, a forced draft duct leading to the combustion chamber of said furnace, means for forcing air for combustion only through said duct, a separate closed compartment communicating respectively with the interior of the boiler room and with the outer atmosphere with which compartment the inlet of said duct communicates, and valves for closing the communication of said compartment with the interior and the outer atmosphere respectively.

In testimony whereof I have affixed my signature.

THOMAS E. MURRAY.