

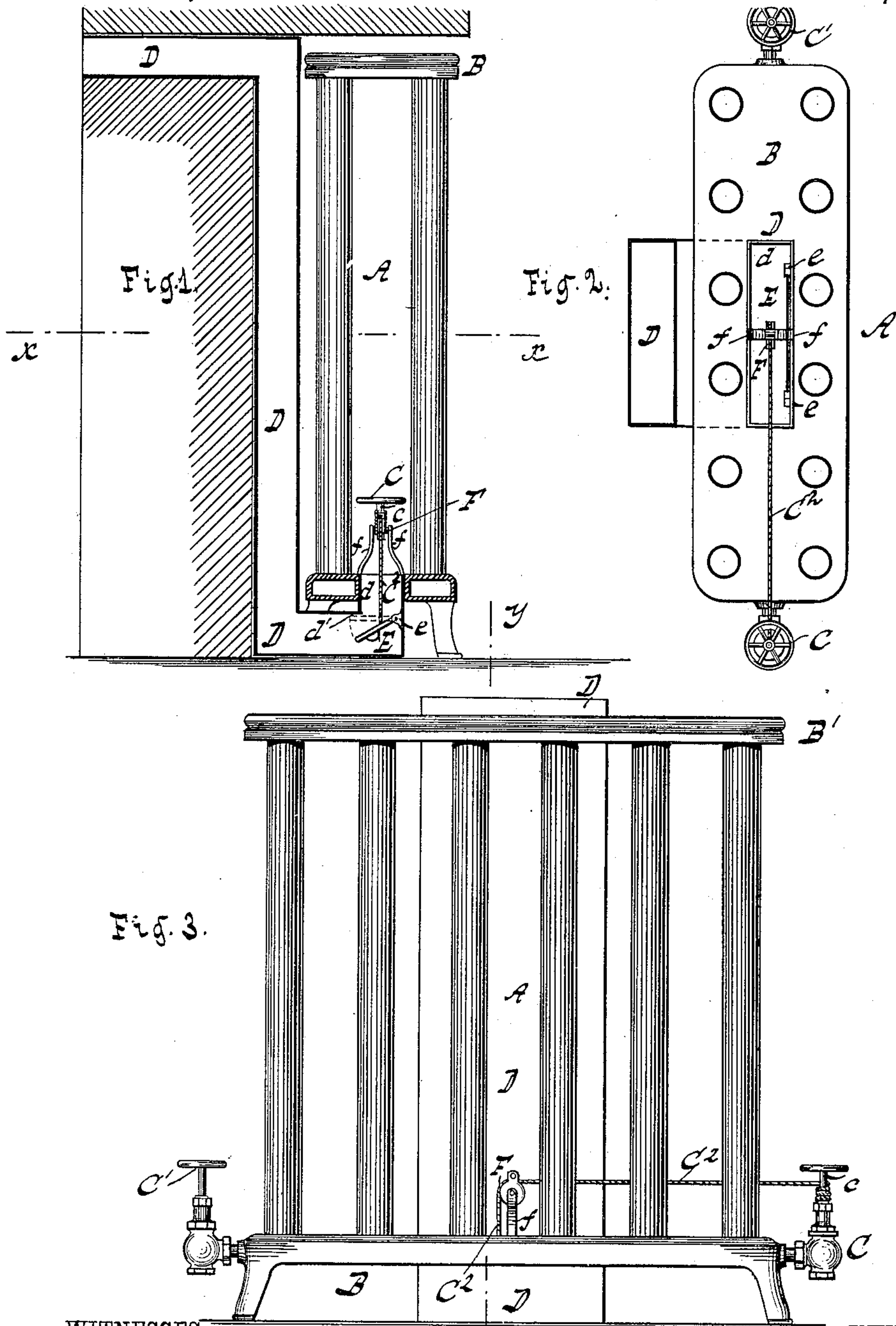
(No Model.)

J. L. WELLS.

AIR HEATER.

No. 344,295.

Patented June 22, 1886.



WITNESSES:

*Alfred du Puy*  
*William Miller*

INVENTOR

*John L. Wells.*  
BY  
*Van Santvoord & Haupt*  
his ATTORNEYS



# UNITED STATES PATENT OFFICE.

JOHN LELAND WELLS, OF NEW YORK, N. Y.

## AIR-HEATER.

SPECIFICATION forming part of Letters Patent No. 344,295, dated June 22, 1886.

Application filed July 9, 1885. Serial No. 171,110. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN LELAND WELLS, a citizen of the United States, residing at New York, in the county and State of New York, have invented new and useful Improvements in Air-Heaters, of which the following is a specification.

This invention relates to air-heaters; and it consists in the construction and combination of devices hereinafter described and claimed, reference being made to the accompanying drawings, illustrating my invention, in which—

Figure 1 is a vertical transverse section in the plane *yy*, Fig. 3, of an apparatus embodying my invention. Fig. 2 is a horizontal section thereof in the plane *xx*, Fig. 1. Fig. 3 is a side elevation.

Similar letters indicate corresponding parts.

In the drawings, the letter A designates a steam-radiator having suitable chambers, B B', and provided with a steam-inlet valve, C, at one end of the lower chamber, and an outlet-valve, C', at the opposite end thereof.

In the example shown in the drawings the radiator is of rectangular shape, and ordinary steam-pipes, *a a*, &c., extend between the chambers; but the construction of the radiator can be varied in any manner without departing from the spirit of my invention.

D is the air-duct, which opens at one end into the open air and extends downward and then upward through the lower chamber, B, of the steam-radiator, a suitable aperture being formed in the latter about central and between the rows of pipes to allow the admission of air, and also in order that the air will be obliged to pass between the said pipes. In the mouth *d* of the air-duct is a valve, E, which is hinged at *e e* to the wall of the duct, while its free edge extends out sufficiently to abut against the edge *d'* of the duct when the valve is closed, as shown by dotted lines in Fig. 2. In order that the valve may close air-tight, it is well to line the edge of the same or the edge of the duct with rubber or the like. This valve is connected with the inlet-valve C by a chain or cord, C<sup>2</sup>, which is secured at one end to the duct-valve and at the other to the stem *e* of the inlet-valve, and when the latter valve is turned in the proper direction to wind up the cord or chain on the stem, thereby closing off the supply of steam, the duct-valve will be

brought to bear upon the edge of the duct and close off the supply of air, and vice versa. The chain or cord passes over a suitable pulley, F, having bearings F' in standards *f f*, secured either to the air-duct or to the radiator.

In order to insure the opening of the duct-valve when the steam-valve C is turned in the proper direction to increase the supply of steam to the radiator, I weight the said valve either by securing a weight thereto or, when the valves are of cast metal, by forming suitable lugs thereon during the process of casting.

It is evident that by causing the duct-valve to be operated directly by the steam-inlet valve of the radiator all liability of freezing or damage to the radiator is avoided, since whenever the steam-supply is shut off from the radiator the air-supply is also shut off, while when the valves are not so connected it frequently happens that by oversight the air-supply is not shut off on closing the valve of the radiator, which results usually in the freezing of the pipes. It will also be observed that the quantity of air admitted is proportionate to the quantity of steam entering the radiator, or may be varied at the option of the user.

I do not confine myself to the cord or chain connection of the hinged valve with the steam-inlet valve, as other connections will readily suggest themselves to skilled mechanics.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a radiator, its inlet-valve, and an air-duct communicating with said radiator, of a valve located in said air-duct and connected with the inlet-valve of the radiator, substantially as described.

2. The combination, with a radiator and its inlet-valve, of an air-duct communicating with the bottom of said radiator, a hinged and weighted valve located in said air-duct, a pulley, and a chain or cord passed over said pulley and connected with said valves, substantially as described.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

JOHN LELAND WELLS. [L. S.]

Witnesses:

W. HAUFF,

E. F. KASTENHUBER.