

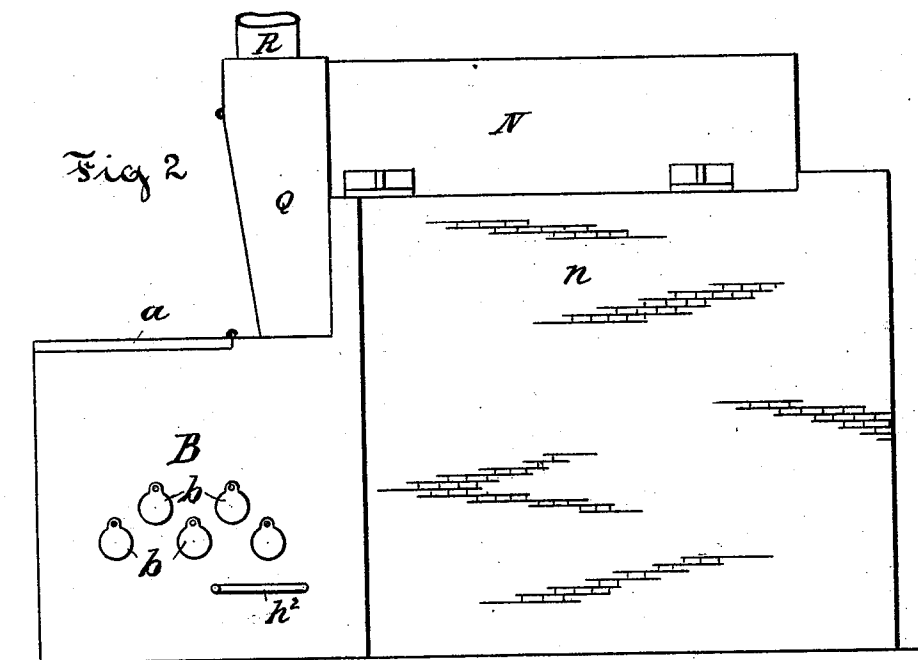
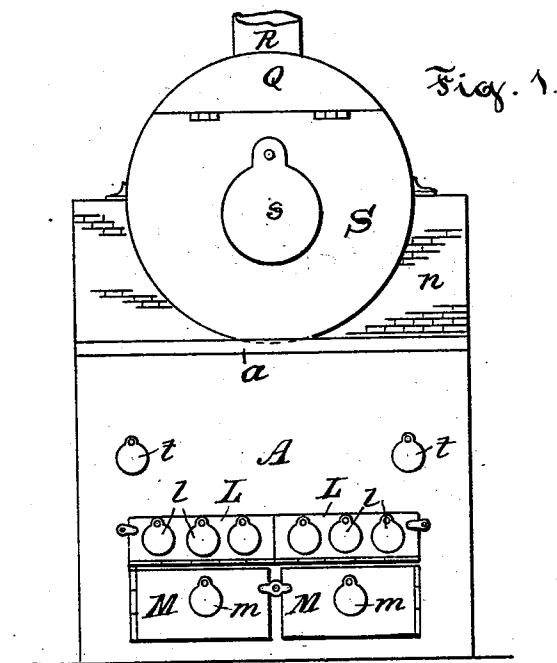
(No Model.)

2 Sheets—Sheet 1.

J. F. CHAZOTTE.
SMOKE CONSUMING FURNACE.

No. 517,540.

Patented Apr. 3, 1894.



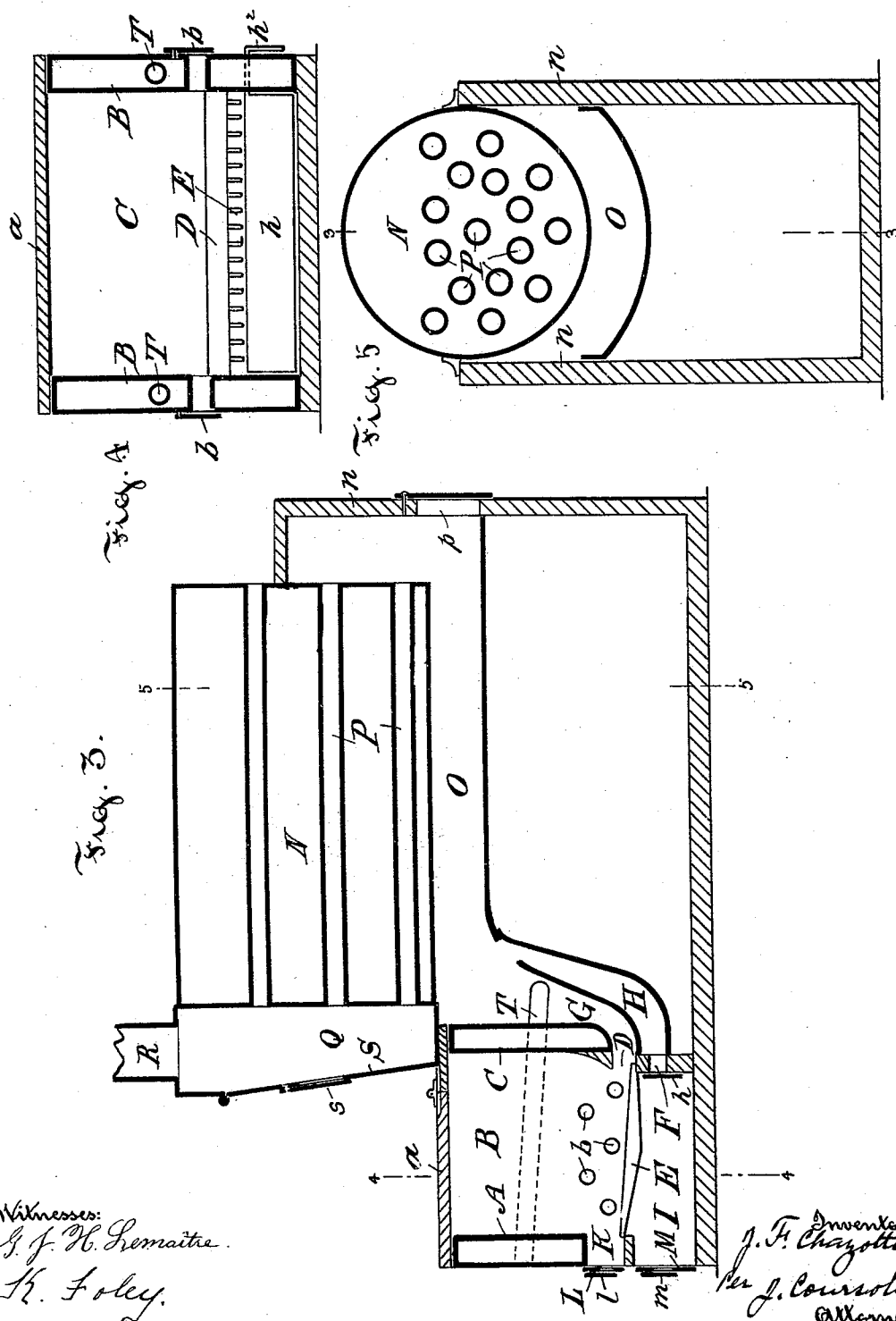
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No. 517,540.

Patented Apr. 3, 1894.



UNITED STATES PATENT OFFICE.

JEAN FRANCOIS CHAZOTTE, OF MONTREAL, CANADA, ASSIGNOR OF TWO-THIRDS TO GUSTAVE DES TROIS MAISONS AND ANTOINE ROY, OF SAME PLACE.

SMOKE-CONSUMING FURNACE.

SPECIFICATION forming part of Letters Patent No. 517,540, dated April 3, 1894.

Application filed May 18, 1893. Serial No. 474,617. (No model.)

To all whom it may concern:

Be it known that I, JEAN FRANCOIS CHAZOTTE, a citizen of Canada, residing in the city and district of Montreal, in the Province of Quebec, Canada, have invented certain new and useful Improvements in Smoke-Consuming Devices; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to down draft furnaces in which the air is admitted above the grate instead of below it, by these means and by regulating the supply of air, the gases, as they are driven through the incandescent mass of fuel on the grate are by the intense heat consumed, a regulated supply of air may be admitted in the combustion chamber to complete the combustion.

In the drawings,—Figure 1 is a front elevation of my improved furnace. Fig. 2 is a side elevation of the same. Fig. 3 is a longitudinal section on line 3 3. Fig. 4 is a transverse section on line 4 4. Fig. 5 is a transverse section on line 5 5.

The fire box consists of the front and side walls A, B, which may be built as shown of hollow metal and filled with water or may be of brick, the rear wall C is provided with an opening D just above the grate E and also another F, just below the grate, these openings communicate with flues G and H, a damper *h* is placed in the opening F which connects the flue H with the ashpit I. A door *a* covers the top of the fire box and through this the fuel is inserted, a series of apertures closed by dampers *b* in the sides B communicate with the interior of the fire-box just above the surface of the grate. An opening K is made on the front wall A covered by doors L having dampers *l*. This opening is made just above the level of the grate, and is used for raking out the fire. Ashes doors M communicate with the ashpit I, these doors are also provided with dampers *m*. The boiler N here shown is of the ordinary return tube type set in the brick setting *n*. The combustion cham-

ber O is concave so as to keep the heated gases in contact with the boiler. The flues G and F communicate with the combustion chamber as shown in Fig. 3. The products of combustion pass up through the flues G into the combustion chamber O, thence into the return tubes P, into the smoke box Q and out through the smoke stack R. A door S having a damper *s* is provided for the smoke box Q, the damper may be used to admit air and so moderate the draft, and an opening *p* in the rear wall of setting of the boiler N, may be used to admit air or clean out the boiler tubes. Air tubes T are built in the fire box walls closed in front by the dampers *t*, and communicate with the flue G just where it joins the combustion chamber O.

The operation of this device is as follows:—The fire is placed on the grate and the fuel fed on top, the air is admitted just above the grate to the fire, so that the combustion takes place on the upper surface of the grate, and the products of combustion pass out at the rear opening, through the flue, into the combustion chamber; air may be admitted through the ashpit and through the flue H, so as to complete the combustion in the combustion chamber, a lever *h*³ passing out through the side wall operates the damper *h*. The hollow walls of the fire box may be used for heating the feed water. The grate E may be made of water tubes.

I claim as my invention—

In a smoke consuming furnace, the combination with the fire box, A, B, and C, having its feed door at the top, the grate E, apertures closed by dampers above the surface of the said grate, of the flues G and H, the damper *h* in the said flue H, air tubes T and concave combustion chamber O, substantially as set forth.

Signed at Montreal this 11th day of April, 1893.

JEAN FRANCOIS CHAZOTTE.

In presence of—

LOUIS FERLAND,
CLEOPHAS HIBERT.