(No Model.)

E. N. DICKERSON.

APPARATUS FOR HEATING THERMOPILES.

No. 563,262. Patented July 7, 1896.

Fig. I.

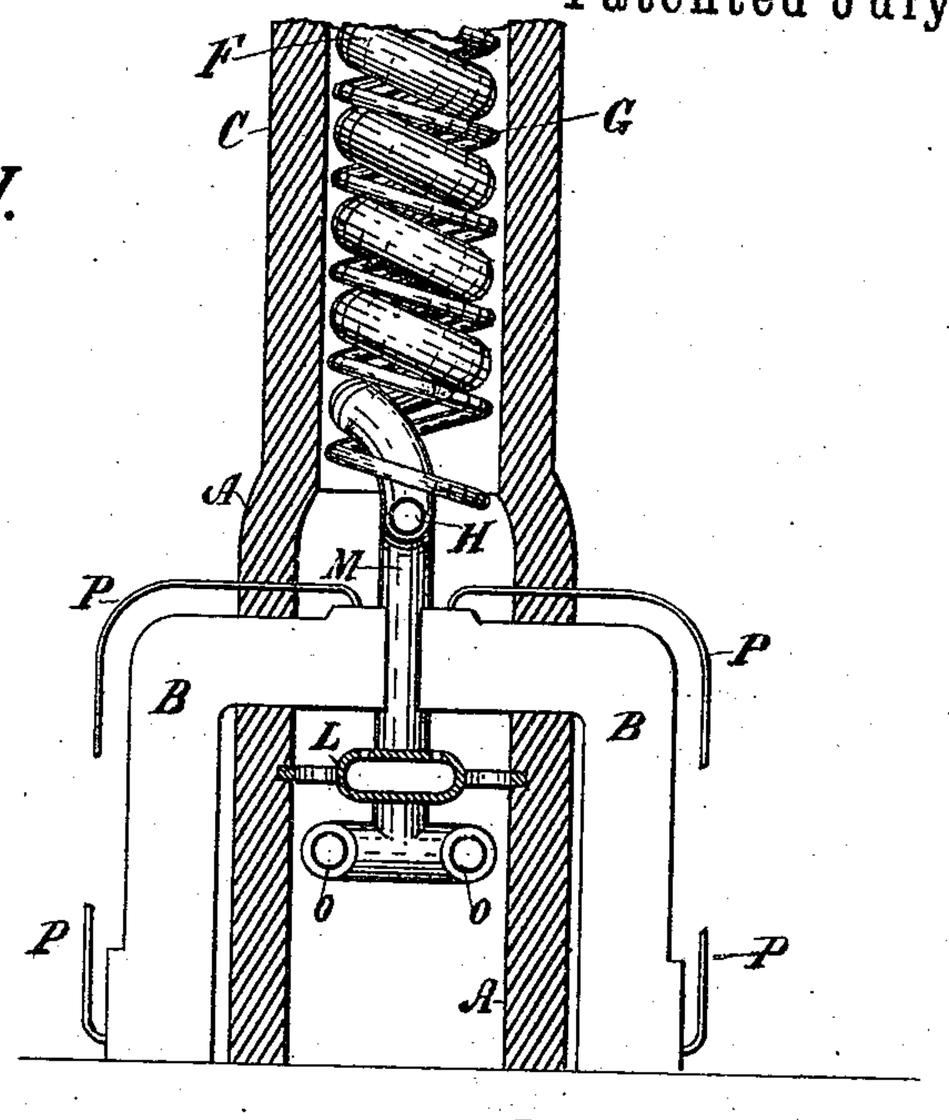
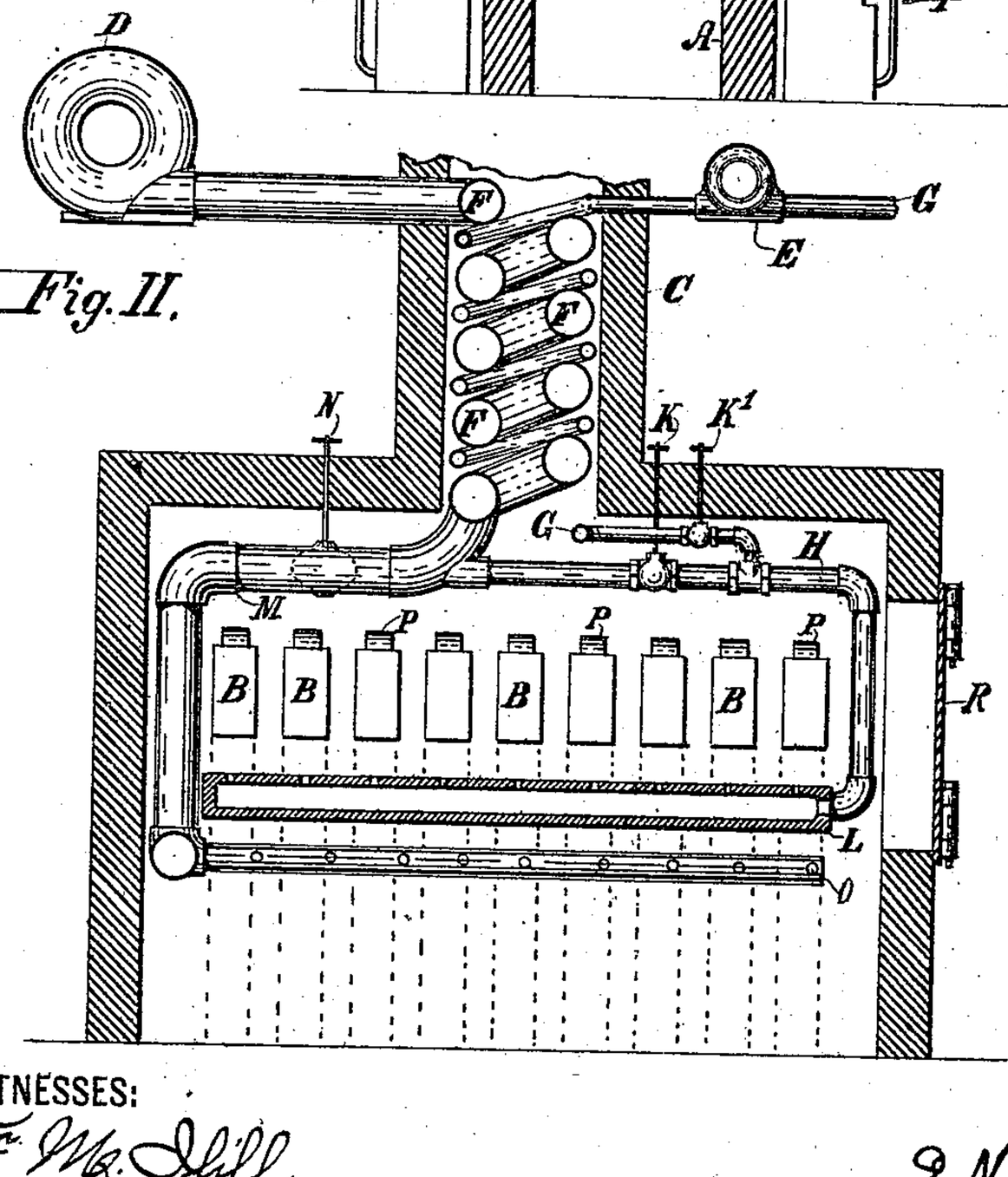


Fig. II.



WITNESSES:
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APPARATUS FOR HEATING THERMOPILES.

SPECIFICATION forming part of Letters Patent No. 563,262, dated July 7, 1896.

Application filed March 8, 1892. Serial No. 424,167. (No model.)

To all whom it may concern:

Be it known that I, EDWARD N. DICKERSON, of the city, county, and State of New York, have invented a new and useful Improvement in Apparatus for Heating Thermopiles, of which the following is a full, true, and exact description, reference being had to the accompanying drawings.

This invention relates to apparatus for heating thermopiles by a gas-flame; and it consists in a device for heating said thermopiles by a heated gas under pressure, and by a combination of heated gas and air under pressure.

My invention will be readily understood from the accompanying drawings, in which—

Figure 1 represents a vertical cross-section through my apparatus, and Fig. 2 a vertical longitudinal section through the same.

A represents, generally, the inclosing chamber, and B the thermopiles, which are preferably of the form shown, though any other suitable thermopile may be employed. As arranged, they project through the casing A, being heated within the same. This casing may be of any suitable construction, but should be so arranged as to insulate the elements, one from the other. Any suitable arrangement of brick or tiles can be employed. This heating-chamber connects with a chimney C, through which the products of combustion escape. This chimney is provided with a heating coil or coils in which the entering gas or air and gas is heated by the escaping products of combustion.

As shown, F represents the air-pipe connecting with the blower or air-pump D; G, the gas-pipe communicating with the gas-pump E. These coils should be made of suitable length to practically absorb the waste heat of combustion. As shown, the gas and air are heated independently, uniting in the pipe H, their relative proportions being controlled by the valves K K'. They are then burned in the burner L, together with the addition of the heated air passing by the pipe M, controlled by valve N, and being delivered through the pipe O, beneath the burner L. As shown, the burner and air supply is duplex, being intended to heat two facing elements B B, which are, of course, provided with the ordinary electrical connections P P.

R represents the lighting-door, and an additional supply of cold air may be admitted beneath the burner, if desired. I prefer, however, the arrangements shown.

Obviously, care must be taken in the regulation of the valves K K' with relation to the speed of movement of the gas and air to be burned, to prevent an explosion within the pipe H. This is a matter well known by those skilled in the art.

It is obvious that one blower and pipe may be used for heating the gas and air, but the danger of explosion is thereby increased, and I prefer the arrangement shown.

I may, if I desire, heat either the gas or air independently, but, manifestly, it is preferable to heat both, so as to get the best possible effect.

It is obvious that the arrangement of the parts is immaterial, and that the thermopiles need not project outside of the furnace, unless it is so desired, though the arrangement shown gives the best results.

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

1. The combination of the casing A, through which the thermopile elements project, the said casing containing in itself, or a continuation thereof, apparatus for heating the gas burned beneath the thermopile and a suitable burner for burning the heated gas, substantially as described.

2. The combination of the casing A, through which the thermopile elements project, the said casing containing in itself, or a continuation thereof, apparatus for heating the gas and air burned beneath the thermopile and a suitable burner for burning the heated gas, substantially as described.

3. The combination of the blowers D E, the heating-pipes F F, the casing containing the same, suitable burners for burning the heated gas and air and the thermopiles B B, substantially as described.

4. The combination of the heating-coils F G located in the path of the combustion beyond the thermopiles B, said thermopiles B, the burner L, apparatus for supplying the same with mixed air and gas under pressure, and the supplemental hot-air tube O, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

E. N. DICKERSON.

Witnesses:

ANTHONY GREF,

WM. A. POLLOCK.