

No. 721,455.

PATENTED FEB. 24, 1903.

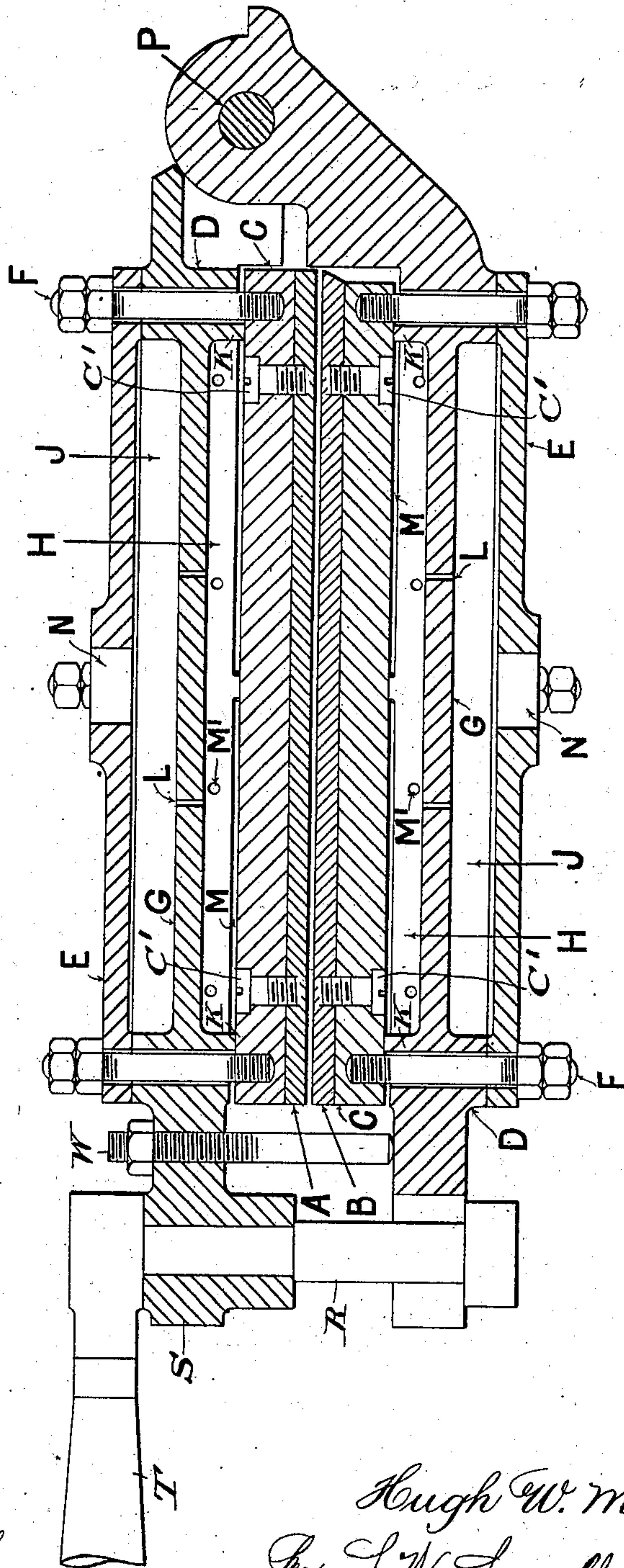
H. W. MACKENZIE.
APPARATUS FOR BAKING WAFERS, &c.

APPLICATION FILED AUG. 26, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

FIG. 1.



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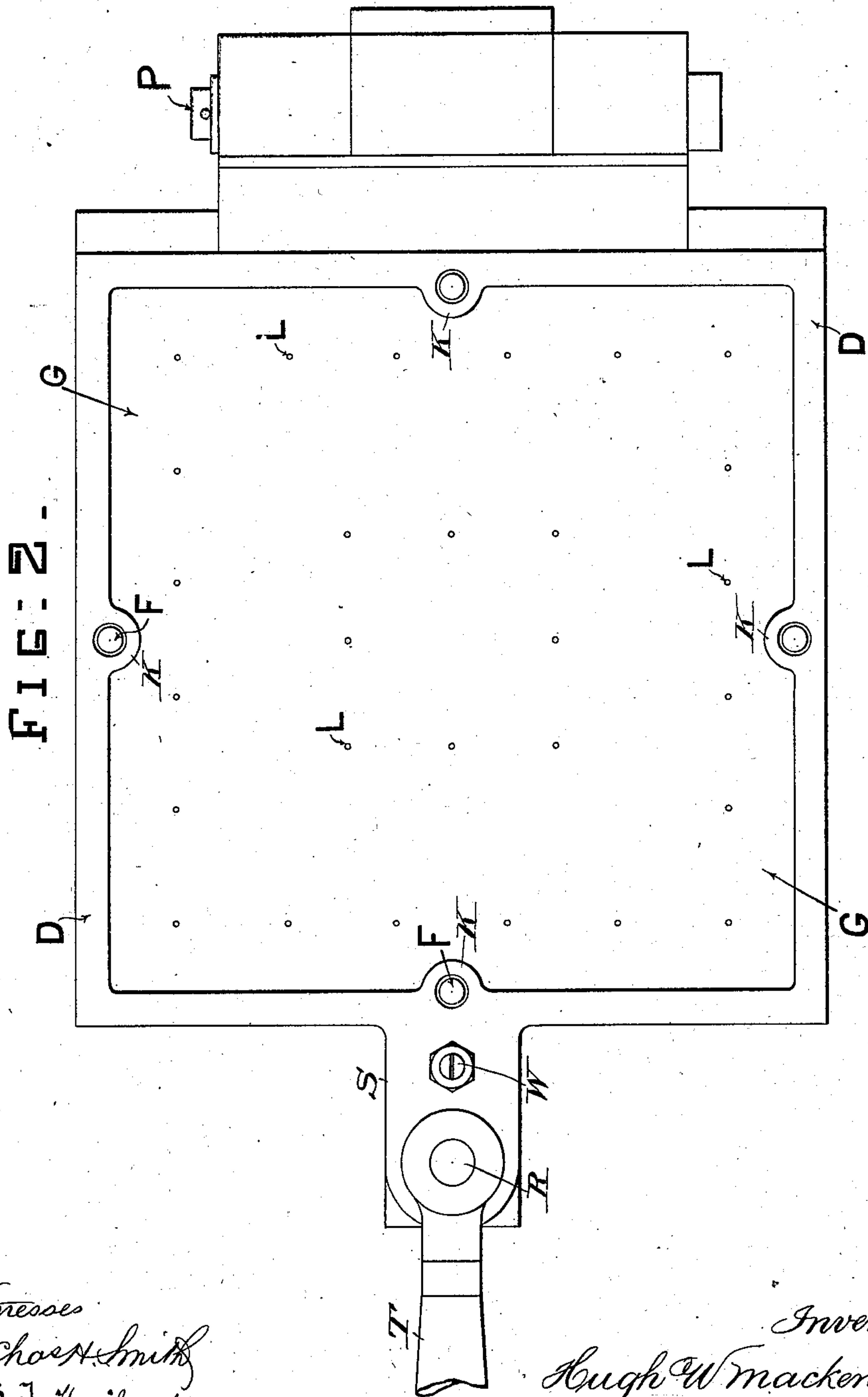
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

HUGH WATSON MACKENZIE, OF EDINBURGH, SCOTLAND.

APPARATUS FOR BAKING WAFERS, &c.

SPECIFICATION forming part of Letters Patent No. 721,455, dated February 24, 1903.

Application filed August 26, 1902. Serial No. 121,078. (No model.)

To all whom it may concern:

Be it known that I, HUGH WATSON MACKENZIE, a subject of the King of Great Britain and Ireland, and a resident of 22 Upper Grove Place, Edinburgh, in the county of Edinburgh, Scotland, have invented a certain new and useful Apparatus for Baking Wafers and the Like, (for which I have made application for a patent in Great Britain, No. 7,109, bearing date March 24, 1902,) of which the following is a specification.

This invention relates to apparatus for baking wafers and the like (hereinafter referred to as "wafers") in which molds are employed consisting of plates adapted to be brought face to face and having matrices formed in their contiguous faces to receive the material to be baked; and the object of this invention is to fit such matrix-plates with improved heating devices in which gas is used as the heat-generating medium.

In the accompanying drawings an apparatus for baking wafers is shown in which the matrix-plates are fitted with improved heating devices constructed according to this invention.

Figure 1 is a central vertical section, and Fig. 2 a plan view of the apparatus with a cover removed.

Upper and lower matrix-plates A and B are secured to the faces of heat-conducting plates C C, which may conveniently be effected by means of screws C', passing through the conducting-plates and entering into the backs of the matrix-plates. Casings D D are provided and arranged upon the back surfaces of the conducting-plates C C, and covers E E are fitted on the exterior of the casings, these parts being secured together by screw-studs F, as shown. Diaphragms G G, formed in a piece with the casings D D, extend across the latter. This construction forms chambers H H, hereinafter referred to as "combustion-chambers," and chambers J J, hereinafter referred to as "mixing-chambers." Perforations L are made in the diaphragms. Exhaust-openings M M, communicating with the combustion-chambers H H, are formed in the walls of the casings D D by employing four distancing or supporting lugs K on each of the casings D D, which bear upon the surfaces of the conducting-plates C C, and in some cases it may

be found desirable to provide additional openings M' in the walls of the casings in communication with the combustion-chambers. Apertures N N are provided in the covers E E, to which pipes having flexible connections, where necessary, may be connected for conducting a mixture of gas and air to the mixing-chambers J J. The two portions of the structure are pivotally connected by a pin P, and means—for example, a bolt R, engaging lug S, and an operating-lever T—are provided for securing the parts when in their closed position, and for adjusting the distance between the faces of the matrix-plates an adjustable stop-screw W may be fitted in the upper portion of the structure arranged to bear upon a part of the lower portion. To facilitate the opening and closing of the mold, the upper portion of the structure may be balanced.

In action a supply of gas and air under pressure and controlled by regulating-valves is admitted to the mixing-chambers J J, from whence it passes through the perforations L in the diaphragms G G and is ignited in the combustion-chambers H H, a series of flames being thereby directed upon the back surfaces of the conducting-plates C C, and the matrix-plates A B are heated by conduction. The products of combustion escape to the atmosphere through the exhaust-openings.

It is to be understood that the conducting-plates C C may be dispensed with and the flames arranged to play directly upon the matrix-plates. Also, if desired, only one plate of the mold may be fitted with the improved heating device, and, further, in cases where large plates are to be dealt with the mixing and combustion chambers may be subdivided by partitions arranged vertically to the faces of the diaphragms, each subdivision being provided with separate supply apertures and connections.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In apparatus for baking wafers, the combination with a matrix-plate of a heating device, consisting of, a casing, in which a combustion-chamber and a mixing-chamber are formed, the combustion-chamber being located at the back of the matrix-plate and di-

vided from the mixing-chamber by a perforated diaphragm, the mixing and combustion chambers being formed with gas supply and exhaust openings respectively.

5 2. In apparatus for baking wafers, the combination with each matrix-plate employed in the construction of a mold, of a heating device, consisting of, a casing, in which a combustion-chamber and a mixing-chamber are
10 formed, the combustion-chamber being located at the back of the matrix-plate and divided from the mixing-chamber by a perforated diaphragm, the mixing and combustion chambers being formed with gas supply and
15 exhaust openings respectively.

3. In apparatus for baking wafers, the combination with a matrix-plate, of a heat-conducting plate, a heating device, consisting of, a casing, in which a combustion-chamber and
20 a mixing-chamber are formed, the combustion-chamber being located at the back of the heat-conducting plate and divided from the mixing-chamber by a perforated diaphragm, the mixing and combustion chambers being
25 formed with gas supply and exhaust openings respectively.

4. In apparatus for baking wafers, the combination with each matrix-plate employed in the construction of a mold, of a heat-conducting plate, a heating device, consisting of, a casing, in which a combustion-chamber and a
30 mixing-chamber are formed, the combustion-chamber being located at the back of the heat-conducting plate and divided from the mixing-chamber by a perforated diaphragm, the mixing and combustion chambers being formed
35 with gas supply and exhaust openings respectively.

5. In apparatus for baking wafers, the combination with a matrix-plate of a heating device consisting of a casing D, fitted with a cover E, means for securing the casing and cover to the matrix-plate, a diaphragm G,
40 having perforations L, and formed in a piece with the casing D, the walls of the casing being formed with exhaust-openings, and the cover E being provided with a supply-aper-
45

ture, arranged and acting substantially as and for the purposes set forth.

6. In apparatus for baking wafers, the combination with each matrix-plate employed in the construction of a mold, of a heating device, consisting of, a casing D, fitted with a cover E, means for securing the casing and cover to the matrix-plate, a diaphragm G,
50 having perforations L, and formed in a piece with the casing D, the walls of the casing being formed with exhaust-openings, and the cover E being provided with a supply-aper-
55 ture, all arranged and acting substantially as and for the purposes set forth. 60

7. In apparatus for baking wafers, the combination with a matrix-plate, of a heat-conducting plate C, a heating device, consisting of, a casing D, fitted with a cover E, means
65 for securing the casing, cover, and conducting-plate to the matrix-plate, a diaphragm G, having perforations L, and formed in a piece with the casing D, the walls of the casing being formed with exhaust-openings, and the
70 cover E, being provided with a supply-aper- ture, arranged and acting substantially as and for the purposes set forth.

8. In apparatus for baking wafers, the combination with each matrix-plate employed in the construction of a mold, of a heat-conducting plate C, a heating device, consisting of a casing D, fitted with a cover E, means
75 for securing the casing, cover and conducting-plate to the matrix-plate, a diaphragm G, having perforations L, and formed in a piece with the casing D, the walls of the casing being formed with exhaust-openings, and the
80 cover E being provided with a supply-aper- ture, arranged and acting substantially as and for the purposes set forth. 85

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

HUGH WATSON MACKENZIE.

Witnesses:

J. P. STRACHAN,

J. ALFRED BREWER.