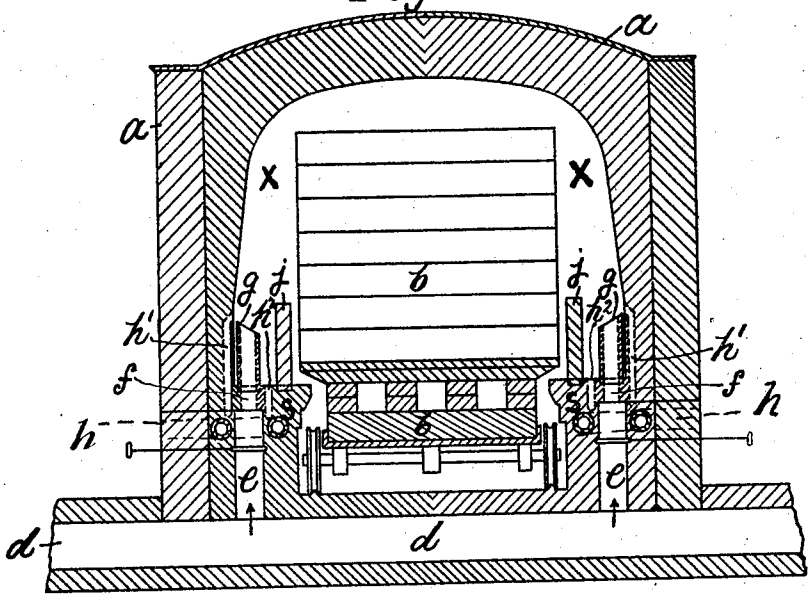
June 9, 1925. 1,541,647

J. H. MARLOW

GAS FIRED OVEN OR KILN

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Fig. 1.



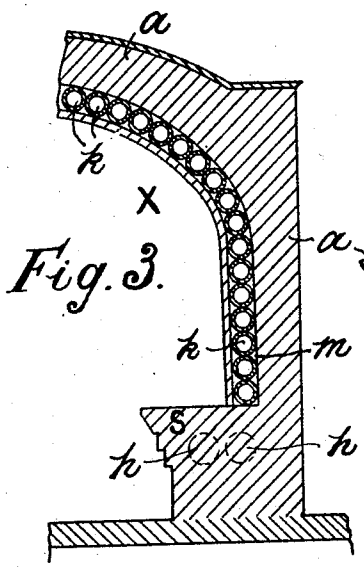


Fig. 3.

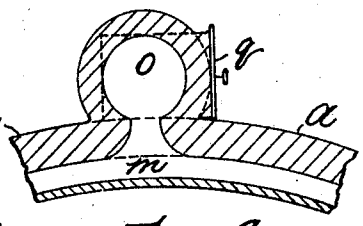


Fig. 4.

John Henry Marlow
Inventor,
by Frank A. Adamson
Attorney

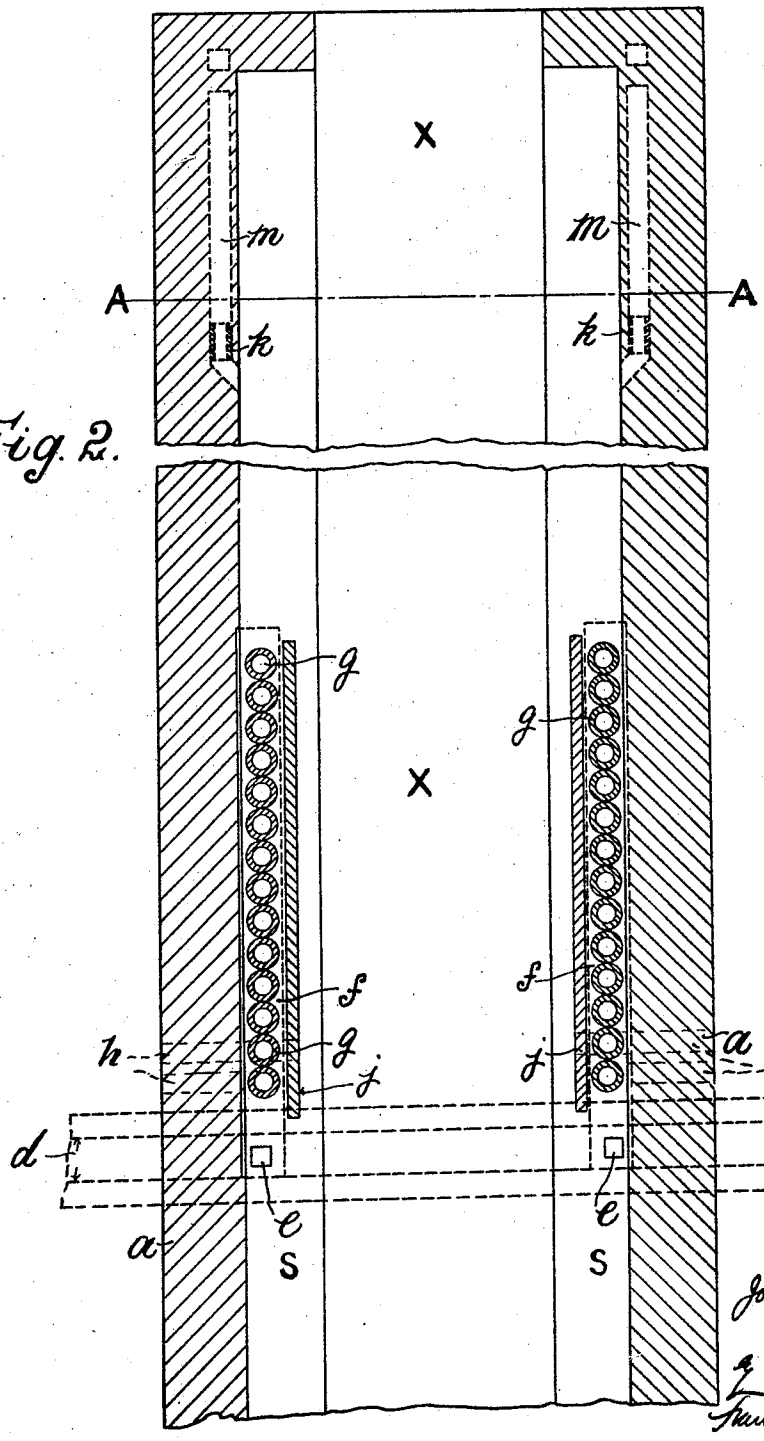
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Fig. 2.



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Patented June 9, 1925. 1,541,647

UNITED STATES PATENT OFFICE.

JOHN HENRY MARLOW, OF STOKE-ON-TRENT, ENGLAND.

GAS-FIRED OVEN OR KILN.

Application filed March 16, 1921. Serial No. 452,876.

To all whom it may concern:

Be it known that I, JOHN HENRY MARLOW, subject of the King of Great Britain and Ireland, and resident of Stoke-on-Trent, in the county of Stafford, England, has invented certain new and useful Improvements in Gas-Fired Ovens or Kilns (for which I have made application for patent in Great Britain, numbered 8,037, dated the 18th day of March, 1920), of which the following is a specification.

My invention relates to improvements in or applicable to gas-fired ovens or kilns for use in the manufacture of tiles, pottery and other ware and for other purposes, the object being improved means for firing or heating the interior of the oven or kiln so as to produce a very great amount of heat to affect the ware therein; means for supplying gas from a gas producer; and means for conveying, regulating or controlling the passage of the products of combustion from the oven or kiln.

My invention will be fully described with reference to the accompanying drawings in which,

Fig. 1 is a transverse section through the heat zone of a tunnel oven or kiln constructed according to my said invention,

Fig. 2 is a sectional plan of same,

Fig. 3 is a sectional elevation through line A—A of Fig. 2 showing one portion of the archway or tunnel to be hereinafter referred to, and

Fig. 4 is a sectional elevation of the top portion of the archway of the oven or kiln illustrating the means for conveying, regulating or controlling the passage of the products of combustion from the heat zone of the oven.

In these figures *a* is the oven or kiln, X the interior thereof where the flame is produced by the ignition of gas and air, *b* the usual vehicle or carrier for the ware.

The gas is supplied from a producer P (Figs. 5 and 6) through the passage or flue *d* (see Figs. 1 and 2) up the channels *e* and into chambers *f* arranged at each side and longitudinally of the oven or kiln, each of the said chambers *f* carrying a series of gas pipes *g* which may be of varied heights and of any suitable shape or size to deliver the gas into the interior of the oven X. Air is admitted through suitable channels *h h* (Fig. 3) which are open to the air at the rear portion of the side walls of the tunnel and communicate at their forward ends with the spaces or air outlets on opposite sides of the burner tubes, the air being caused to travel a sufficient distance along such channels *h* to be heated prior to passing up the outlet channels or recesses h^1 h^2 where the heated air mixes with the inflowing gas and combustion takes place producing a flame in the interior of the oven to fire the ware which may be on the carrier or in saggars placed thereon.

The gas producer may be of any appropriate type, gas being supplied to the burner pipes *g* by way of a flue *d*, the latter having dampers for controlling the supply of gas to said pipes *g*.

As will be seen from Fig. 1 the gas chambers *f* are arranged in the shelf or base S of the oven with the gas pipes *g* extending vertically therefrom but it is obvious such pipes *g* may be arranged at a slight inclination to the horizontal plane if desired. The outlet end of each pipe may be inclined as shown at Fig. 1 or otherwise shaped to direct the gas to meet the incoming heated air and produce a great flame. The said pipes *g* may be of any suitable cross section and constructed of fireclay or other refractory material.

In some cases I may dispense with the use of the pipes *g* and use the perforations or apertures in the top of the chamber *f* to emit the gas.

Arranged on the inside of each series of pipes *g* I provide a shield or guard *j* to protect the ware, which guard may vary in height in accordance with the height of pipes *g*.

The products of combustion are drawn from the interior of the oven or kiln by suction through horizontal pipes *k* (see Figs. 2 and 3) arranged at a predetermined distance from the heat zone or that portion of the oven where the combustion takes place. The said pipes *k* are arranged one over the other in an exhaust cavity *m* all around the arch-way (see Fig. 3) and if desired several series of pipes so placed may be arranged at various intervals in such cavity *m*. The horizontal pipes or tubes at their forward ends communicate with the interior of the tunnel, and their rear ends and the spaces between the tubes or cavity *m* (Fig. 4) suitably communicate with outlet flues *o*, in the rear thereof, said flues having dampers, and when arched,

they communicate with a chimney located centrally at the rear portion of the kiln. The said cavity *m* may communicate with the chamber *o* at the top of the archway, such chamber being provided with dampers *q* at any desired portion of its length. By employing several dampers *q* any one of them may be opened to allow the products of combustion to escape to the chimney or any of the dampers may be so adjusted to delay or prevent the passage of the products of combustion as will be understood.

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

1. In a tunnel kiln, means for heating the same by gaseous fuel, comprising a transverse flue which is connected with a gas supply, gas supply openings between the flue and vertical burner tubes which communicate with the gas supply, ways having outlet openings on different horizontal planes for supplying air about the burner tubes, and a wall which extends vertically above the open upper ends of the burner tubes.

2. A tunnel kiln having adjacent to its truck entrance end, a gaseous fuel supply flue connected with a gas supply, said flue being positioned below the floor of the kiln, channels which connect the fuel supply flue with burner tubes which are open to the interior of the kiln, upstanding walls spaced from the side walls of the kiln, and extending upwardly above the ends of the burner tubes, air supply ways for the burner tubes, one of the ways terminating adjacent to the upper ends of the burner tubes and the other ways communicating with the space between the burner tubes and the upstanding walls, and means located near the opposite end of the tunnel from the burner tubes for discharging the products of combustion and vapors therefrom.

3. In a tunnel kiln, a longitudinal chamber provided above its floor with walls spaced to extend inward from the side walls, channels in such walls for a gas supply, upstanding open ended gas burner tubes connected with the gas supply channels, air supply channels in the inner walls, which terminate above the upper ends of the burner tubes, and a guard wall which extends upward beyond the upper open ends of the gas burner tubes, an air supply channels having discharge openings into the lower portion of a space between the burner tubes and the guard wall.

4. In a tunnel kiln for the purpose set forth, vertical walls having inward extending walls located near the front end of the tunnel, a transverse flue below the plane of the kiln, a gas supply in communication with said transverse flue, channels which establish communication between the flue and chambers formed by the side walls of the tunnel, upstanding guard walls, burners for gaseous fuel, said burners having open discharge ends positioned below the upper edges of the guard walls, and means for supplying air to the burner tubes, comprising a way which has its discharge adjacent to the upper portion of said tubes and a way which discharges into the lower portion of spaces between the upstanding guard walls and the burner tubes.

5. In a kiln of the tunnel type, a gas supply flue, vertical burner tubes, air supply ways which terminate adjacent to the upper end of the burner tubes, upstanding guard walls of greater height than the height of the burner tubes, the same being offset from the burner tubes, and air supply ways which discharge into the space between the burner tubes and the upstanding walls.

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

JOHN HENRY MARLOW.

Witnesses:

J. BENTON,

PATTIE PLANT.