No. 631,695. Patented Aug. 22, 1899.

E. BURDEN.

GAS OR OIL STOVE.

(Application filed May 19, 1899.)

(No Model.)

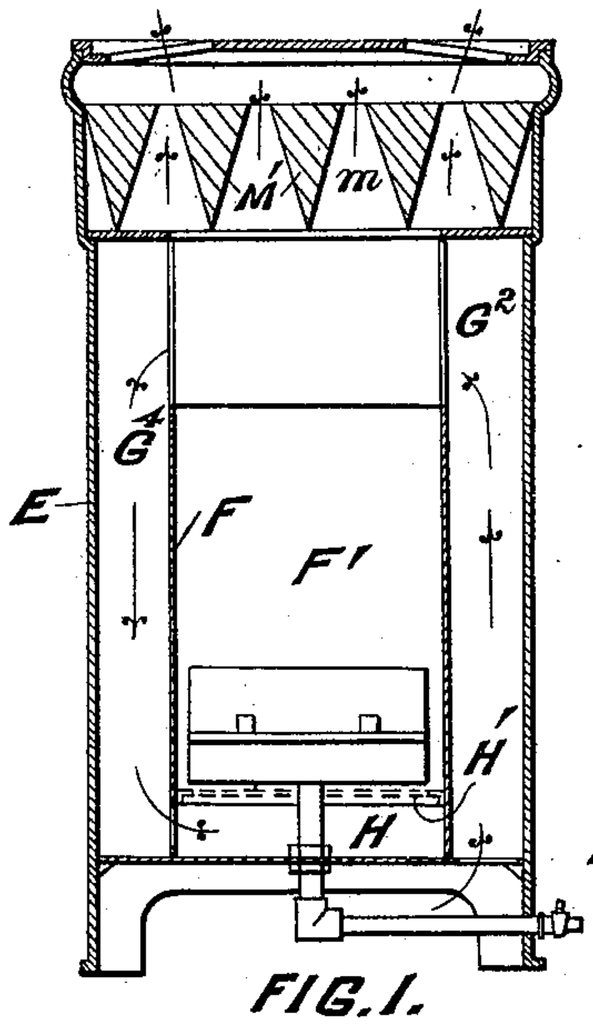

FIG. 1.

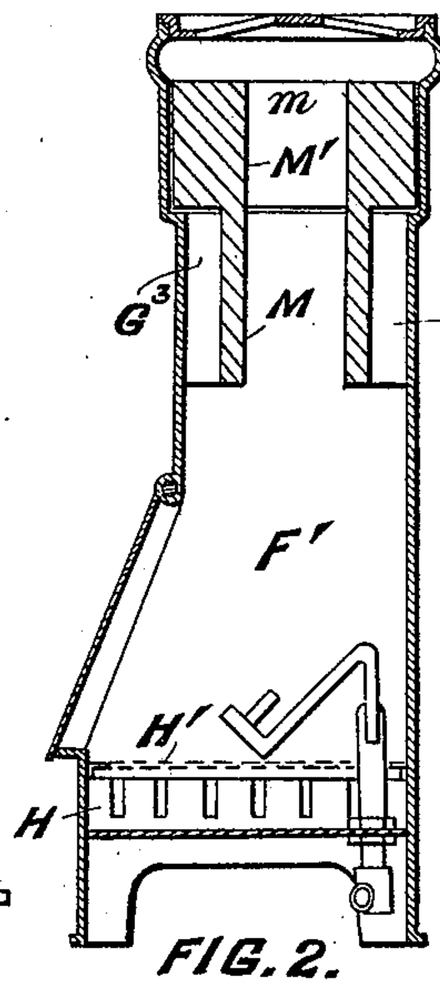

FIG. 2.

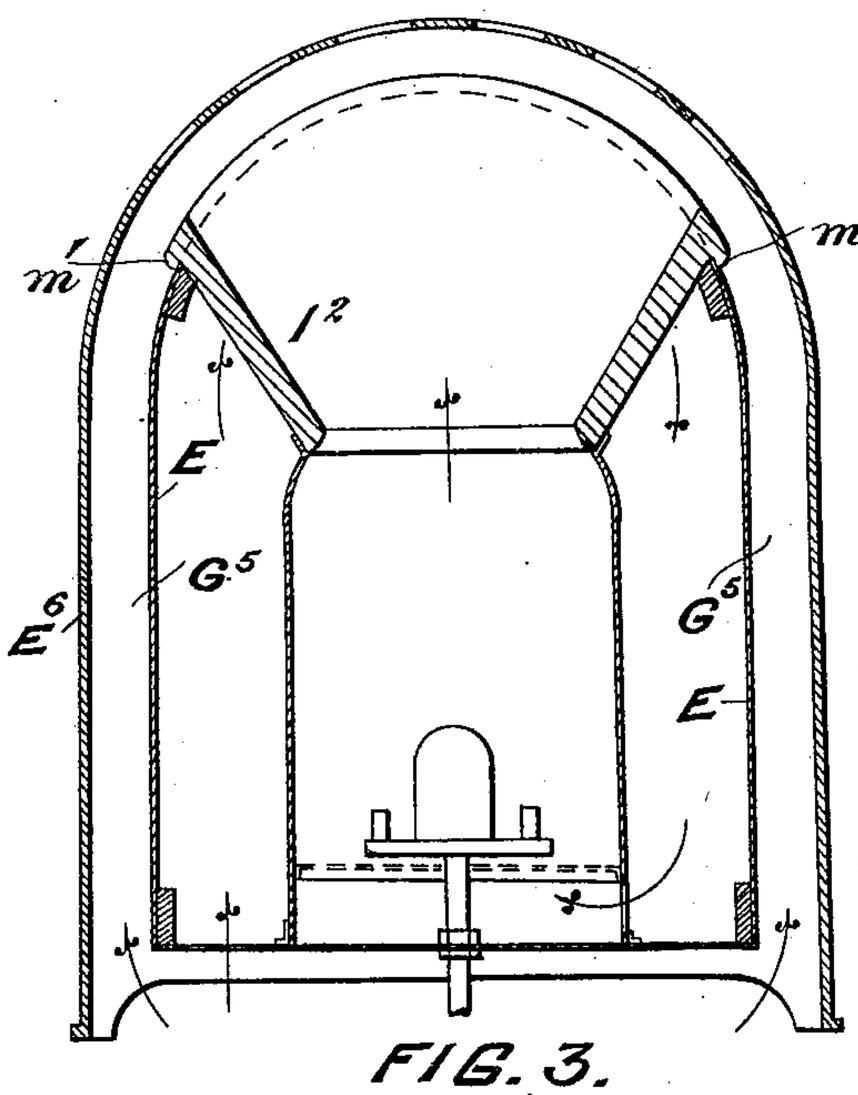

FIG. 3.

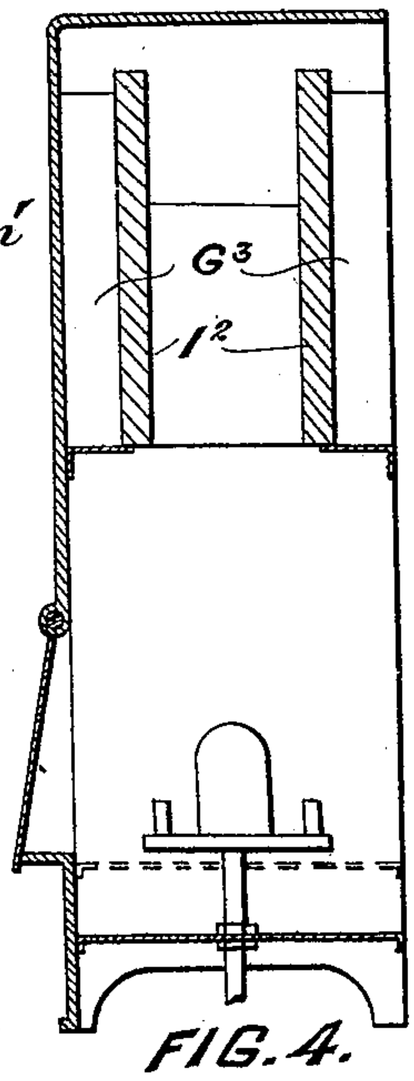

FIG. 4.

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EDWARD BURDEN, OF GRANTHAM, ENGLAND.

GAS OR OIL STOVE.

SPECIFICATION forming part of Letters Patent No. 631,695, dated August 22, 1899.

Original application filed February 21, 1899, Serial No. 706,375. Divided and this application filed May 19, 1899. Serial No. 717,471. (No model.)

To all whom it may concern:

Be it known that I, EDWARD BURDEN, engineer, a subject of the Queen of Great Britain and Ireland, and a resident of Desboro Villa, Dysart road, Grantham, in the county of Lincoln, England, have invented certain new and useful Improvements in and Relating to Gas or Oil Stoves, (for which I have made application for Letters Patent in Great Britain, No. 12,434, bearing date June 2, 1898,) of which the following is a specification, this application being a division of my previous application, Serial No. 706,375.

My invention relates to stoves, and has for its object to provide a stove in which the air to support combustion is initially heated to secure perfect combustion and a stove in which effective provision shall be made for inducing circulation of air, so that thereby warm air shall be disseminated throughout the apartment in which the stove is placed.

My invention consists in the arrangement and design of a gas or oil stove in which the air for supporting combustion is conducted from an orifice or perforations in the stove-casing, at the lower part thereof, upwardly to horizontal passages around a flue situated above the central burner-chamber and then downwardly to an air-chamber situated below the burner-chamber, the air being heated during its passage by the radiant heat from the walls of the passages and finally issuing from the air-chamber through perforations into the burner-chamber. The air for combustion being heated as above described, a perfect combustion of the flame or flames is insured and the dissemination of deleterious products of incomplete combustion that generally ensue in the use of ordinary gas or oil stoves is obviated.

The invention is illustrated in the accompanying drawings, in which—

Figures 1 and 2 are respectively front and side sectional elevations of a stove constructed according to one modification, while Figs. 3 and 4 are similar views of a stove constructed according to a second modification.

In carrying my invention into effect according to the modification illustrated in Figs. 1 and 2 I arrange the air for combustion to pass from below the stove-casing E F through a passage G^2 at one side of the casing, then through side flues G^3 G^3, provided upon the front and back of the upper part of the casing E, and then again downwardly through a passage G^4 upon the other side of the stove to an air-chamber H, situated beneath a central burner-chamber F′, the air passing up through an upper perforated plate H′ into the burner-chamber. A refractory inset M is laid in the spaces between the side flues G^3 and the air in its passage through such side flues is heated thereby, while a grid or series of refractory bars M′, preferably of V shape and integral with the inset M in their disposition in line, provide a series of gradually-narrowing spaces *m*, so that thereby a relatively great area is provided for the interception of the products of combustion in the upward passage. I may, however, cause the sides of the side flues to be completed by means of the refractory inset I^2, as illustrated in Figs. 3 and 4, so that thereby the air shall come into actual contact with the sides of refractory material. In such a case the stove-body may have its upper part of dome shape and the refractory inset may be constructed of a corresponding shape, with flanges *m′* upon the upper edges, which engage with the sides of the casing E. In such a design, however, an outer casing E^6 may be employed surrounding the central inner casing E, the intermediate space G^5 being preferably employed as a passage for air from the base of the stove. Such outer casing may be simply provided around the sides and top of the stove.

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

1. A gas or oil stove consisting of a central burner-chamber and lateral air-flues connected by transverse flues, the air passing up one of such lateral flues from the base of the stove, along the transverse flues and down the other lateral flue issuing through to the burner-chamber substantially as described.

2. A gas or oil stove consisting of a central burner-chamber and lateral air-flues, the air

passing up one of such lateral flues from the base of the stove along the transverse flues and down the other lateral flue issuing through to the burner-chamber, the inner walls of the side flues being formed by a refractory inset or flue centrally disposed above the burner-chamber substantially as described.

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

EDWARD BURDEN.

Witnesses:
WILLIAM EDWARD EVANS,
ALBERT EDWARD PARKER.