(No Model.)

F. V. KNAUSS.

HEATING STOVE.

No. 552,911. Patented Jan. 14, 1896.

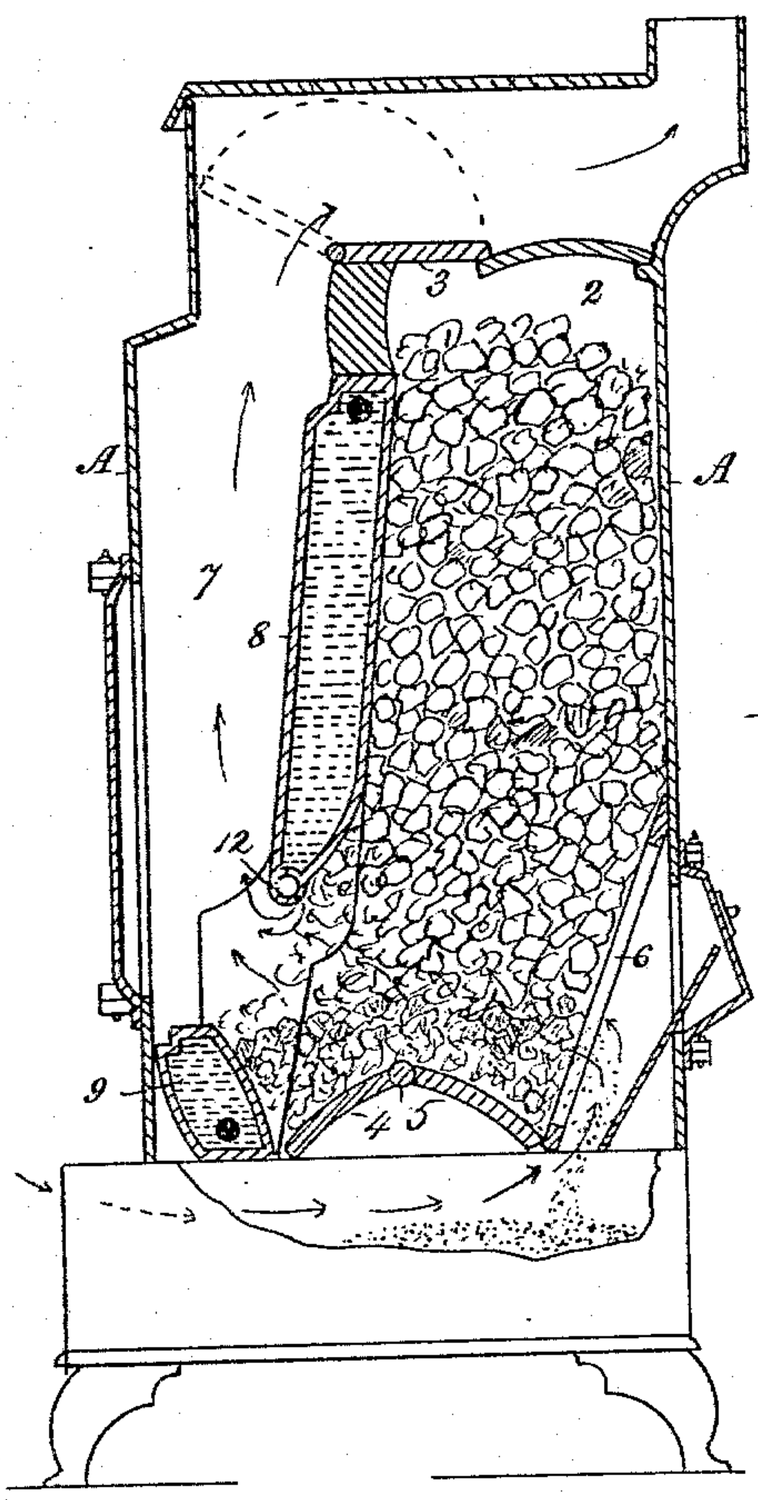

Fig. I.

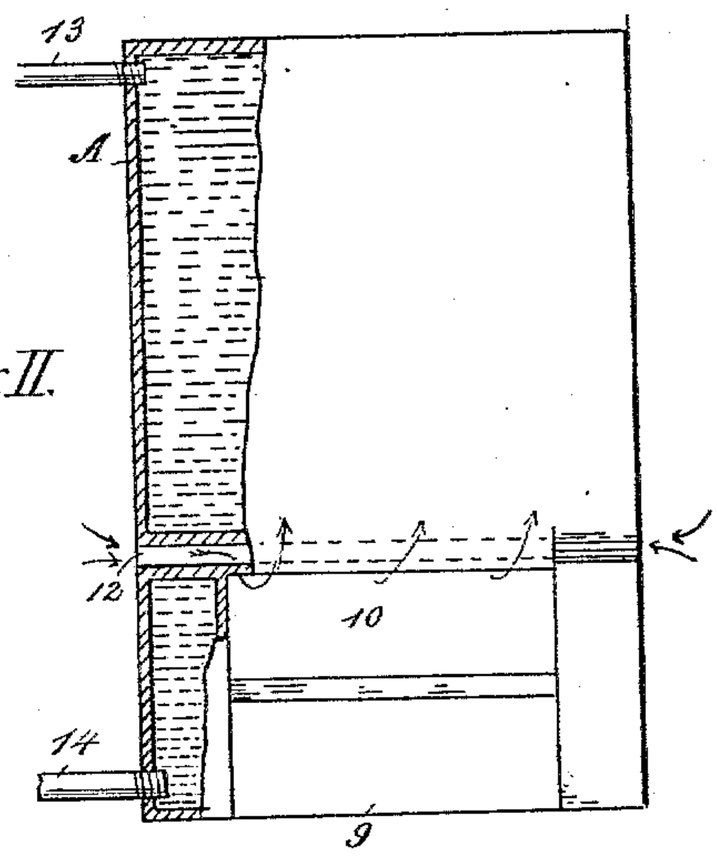

Fig. II.

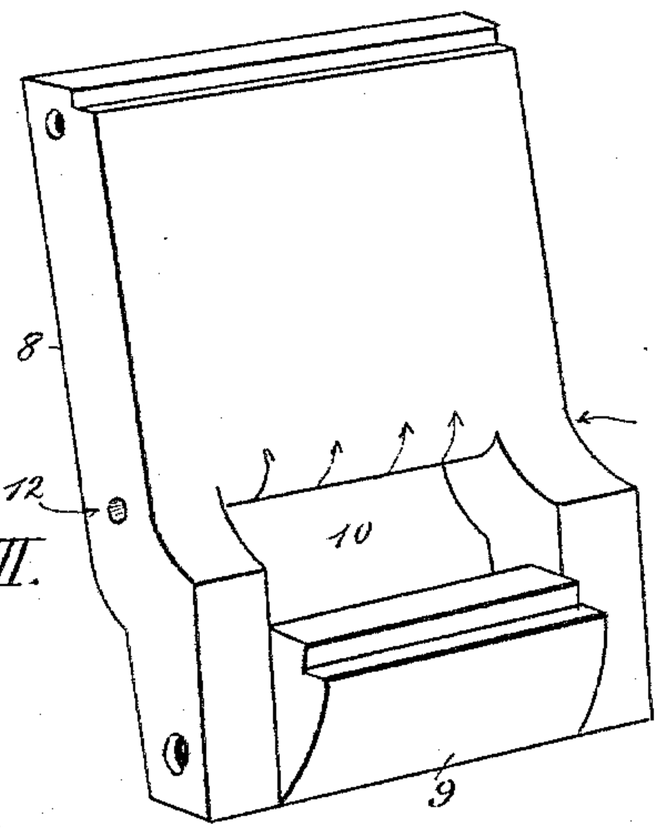

Fig. III.

WITNESSES:

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UNITED STATES PATENT OFFICE.

FRANK V. KNAUSS, OF PORTSMOUTH, OHIO.

HEATING-STOVE.

SPECIFICATION forming part of Letters Patent No. 552,911, dated January 14, 1896.

Application filed December 17, 1894. Serial No. 532,096. (No model.)

To all whom it may concern:

Be it known that I, FRANK V. KNAUSS, a citizen of the United States, residing at Portsmouth, in the county of Scioto and State of Ohio, have invented a new and useful Improvement in Heating-Stoves, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a central vertical section from front to rear of my improved heating-stove. Fig. 2 is a broken front elevation of the water-chamber or heater, and Fig. 3 is a perspective view thereof.

My invention relates to certain improvements in the construction of heating-stoves, and its primary object is to provide economical and efficient means whereby bituminous coal may be utilized to its ultimate capacity, being first ignited and roasted in a suitable fuel-chamber until the temperature rises to a degree required to liberate the constituent gases, which being then combined with a suitable supply of heated air, are conducted into an adjoining compartment of the stove and thoroughly consumed, producing an exceptionally intense heat.

The peculiar construction of the device will be readily understood by referring to the accompanying drawings, in which—

A designates the shell of the stove, which is preferably rectangular in form. The magazine or fuel-compartment 2 is located in the rear part of the stove and provided at its upper end with a valve 3, the purpose of which will be hereinafter explained. The bottom of the magazine consists of a plate 4, which is preferably solid. Being made in the form of a pointed arch and having a central shaft 5 extending through the side wall of the stove and attached to a suitable crank or lever, the plate may be readily oscillated, and any accumulation of ashes or other unconsumed matter will thus be discharged into the ash-pan. A grate 6 extends upwardly from the rear edge of the said plate and inclines against the rear wall of the stove. The front portion of the stove forms a gas-burning chamber 7. It has been fully demonstrated that in a heating-stove provided with this device, no available material employed for a dividing-wall between the fuel-magazine and the gas-burning chamber is sufficiently refractory to withstand the intense heat that is generated. Metal plates of various forms and fire-brick of the best quality and construction are soon destroyed. In order to obviate the difficulty I interpose a water-chamber or heater 8 having downward extensions united at their lower ends by a transverse connecting-foot 9, forming a continuous cavity for water and providing an opening 10 to admit the gases formed in the adjoining fuel-compartment. The water-heater is surmounted by a hollow casting 11 which provides a bearing for the valve 3.

The operation of the device will now be described. Kindling material and fuel are introduced through a door in the top or side of the stove. The valve 3 being thrown up opens a direct draft leading from a register in front of the stove, passing thence backwardly through the ash-pit under the magazine and upwardly through the grate 6 to the fuel-chamber. When the fuel becomes heated to the degree required to release the gases, the valve 3 is thrown down, closing the top of the magazine, and the draft is deflected horizontally into the gas-burning chamber 7. Before entering the chamber the gases are enriched by a supply of atmospheric air which is admitted through a tube 12 which traverses the upper border of the opening 10, and is provided with a suitable number of downwardly and rearwardly inclined perforations. The movement of the air being slightly retarded by the opposing current of gas, becomes thoroughly heated and commingled with the gases. Perfect combustion, certified by the absence of smoke, is thus insured. A bright flame being also produced, it is only necessary to furnish the front of the stove with mica and thereby secure all the comfort and attractions of an open fireplace.

It will be observed that while the water-heater is effectively protected from the destructive action of extreme heat by the free circulation of its contents, another important advantage is obtained. By simply attaching outlet and inlet pipes 13 and 14 the hot water may be readily employed for warming several apartments in a building or supplying hot water for bath-rooms or other purposes. It has been definitely ascertained that a stove of medium size provided with my im-

provement is easily capable of generating a degree of heat greatly in excess of the requirements of a large apartment. The surplus internal heat may be utilized to great advantage in the manner described, thereby converting the stove into an effective hot-water furnace.

What I claim as new is—

In a heating stove, the combination of the magazine having a pointed-arch, solid bottom and an inclined grate with its upper end resting against the rear side of the magazine, a gas-chamber at the front of said magazine and a water-chamber interposed between said magazine and gas chamber, with a gas-passage through its lower portion communicating with said gas-chamber and magazine, said water-chamber having an air-tube provided with air-passages or ducts opening through the upper wall of said gas-passage, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 24th day of November, 1894, in the presence of witnesses.

FRANK V. KNAUSS.

Witnesses:

I. A. MERCER,

W. S. TODD.