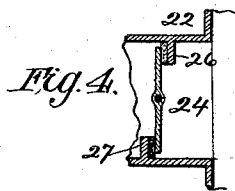
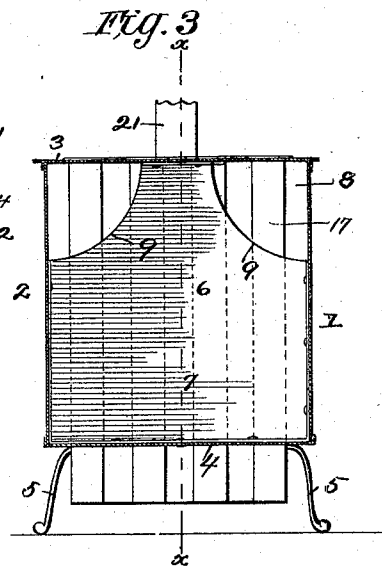
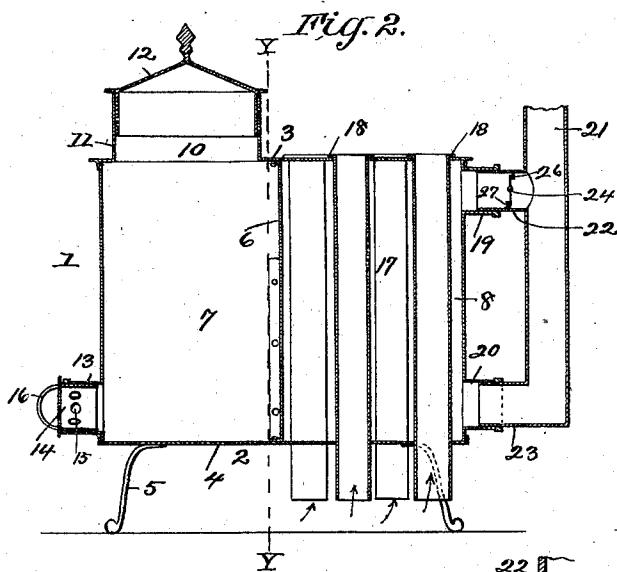
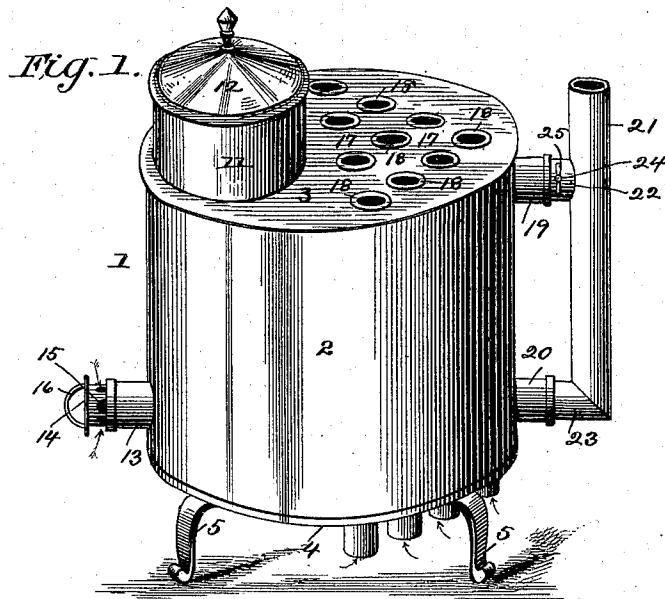


(No Model.)

F. MUNSON.
HEATING STOVE.

No. 567,546.

Patented Sept. 8, 1896.



Inventor
Frank Munson

Witnesses
J. A. Ryan
V. B. Hillyard.

By his Attorneys.

C. Snow & Co.

UNITED STATES PATENT OFFICE.

FRANK MUNSON, OF BUCHANAN, MICHIGAN, ASSIGNOR OF THREE-FOURTHS
TO W. P. HATCH, C. W. HATCH, AND F. J. MILLAR, OF SAME PLACE.

HEATING-STOVE.

SPECIFICATION forming part of Letters Patent No. 567,546, dated September 8, 1896.

Application filed April 23, 1895. Serial No. 546,903. (No model.)

To all whom it may concern:

Be it known that I, FRANK MUNSON, a citizen of the United States, residing at Buchanan, in the county of Berrien and State of Michigan, have invented a new and useful Heating-Stove, of which the following is a specification.

This invention aims to provide a heating-stove which will present a maximum amount of heat-radiating surface within a given space and which will utilize the fuel to the best possible advantage.

The improvement consists of the novel features which hereinafter will be more fully set forth and claimed, and which are illustrated in the annexed drawings, in which—

Figure 1 is a perspective view of a heating-stove constructed in accordance with and embodying the vital principles of the invention. Fig. 2 is a longitudinal vertical section on the line X X of Fig. 3. Fig. 3 is a cross-section on the line Y Y of Fig. 2. Fig. 4 is a detail view in section of the smoke-controlling valve on a larger scale.

The numeral 1 indicates a stove of desired pattern, and is preferably oblong and comprises a body 2, a top 3, and bottom 4, and is supported upon legs 5 in the usual manner. A vertical partition 6 divides the stove into two compartments 7 and 8, the former being the combustion-chamber and the latter the hot-air compartment. This partition 6 is flanged at its top, bottom, and sides, and is secured to the corresponding parts of the stove by means of the said flanged edges in any convenient manner. Notches 9 are formed in the upper edge portion of the partition for the passage of the heated air from the combustion-chamber to the hot-air compartment, and these notches 9 may have any desired form, being preferably quarters of a circle and located at the upper corners of the partition. An opening 10 is formed in the top 3 directly above the combustion-chamber, through which the fuel is fed to the stove, and this opening is surrounded by a vertical flange 11, which is closed by a cover 12, suitably embellished to give a neat and finished appearance to the stove. A collar 13 projects laterally from the side of the stove near the bottom thereof and provides for the ingress of air

to support combustion and for the removal of the ashes, and is closed at its outer end by a cap 14, having a series of openings 15 in its sides for the passage of the air into the combustion-chamber 7. This cap 14 is manipulated by means of a handle 16, and when pushed in shuts off the draft and when removed admits of access to the combustion-chamber for the removal of the ashes therefrom. The openings 15 form draft-inlets, and can be regulated by moving the cap within the collar 13.

A bank of tubes 17 are arranged in vertical and parallel relation within the hot-air compartment 8 and pass through registering openings in the top 3 and bottom 4 of the stove, and these tubes are held in place in any desired manner, preferably by having their upper ends flanged, as shown at 18, which flanges overlap the sides of the openings in the top 3 and support the tubes in proper position. The lower ends of the tubes 17 project a short distance below the bottom 4, so as to receive the pure fresh air near the floor of the room or apartment in which the stove is located, which air is heated in its passage through the tubes 17 and is discharged into the room in a heated condition, thereby raising the temperature, as will be readily understood.

Corresponding thimbles 19 and 20 project laterally from the rear side of the stove, and are adapted to have the smoke-pipe 21 form connection therewith. This smoke-pipe has thimbles 22 and 23 to correspond with and form connection with the said thimbles 19 and 20, the parts being united by a sliding joint common in connecting sheet-metal tubing. The thimbles 19 and 22 are disposed at the top end of the stove and the thimbles 20 and 23 at the lower end. Hence when the passage through the thimbles 19 and 22 is unobstructed the heat and products of combustion have a direct escape to the smoke-pipe, but when such passage is closed the heat is compelled to take a downward course through the hot-air compartment 8, around and between the tubes 17, thence out through the thimbles 20 and 23 into the lower end of the smoke-pipe, and in making this tortuous path the tubes 17 are heated and the heat radiated inward therefrom is taken up by the air cir-

culating through the said tubes 17. Hence the heat is utilized to the best possible advantage for heating purposes.

To control the passage through the thimbles 19 and 22, one of the latter, as 22, is supplied with a damper 24, which is operated from without by means of a handle 25. A flange 26 is disposed at the upper side of the thimble for the upper portion of the damper 24 to close against, and a corresponding flange 27 is arranged on the lower side for a like purpose, the two flanges being set out of vertical alinement to admit of the damper 24 occupying a nearly vertical position when closed. A packing of asbestos or similar fire-proof material is interposed between the engaging portions of the damper and the flanges against which the damper closes, and this packing may be attached to either the damper or the flanges and is designed to secure a tight joint when the damper is closed, thereby compelling all the heat to make a circuit of the hot-air compartment before escaping to the smoke-pipe.

When the fire is started in the combustion-chamber, a direct draft is had for the escape of the smoke by opening the damper 24, and after the fire has become sufficiently lighted and it is required to obtain the full benefit of the heat the damper is closed, thereby forcing the heat to pass through the compartment 8 around and among the tubes 17, heating the latter before escaping to the smoke-pipe. The air within the tubes 17, becoming heated, rises, and in its ascent draws in cool fresh air at the lower end of the tubes, which in turn is heated and discharged into the room. Hence it will be seen that the maximum amount of heat is utilized from a given amount of fuel.

The precise outline and pattern of the stove is not material to the gist of the invention. Therefore it must be remembered that changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed as new is—

1. In a heating-stove, the combination of a vertical partition dividing the stove-body into two upright compartments, the one forming a combustion-chamber, the other a hot-air space, said partition having notches or openings in its upper portion to establish communication between the separated compartments, a bank of tubes disposed in vertical and parallel relation in the hot-air space and opening at their respective ends through the top and bottom of the stove-body, a smoke-pipe having communication with the hot-air space at the top and the bottom thereof, and a damper in the upper passage, whereby the heated air can pass directly from the combustion-chamber to the smoke-pipe or be compelled to circulate around and between the bank of tubes, substantially as and for the purpose set forth.

2. In a heating-stove, the combination of a vertical partition dividing the stove-body into two upright compartments, the one forming a combustion-chamber, the other a hot-air space, said partition having notches or openings in its upper portion to establish communication between the separated compartments, a bank of tubes located in the hot-air space and having their lower ends extending a short distance below the bottom of the stove-body, and having their upper ends flanged and overlapping openings formed in the stove top, a smoke-pipe having communication with the upper and the lower portion of the hot-air space, and a damper in the upper passage affording communication between the hot-air space and the smoke-pipe, substantially as described for the purpose set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

FRANK MUNSON.

Witnesses:

A. A. WORTHINGTON,
GEO. B. RICHARDS.