

(No Model.)

B. S. KOLL.
VAPOR BURNING STOVE.

No. 578,605.

Patented Mar. 9, 1897.

Fig. 1.

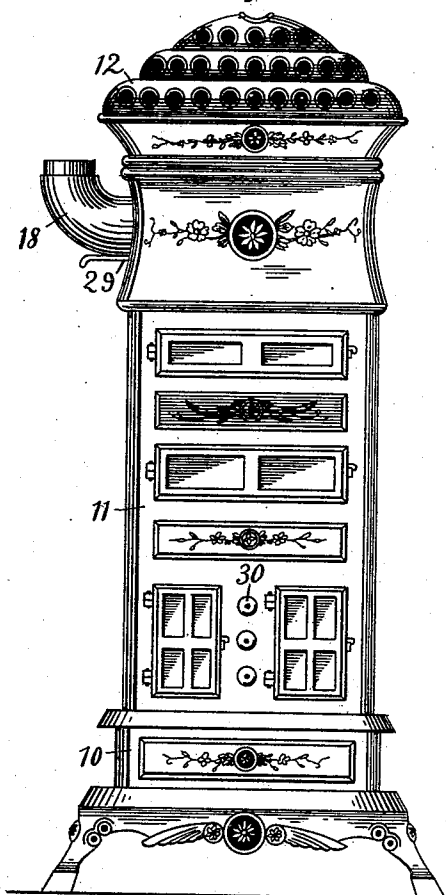


Fig. 2.

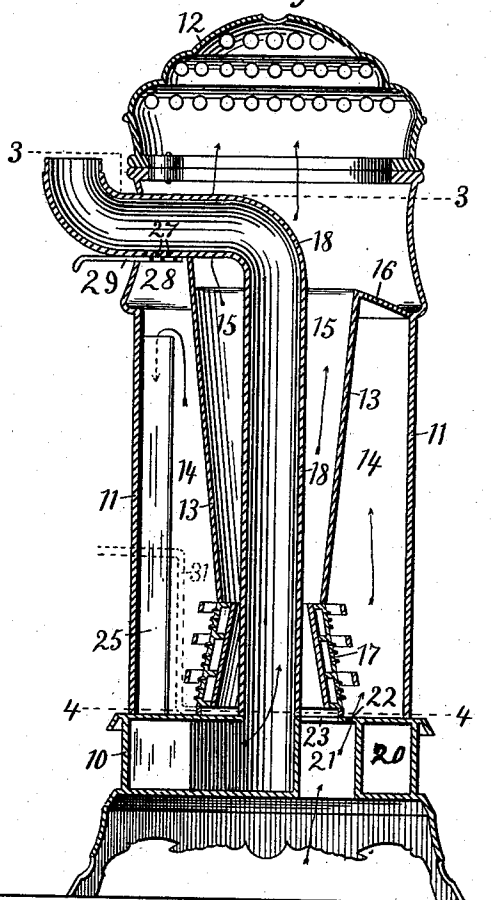


Fig. 3.

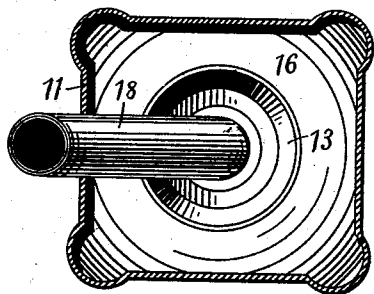
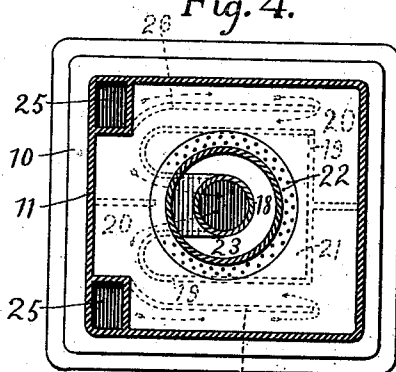


Fig. 4.



Witnesses
H. W. Alexander.
E. E. Tamm.

Inventor
B. S. Koll,
By Attorneys
H. W. & H. W.

UNITED STATES PATENT OFFICE.

BENJAMIN S. KOLL, OF ST. LOUIS, MISSOURI.

VAPOR-BURNING STOVE.

SPECIFICATION forming part of Letters Patent No. 578,605, dated March 9, 1897.

Application filed March 19, 1896. Serial No. 583,942. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN S. KOLL, a citizen of the United States, residing at the city of St. Louis, in the State of Missouri, have
5 invented certain new and useful Improvements in Vapor-Burning Stoves, of which the following is such a full, clear, and exact description as will enable any one skilled in the art to which it appertains to make and use the
10 same, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to a new and useful vapor-burning stove, and more particularly
15 to a vapor-burning heating-stove. In stoves of this class, the fuel being quick to burn, it is very desirable that the products of combustion in their passage through and out of the stove should be exposed to as much surface
20 as possible, and also that the stove should be constructed so as to offer the best possible advantages for the distribution of heat by convection. My stove is constructed with these objects in view.

25 In the accompanying drawings, which illustrate one form of a stove made in accordance with my invention, Figure 1 is a side elevation. Fig. 2 is a vertical central section. Fig. 3 is a horizontal section on the line 3 3 of Fig. 2, and Fig. 4 is a horizontal section on the line
30 4 4 of Fig. 2.

Like marks of reference refer to similar parts in the several views of the drawings.

35 10 is the base of the stove, and 11 the body or outer shell. The shell 11 may be provided with as many doors or mica panels as desired, and in appearance the stove will be like any ordinary heating-stove. The shell 11 is provided with a perforated top 12, which is preferably made removable.
40

13 is a shell which divides the space inclosed by the outer shell 11 into an outer or combustion chamber 14 and an inner chamber 15. This inner shell 13 may be of any desired
45 shape, but I prefer to employ one of a frusto-conical form, as shown in the drawings. Extending from the top of the inner shell 13 to the outer shell 11 is a rim or flange 16, which closes the top of the combustion-chamber 14.
50 The shell 13 terminates some distance above the base 10, and between it and the said base

is placed the burner 17, which is annular in form and may be of any desired construction.

18 is a central updraft-flue which leads from the base 10 to near the top of the stove, 55 where it passes out through the shell 11 and is connected with the stovepipe. The base 10 is divided by a partition 19 into two compartments 20 and 21, the former of which communicates with the flue 18, and the latter of 60 which is open at the bottom and communicates with the combustion-chamber 14 through perforations 22 and through an opening 23 with the space between the burner 17 and the flue 18, which space communicates with the chamber 15.
65

25 are downdraft-flues, preferably two in number, which lead from near the top of the combustion-chamber 14 to the base 10. Extending from each of the flues 25 to near the 70 opposite side of the chamber 20 is a partition 26, thus dividing the said chamber into passage-ways and insuring a thorough circulation of the products of combustion through the base of the stove.
75

28, Fig. 2, is a passage-way leading from the top of the combustion-chamber 14 to the flue 18. The said flue is here provided with a number of perforations 27.

29 is a sliding plate or damper provided 80 with perforations corresponding to those in the flue 18. By moving the plate 29 in and out the perforations in the said plate and the flue 18 can be brought into or out of register with each other, thus opening or closing 85 the direct communication between the combustion-chamber and the flue 18.

30 represents suitable valves for regulating the supply of fuel to the burner. The fuel may be conveyed to the burner in any suitable 90 manner, as by the pipe 31. (Shown in dotted lines in Fig. 2.)

The operation of my stove is as follows: To start the stove, the plate or damper 29 is moved to open direct communication between 95 the combustion-chamber 14 and the flue 18. The fuel is admitted to the burner 17 by means of the valve 30 and ignited. A direct draft is thus secured and the products of combustion are immediately carried off. The air 100 is supplied to the burner through the perforations 22 in small jets or streams. This, I

find, secures more perfect combustion than when the air is supplied to the burner in an undivided stream. As the air in the chamber 15 becomes heated it rises and passes out of the stove through the perforated top 12. Fresh air is supplied to the chamber through the opening 23. After a good draft has been obtained the damper 29 is closed. The products of combustion will now be drawn down through the flues 25 to the base of the stove, through which they will circulate, as shown by the arrows in Fig. 2, thus thoroughly heating the said base, and then pass up through the flue 18.

It will be seen from the foregoing description that my stove, without in any way interfering with the radiation of the heat, affords the very best advantages for the distribution of the heat by convection, as it has an unobstructed air-passage, in which the stream of air is exposed to the heated surface of the flue 18 within and that of the shell 13 without.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a vapor-burning or similar stove, a suitable shell or casing, a burner within said shell or casing, a combustion-chamber surrounding said burner, a heating-chamber within said combustion-chamber, a central updraft-flue within said heating-chamber, said flue communicating with the stovepipe, and a downdraft-flue wholly within said shell or casing opening into the combustion-chamber near the top of said chamber and communicating with said updraft-flue through the stove-base.

2. In a vapor-burning or similar stove, a suitable shell or casing, a burner within said shell or casing, a combustion-chamber around said burner, a heating-chamber within the combustion-chamber, a central updraft-flue within said heating-chamber, said flue communicating with the stovepipe, a circulating-chamber in the base of the stove, and deflecting-plates dividing said circulating-chamber into passages, said circulating-chamber communicating with the combustion-chamber through a downdraft-flue and also communicating with said updraft-flue.

3. In a vapor-burning or similar stove, a suitable shell or casing, a burner within said shell or casing, a combustion-chamber around said burner, a heating-chamber within said combustion-chamber, a central updraft-flue within said heating-chamber, a downdraft-

flue wholly within said shell or casing opening into the combustion-chamber near the top of said chamber, a circulating-chamber in the base of the stove communicating with said updraft and downdraft flues, and deflecting-plates dividing said circulating-chamber into passages.

4. In a vapor-burning or similar stove, a suitable shell or casing, a burner in said shell or casing, a combustion-chamber around said burner, a heating-chamber within said combustion-chamber, a central updraft-flue within said heating-chamber, an air-chamber in the stove-base opening into said heating and combustion chambers, a circulating-chamber in the stove-base surrounding said air-chamber, said circulating-chamber communicating with said updraft-flue, and a downdraft-flue opening near the top of the combustion-chamber, said downdraft-flue communicating with said circulating-chamber.

5. In a vapor-burning or similar stove, a suitable main shell or casing, a substantially cylindrical shell located centrally within said main shell and dividing it into an outer combustion-chamber and an inner heating-chamber, an annular vapor or similar burner beneath said inner shell, an updraft-flue passing through said burner and inner shell and communicating with the stove-base, and a downdraft-flue within said outer or main shell also communicating with the stove-base.

6. In a vapor-burning or similar stove, an outer shell or casing, a substantially cylindrical shell situated centrally within said outer shell and dividing it into an outer combustion-chamber and an inner heating-chamber, an annular burner situated between the lower end of said inner shell and the stove-base, an updraft-flue passing through said burner and inner shell, an air-chamber in said stove-base and communicating with said heating-chamber and said combustion-chamber, a circulating-chamber in the stove-base surrounding said air-chamber, and communicating with said updraft-flue, and a downdraft-flue communicating with said circulating-chamber and opening into the combustion-chamber near its top.

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

BENJAMIN S. KOLL. [L. S.]

Witnesses:

A. C. FOWLER,
JOHN F. GREEN.