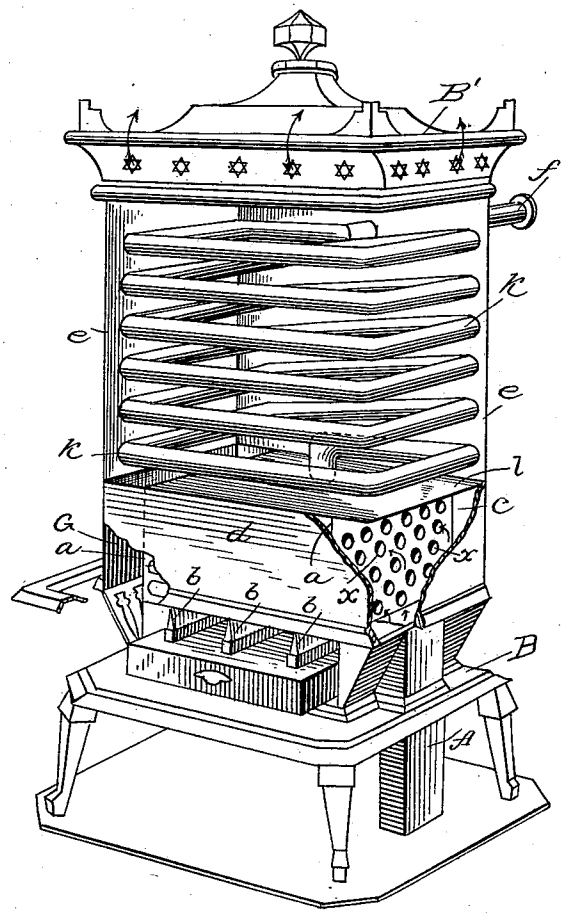
(No Model.)

J. L. BRINK.

HEATING APPARATUS.

No. 368,185. Patented Aug. 16, 1887.



Attest:
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UNITED STATES PATENT OFFICE.

JOHN LODEAR BRINK, OF DUBUQUE, IOWA.

HEATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 368,185, dated August 16, 1887.

Application filed April 19, 1886. Serial No. 199,393. (No model.)

To all whom it may concern:

Be it known that I, JOHN LODEAR BRINK, of Dubuque, in the county of Dubuque and State of Iowa, have invented a new and useful Improvement in Heating Apparatus; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to heating apparatus designed for the use of liquid or gaseous fuel and for the purpose of greater economy and convenience.

The crude and wasteful methods of heating are well known; and the object of my invention is to use liquid or gaseous fuel which may be completely consumed, so that the products of combustion are reduced to carbonic acid exclusively or almost exclusively, and to extract the heat from this product, so that the wasted heat is reduced to a minimum.

The invention is described and explained herein, and shown in the accompanying drawing, which is a perspective view of my improved heater, certain parts being broken away to show the internal construction.

In the drawing, view B is a suitable base of any desired form resting on suitably-attached legs and supporting an upright shell or casing, *e*, which is surmounted by a cap or cover, B′, perforated for the escape of heated air. The space within the shell is divided into two parts by a transverse partition, *l*, extending from one side wall of the casing to the opposite wall, and from one end wall thereof very nearly to the other.

Immediately below the partition *l* is a chamber, *d*, open below but closed above by the partition, and having vertical end walls *a*, one of which extends downward from the free edge of the partition *l* and is separated from the corresponding end wall of the casing by a space, G, while the other is separated by a similar space, *c*, from the opposite end wall of the casing. The chamber *d* is traversed by a series of horizontal flues, *x*, whose ends are secured in suitable openings in the end walls of the chamber, so that air may pass freely through the flues from the space *c* to the space G, and thence upward to the space above the partition *l* and out through the openings in the cap B′. A pipe, A, whose upper end opens into the space *c*, supplies it with air, and a vapor-burner adapted to produce a series of flames, *b*, rests on the base B immediately below the open bottom of the chamber *d*. A flue, *k*, opens from the top of the chamber *d*, is bent into a series of coils in the space within the shell above the partition *l*, and passes out through the rear wall of the casing. The outer end of this flue may be inserted in a chimney, or may open into the room in which the heater stands, since the products of combustion of the vapor-burner are so slight as to be neither offensive nor injurious to health. The operation of the device is evident. The entire space within the chamber *d*, as well as the flues *x*, lying therein, being highly heated by the flame *b*, the air passing through the flues leaves them and enters the space G at a high temperature. From the space G it passes upward over the pipe *k*, extracting therefrom substantially all the heat of the products of combustion, and escapes through the openings in the cap B′ into the room in which the heater stands.

I am aware that the forms of radiating surfaces shown and described in this application are not broadly new. In fact, I have myself, in my Patent No. 343,219, issued June 8, 1886, shown and described a heat-radiating device having substantially the form of the chamber *d*, provided with flues *x* and air receiving and discharging spaces *c* G. So far as I know, however, the vapor-burning stove illustrated herein is the first in which are embodied a suitable base, a vapor-burner supported thereby, an upright shell resting on the base and so formed as to permit the escape of heated air from its top, a chamber secured within the shell immediately above the vapor-burner and adapted to receive the heated air and the products of combustion therefrom, a pipe opening from said chamber and adapted to carry away the products of combustion therefrom, and means for carrying fresh air through said chamber into the space above it and thence discharging it into the room in which the heater stands.

A structure such as I have shown and described, embodying substantially the elements enumerated, whether in exactly the forms shown in the drawing or in equivalent modifications thereof, is a practical, satisfactory,

and exceedingly economical heater, and may be moved from room to room of a house with very little trouble. It may be made as ornamental as any other form of heater, and has all the advantages of a much heavier and more expensive heater for burning solid fuel.

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

1. A heater constructed substantially as shown and described and embodying a suitable base, a vapor-burner supported thereby, an upright shell resting on the base and provided with openings for the escape of heated air from its top, a chamber, open below, secured within said shell immediately above said vapor-burner, a pipe opening from the top of said chamber and adapted to carry the products of combustion therefrom, and means for admitting fresh air at one end of said chamber, passing it through the chamber, and thence into the space above the same and discharging it at the top of the shell.

2. A heater formed substantially as shown and described and embodying a base, B, a vapor-burner supported thereby, an upright casing, *e*, resting on the base and surmounted by a perforated cap, B′, a chamber, *d*, open at the bottom, secured within the casing immediately above the vapor-burner and separated from the end wall of the casing by spaces *c* G, a pipe, *k*, opening from the top of the chamber *d* and formed in a series of coils in a space above the chamber and within the shell, a series of horizontal flues, *x*, passing through the chamber *d* and opening into the spaces *c* G, and a pipe, A, adapted to admit fresh air to the space *c*, substantially as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN LODEAR BRINK.

Witnesses:

ALEX SIMPLOT,

FRANK H. WEIHE.