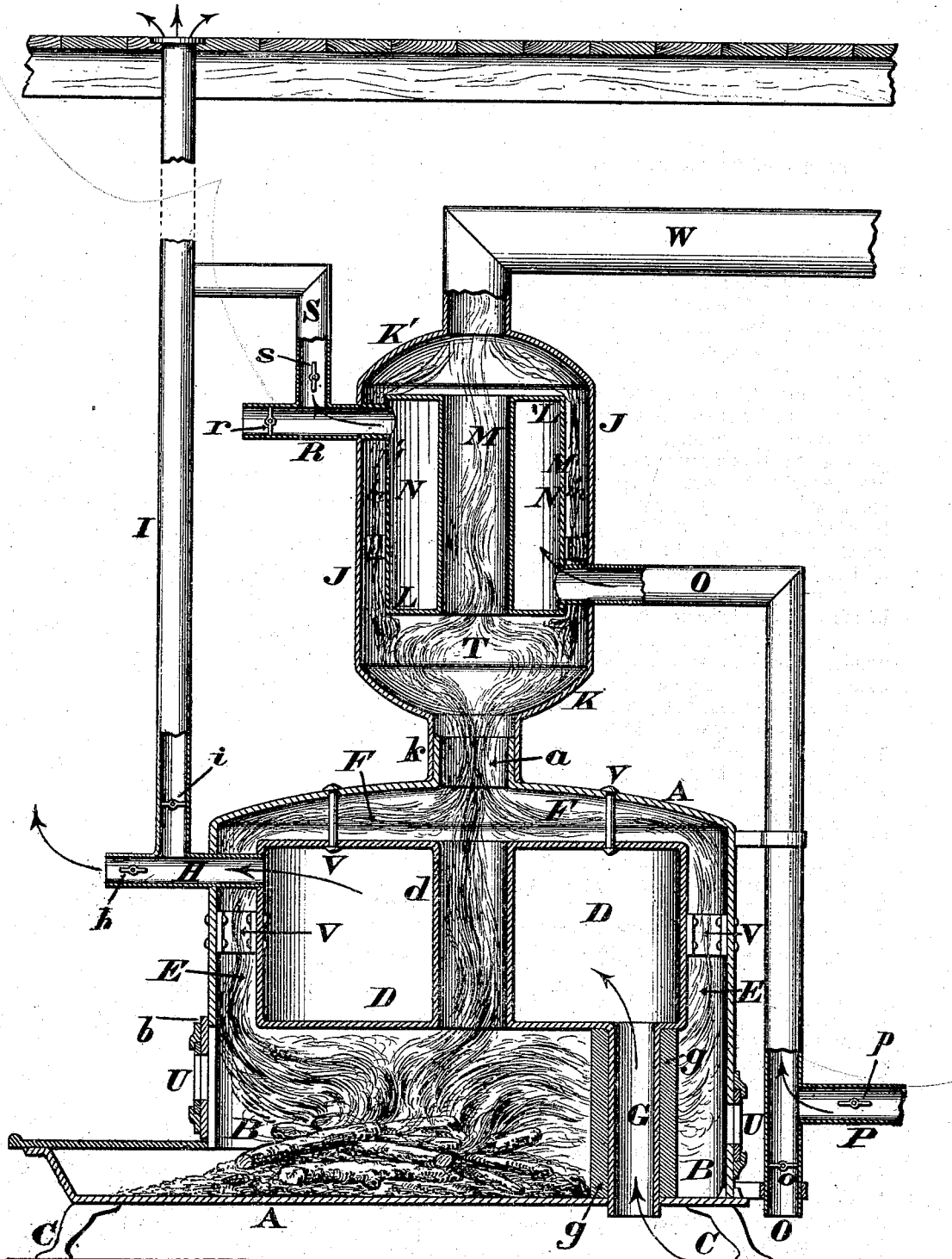


C. KALBFUSS.

HOT-AIR ATTACHMENT FOR STOVES.

No. 182,450.

Patented Sept. 19, 1876.



Attest.
Jas H. Gayman,
John Kitch

Charles Kalbfuss
by Knight Bros.
Att'ys.

UNITED STATES PATENT OFFICE.

CHARLES KALBFUSS, OF WESTVILLE, OHIO.

IMPROVEMENT IN HOT-AIR ATTACHMENTS FOR STOVES.

Specification forming part of Letters Patent No. 182,450, dated September 19, 1876; application filed August 27, 1873.

To all whom it may concern:

Be it known that I, CHARLES KALBFUSS, of Westville, Champaign county, Ohio, have invented a new and useful Hot-Air Attachment for Stoves, of which the following is a specification:

This invention relates to an apparatus wherein the heat which usually escapes from a stove and is wasted may be retarded in its passage to the chimney and utilized in such a manner as to impart an agreeable and wholesome warmth to a current of air, which can be discharged either directly into the apartment that contains the stove or else into some of the upper rooms or halls of the house.

My improvement consists of a separable heating device, constructed with an annular air-heating chamber surrounding a central smoke-flue, and surrounded by an annular smoke-flue, in combination with air-pipes and smoke-flue connections, as herein described.

This invention relates to an improvement in the apparatus described in Letters Patent No. 67,769, granted to me on the 13th of August, 1867, the circular air-heating drum described in my aforesaid patent being, by my present invention, adapted to portable stoves.

Each of these warm-air chambers is provided with an internal flue for the passage of the products of combustion, and they are also furnished with an inlet-pipe to admit cold air, which is discharged through an exit-pipe as rapidly as it becomes heated. As these two heating-chambers are separate from each other, it is evident that one can be used independently, when necessary, or both together, and the apparatus is thereby rendered capable of furnishing a limited or large amount of warm air, according to the mildness or severity of the weather.

Having thus briefly described the essential features of my apparatus, I will now proceed to give a more detailed explanation of it, together with the advantages resulting from the use of the same.

The accompanying drawing is a vertical section through a stove provided with my apparatus, the internal hot-air chamber being represented as discharging warm air into the room in which said stove is located, while the

external chamber is shown as conducting its supply of heated air into an upper apartment.

A represents the shell of a stove, which may be of any desired shape or size, and arranged so as to burn either wood or coal. The stove may be an open front or a closed one, and it is provided with a fire box or chamber, B, having a door, *b*, either at the end or side of the same. C are the feet of the stove. Located above the fire-box B, and completely concealed within the shell of the stove, is my internal hot-air chamber D, that is traversed vertically by a flue, *d*, which is in line with the exit-pipe *a* of the stove. This chamber is fitted within the stove in such a manner as to leave an annular space, E, between said chamber and the shell A. The annular passage E, together with a channel, F, above the chamber D, allow the flames to completely surround said chamber on all sides before escaping through the exit-pipe *a*. Cold air flows into the chamber D through a pipe, G, which projects through the bottom plate of the stove. This inlet-pipe is incased within a fire-clay or other suitable lining, *g*. The cold air, after circulating within the chamber D, and thereby becoming heated, is discharged through pipe H into the room in which the stove is located.

A branch pipe, I, may be attached to the one H, so as to conduct the warm air into the upper part of the house. These pipes may be provided, respectively, with valves, dampers, or registers, *h i*, so as to control the discharge of warm air at pleasure.

The above-described apparatus will be found sufficient for all ordinary purposes; but, in order to increase its efficiency and at the same time to utilize all the waste heat from the stove, I provide a secondary and external hot-air chamber, which is arranged as follows: J is a drum, preferably cylindrical, and closed at its ends with heads K and K', of which the one, K, has a neck, *k*, which fits around the exit-pipe *a* of the stove. The other head, K', has the smoke-pipe W applied to it. This drum is provided with two horizontal diaphragms, L L', to which the annular partition M' and the flue M are secured, said flue occupying an axial position with reference to the drum J, and said annular partition forming an

annular flue, *m'*. Owing to this arrangement of drum, diaphragms, and flue, an annular chamber, *N*, is formed, that receives a supply of cold air through the pipe *O*. This pipe is carried down almost to the floor of the room, and may have a lateral branch, *P*, attached to it, for the purpose of drawing a supply of air from outdoor. Valves *o* and *p* regulate the flow of air through the aforesaid pipes. Warm air is discharged from the drum *J* either through the horizontal pipe *R* or vertical one *S*. These pipes have, respectively, regulators *r s*. A combustion-chamber, *T*, is arranged at the lower end of the drum *J*, which chamber allows the products of combustion to mingle before ascending the flue *M*. *U* are registers for admitting cold air to the fire-box *B*. *V* are braces or tie-rods, which maintain the chamber *D* in a proper position within the shell of the stove.

The operation of my apparatus is as follows: As soon as fire is lighted in box *B* the flames ascend through flue *d* and annular channel *E* and mingle together within the passage *F*, thereby enveloping the chamber *D* and causing the air within the same to be warmed in a few minutes. The products of combustion also ascend within the chamber *T*, flue *M*, and finally escape through the smoke-pipe *W* into the chimney. This passage of the smoke and gases through the chamber *T* and flue *M* serves to heat the air within the drum *J*, thereby affording two separate and independent sources of supply for warm air. By this means all the waste heat of the stove is completely utilized, and the result is that the house is thoroughly warmed and ventilated with a very moderate consumption of fuel.

As the provision of valves *h i* and *r s* en-

ables the flow of air to be controlled at pleasure, it will be readily understood that either the room in which the stove is situated or any of the upper halls or apartments of the house will be filled with pure air within a few minutes after the fire has been lighted in the stove.

As the chambers *D* and *J* draw their supply of cold air from near the floor, the result is that the temperature of the apartment is uniform throughout, and there is no disagreeable and unhealthy odor of burnt atmosphere to be inhaled by the inmates, neither are they subjected to injurious drafts.

I am aware that an air-drum has before been applied within the combustion-chamber of a stove. This, therefore, I do not claim.

By my mode of securing my drum with stay-plates and tie-rods, I make it a permanent part of the stove, and am enabled by this means, and by providing a free passage of air through it, to place it within the fire-box of a stove of moderate height, and still have it as durable as the body of the stove. The air-supply pipe, passing down through the fuel-chamber, is out of sight, and is covered with fire-brick to preserve it.

I claim as new—

The combination, with the stove *A B* and annular and heating chamber *D*, of the separable drum, constructed with central and annular smoke-flues *M m'*, an annular air-heating chamber, *N*, and connecting-pipes *O R k W*, all as specified.

In testimony of which invention I hereunto set my hand.

C. KALBFUSS.

Attest:

GEO. H. KNIGHT,
H. SCHOONMAKER.