I. N. ROSS.

Magazine Stove.

No. 84,511. Patented Dec. 1, 1868.

Fig. 1.

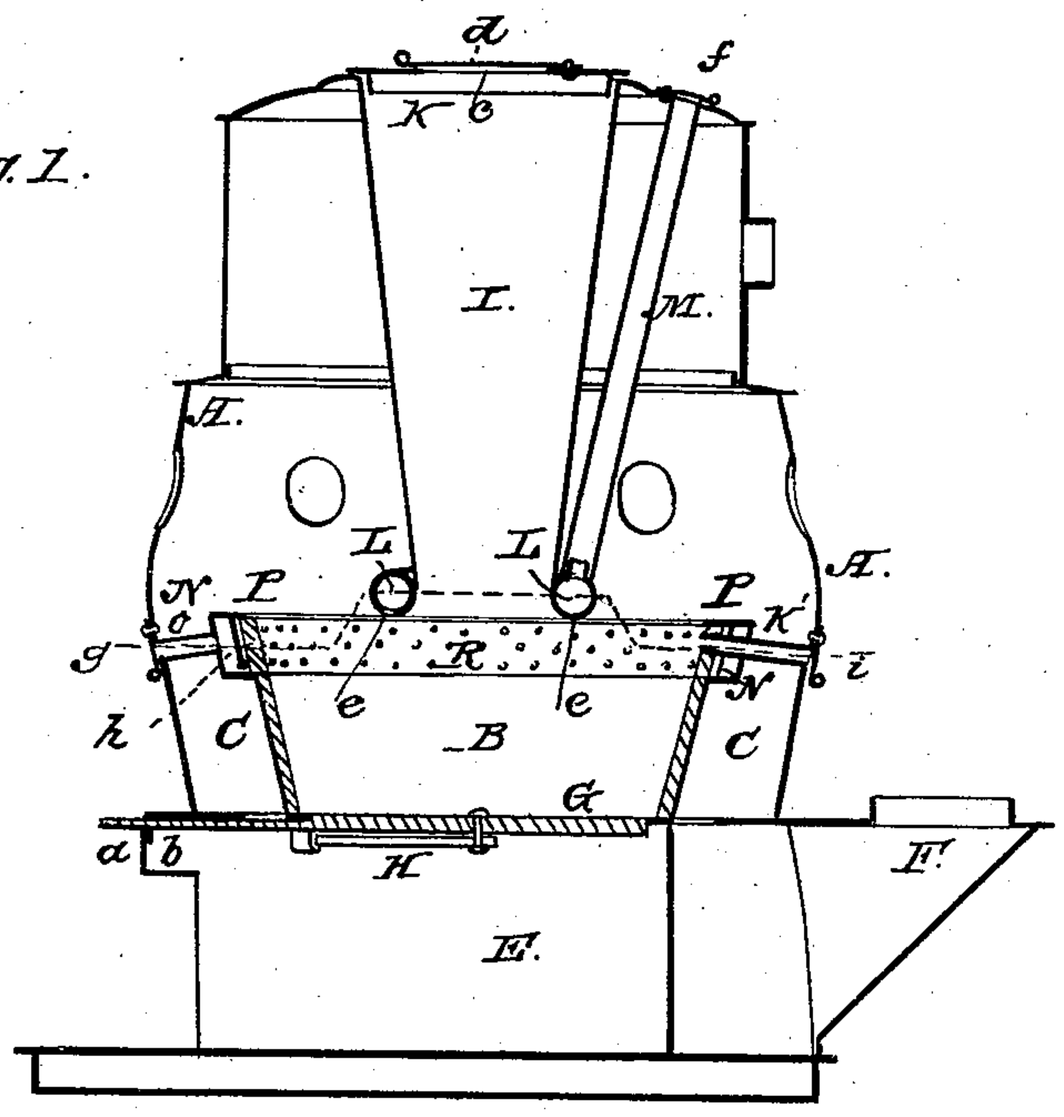
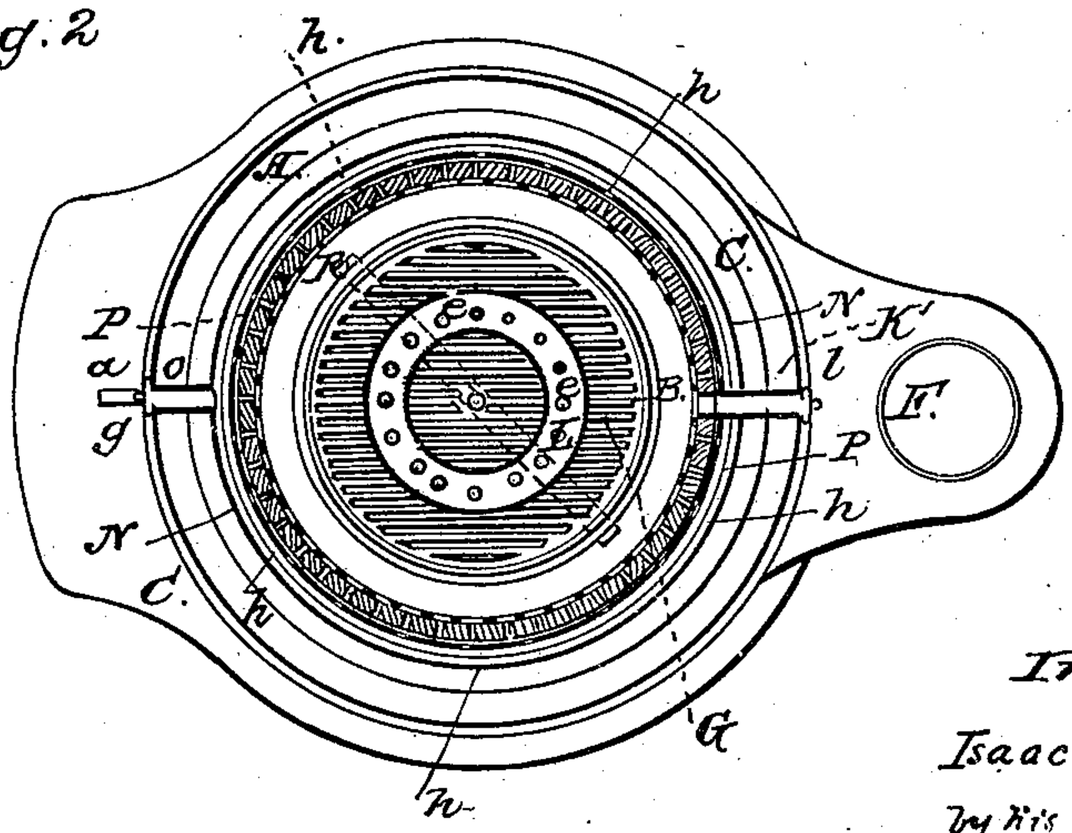


Fig. 2



Witnesses

S. N. Piper

F. R. Snow

Inventor.

Isaac N. Ross

by his attorney

R. H. Eddy

United States Patent Office.

ISAAC N. ROSS, OF WORCESTER, MASSACHUSETTS.

Letters Patent No. 84,511, *dated December* 1, 1868.

IMPROVEMENT IN HEATING-STOVES.

The Schedule referred to in these Letters Patent and making part of the same.

To all persons to whom these presents may come:

Be it known that I, ISAAC N. ROSS, of the city and county of Worcester, and State of Massachusetts, have invented a new and useful Improvement in Magazine-Stoves; and do hereby declare the same to be fully described in the following specification, and represented in the accompanying drawings, of which—

Figure 1 is a vertical and longitudinal section, and

Figure 2, a horizontal section of a stove provided with my invention, the plane of section of the latter figure being through the air-discharging annuli of the magazine and fire-pot.

The nature of my invention consists in the arrangement and combination of an air-discharging annulus, and its air-duct, with the magazine and the fire-pot.

Also, the arrangement and combination of the same, and another such annulus and air-duct, applied to the upper part of the fire-pot.

Also, in the combination of an annular air-chamber, having a foraminous fire-proof lining or side, with the fire-pot, and the hollow annulus applied thereto, as hereinafter explained.

Also, in the arrangement of an air-opening and register-valve at the top or in the cover of the magazine.

In the drawings, A denotes the outer case of the stove.

Between the said case and the fire-pot B, arranged concentrically within it, is a smoke-passage, C, which leads into a chamber D, surrounding the ash-chamber E, and being provided with a projecting educt, F.

The grate G, placed within the lower part of the fire-pot, is pivoted to the middle of a shaft, H, and is provided with an arm, *a*, to extend from it through a slide, *b*, applied to an opening in the front of the case.

Over the fire-pot, and leading down from the top of the case, is the magazine I, which, at its top, is provided with a cover, K. This cover has a hole, *c*, through it, and it also has a valve or turning-plate, *d*, so pivoted to it as to enable a person, by means of such valve, to either entirely or partially close the hole *c*, as circumstances may require.

This magazine, like that of various other stoves, is to hold a supply of coal or fuel, and allow the same to fall down, from time to time, into the fire-pot. The removal of the cover admits of the magazine being charged with fuel. The hole *c*, and its valve or register, are for the purpose of admitting air to flow down through the fuel, and regulate the quantity of such air, in order to supply the central portion of the lower part of the mass with oxygen, as circumstances may require. This is a matter of much importance in a magazine-stove.

To the lower extremity of the magazine, which is open, there is affixed a hollow annulus, L, having a series of small holes, *e*, leading out of its bottom.

An air-induction pipe, M, leads from the top of the stove down to and opens into the annulus L. At its upper extremity the pipe M opens through the top of the case, and is there provided with a cover, *f*, which is pivoted to the said top.

Furthermore, there is fixed to the top of the fire-pot another hollow annulus, N, which is arranged concentrically with respect to the annulus L, and has an air-induction pipe, O, leading into it, such pipe being provided at its outer end with a register-cover, *g*.

The inner side of the annulus N is perforated with a series of holes, *h*, to discharge air into a space or annular chamber, P, which is concentric with the annulus N, and has its inner side composed of a ring, R, of foraminous fire-brick or its equivalent.

Another air-pipe, K′, leads from the rear part of the case, through the annulus N, the chamber P, and its foraminous fire-proof side, R, the said pipe K′ being provided at its outer end with a cover, *l*, which is pivoted to the case.

When the stove is in operation, numerous jets of air will be discharged from both the annuli L N, and will pass into the air upon the fuel of the fire-pot, so as to facilitate the combustion of it and the gaseous products evolved from it. As the flame will rush in radial directions away from the annulus N, owing to the air discharged from it, and also to the effect of the draught on the flame, the annulus and its air-supply pipe become not only means of protecting the lower end of the magazine from being destroyed or injured by the heat of the fire, but of supplying the flame and fuel with oxygen, whereby the combustion of the fuel, and the smoke and gas evolved from it, will be greatly promoted.

The annulus L not only adds strength, but also serves to supply the fuel, gases, and smoke with air, and thereby facilitate their combustion.

The two annuli, L and N, by their arrangement, produce currents of air, which operate on the flame very much as do the internal and external currents of air in an Argand gas-burner; and, furthermore, the currents of the two annuli so impinge on the flame as to force it high up into that part of the stove which surrounds the magazine, thereby causing that part to be heated to better advantage than it would without the outer annulus.

The annular chamber, made with a foraminous fire-proof inner side, operates to prevent the destruction of the annulus N, by the great heat of the flame, particularly when the air is cut off from the annulus N.

I am aware that in the stove patented to David B. Cox, December 19, 1865, the magazine is combined with an annulus surrounding its lower end, and air-supply pipes leading from the top of the stove, and I make no broad claim to any such arrangement.

But in the stove referred to the annulus is perforated on the side, so that the air issuing therefrom is not discharged in the direction of the fire, but is carried

at once upwards by the draught of the stove, without mixing to any considerable extent with the gases evolved, and consequently without producing their combustion.

On the contrary, I form the perforations in the bottom of the annulus, so that the air discharged is brought in direct contact with the fire, mixing intimately with the rising gases at the point where they are more highly heated, and thus inducing much more perfect combustion than in the other instance.

What I claim, therefore, and desire to secure by Letters Patent, is as follows:

In a stove, in which the magazine is arranged with relation to the fire-pot, and combined with an annulus surrounding its lower end, and one or more air-supply pipes, leading from the top of the stove as described, I claim the formation of the air-discharge apertures or perforations in the bottom, in contradistinction to the sides, of said annulus, substantially in the manner and for the purposes shown and set forth.

I also claim the combination and arrangement of the auxiliary annulus N, and its air-supply pipe, and discharge-holes, with the fire-pot, the magazine, and the annulus L, and its air-supply pipe and discharge-holes, the whole being in the case as specified.

I also claim the combination of the inner annular air-chamber P, and its foraminous fire-proof side, R, with the fire-pot and the hollow annulus L applied thereto, as and for the purpose specified.

ISAAC N. ROSS.

Witnesses:

R. H. EDDY,

F. P. HALE, JR.