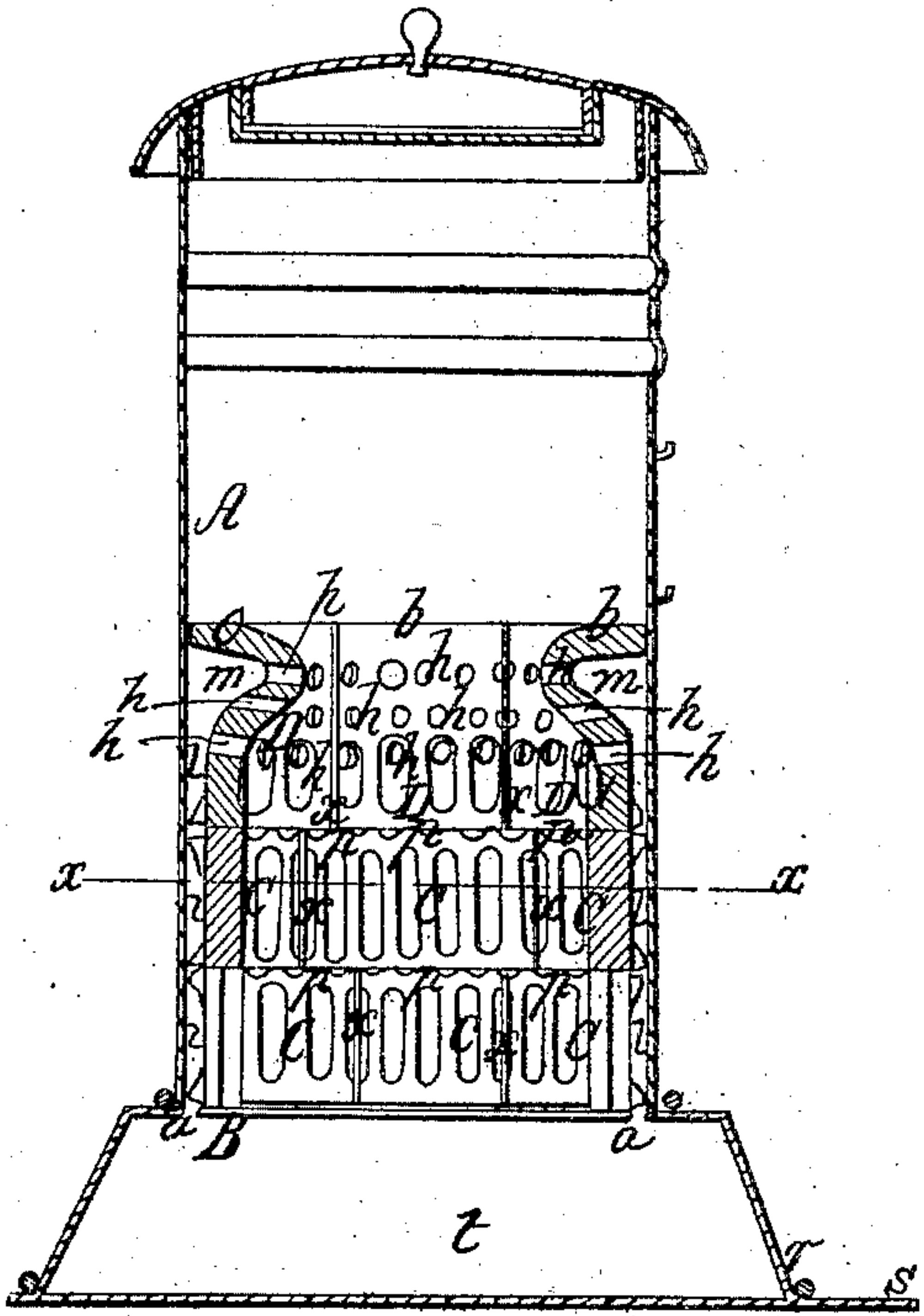


J. J. LOW.  
COAL STOVE.

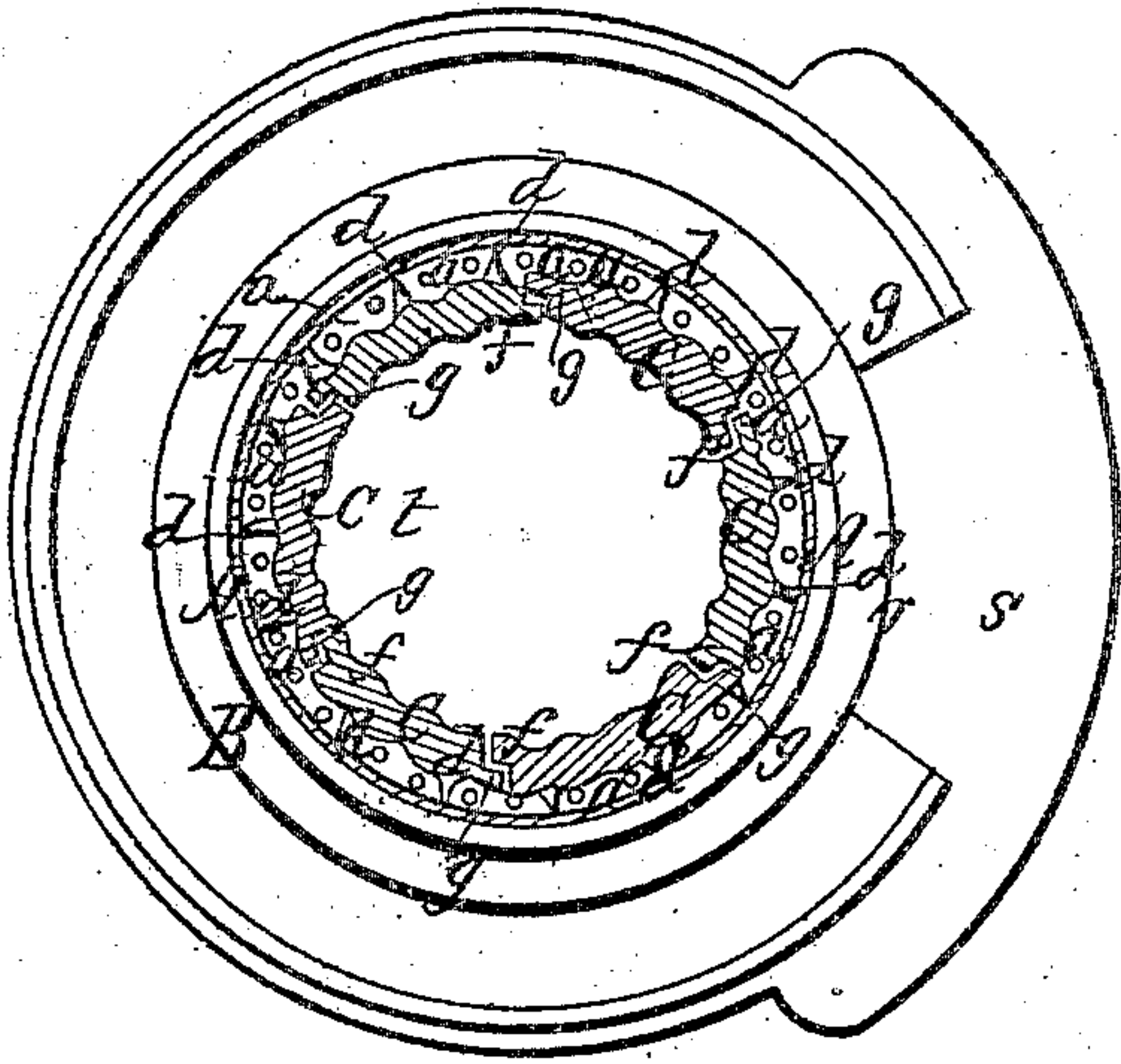
No. 63,539.

Patented Apr. 2, 1867.

*Fig:1:*



*Fig. 2.*



*Fig. 3.*

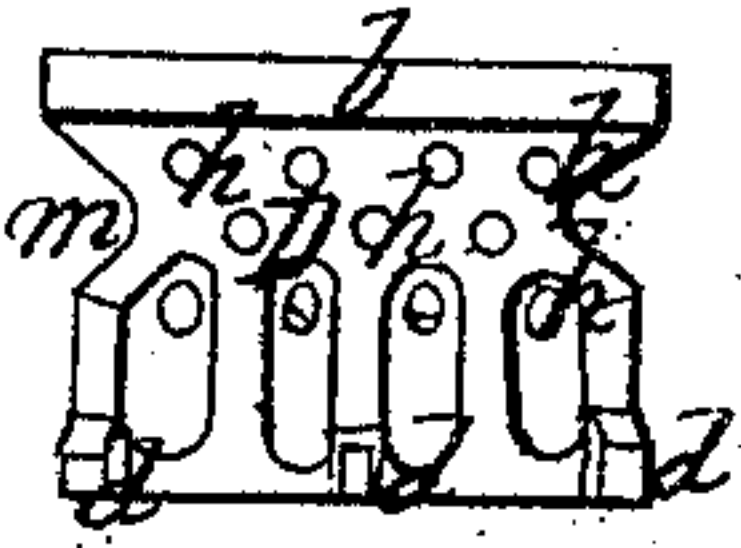


Fig. 4.



*Inventor,*

John J. Low  
By his atty  
J. S. Brown

Witnesses;

Thos J Parker  
E J Brown



# United States Patent Office.

JOHN J. LOW, OF CLEVELAND, OHIO.

*Letters Patent No. 63,539, dated April 2, 1867.*

## IMPROVEMENT IN COAL STOVES.

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

### TO ALL WHOM IT MAY CONCERN:

Be it known that I, JOHN J. LOW, of Cleveland, in the county of Cuyahoga, and State of Ohio, have invented certain Improvements in Gas-Burning Stoves for coal, peat, &c.; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification—

Figure 1 being a central vertical section of a cylinder stove provided with my improvements.

Figure 2, a horizontal section thereof, in a plane indicated by the line *x x*, fig. 1.

Figure 3, a view of the outside of one of the upper tier of blocks or bricks, composing the lining of the fire-pot or fire-box.

Figure 4, an outside view of one of the lower tiers of blocks or bricks.

Like letters designate corresponding parts in all of the figures.

My improvements relate to the lining of the fire-pot or fire-box, whereby the lining itself is more easily and cheaply made and put together, and more readily repaired, and by which air is supplied all round the fire-pot, and introduced in numerous jets into the burning fuel on all sides, and especially is made to mingle with the gases generated therein while in the act of ascending within and through the fire-pot, so that a more complete combustion is the result. The body or case *A*, and the base of the stove and the ordinary parts connected therewith, may vary indefinitely, and need no special description here.

In the construction of the lining, I propose to make and use cast-iron blocks *C C* and *D D* of suitable size and form, and similar to fire-brick linings in these and other respects, as far as desired. These blocks are to be arranged in the stove in tiers, and so that the successive tiers thereof shall break joints, as seen at *x x*, fig. 1. There are two forms of these blocks, as represented, the lower ones, *C C*, being of the ordinary shape; while the upper ones, *D*, are of peculiar form, curving inward toward the upper edge so as to contract the size of the neck of the lining, and then flaring outward at the top so as to fill the whole interior diameter of the stove body, as seen at *b b*. These two forms are cast in moulds formed respectively therefor; and, in casting, they may be corrugated or plain, and have notches *p p* in their edges, or holes cast or afterwards bored through them.

The advantages of the cast-iron block linings, are that they can be cast at any place where stoves or other castings are made; thus being suitable for all parts of the country, as well where fire-bricks or soap-stone cannot easily be procured for the purpose, as at other places. They are also cheap, and, when they become unfit for use, they may be sold to melt again. I am aware that cast-iron linings have before been used in the form of staves or rings, but not in blocks like these, arranged in tiers and breaking joints, so far as I am aware. These cast-iron blocks are especially valuable because of the convenience and cheapness of repairing the lining, any one block being removable and replaceable, without interfering with the rest of the lining.

In the use of these cast-iron blocks, provision must be made for the great expansion of iron by heat. To effect this, I make the blocks with lap joints at the ends, each block having an inner lap, *f*, at one end, and an outer lap, *g*, at the other end, so that the adjacent blocks are united, as seen in fig. 2. By this means the joints may be quite open and loose, as indicated in the same figure, sufficiently to allow all the expansion ever required in the most intense heat, without injury to any part of the stove.

The blocks *C C* and *D D* are provided with a number of separate projections, *d d*, upon the outer surface thereof, for the purpose of keeping the general surface of the blocks separated from the case *A* of the stove, as represented, and thereby affording an open space or spaces all around the lining inside of said case, to admit air from below through apertures *a a* in the base-plate *B*, (or through the case *A* at the bottom if preferred,) and supplying it, through holes or notches *p p* in the lining, to the ignited fuel at numerous points all around the same, and especially affording a full supply of oxygen to the generated gases as soon as set free from the fuel, and at points where the temperature is high enough to effect complete combustion. These projections may be of variable form, but all should project to about an equal extent in order to hold the blocks at uniform distances from the case; and the number may be three or more on each block, or sufficient to hold it in the right position. Not only do these projections afford an air space for the admission of air to support the combustion, but by offering contact between the lining and case at only a few points, the case is much better protected from the



intense heat of the fuel, although a sufficient heat is communicated to and radiated from that part of the case to enable it to do its proper share of warming. The upper tier of blocks, D D, by their curved rims *b b*, fit closely in the case, and close the space *l* at the top. The contracted neck thereof not only deflects and condenses the gases as they arise from the fire-pot or chamber, but there are rows or ranges of holes *h h* through the blocks, not only at the most contracted part, but below, as shown in fig. 1, through which a large amount of air is admitted to complete the combustion of the gases where it is most effectual. The enlarged annular space *m* around this neck holds and more freely supplies an increased amount of air for the purpose. These neck and rim blocks D D extend around the whole inside of the stove, as well under the door or doors as at other points. They thus protect the door from injury by intense heat, to which other constructions render the doors liable. The latter-named improvements of the projections *d d* on the blocks, and the perforated upper tier blocks are applicable to fire-brick and other linings, as well as to those of cast iron, and I propose to use them with such other linings when employed.

What I claim as my invention, and desire to secure by Letters Patent, is—

The perforated curved upper tier blocks D D, arranged in connection with the blocks C C, constructed as shown so as to form the air chamber *l l m*, substantially as and for the purposes herein specified.

I also claim the arrangement and construction of the whole body of the stove lining D C C, in connection with the apertures *a* or *n*, in the manner and for the purposes herein set forth.

JOHN J. LOW.

Witnesses:

J. S. BROWN,  
THOS. T. PARKER.