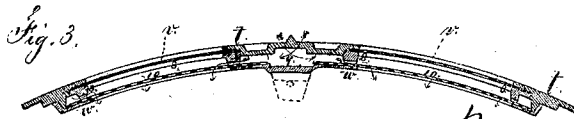
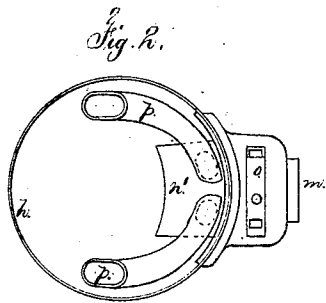
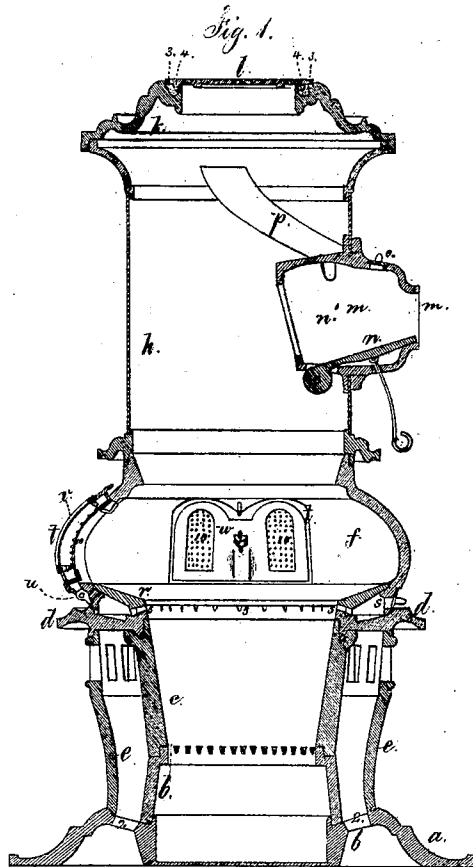


M. C. HULL.  
Heating Stove.

No. 101,733

Patented April 12, 1870.



Geo. D. Walker  
Chas. H. Smith

M. C. Hull

# United States Patent Office.

MAURICE C. HULL, OF NEW YORK, N. Y.

Letters Patent No. 101,733, dated April 12, 1870.

## IMPROVEMENT IN HEATING-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, MAURICE C. HULL, of the city and State of New York, have invented and made a new and useful Improvement in Stoves or Heaters; and the following is declared to be a correct description of the same.

In Letters Patent No. 71,176, granted November 19, 1867, a furnace is shown with a combustion-chamber, in which are pipes descending to a horizontal flue running around the fire-pot.

My present invention is an improvement upon the aforesaid Letters Patent, whereby I adapt the descending flue-pipes to a cylinder, such as the metal cylinder of a stove; and I also make provisions for admitting air in such a manner as to prevent the mica windows of the stove becoming smoked; and a supply of hot air above the fire is provided by means of a ring-flue around the fire-pot.

In the drawing—

Figure 1 is a vertical section of the heater.

Figure 2 is a plan of the ram's-horn pipes forming the descending flue; and

Figure 3 is a sectional plan of one of the mica windows and frame.

The base *a* of the heater supports the ash-pit inclosure *b*, upon which rests the fire-pot *c*, of usual construction.

The ring *d* forms a flange to the fire-pot, and also rests upon the casing *e* that surrounds the fire-pot *c* and ash-pit inclosure *b*.

There are openings through the base at 2, and through the upper part of the casing *e*, so that air circulates between the casing *e* and fire-pot *c*, and the risk of injury to garments from contact with the heated fire-pot is prevented.

Upon the outer edge of the ring *d* the frame *f* rises in a dome shape, and in this the openings for fuel-doors and mica windows are provided.

Above this dome-frame *f* is the base ring for the cylinder *h*, which cylinder may be made in sheet-iron or other metal, with a top, *k*, and cover *l*.

The cover *l* sits into a recess in the top *k*, at which point there is an annular sand-receptacle, 3, and the downward flange 4, passing into the sand, makes a tight joint at all times that will not leak gas.

The smoke-flue *m* passes off through the side of the cylinder *h*, and *n* is a direct draught damper in the hub *n'*, that is, within the cylinder *h*, and *o* is a slide to let in cold air to the chimney, to lessen the draught.

The pipes *p* rise above the hub *n'* of the flue *m*, within the cylinder *h*, so that, when the damper *n* is closed, there is a downward draught to the escape-flue that acts to increase the efficiency of the products of combustion in heating the cylinder *h*.

By making the pipes *p* of a curved or ram's-horn form, their length is increased and the products of combustion are taken from nearly opposite sides at the top of the combustion-chamber *h*. This con-

struction causes the products of combustion to pass toward the front of the stove or heater previous to escaping by the flue-pipes.

Above the ring *d* I introduce a ring, *r*, which may be of a slightly conical shape, there being an air-space formed between these rings *d* and *r*, to supply hot air to the fire through the openings at 5.

The openings at *s* serve to admit air to the space between the rings *r* and *d*, and a register may be used to regulate the amount of air admitted.

The frames *t*, for the mica windows, are of a size and shape to fit the openings in the heater. In fig. 3 the mode of construction is shown by a larger-sized section.

The frame *t* may be attached by hinges *u*, or otherwise, and the mica, at *v*, is held into a rebate by a frame, 8, having notches in its edges, and the inner frame *w* is formed with flanges to set against the interior of the frame *t*, leaving air-passage ways around the frame 8, and these air-passage ways open to an external supply of air at 9. The flange might be upon the frame *t*, or the air-space be made by a separate frame, or in any convenient manner.

The perforated metal or wire-gauze at 10 forms a septum between the fire and the mica, so that smoke will not come in direct contact with the mica, and the air that passes in through the passage-ways and the notches of the frame 8 comes in between the mica *v* and septum 10, and, passing into the fire through the perforations of the latter, effectually prevents the mica becoming smoky. The air being heated, aids in preventing the condensation of smoke on the septum 10.

I claim as my invention—

1. A descending-flue, *p*, for the products of combustion, placed above the hub of the escape-flue *m*, and within the combustion-chamber *h* above the fire, substantially as set forth.

2. The ram's-horn-shaped flues *p*, rising above the escape-flue and within the combustion-chamber *h*, in combination with the direct draught-damper *n* and cylinder *h*, substantially as specified.

3. The ring *d*, forming the top flange of the fire-pot *c*, in combination with the ring *r* and intervening air-space, which is provided with inlet air-openings at *s* and outlet-openings at 5 into the fire, as set forth.

4. The frames *t* *w*, with air-passage ways between them, into which the external atmosphere is admitted, in combination with the mica *v*, perforated septum 10, and openings from said passage-ways into the space between the mica and perforated septum, so that heated air passes into such space, substantially as set forth.

Signed by me this 23d day of February, A. D. 1870.

M. C. HULL.

Witnesses:

CHAS. H. SMITH,  
GEO. T. PINCKNEY.