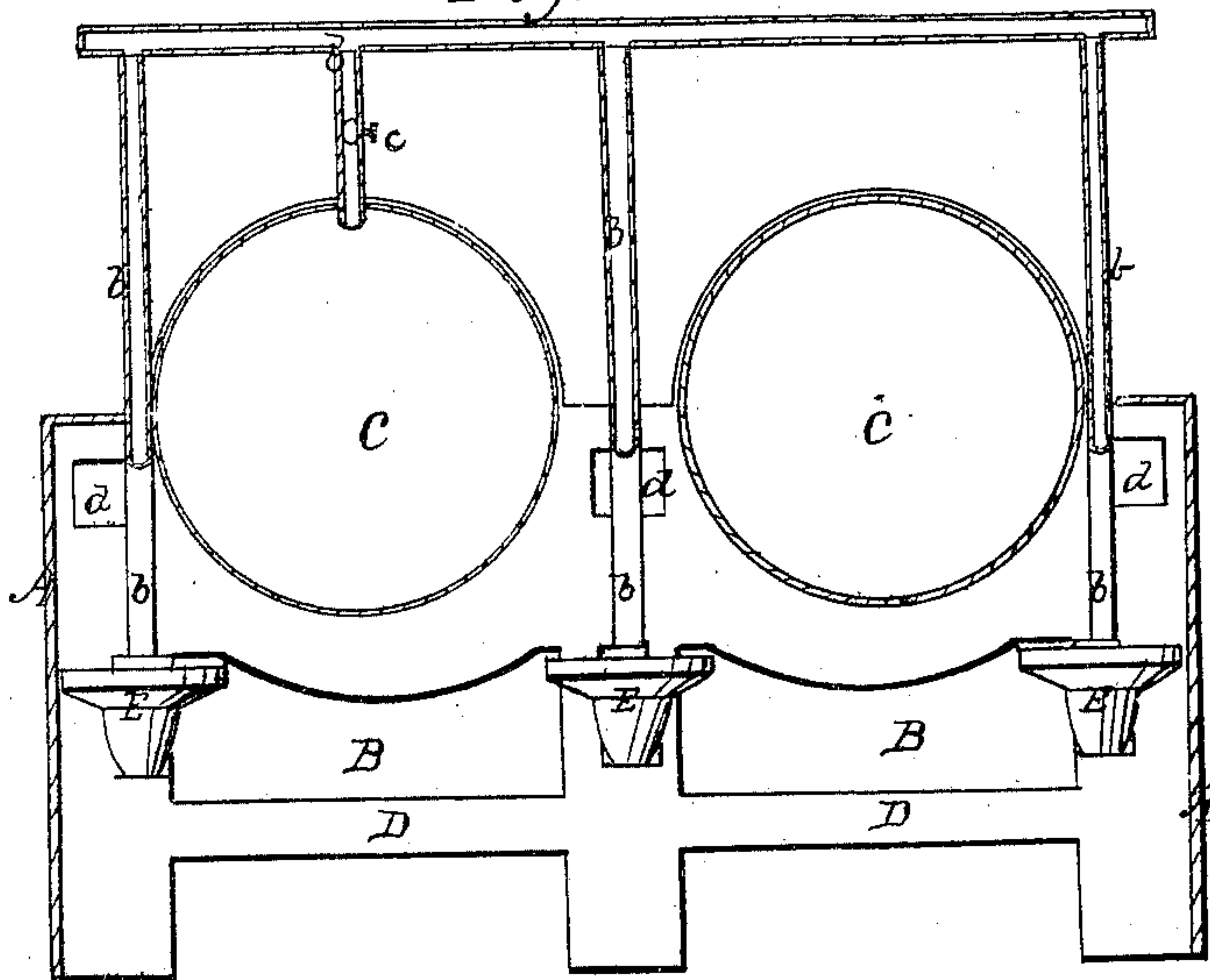


*E. S. Chase.*  
*Sawdust-Burner.*

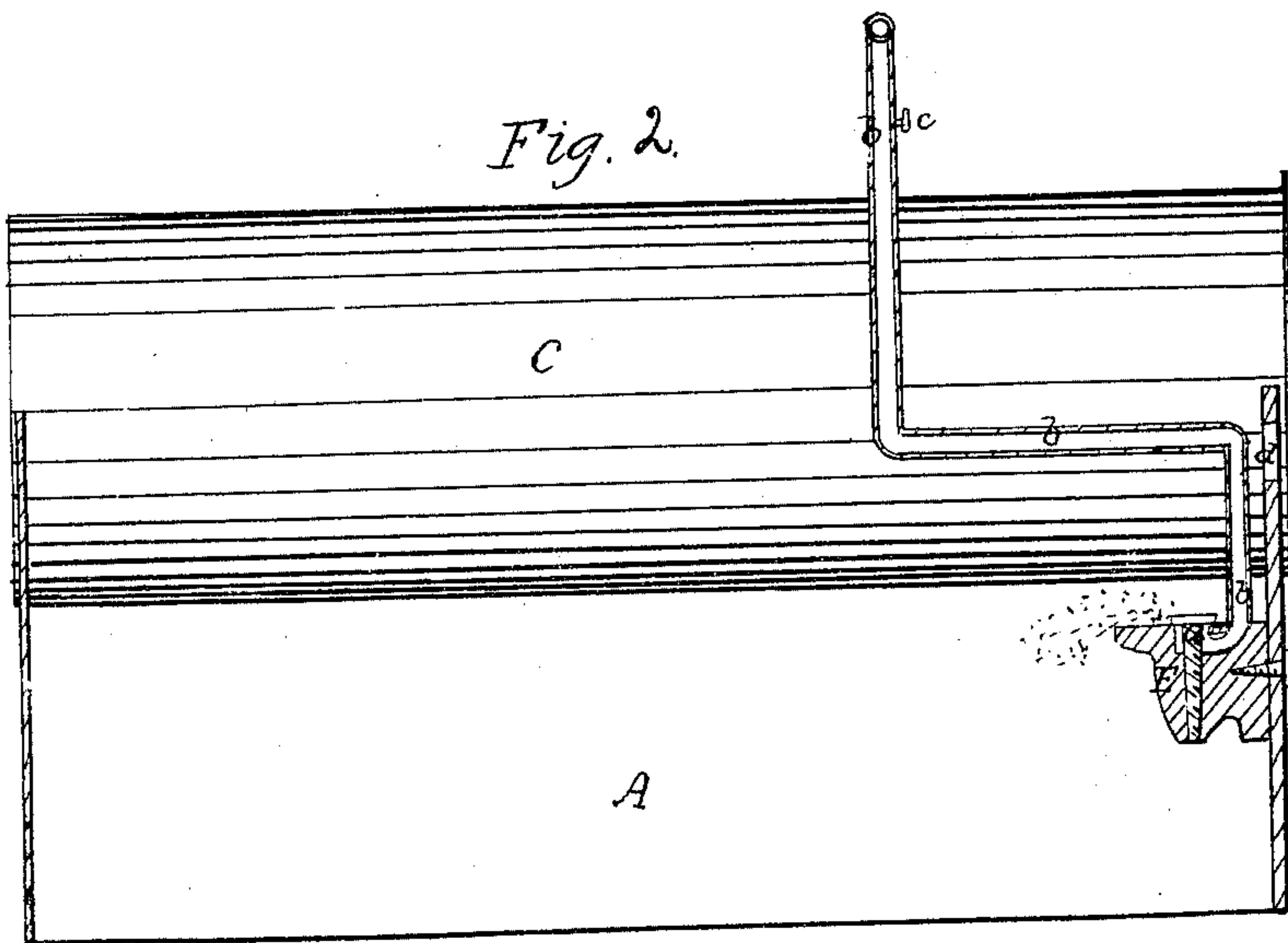
*Nº 90,239.*

*Patented May 18, 1869.*

*Fig. 1*



*Fig. 2.*



*Witnesses.*

*Leopold Count*  
*Comilus Cox.*

*Inventor.*

*E. S. Chase*  
*Attorney*

# United States Patent Office.

EBEN SIMPSON CHASE, OF EAU CLAIRE, WISCONSIN.

Letters Patent No. 90,239, dated May 18, 1869.

## SAWDUST-BURNER.

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, EBEN SIMPSON CHASE, of Eau Claire, in the county of Eau Claire, and in the State of Wisconsin, have invented certain new and useful Improvements in Sawdust-Burner; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in the construction of a device by which sawdust will be scattered over the grates of a furnace by blowing.

In a saw-mill, if the dust cannot be burned, it must be hauled away, at great expense.

The object and advantages of my device are to scatter the sawdust evenly over the grates, thus keeping up the combustion on the whole surface. More dust can be burned than usual; in fact, all the dust a saw-mill can make. It increases the draught. It heats the dust as it comes in contact with it, making it burn more readily than if it dropped cold on the fire.

In order to enable others skilled in the art to which my invention appertains, to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawings, which form a part of this specification, and in which—

Figure 1 is a rear elevation, in section, and

Figure 2 is a longitudinal section.

A represents the furnace.

B B, the fire-boxes, above which the boilers C C are placed.

D represents the bar on which the front-end of the grates rests.

Inside of the furnace, and at any suitable points above the grate, are placed one or more hollow cups, or flanges E E, on which the sawdust is deposited.

In the centre of the hollow of these flanges E E is a fixed valve, *a*, from under which the steam issues, as will be hereinafter set forth.

From the boiler C, a pipe, *b*, conducts steam to these flanges, said pipe passing on its way through the fire-box, thus superheating the steam.

The pipe *b* then passes down through the flange E, or rather into the same, so that the steam passes out from below the fixed valve *a*, striking the sawdust which falls on the flange, and casting it into the grates.

The pipe *b* is, at a suitable point, provided with a valve, *c*, to regulate and entirely shut off the steam, if so desired.

The fixed valve *a*, in the flanges E E, can also be used to regulate the amount of steam which is to pass out of the same.

The sawdust may be carried to the flanges E E by a belt, passing from the saw-mill to a hopper, placed at a convenient point to conduct it to the said flanges, or by any other means deemed best suited.

In the front of the furnace, above the openings for doors, are square holes *d d*, which may be used for the purpose of spouting sawdust on to the flanges.

It will be seen that the steam, as it is conducted from the boiler to the flanges, passes part of the way through the fire-box, and is superheated, which operates to dry the sawdust the moment the steam strikes it, thus making it burn freer and easier, and, by regulating the valves *a a*, the dust can be thrown perfectly even over the grates. Besides, the admission of steam into the fire in this manner increases the draught.

By burning the sawdust, there is also a great saving in fuel, and in the expense of hauling the dust away.

Having thus fully described my invention,

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

1. Utilizing the sawdust of a saw-mill, by placing the same in contact with a steam or blow-pipe or pipes, whereby the same is scattered upon the furnace, substantially as herein set forth.

2. The hollow flanges E E, provided with fixed valves *a a*, and placed at suitable points in a furnace, for the purpose of receiving and scattering the sawdust on the grates when steam is admitted, substantially as shown and described.

3. In combination with a furnace, the flanges E E, provided with valves *a a*, and connected, by means of one or more pipes *b*, with the boiler, substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing, I have hereunto set my hand, this 25th day of September, 1868.

EBEN SIMPSON CHASE.

Witnesses:

HENRY COUSINS,  
EDWARD MUNDEN.