

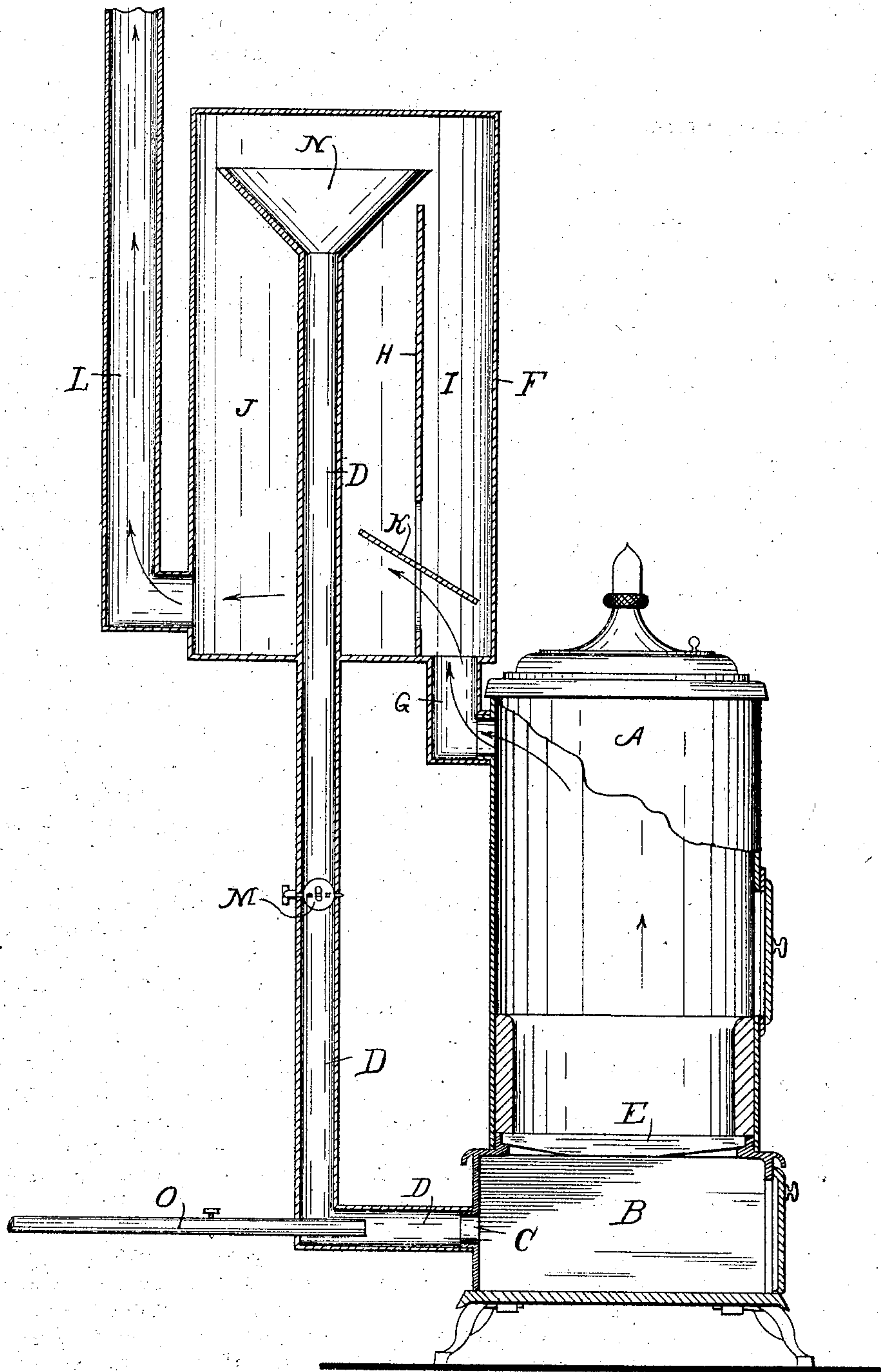
No. 768,082.

PATENTED AUG. 23, 1904.

W. I. SHERMAN.
SMOKE CONSUMER.

APPLICATION FILED MAY 2, 1904.

NO MODEL.



WITNESSES:

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WILLIAM I. SHERMAN, OF MILWAUKEE, WISCONSIN.

SMOKE-CONSUMER.

SPECIFICATION forming part of Letters Patent No. 768,082, dated August 23, 1904.

Application filed May 2, 1904. Serial No. 205,886. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM I. SHERMAN, a citizen of the United States, residing at Milwaukee, county of Milwaukee, and State of Wisconsin, have invented new and useful Improvements in Smoke-Consumers, of which the following is a specification.

My invention relates to improvements in smoke-consumers to be used in connection with stoves and furnaces, and it pertains to that class in which the smoke which has escaped from the stove is returned to the stove beneath the grate.

The construction of my invention is explained by reference to the accompanying drawing, which represents a vertical section thereof in connection with a stove.

The several parts are referred to by reference-letters.

A represents a stove of ordinary construction, with the exception that the base B is provided with an inlet-opening C, through which the smoke which has escaped from the upper part of the stove is returned to the base through the duct D, when it passes up through the grate E and is consumed with the fuel.

F is a heating-drum into which the smoke and other products of combustion are led from the stove A through the pipe G.

H is a partition subdividing the drum F into two compartments I and J. The partition H is provided with a damper K.

When the damper K is closed, the smoke and other products of combustion are compelled to pass up through the compartment I and over the upper end of the partition H, when they escape to the chimney or exterior air from the compartment J through the stove-pipe L.

In starting a fire the damper K is preferably opened, whereby the smoke is free to pass direct from the stovepipe G to the stovepipe L without passing over the partition H. When the fuel in the stove is well ignited, the damper K is closed and the damper M opened, when the smoke which ascends to the upper part of the drum will be caused to enter the duct D through the funnel N, when it is drawn down into the base of the stove through said duct D and from thence up through the grate

E, when it is more perfectly consumed before escaping from the stove.

To produce the best results, the ordinary draft-passages of the stove are closed and the necessary air to produce combustion is drawn into the stove through the pipe O. It will of course be understood that when the exterior air is entering the stove through the pipe O a downward current of air will be induced thereby in the duct D, which will cause the smoke which has ascended to the upper end of the drum to enter said duct D, when it will be drawn into the stove beneath the base, as previously stated.

I am aware of the fact that attempts have heretofore been made to return the smoke from the direct-draft passages between the stovepipe and chimney with a view of consuming the same; but in such prior forms of construction it has been found difficult to overcome the direct current of heated air between the stove and the chimney sufficiently to successfully return the same to the stove.

Attention is especially called to the fact that by my construction the return-pipe is connected with the drum at its upper end, at which point the smoke becomes lodged or trapped above the outlet-duct to the chimney, which is connected with the drum at its lower end, owing to which fact the smoke is much more readily drawn into the stove than it would be were the outlet-pipe which leads to the chimney connected with the upper end of the drum in the direct line of the escaping smoke, whereby a much larger percentage of the gas is returned to the stove than would otherwise be by the forms of construction heretofore made. It will of course be understood that by leading the air necessary to combustion to the stove through the return smoke-duct a siphon action is produced in said duct which coöperates with the upward current of air in the stove to draw the smoke from the drum to the stove, as stated.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a device of the described class, the combination of a stove; a drum provided with a vertical partition subdividing its interior

into two compartments; a pipe leading from said stove to said drum on one side of said partition; a return smoke-duct communicating from the upper end of said drum with the base of the stove beneath the combustion-chamber and an escape-pipe communicating from the lower end of said drum with the exterior air.

2. In a device of the described class; a stove; a drum subdivided into two compartments by a vertical partition; a damper located in the lower end of said partition; a pipe communicating between the stove and said drum on one side of said partition; a duct communicating from the upper end of said drum on the other side of said partition with the base of the stove below the combustion-chamber and an escape-pipe communicating from the lower end of said drum with the exterior air, substantially as set forth.

3. In a device of the described class, a stove; a drum subdivided into two compartments by a vertical partition; a damper located in the lower end of said partition; a pipe communicating between the stove and said drum on one side of said partition; a duct communicating from the upper end of said drum on the other side of said partition with the base of the stove below the combustion-chamber;

an escape-pipe communicating from the lower end of said drum with the exterior air; an inlet air-duct communicating from the lower end of said drum with the exterior air; an inlet air-duct communicating from the exterior air with the base of the stove through said return smoke-duct.

4. In a device of the described class, the combination of a stove; a drum subdivided into two compartments by a vertical partition; a damper located in said partition; a pipe leading from the stove to said drum on one side of said partition; a return-duct provided with a funnel at its upper end communicating from the upper end of said drum with the base of said stove; an inlet air-duct communicating from the exterior with the base of the stove through the lower end of said return smoke-duct and an escape-duct communicating from the lower end of said drum on the opposite side of said partition from the inlet smoke-duct with the exterior air, all substantially as and for the purpose specified.

In testimony whereof I affix my signature in the presence of two witnesses.

WILLIAM I. SHERMAN.

Witnesses:

JAS. B. ERWIN,
F. A. OTTO.