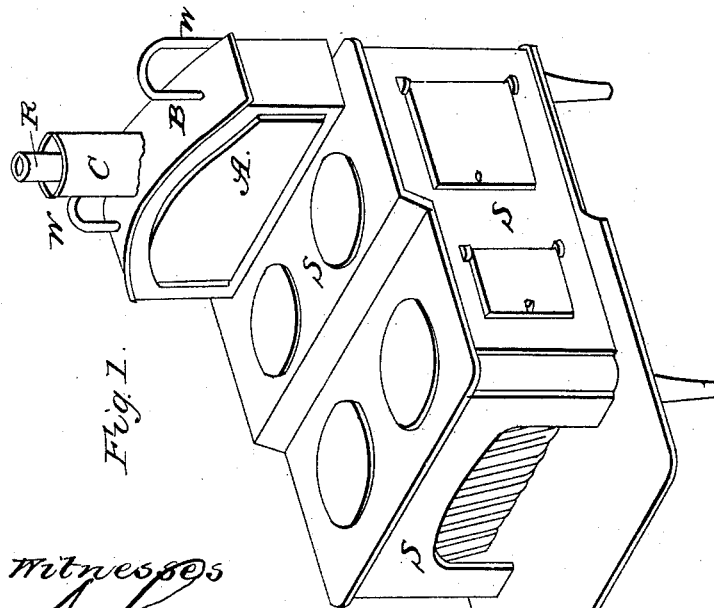
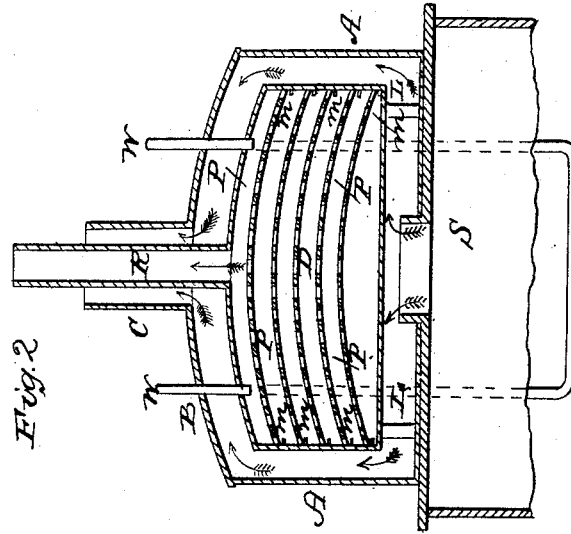


S. NOWLAN.

Cooking Stove.

No. 45,338.

Patented Dec. 6, 1864.



Witnesses  
*A. H. H. H.*  
J. d. Coombs.

Inventor  
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# UNITED STATES PATENT OFFICE.

SAMUEL NOWLAN, OF NEW YORK, N. Y.

## IMPROVEMENT IN COOKING-STOVES.

Specification forming part of Letters Patent No. **45,338**, dated December 6, 1864; antedated November 16, 1864.

*To all whom it may concern:*

Be it known that I, SAMUEL NOWLAN, of New York, in the county and State of New York, have invented certain new and useful Improvements in Generating Steam for Heating and other Purposes; and I hereby declare that the following is a full, clear, and exact description of the same.

The object of my invention is twofold—first, the utilization of the waste heat emanating from cooking ranges and stoves; second, the generation of steam at little or no cost, without the employment of boilers and their appurtenances, and consequently without liability of explosion, &c.

The apparatus shown in the accompanying drawings represents a cooking-stove to which my invention is applied. Figure 1 in the said drawings is a perspective view of the same; and Fig. 2 a sectional elevation of the attachment A, in which steam is generated by the waste heat of the furnace.

My invention is based on the fact—first, that when water is received upon a fine metallic wire-gauze surface a certain portion of it will be retained and held in suspension among the wires; secondly, that when water is received upon a highly-heated metallic surface it will be suddenly converted into vapor or steam. I have made use of these principles in the construction of my steam-generators, which consist of a steam chamber closed on all sides and containing a series of wire-gauze plates, one above the other. From the steam-chamber is started a steam-pipe, which may convey the steam or vapor into any part of the building, where it may be used for heating or other purposes. One or more water-pipes terminate in this steam-chamber, and furnish the necessary supply of water to be vaporized. This steam chamber is placed in a drum, into which the products of combustion of the stove or range are discharged, and from which they are drawn off by a flue or chimney. The steam-chest is so placed within the drum as that the smoke or products of combustion shall surround it on all sides, and thus heat it uniformly.

In the accompanying drawings, S is the stove, having at the place where the flue or pipe is usually attached a drum, A, provided in front with a door, which is, however, al-

ways kept closed, except when it is intended to clean out the drum of the smut or the deposits. From the arched roof B starts the smoke-pipe E, which conveys the smoke into the chimney. The steam-chamber D is of a form similar to the drum, but smaller in every dimension, and is supported by means of legs L in such manner as to be surrounded on all sides by the heated gases of the stove or furnace. P are arched wire gauze plates, supported at their ends by studs *m*, fast on the side of the steam-chamber. From the roof of this steam-chamber springs a pipe, R, which conveys the steam to any part of the building, to be used for heating or other purposes. W are supply water-pipes. They may be carried through the stove or furnace, then down through the roof of the drum and the roof of the steam-chamber, where they terminate above the first plate, P.

The operation will be readily understood to be as follows: Fire being made in the stove, the products of combustion will enter the drum, as shown by the arrows, and circulate around it, thus heating the chamber D. When the requisite temperature is attained, water is allowed to enter the steam chamber, the quantity being regulated so that there shall be no excess of water to that which may be immediately vaporized. The water falling on the plates is diffused, and in that state instantaneously convertible into steam or vapor. The generated steam at once escapes through the pipe R, and is or may be conveyed to any part of the building, for the purposes set forth.

Having thus described my invention, I claim—

The apparatus herein described for generating steam, the same consisting of a generator composed of two or more wire-gauze plates, arranged in a chamber, as shown, the said chamber being inclosed in a drum of a cooking-stove, so that the heated gases may surround the same, substantially as and for the purposes set forth.

In testimony whereof I have signed my name to this specification before two subscribing witnesses.

SAMUEL NOWLAN.

Witnesses:

A. POLLOK,  
JOHN S. HOLLINGSHEAD.