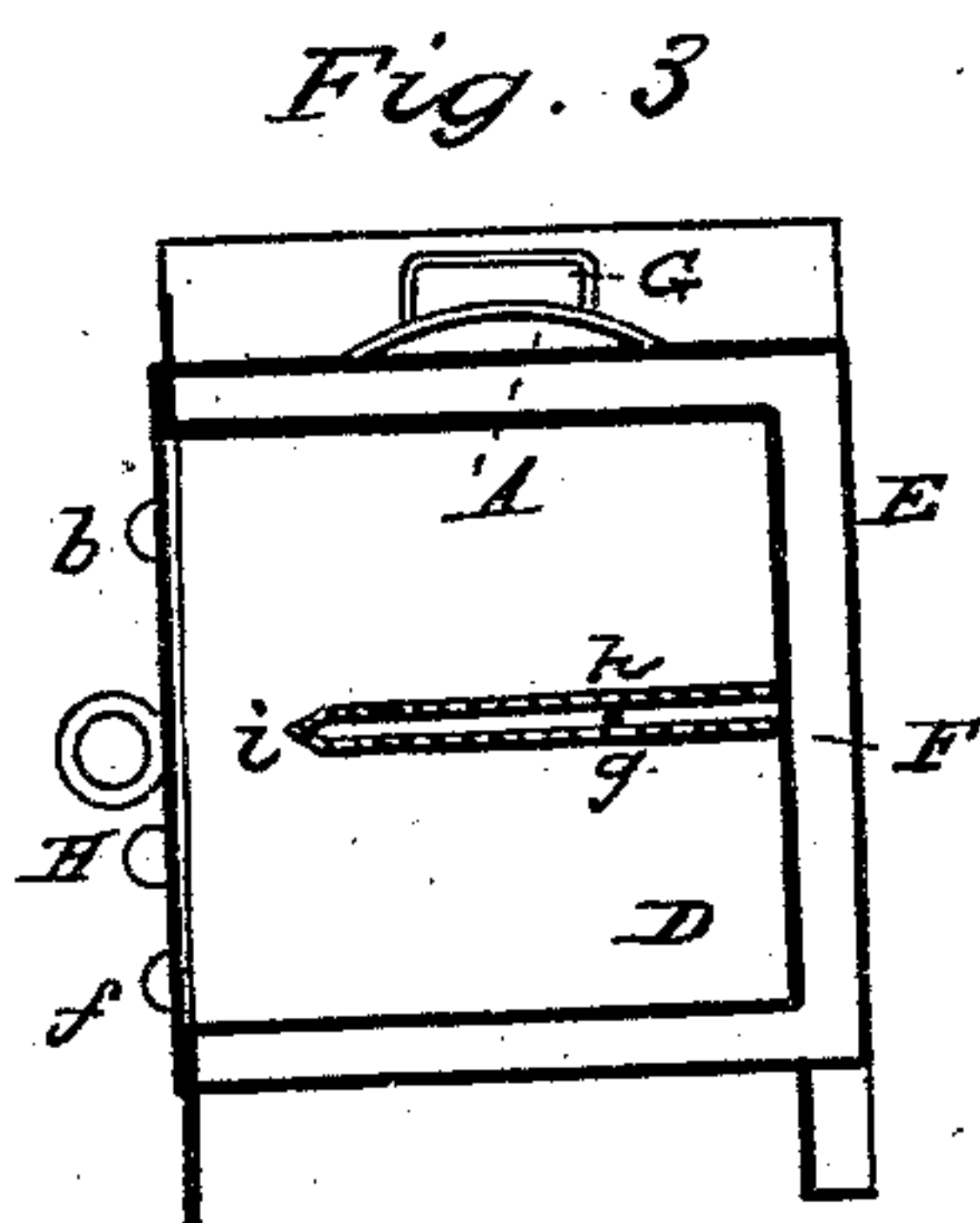
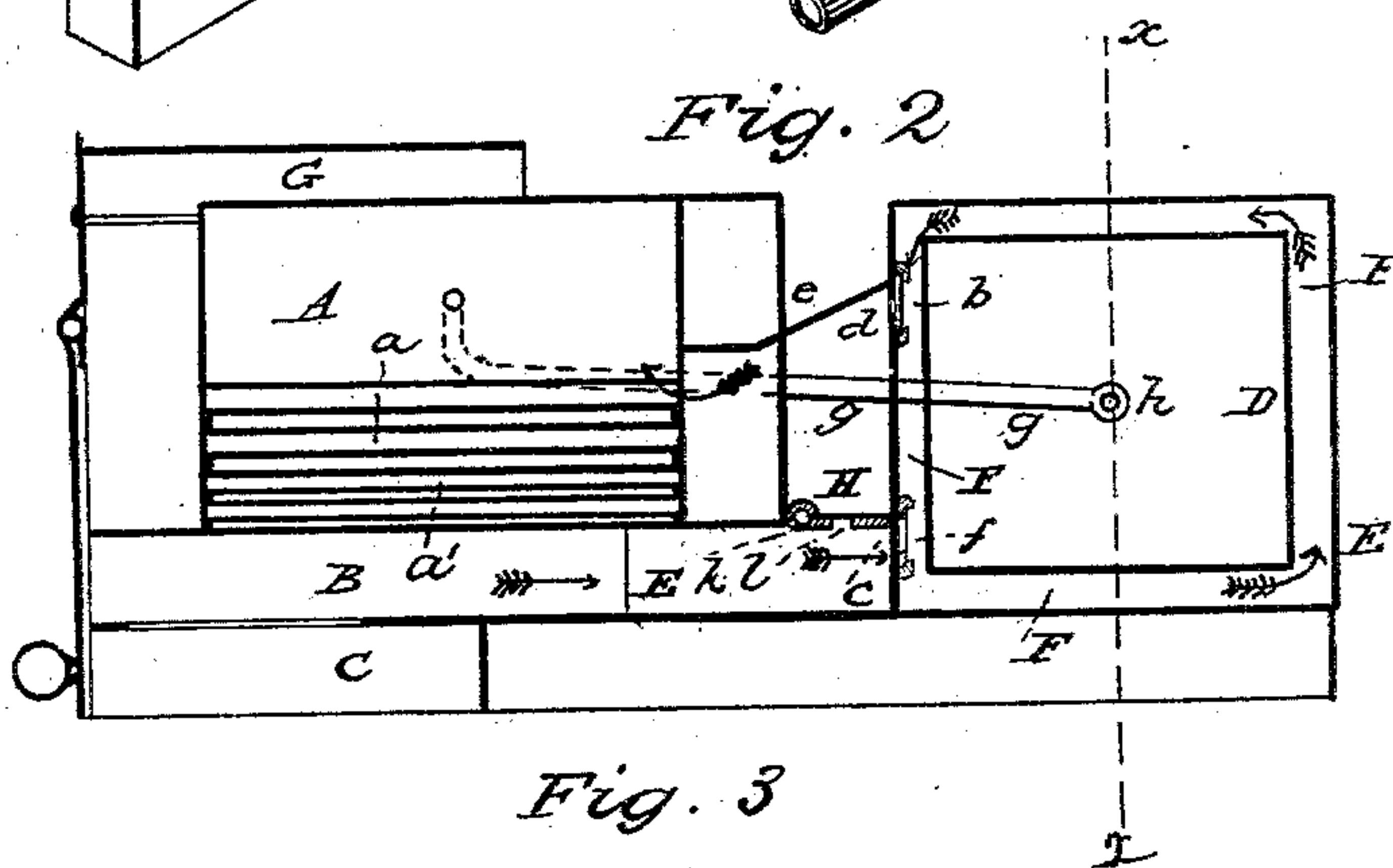
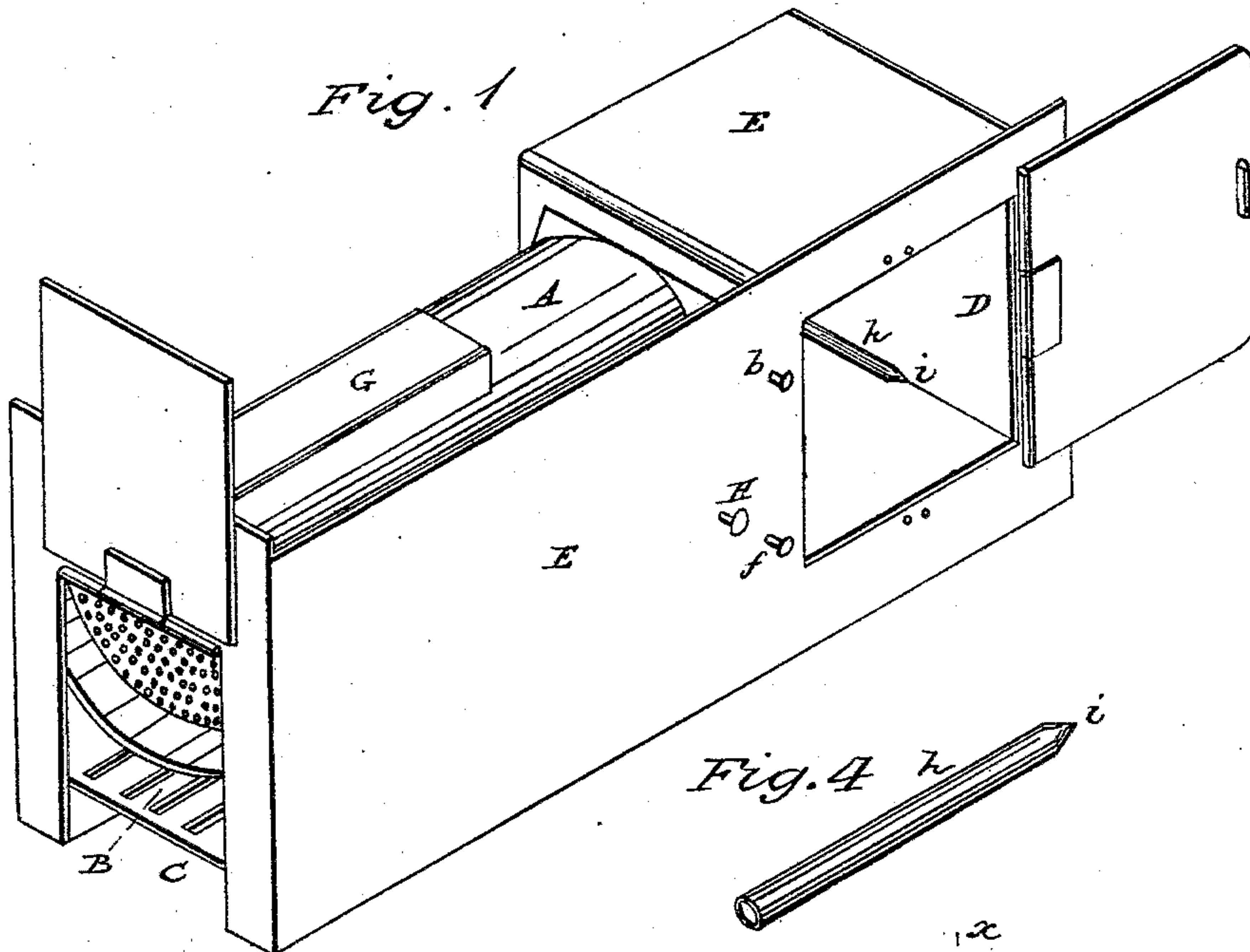


F. MILLIKEN.

Range.

No. 62,148.

Patented Feb. 19, 1867.



Witnesses:
H. B. Stearns
W. W. Stearns.

Inventor:
Francis Milliken

United States Patent Office.

FRANCIS MILLIKEN, OF BOSTON, MASSACHUSETTS.

Letters Patent No. 62,148, dated February 19, 1867.

APPARATUS FOR HEATING AND COOKING BY STEAM.

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, FRANCIS MILLIKEN, of Boston, in the county of Suffolk, and State of Massachusetts, have invented certain new and useful improvements in Apparatus for Heating and Cooking by Steam, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a perspective view of my improved steam-heating and cooking apparatus.

Figure 2 is a central longitudinal section through the same.

Figure 3 is a transverse section through the apparatus on the line *x x* of fig. 2.

Figure 4 detail to be referred to.

In apparatus for heating and cooking by steam as now constructed, a portion only of the heat is utilized, for the reason that after heating the boiler and oven it escapes directly up the flue of the chimney and is lost. To economize all or nearly all of this heat, is the object of my invention, which consists in returning the current of heated air after it passes from the oven into and through the tubes or flues of the boiler, so as to still further employ it to assist in the production of steam.

To enable others skilled in the art to understand and use my invention, I will proceed to describe the manner in which I have carried it out.

In the said drawings, A is a horizontal boiler for the reception of the water to be converted into steam, and is provided with tubes *a* in the usual manner. B is the fire-box, and C the ash-pit. The oven D and boiler A are placed in suitable brick-work E, which encloses the oven on all sides, leaving a space, F, entirely around it to allow the heated air from the fire under the boiler to pass therein, as indicated by the red arrows, by opening the damper *f* of the lower flue *c*. In the upper part of the brick-work surrounding the oven is formed a flue or opening, *d*, through which the heated air, after having passed around the oven, is conducted in the direction of the red arrows under a plate or partition, *e*, into the flues or tubes *a* of the boiler, the heated air being returned through the flues of the boiler, whereby the steam is more rapidly generated. *f* is a damper by which the flue *c* is opened and closed. G is a flue extending longitudinally along the top of the boiler in order still further to bring the heat in contact therewith, the heat being afterward conducted up through the flue of the chimney. *g* is a hollow pipe or tube extending from the inside of the boiler through the space F into the oven D, to conduct steam thereto for the purpose of cooking any article which is placed therein, in a manner now to be described. *h*, fig. 4, is a hollow sleeve or tube which serves as a spit, and is pointed at one end *i* to facilitate the reception of the article to be cooked. This tube *h* is slipped upon the hollow pipe *g*, and is employed for the purpose of more conveniently placing the article to be cooked within the oven and removing it therefrom, as some difficulty would be experienced in removing the article when cooked from a stationary spit owing to its sticking or adhering thereto. When the pipe *g* is of considerable length, a vent hole may be made therein to allow the condensed air to escape, or the pipe may be returned into the boiler or other receptacle provided for this purpose. *k* is a plate or partition which extends across from the bottom of the boiler to the side of the oven, and is provided with a flue, *l*, which may be opened or closed by operating the damper H, (see fig. 2.) Instead of merely passing around the oven the heated air may pass into and through it, suitable openings and dampers being provided, in which case, before starting the fire, the dampers *b* and *f* are closed, and the damper H left open in order to conduct the gas and smoke directly through the flues of the boiler until the fire is well kindled, when the dampers *b* and *f* are opened, and the damper H closed, or the communication of the heat to the oven may be instantly checked if desired. Instead of using the pipe *g* in connection with an oven, it may be used before an open fire or otherwise, suitable apparatus being provided to revolve the sleeve when the open fire is used.

Claim.

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

The boiler and oven so constructed and connected that the hot air and products of combustion from the fire under the boiler, after being used to heat the oven, shall be returned through the flues of the boiler, substantially as and for the purpose described.

I also claim the pipe *g* for conducting the heat from the steam to the inside of the article to be cooked, substantially as described.

I also claim the hollow sleeve or spit *h*, substantially as and for the purpose described.

FRANCIS MILLIKEN.

Witnesses:

P. E. TESCHEMAKER,

N. W. STEARNS.