F. HOFMEISTER.

COOKING RANGE.

APPLICATION FILED SEPT. 5, 1912.

1,066,903.

Patented July 8, 1913.

2 SHEETS—SHEET 1.

Fig. 1.

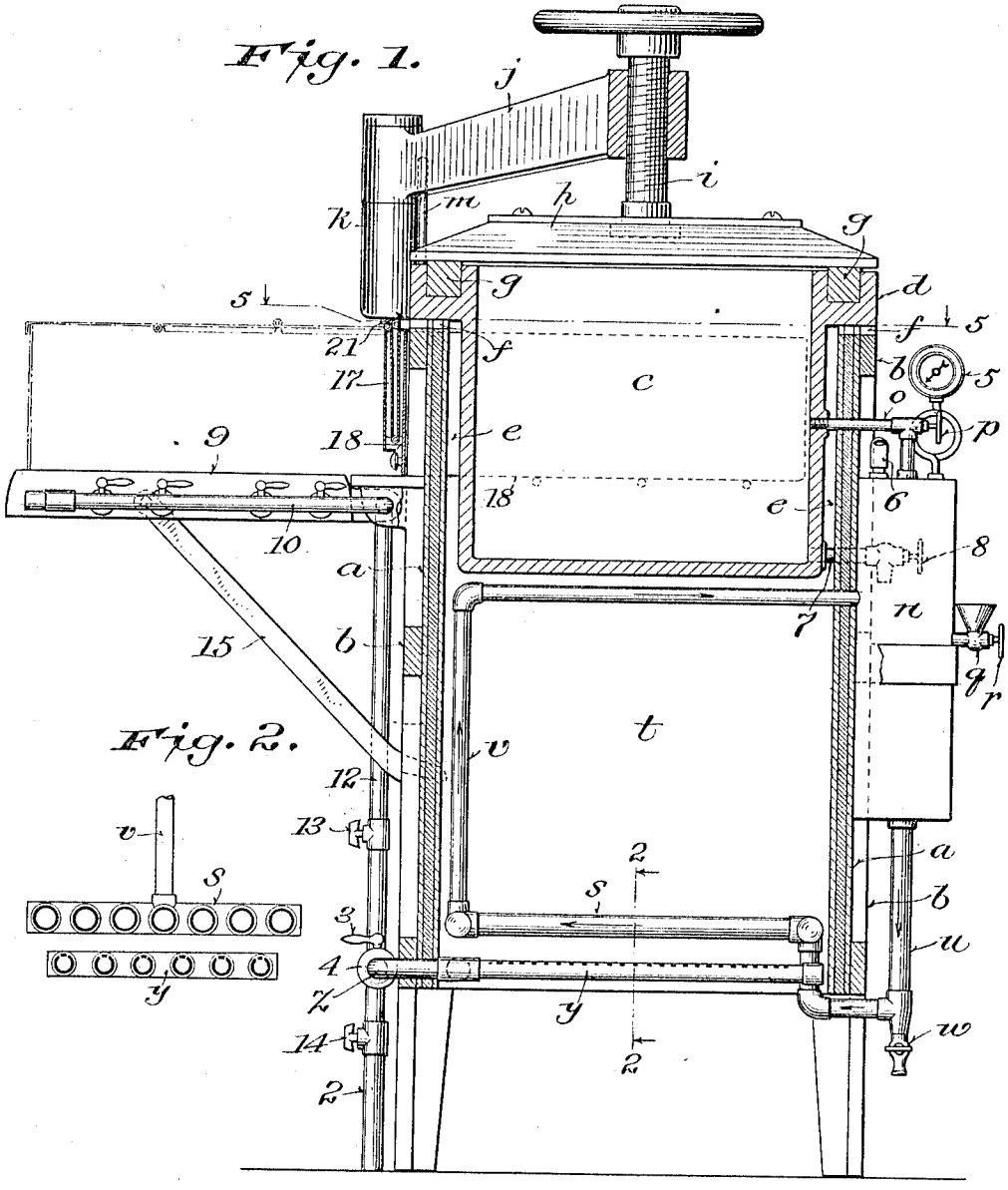


Fig. 2.

Witnesses:

Fred Palm

Chas. L. Goss.

Inventor:

Flora Hofmeister

By Flanders Dottum Fawcett & Dottum

Attorneys.

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

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2 SHEETS—SHEET 2.

Fig. 3.

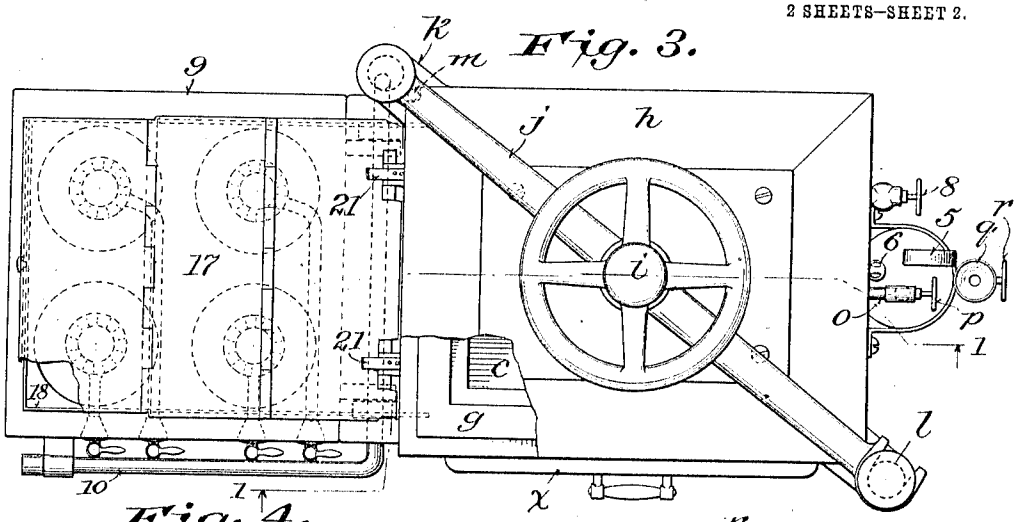


Fig. 4.

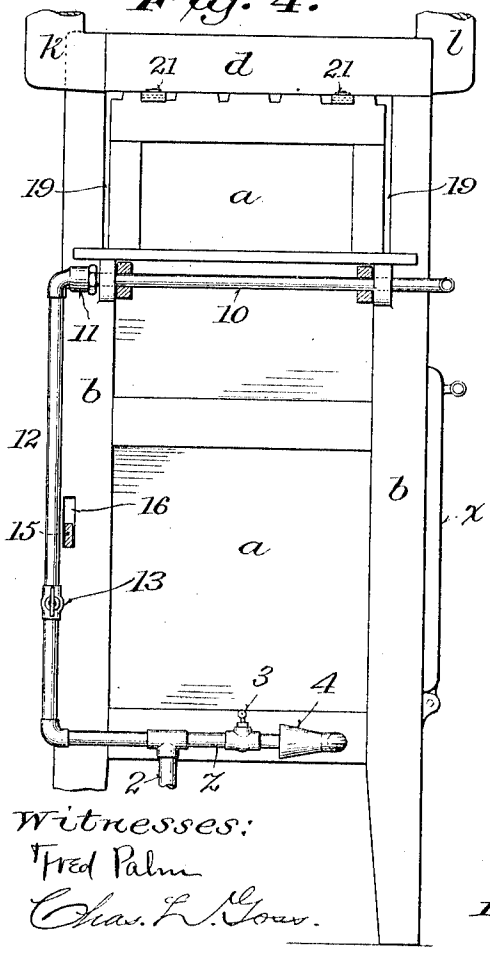
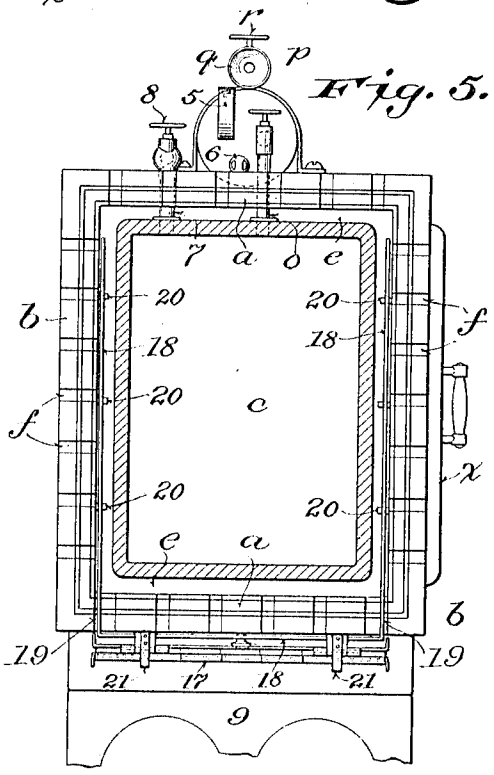


Fig. 5.



Witnesses:

Fred Palm

Chas. L. Goss.

Inventor:

Flora Hofmeister

By Flanders Bothum Fawcett & Bothum

Attorneys.

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

FLORA HOFMEISTER, OF RACINE, WISCONSIN.

COOKING-RANGE.

1,066,903. Specification of Letters Patent. Patented July 8, 1913.

Application filed September 5, 1912. Serial No. 718,624.

To all whom it may concern:

Be it known that I, FLORA HOFMEISTER, a citizen of the United States, residing at Racine, in the county of Racine and State of Wisconsin, have invented certain new and useful Improvements in Cooking-Ranges, of which the following is a specification, reference being had to the accompanying drawing, forming a part thereof.

This invention relates to cooking stoves or ranges for cooking either in a closed chamber with steam, or with open gas burners, or with both; it being often desirable to brown or complete the cooking of articles which have been steamed by placing them in an oven or over an open burner.

The main objects of the invention are to facilitate and improve such processes of cooking; to facilitate the production and utilization of steam for the purpose; to economize in the consumption of fuel; to utilize the heat of a burner or burners employed to generate steam for baking, broiling or other culinary operations; and generally to improve the construction and operation of stoves or ranges of this class.

It consists in the construction, arrangement and combination of parts as hereinafter particularly described and pointed out in the following claims.

In the accompanying drawing like characters designate the same parts in the several figures.

Figure 1 is a vertical cross section on the line 1—1, Fig. 3, of a cooking range embodying the invention; Fig. 2 is a vertical section on the line 2—2, Fig. 1, of the multi-tubular steam generator and associated gas burner; Fig. 3 is a plan view of the range parts of which are broken away; Fig. 4 is a partial side elevation as viewed from the left relative to Figs. 1 and 3; and Fig. 5 is a horizontal section on the line 5—5, Fig. 1, a part of the drop leaf being broken away.

The range comprises a casing *a*, preferably consisting of double sheet metal walls with intervening sheets of asbestos or other insulating material and reinforced by metal frame work *b*. In the upper part of the casing, which is open at the top, is fitted an open top steam cooking chamber *c*, having an outwardly projecting rim *d* at the top, seated on the top of the casing *a*. The side walls of the chamber *c* form with the casing, a flue space *e* extending completely around said chamber and communicating at the top with lateral exit openings *f* formed in the top of the casing. The rim *d* is formed in the upper side with a groove or channel in which is fitted a gasket *g* of rubber or other suitable packing material. A removable cover or closure *h* for the chamber *c* has a swivel connection with the lower end of a vertical hand screw *i*, which is threaded in a yoke *j* adapted to be swung horizontally into and out of place over the top of said chamber. The yoke *j* is pivoted at one end to a post *k* on one corner of the chamber *c*, and is hooked or notched at the other end to engage with a post *l* on the diagonal opposite corner of the chamber. A vertical guide rod *m* extending downwardly from the yoke *j* adjacent to its pivoted end engages with a notch in one corner of the closure *h* and guides and holds the same in the proper position with relation to the yoke and to the chamber *c*.

A steam chest and water reservoir *n* fastened to one side of the casing *a* is connected at the top by a pipe *o* with the chamber *c*, said pipe being provided with a valve *p*. Between its upper and lower ends the reservoir *n* is provided with a filling or water supply connection *q* having a valve *r*.

A horizontally disposed multi-tubular steam generator *s*, inclosed in the lower part of the casing *a*, which extends below the chamber *c* and forms an oven *t*, is connected on one side by a pipe *u* with the bottom of the reservoir *n*, and on the other side by a pipe *v* with the upper part of said reservoir above its filling connection *q*. The pipe *u* extends below the generator *s* and is provided with a drain cock *w*. The generator *s* forms the bottom of the oven *t*, to which access is had through a door *x* in the front wall of the casing. A multi-tubular gas burner *y*, the tubes of which are parallel and alternate with the tubes of the generator *s*, as shown in Fig. 2, is located below and adjacent to said generator and is connected by a branch pipe *z* with a gas supply

pipe 2. The pipe z is provided with a gas controlling and regulating cock 3, and with an air mixer 4. The steam chest and reservoir n is provided at the top with a pressure gage 5 and with a safety valve 6.

The cooking chamber c is provided at the bottom with a drain pipe 7, which passes outwardly through the casing and has a valve 8. At one side of the range a drop leaf 9, in which are mounted a number of gas burners, as indicated in Fig. 3, is hinged to the casing a so as to be turned up when needed into horizontal position as shown in Figs. 1 and 3, and when not needed, turned down out of the way close to the casing. One arm of an L-shaped pipe 10, with which the several burners of the drop leaf are connected in the usual manner, forms the hinge rod which connects the drop leaf with the casing. At one end in line with the axis of the hinge of the drop leaf, the pipe 10 has a swivel stuffing box connection 11 with a branch pipe 12, which connects it with the gas supply pipe 2, as shown in Fig. 4. The pipe 12 is provided with a controlling and regulating cock 13, and the main supply pipe 2 is preferably provided with a cut-off cock 14, as shown in Fig. 1. The leaf 9 is supported in its elevated working position by a brace 15, pivoted at its upper end to said leaf and formed adjacent to its lower end which passes loosely through an opening 16 in the frame b of the casing, with a notch or shoulder for engagement with said frame, as shown in Figs. 1 and 4.

The range is also provided with a folding or collapsible oven adapted to be extended over the leaf 9 in its elevated position, and to inclose or cover the burners mounted in said leaf, as indicated by dotted lines in Fig. 1, and shown by full lines in Fig. 3. This oven consists of a folding top 17, hinged at one end to the casing a so as to fold against or close to it, as shown in Fig. 1, and of a U-shaped section 18, forming the sides and one end of the oven, the parallel sides of this section sliding lengthwise when not in use, through openings 19 in the casing a, into the flue space e on opposite sides of the chamber c, where they are supported on lugs or projections 20, extending inwardly from the front and rear walls of the casing. The top is held in folded position, as shown in Fig. 1, by spring clips 21 attached to and projecting from the framework b of the casing.

In the operation of the range for steam cooking, the reservoir n is supplied with water through the connection q, the location of which prevents the filling of the reservoir above a certain level. The valve r being closed, the burner y is lighted and the water in the generator s is heated and converted into steam, which passes through the pipe v into the upper part of the steam chest and reservoir n, where it may be allowed to accumulate if the valve p is closed, or it may be allowed to pass immediately therefrom through the pipe o into the chamber c, if said valve is opened.

The article or articles to be cooked having been placed in the chamber c, the closure h is swung with the yoke j into place, and clamped by the screw i tightly down upon the gasket g before steam is admitted to said chamber, or after the air has been expelled therefrom by the admission of steam. The heated air and products of combustion passing upwardly from the burner through the oven t and the flue space e around the chamber c, heat the walls of said chamber, which in turn impart their heat to the steam contained therein, tending to keep it dry and at a high temperature. The insulating walls of the casing a and the flue space e surrounding the chamber c prevent radiation and loss of heat from said chamber, so that after the chamber has been filled with steam at the requisite pressure and temperature and its walls have been heated, the supply of gas to the burner may be partially or entirely cut off, the range operating on the principle of a fireless cooker when the gas supply is thus cut off. In case the pressure and temperature in the chamber c rise above the desired degree, they can be easily reduced and regulated by opening the valve 8 more or less, the valve p being closed and in case the pressure and temperature in said chamber fall below the desired degree, they can be raised by opening the valve p, thereby admitting more steam into said chamber from the steam chest and reservoir n, the valve 8 being closed. If the supply of steam in said chest and reservoir is exhausted or too low, it may be replenished by relighting the burner. The supply of steam and the heat in the chamber c may also be controlled and regulated by the adjustment of the cock 3 varying the supply of gas to the burner y. While cooking is being done with steam in the chamber c, the surplus heat of the burner y may be utilized for baking or roasting in the oven t, the pans or receptacles containing the articles to be baked or roasted being placed on the generator s. When the cooking of articles in chamber c is done, the steam is released therefrom by opening the drain or waste valve 8, the valve p being closed, and the closure h is released by turning the hand screw i up and swinging it with the yoke j to one side. The steam chest and water reservoir n and the generator s may be completely drained to prevent freezing or to supply them with fresh water, by opening the drain cock w. After cooking has been done in the chamber c, any water formed by condensation of steam therein is drawn off through the drain pipe 7 by opening the valve 8. Whenever it is desired to

brown or complete the cooking of articles which have been steamed or partially cooked in the chamber *c*, or whenever it is desired to broil, fry or boil articles over an open burner or to bake or cook articles which cannot be accommodated in the chamber *c* or oven *t*, the leaf 9 is turned up into operative position as shown in Figs. 1 and 3, the notch or shoulder at the lower end of the pivoted brace 15 dropping into engagement with the frame *b* at the lower end of the slot 16 and holding the leaf in that position. When it is desired to cook over open burners, the collapsible oven is left as it is shown in Fig. 1, but when an extra oven is needed, the folding top 17 is unfolded and extended, and the section 18 forming the outer end and sides of the oven, is withdrawn from the casing *a* over the leaf 9, as indicated by dotted lines in Fig. 1, and shown by full lines in Fig. 3. When an extra oven is not needed, the sections 17 and 18 are folded back against and pushed into the casing, as shown in Fig. 1, and when the open burners in the leaf 9 are not needed, the leaf is turned down out of the way, close to the side of the casing *a*, the shoulder or notch at the lower end of the brace 15 being lifted out of engagement with the frame *b* at the lower end of the slot 16.

Various changes in minor details of construction and arrangement of parts may be made, without materially affecting the principle and mode of operation of the range and without departing from the scope of the invention as defined in the following claims.

I claim:

1. In a cooking range the combination of a cooking chamber having a removable closure, a steam chest and water reservoir having a filling connection between the top and bottom and a steam supply connection leading from said chest and reservoir above the filling connection into the cooking chamber, and a steam generator located below said reservoir and having circulating connections therewith above and below the water level therein.

2. In a cooking range the combination of a cooking chamber open at the top and provided with a removable closure, a casing surrounding and extending below said chamber and forming therewith a flue space, a steam chest and water reservoir having a filling connection below the top and a connection with the cooking chamber above the filling connection, and a steam generator inclosed in said casing below the cooking chamber and connected with the lower and upper parts of said reservoir by circulating pipes.

3. In a cooking range the combination of a casing open at the top, an open top cooking chamber fitting into the upper part of said casing and having an outwardly projecting rim seated on top of the casing, the side walls of the chamber forming with the casing a flue space which surrounds the chamber and has exit openings at the top, a removable, tight-fitting closure for the top of said chamber, a steam chest and water reservoir located outside of the casing and having a water supply connection below the top and a connection with said chamber above said supply connection, and a steam generator inclosed in said casing below said chamber and reservoir and having pipe connections with the reservoir above and below its water supply connection.

4. In a cooking range the combination of a casing open at the top and provided on opposite sides with posts, an open top cooking chamber having an outwardly projecting rim seated on the casing, a tight fitting closure for said chamber, a yoke pivoted at one end to the post on one side of the casing and hooked at the other end to engage with the post on the opposite side of the casing, and a vertical hand screw connecting said closure and yoke.

5. In a cooking range the combination of a casing open at the top, an open top cooking chamber having an outwardly projecting rim seated on the casing, a tight fitting closure for said casing, a horizontally swinging yoke pivoted to the chamber at one side thereof and adapted to interlock at the other end with a part on the opposite side of the chamber, a vertical hand screw connecting the closure with the yoke, and a guide connecting the closure and yoke parallel with said screw.

6. In a cooking range the combination of a cooking chamber open at the top and provided with a removable closure, a casing surrounding and extending below said chamber and forming therewith a flue space around the chamber and an oven below it, a steam chest and water reservoir having a valve controlled water supply connection between the top and bottom, and a valve controlled connection with said chamber above said water supply connection, a horizontally disposed multi-tubular steam generator inclosed by said casing in the lower part thereof and having pipe connections with the bottom and upper part of said reservoir, and a multi-tubular burner located below said generator and having a valve controlled fuel supply connection.

7. In a cooking range the combination of a cooking chamber open at the top and provided with a removable closure and at the bottom with a valve controlled drain connection, a casing surrounding and extending below said chamber and forming therewith a flue space extending around the chamber and having an exit opening at the top, a steam chest and water reservoir having a valve controlled filling connection be-

low the top and a valve controlled connection with the cooking chamber above the filling connection, a steam generator inclosed in said casing below the cooking chamber and reservoir and having pipe connections with the bottom and upper part of the reservoir, the pipe connection with the bottom of the reservoir extending below the generator and being provided with a drain cock, and a burner located below the generator.

In witness whereof I hereto affix my signature in presence of two witnesses.

FLORA HOFMEISTER.

Witnesses:
F. JOHNSON,
NELS CHRISTENSEN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."