No. 891,769. PATENTED JUNE 23, 1908.

A. FRONDEL.

KITCHEN RANGE.

APPLICATION FILED NOV. 19, 1901.

2 SHEETS—SHEET 1.

FIG 1

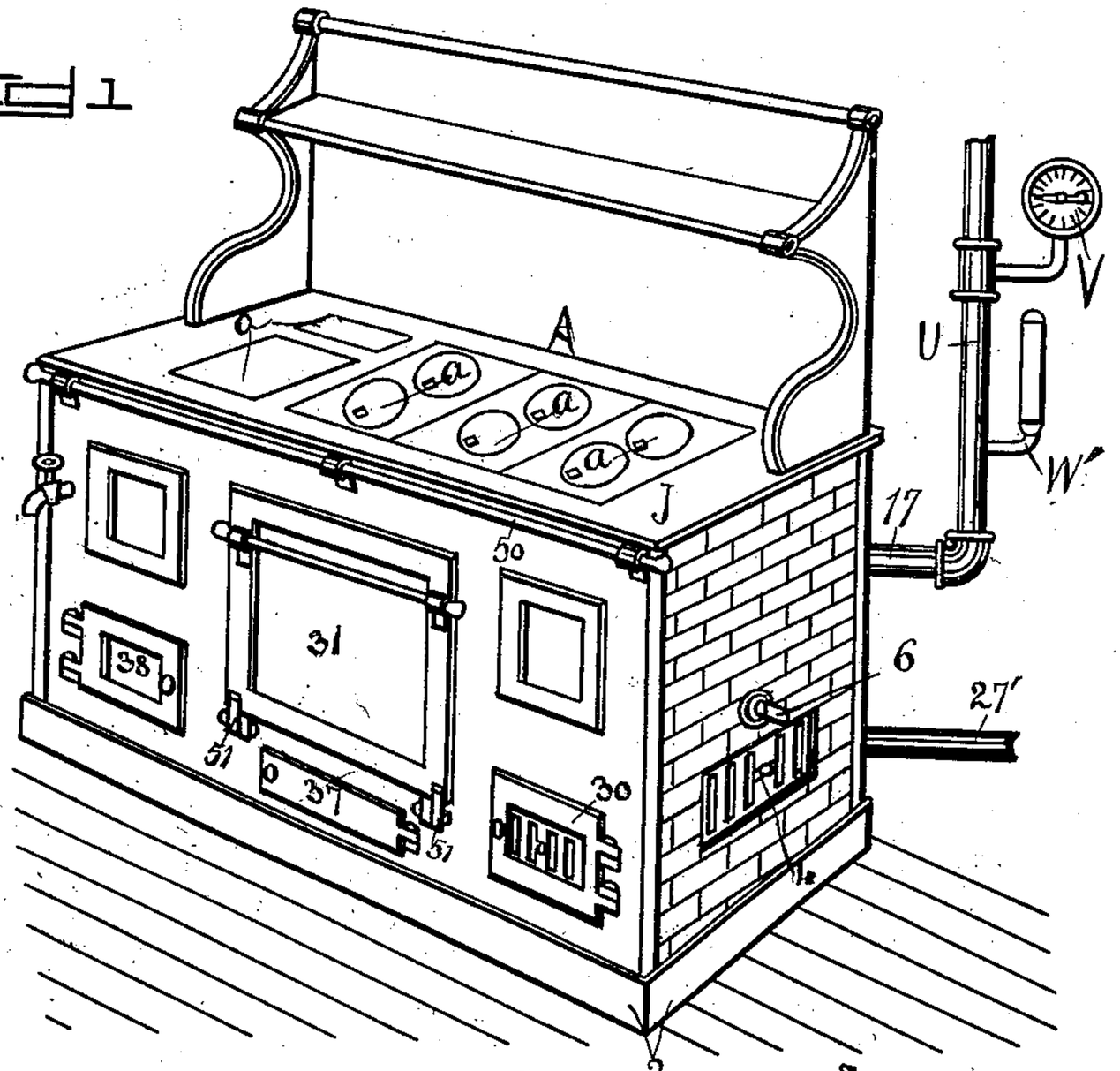
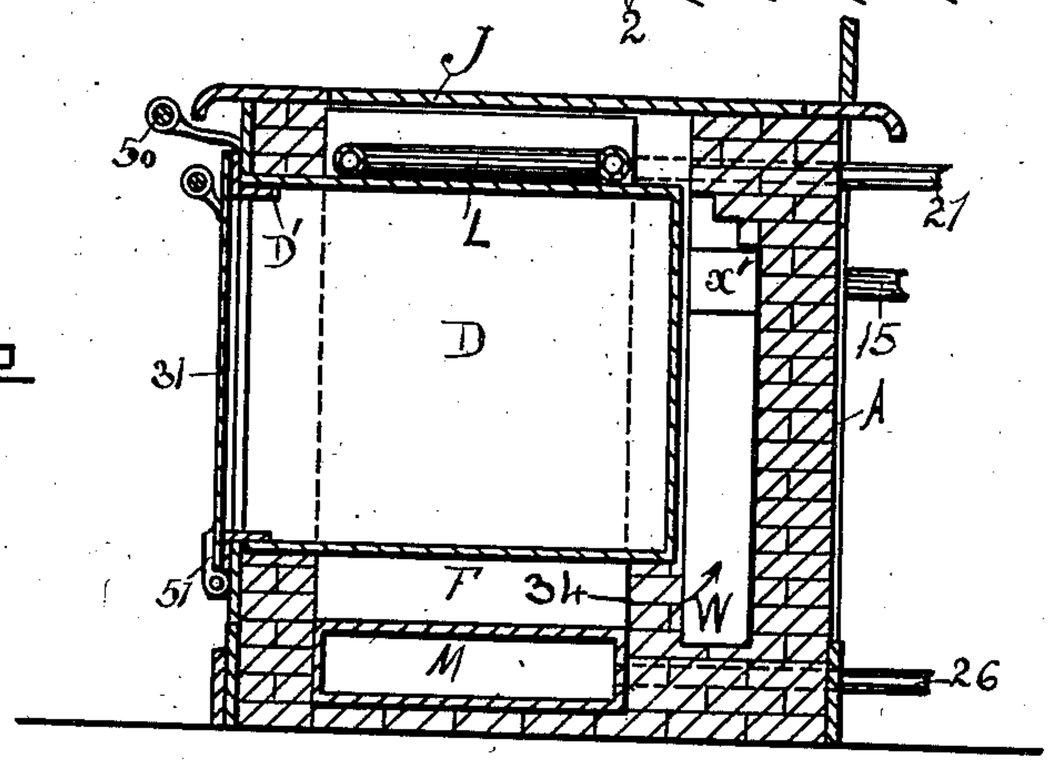


FIG 2



WITNESSES:

R. J. Davenport.

F. J. Larson.

INVENTOR.

August Frondel

PER Geo. W. Sues.

ATTORNEY.

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FIG 3

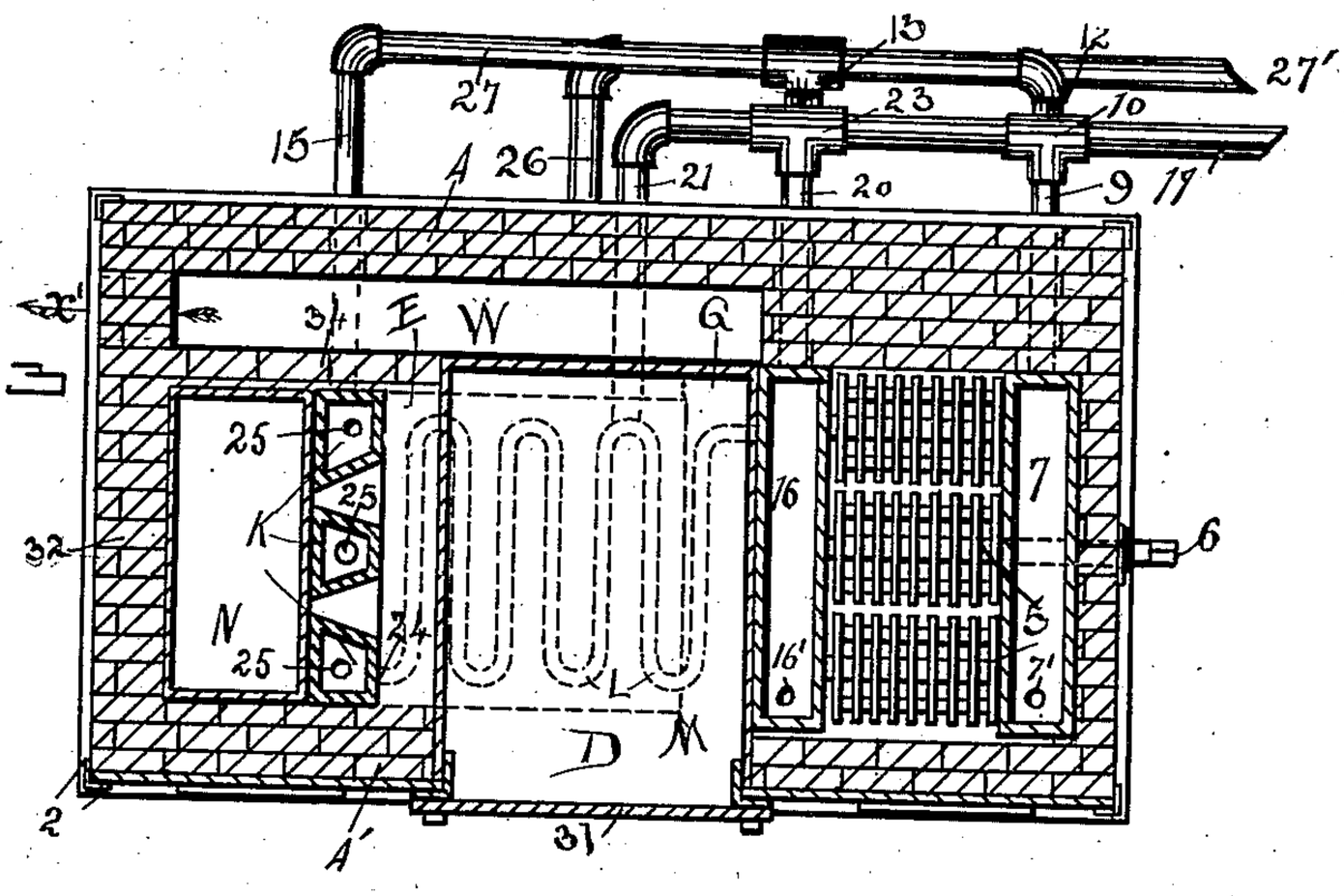
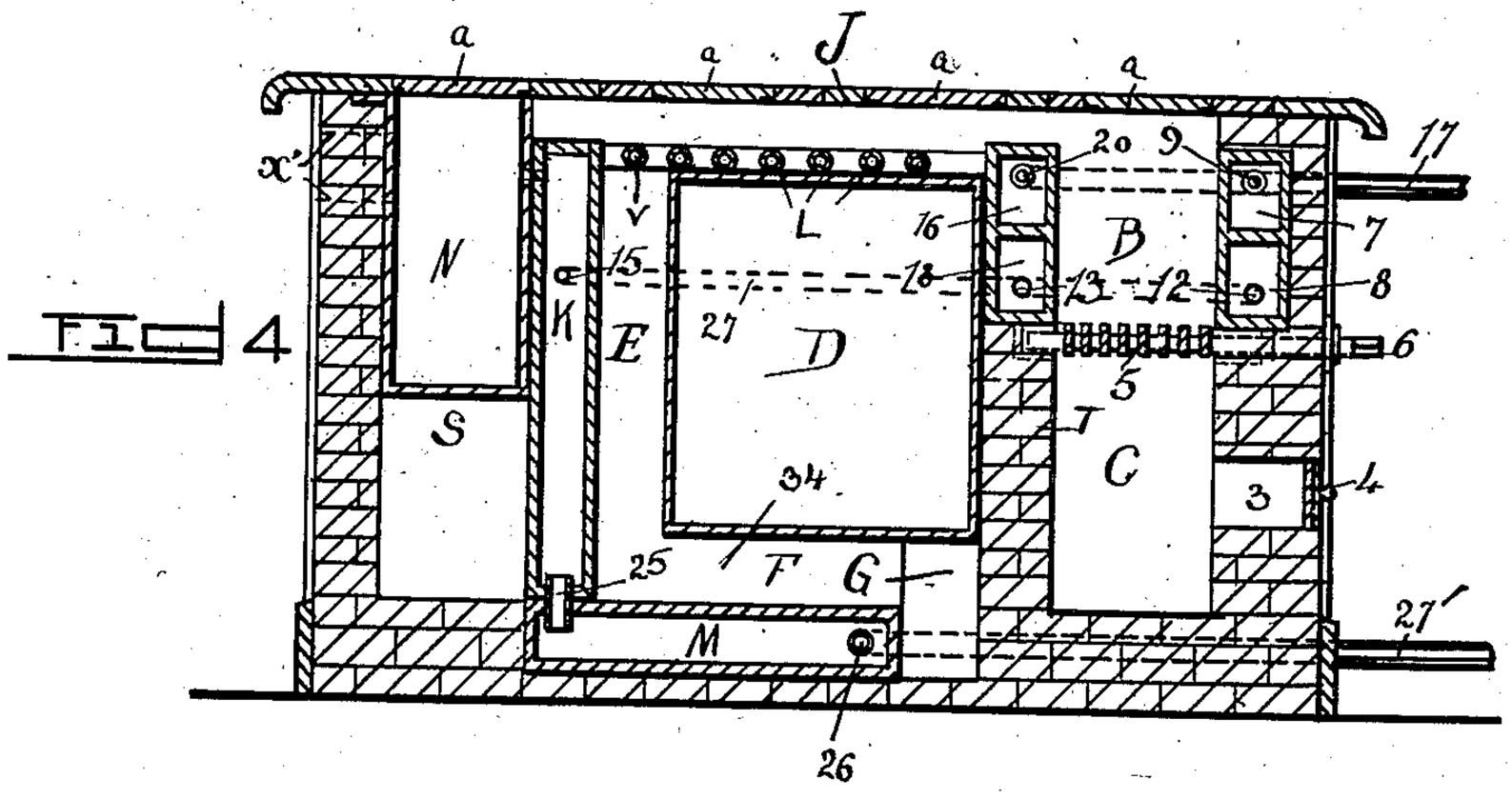


FIG 4



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PER Geo. W. Sues.

ATTORNEY.

UNITED STATES PATENT OFFICE.

AUGUST FRONDEL, OF OMAHA, NEBRASKA.

KITCHEN-RANGE.

No. 891,769. Specification of Letters Patent. Patented June 23, 1908.

Application filed November 19, 1901. Serial No. 82,937.

To all whom it may concern:

Be it known that I, AUGUST FRONDEL, residing at Omaha, in the county of Douglas and State of Nebraska, have invented certain useful Improvements in Kitchen-Ranges; and I do hereby declare that the following is a full, clear, and exact description thereof, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to a combined cooking and heating system.

One object of the invention is to provide a system of the nature stated embodying such characteristics that a kitchen range may have its structural details arranged in an organization capable for kitchen or cooking purposes or for the heating of a building or both.

Another object of the invention resides in provision of a heating or cooking apparatus constructed and arranged whereby the water containing jackets are wholly inclosed within the outer walls of the structure to facilitate the heating of the water, confining the heat within the walls with an economical handling of fuel in direct contra-distinction to structures wherein the water tanks are partially exposed and form part of the outside wall.

With the above and other objects in view, the present invention consists in the combination and arrangement of parts hereinafter more fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that changes may be made in the form, proportion, size and minor details, without departing from the spirit or sacrificing any of the advantages thereof.

In the drawings:—Figure 1 is a perspective view of a kitchen range embodying my invention. Fig. 2 is a transverse sectional view. Fig. 3 is a horizontal sectional view. Fig. 4 is a vertical longitudinal sectional view.

Referring now more particularly to the accompanying drawings, it will be seen that in my peculiar form of range I prefer that the walls thereof be composed of masonry or other suitable material, with the outer faces of the walls shielded by metallic sheathing, if desired. These outer walls of masonry or other suitable material provide a casing A in which the characteristic features of my invention are inclosed, there being a transversely disposed bridge wall T arranged adjacent one end of the range to coöperate with said end, and the front and rear of the latter, to form a narrow chamber. Journaled in any suitable manner in the top of the bridge wall T and the aforesaid adjacent end wall of the range, is a suitable grate 5, the trunnion 6 of which is extended entirely through said adjacent end wall to provide means whereby the grate may be operated, the grate dividing the aforesaid chamber to provide the fire box B and the ash pit C with which latter communication may be had through the opening 3 provided with the damper 4.

Disposed upon the bridge wall T are the upper and lower water chambers 16 and 18 communicating at 16′, the upper chamber 16 terminating short a suitable distance below the top of the range. Disposed directly opposite this pair of superimposed communicating chambers 16 and 18 is another pair of superimposed water chambers 7 and 8 communicating at 7′. These pairs of oppositely disposed water chambers compose the sides of the fire pot B of the range, all of the chambers being positioned immediately above the grate 5, as clearly shown in Fig. 4, it being obvious that the opening 3 leading to the ash pit C provides the usual draft flue near the base of the structure.

The character 34 designates a longitudinally extending wall preferably spaced from the rear wall of masonry to provide a flue W and to also provide a base for the support of the rear wall of the oven D, whose front is supported within an opening formed in the front wall of the structure, there being a door 31 closing the front of the oven.

Disposed beneath the oven D is a water chamber M, there being a flue F between the oven and chamber M, which has communication with the aforesaid flue W by way of the opening G formed by reason of the fact that the wall 34 terminates short of the aforesaid bridge wall T.

Reference to Fig. 4 of the drawings will disclose that the oven D is disposed against the bridge wall T and the upper and lower water chambers 16 and 18, and upon the opposite side of the oven and in spaced relation thereto I provide a sectional water chamber composed of a series of substantially elongated vertically disposed compartment E,

all of which have communication with the water chamber M through the pipe connections 25.

The compartments K are made in sections to provide additional heating surface between them, the spaces between which are V-shaped, as shown in Fig. 3. Further, the sections K permit a portion of the combustion products to reach the side of the soft water chamber N and heat the water therein.

The character N represents a water chamber supported in any suitable manner in the upper part of the range at the end of the latter, opposite the end in which the fire pot is disposed. This water chamber N is designed to be used for soft water for washing purposes and the water may be inserted or removed through one of the lids *a*, there being lids formed in the top of the range as is customary in a stove of this character. Beneath the water chamber N is a warming oven S to which access may be had by way of the door 38.

From the foregoing it will be seen that the products of combustion generated in the fire pot B escape over the upper water chamber 16, thence over the top of the oven D, into the flue F by way of the flue E through the communication G to the outer flue W from which latter they escape through the chimney by way of the opening *x'*. Thus the hot water tanks and the oven are efficiently heated by the circulation of the products of combustion in the manner thus related without the loss of heat and with a comparatively small consumption of fuel.

As premised in the foregoing this invention contemplates the heating of a building, and it is for this reason that the numerous water tanks hereinbefore referred to are incorporated within the walls of the range, it being preferred to heat the room by means of a hot water circulating system. To this end I dispose immediately upon the top of the oven D a circulating coil L which has communication at one end with one compartment of the sectionized chamber K, as indicated at 24 in Fig. 3, with its opposite end communicating with the upper chamber 16 disposed upon the top of the bridge wall T.

27' indicates the feed water pipe which communicates with the chamber M and thence through the pipes 25 with one of the tank sections K, as indicated at 26 in Fig. 4. As the water floods the lower chamber M it rises through the pipes 25 to flood the divided or sectionized chamber K, filling all compartments of the latter. The overflow from the chamber K passes through the coil L into the chamber 16 and also through a pipe 15 which communicates with the last chamber K, shown in Fig. 2, which by means of pipe 27 is continued to the pipe 12, which enters the lower chamber 8 partly skirting three sides of the fire box, as shown in Fig. 4. Extending from the pipe 27 is a pipe 13 which enters the lower chamber 18 so that as the water rises within the sectionized chamber 7 it finds an escape through the pipe 27 to flood the chambers 8 and 18.

Extending from the coil L, as shown in dotted lines in Fig. 3, is a pipe 21, which communicates with the hot water supply pipe 17, which latter is connected to a suitable pipe U shown in Fig. 1, provided with a steam gage V and a water gage W'. Extending from the upper hot water tank 16, as shown in Fig. 3, is a pipe 20 also led into the hot water supply pipe 17, while extending from the tank 7 is a pipe 9 leading into the hot water supply pipe 17. The various divisions of flow of the water are reunited in the pipe 17 and pass again to the radiators.

The coil L and the upper tanks 16 and 7 contain the hottest water and as they are in direct communication with the hot water supply pipe 17, a supply of hot water is always at one's command.

The door 37 shown in Fig. 1 facilitates the removal of soot from the smoke chamber F.

I claim:

1. In a range, a casing, an oven within the casing and terminating short of the top, bottom and rear of the casing, vertical communicating hot water chambers arranged at one side of said oven and spaced therefrom, a horizontal hot water chamber beneath said oven and spaced therefrom and communicating with said vertical chambers, the spaces between said oven and chambers providing a flue communicating with the casing above and below and at the rear of the oven, other communicating hot water chambers at the opposite side of the oven, communicating means between the last mentioned chambers and the vertical chambers, a pipe coil arranged upon top of the oven and having communication with the last mentioned chambers and the vertical chambers, and pipes having communication with said pipe coil to supply a heating medium to remote sources.

2. In a range, a casing, an oven disposed within the casing, the oven terminating short of the rear, top and bottom of the casing, pairs of superimposed water chambers forming opposite sides of the fire pot of the range, said pairs of chambers having communication with one another, other chambers confined within the casing, a coil having communication with one of said other chambers and with the pairs of chambers, and pipes communicating with the coils and the chambers to supply a heating medium to remote sources.

3. In a range, a casing, an oven disposed within the casing, pairs of superimposed water chambers forming the sides of the fire pot, other chambers arranged within the casing having communication with one another and with the aforesaid fire pot chambers, a pipe coil arranged upon top of the

oven and having communication with the chambers, and pipes communicating with said coil and the chambers to supply a heating medium to remote sources, said elements being constructed and arranged to cause the products of combustion to pass over the coil and oven downwardly along one side of the latter and out of the casing by way of the bottom of the oven and the rear thereof.

4. In a range, a casing, an oven disposed within the casing, water chambers including a sectionized chamber, and a soft water compartment independent of said chamber, the sectionized chamber being arranged adjacent said compartment and exposing the latter at its side adjacent the sectionized chamber to the products of combustion, all of said chambers having communication with one another.

5. In a range, a casing, an oven disposed within the casing, water chambers including a sectionized chamber, a soft water compartment independent of said chamber, the sectionized chamber being arranged adjacent said compartment and exposing the latter at its side adjacent the sectionized chamber to the products of combustion, all of said chambers having communication with one another, and a hot water supply system including a coil having communication with said chambers.

In testimony whereof I have signed my name in the presence of two witnesses.

AUGUST FRONDEL.

Witnesses:
KATIE FRONDEL,
GEORGE W. SUES.