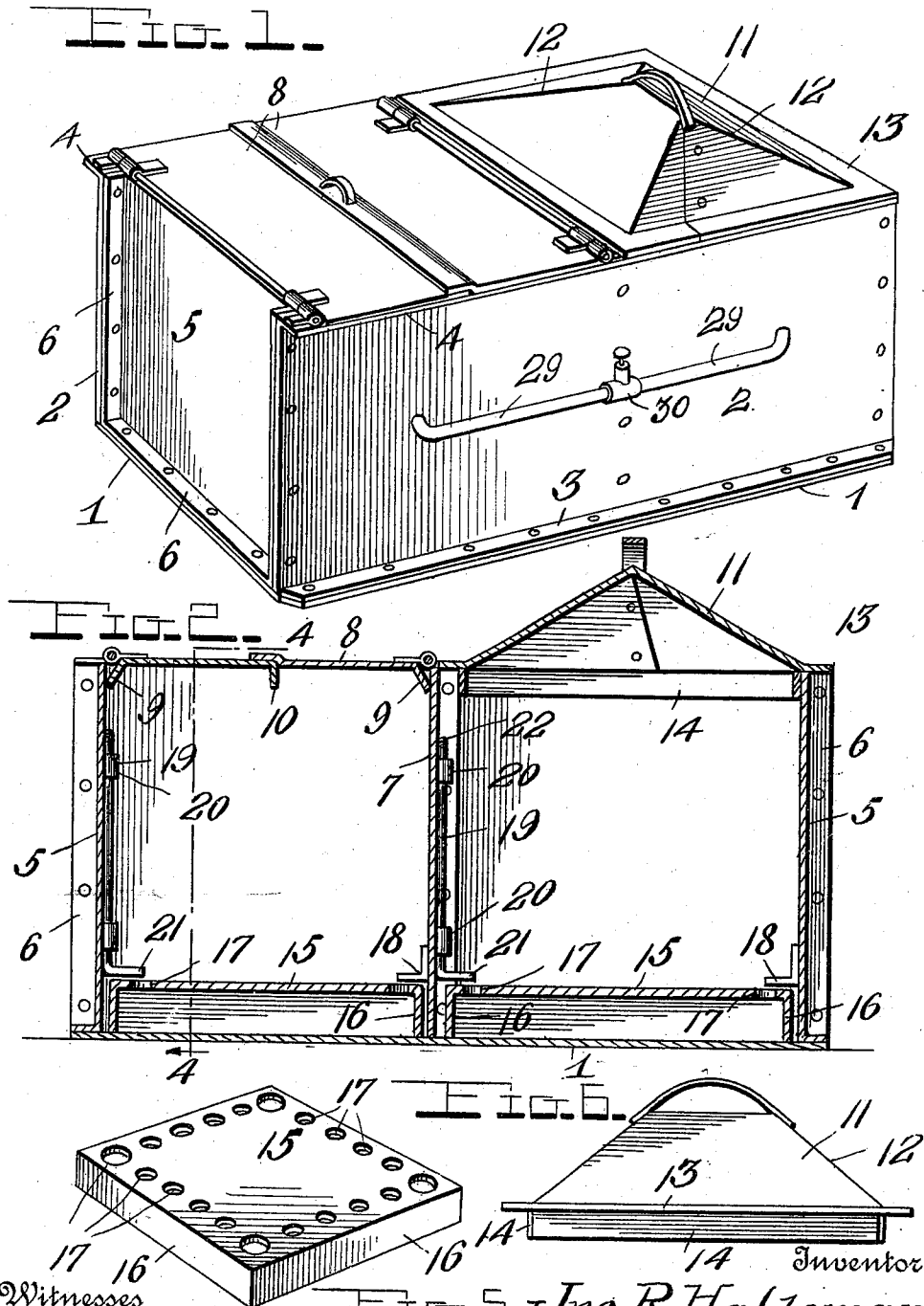


J. R. HALDEMAN.
DOMESTIC BOILER.
APPLICATION FILED NOV. 22, 1909.

978,020.

Patented Dec. 6, 1910.

3 SHEETS—SHEET 1.



Witnesses

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C. H. Griesbauer

Jno. R. Haldean.

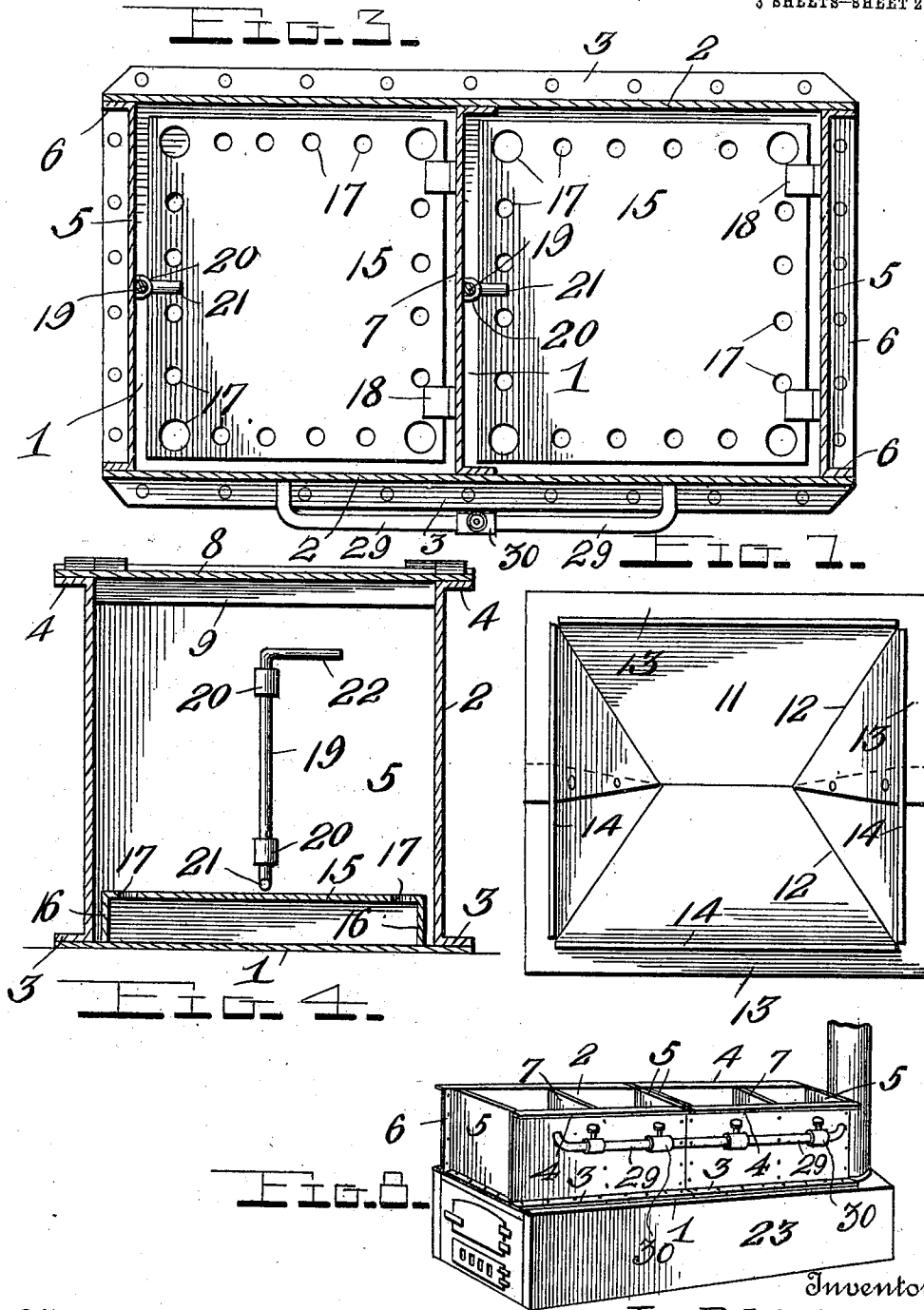
Attorneys

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3 SHEETS-SHEET 2.



Witnesses

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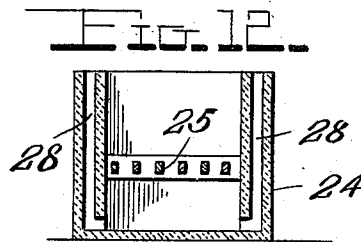
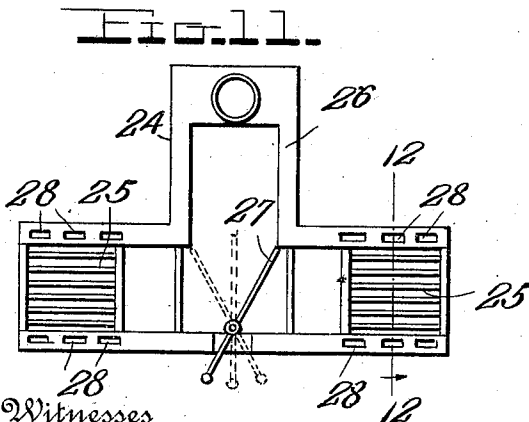
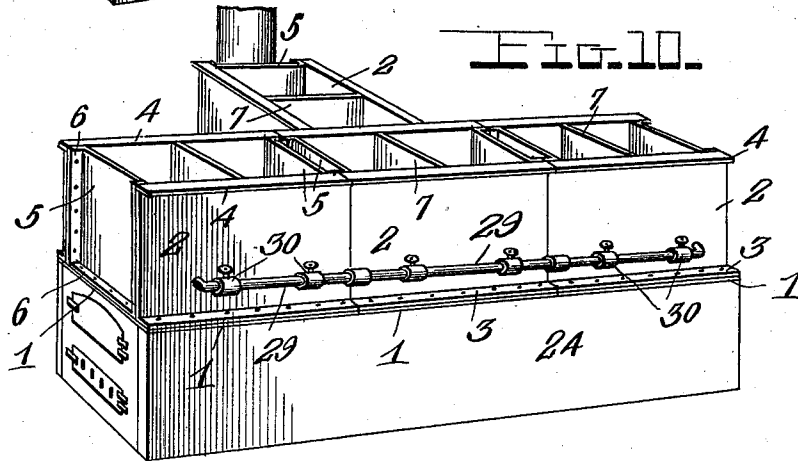
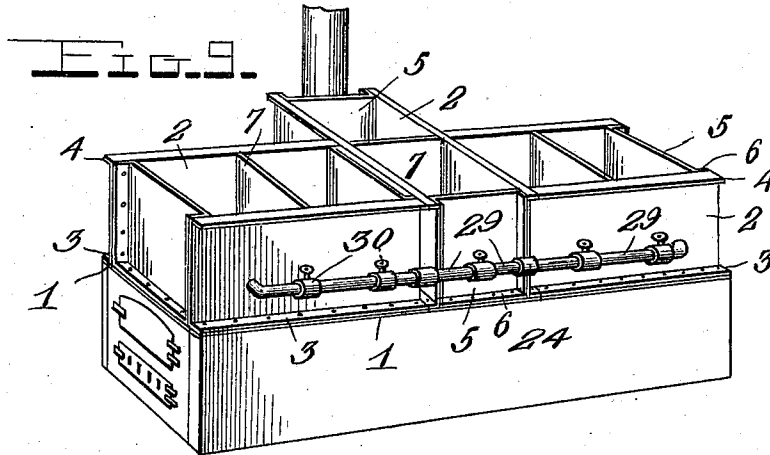
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3 SHEETS—SHEET 3.



Witnesses

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UNITED STATES PATENT OFFICE.

JOHN RILEY HALDEMAN, OF SPRINGFIELD, MISSOURI.

DOMESTIC BOILER.

978,020.

Specification of Letters Patent.

Patented Dec. 6, 1910.

Application filed November 22, 1909. Serial No. 529,381.

To all whom it may concern:

Be it known that I, JOHN R. HALDEMAN, a citizen of the United States, residing at Springfield, in the county of Greene and State of Missouri, have invented certain new and useful Improvements in Domestic Boilers; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in boilers for canning purposes.

One object of the invention is to provide an improved construction of boiler of this character having means whereby the heating of the water in the boiler is greatly facilitated.

A further object is to provide a boiler for canning purposes so constructed that two or more of the boilers may be combined and arranged to increase capacity of the same.

With the foregoing and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts, as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a perspective view of a boiler constructed in accordance with my invention showing two forms of covers arranged thereon; Fig. 2 is a central vertical longitudinal section of the same; Fig. 3 is a horizontal section taken on line 3—3 of Fig. 2; Fig. 4 is a vertical cross section on the line 4—4 of Fig. 2 looking in the direction of the arrow; Fig. 5 is a detail perspective view of the perforated removable bottom of the boiler; Fig. 6 is a side view of one form of cover for the boiler compartments; Fig. 7 is a bottom plan view of the same; Fig. 8 is a perspective view showing two boilers arranged together for use over the furnace; Fig. 9 is a similar view showing the arrangement of three boilers; Fig. 10 is a similar view showing the arrangement of four boilers; Fig. 11 is a plan view of the furnace as arranged for heating three or four boilers; Fig. 12 is a vertical cross section on the line 12—12 of Fig. 11 showing the construction of the furnace walls.

My improved boiler comprises a bottom 1 in which adjacent to the edges and across the same to one side of the center is formed a series of rivet holes. Riveted to the side

edges of the bottom 1 are the side walls 2 of the boiler, said side walls having on their lower edges right angularly projecting flanges 3 which are provided with rivet holes corresponding with the rivet holes in the edges of the bottom section whereby said sides and bottom may be securely riveted together.

Adjacent to the opposite ends of the sides 2 and across the same to one side of the center are also formed rows of rivet holes, the purpose of which will hereinafter appear. On the upper edges of the side walls 2 are formed right angular outwardly projecting flanges 4. Riveted to the ends of the bottom and sides of the boiler are end walls 5, said walls having on their side and lower edges right angular outwardly bent flanges 6 provided with rivet holes which correspond with the rivet holes in the edges of the side and bottom walls whereby said ends are securely riveted in place.

Arranged through the center of the boiler is a vertical partition wall 7 having on its side and lower edges right angular flanges which are riveted or otherwise secured in place.

The compartments formed by the central partition wall 7 are closed by suitable covers, of which I preferably employ two forms. One form of cover comprises a pair of doors 8, one of which is hinged along its outer edge to one end of the boiler while the other door is hinged on the top of the boiler immediately over the upper edge of the partition 7. The doors 8 are constructed so that one overlaps the other when in closed position and the doors are provided on their outer or hinged edges with downwardly projecting flanges 9 which closely engage the inner side of one of the end walls and the partition wall of the boiler, thus preventing the escape of steam between the outer edges of the doors and the walls of the boiler. The under-lapping door is provided on its inner edge with a downwardly projecting flange 10 whereby said inner end of the door is stiffened and strengthened. The doors 8 are of sufficient length to engage and overlap the flange 4 on the upper edges of the side walls of the boiler. The other form of closure hereinbefore mentioned comprises a dome shaped cover 11 which is preferably formed from a sheet metal plate, two sides of which are slitted or notched and the slitted or notched edges are drawn together to

overlap and are riveted or otherwise secured. In thus drawing the slitted or notched edges of the material together, the plate is folded or creased along its diagonal lines to form the corners 12 of the cover, as clearly shown in the drawing. After the cover has been thus shaped to form the dome, the outer edge of the material is bent flat to form a closing flange 13, which when the cover is in place, fits snugly onto the upper edges of the boiler. In order to insure a steam tight connection between the cover 11 and the upper edges of the boiler, I preferably secure to the lower side of the cover adjacent to its outer edges downwardly extending flanges or strips 14, which when the cover is in place, lie adjacent to and are adapted to be forced into close engagement with the inner sides of the end, side and partition walls of the boiler compartments by the pressure of steam in said compartments, thus providing a steam tight connection between the cover and upper edge of the boiler.

In each of the compartments of the boiler, I provide a removable false bottom 15, said bottom being in the form of a flat plate having its edges turned down at right angles to form supporting flanges 16 which rest on the main bottom of the boiler and support the false bottom a suitable distance above the same as shown. In the bottom 15 adjacent to the edges of the same are formed rows of perforations or apertures 17, the purpose of which will be hereinafter described.

In order to removably secure the false bottom in place, I provide retaining lugs 18, which are preferably in the form of right angular metal pieces and are secured in any suitable manner to the inner walls of the ends of the boiler as shown. In addition to the retaining lugs 18, I provide a vertically disposed bolt 19, which is loosely mounted in suitable bearing clips 20 secured to the partition 7 and the ends 5 of the boiler. The bolt 19 has formed on its lower end a right angularly projecting bottom engaging finger 21 which, when the bolt is turned to an operative position, engages the upper side of the false bottom and, together with the lugs 18, securely holds said bottom in position in the boiler. The bolt 19 extends to near the top of the boiler and is provided on its upper end with an operating handle 22.

By providing the false bottom 15, the stratum of water is confined next to the bottom or heating surface of the tank, is heated very rapidly, and expands and pushes its way out through the perforations 17 in the false bottom and passes up into the main portion of the boiler and is replaced by other cooler water which in turn is heated and passes out in the same manner, thus creating a circulation of water through the boiler,

causing the same to heat much more rapidly than in the ordinary form of boiler.

In practice the boilers may be arranged in single form and placed over any suitable furnace, or they may be arranged in multiple as shown in Figs. 8, 9 and 10 of the drawings, and provided with heating furnaces constructed to accommodate the same.

When two boilers are arranged together, as shown in Fig. 8, a long straight furnace 23 is provided, said furnace having a grate at one end and a smoke stack at the other. When three or four boilers are arranged together, as shown in Figs. 9 and 10, a furnace 24 is provided to correspond with the size and shape of the plan of the boilers as shown in Fig. 11 of the drawings. In this form of furnace, a grate or fire box 25 is arranged at the opposite ends of the main portion of the furnace while the smoke stack is arranged in the branch 26 of the furnace.

When the boilers are arranged as shown in Figs. 9 and 10, all or a part of the same may be used and to this end I provide the main portion of the furnace with a centrally disposed damper 27, which is pivotally arranged in said main portion and is adapted to be swung across from one side to the other of the inner end of the branch of the furnace, thus cutting off one or the other of the grates or fire boxes, thus permitting one end only of the boilers to be used. When both ends of the furnace are fired, the damper 27 is moved to a central position between the inner walls of the branch 26, thus providing a passage from each fire box to the stack.

The side walls of the furnace are preferably formed of cement or similar plastic material and are provided with a series of vertically disposed air passages 28 which open at the upper ends of the side walls below the boilers and also open at their lower ends into the ash pit below the grates of the furnace, said passages thus permitting the heated air to pass upwardly from the lower portion of the furnace to the upper portion thereof where it is discharged beneath the bottom of the boilers, thus increasing the heating capacity of the furnace.

In order to provide for the circulation of water through all the compartments of the assembled tanks and to maintain the water at the same level in all of the compartments, I preferably connect said compartments together on the outside of the boilers by a line of piping 29, which is connected with each of the compartments and the connections between the pipe 29 and the compartments are each provided with a cut-off valve 30, whereby the passage of water to or from any of the compartments may be controlled.

From the foregoing description, taken in connection with the accompanying drawings, the construction and operation of the

invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention, as defined in the appended claims.

Having thus described my invention, what I claim is:

1. In a boiler of the class described, a removable bottom comprising a plate having formed therein adjacent to its outer edges a series of perforations, flanges formed on the edges of said plate to engage the main bottom of the boiler and to support said removable bottom above the same, retaining lugs secured to the end of the boiler and a fastening bolt adapted to be turned into engagement with the edge of the removable bottom opposite to the retaining lugs, whereby said bottom is removably held in position in the boiler.

2. A boiler of the class described adapted

to be arranged in multiple to increase the capacity thereof, a partition arranged in the boiler to divide the latter into separate compartments, perforated false bottoms arranged in said compartments, a pipe adapted to connect the several members and the individual compartments therein together whereby the same water level is maintained throughout all of the compartments of the boilers, valves arranged in the connections between said pipe and said boiler compartments, a furnace constructed to correspond with the multiple arrangement of said boilers, and means to cut off part of said furnace whereby the boilers may be run at full or part of their capacity.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOHN RILEY HALDEMAN.

Witnesses:

MYRTLE GOSS WYMER,
J. L. HINE.