

No. 640,924.

Patented Jan. 9, 1900.

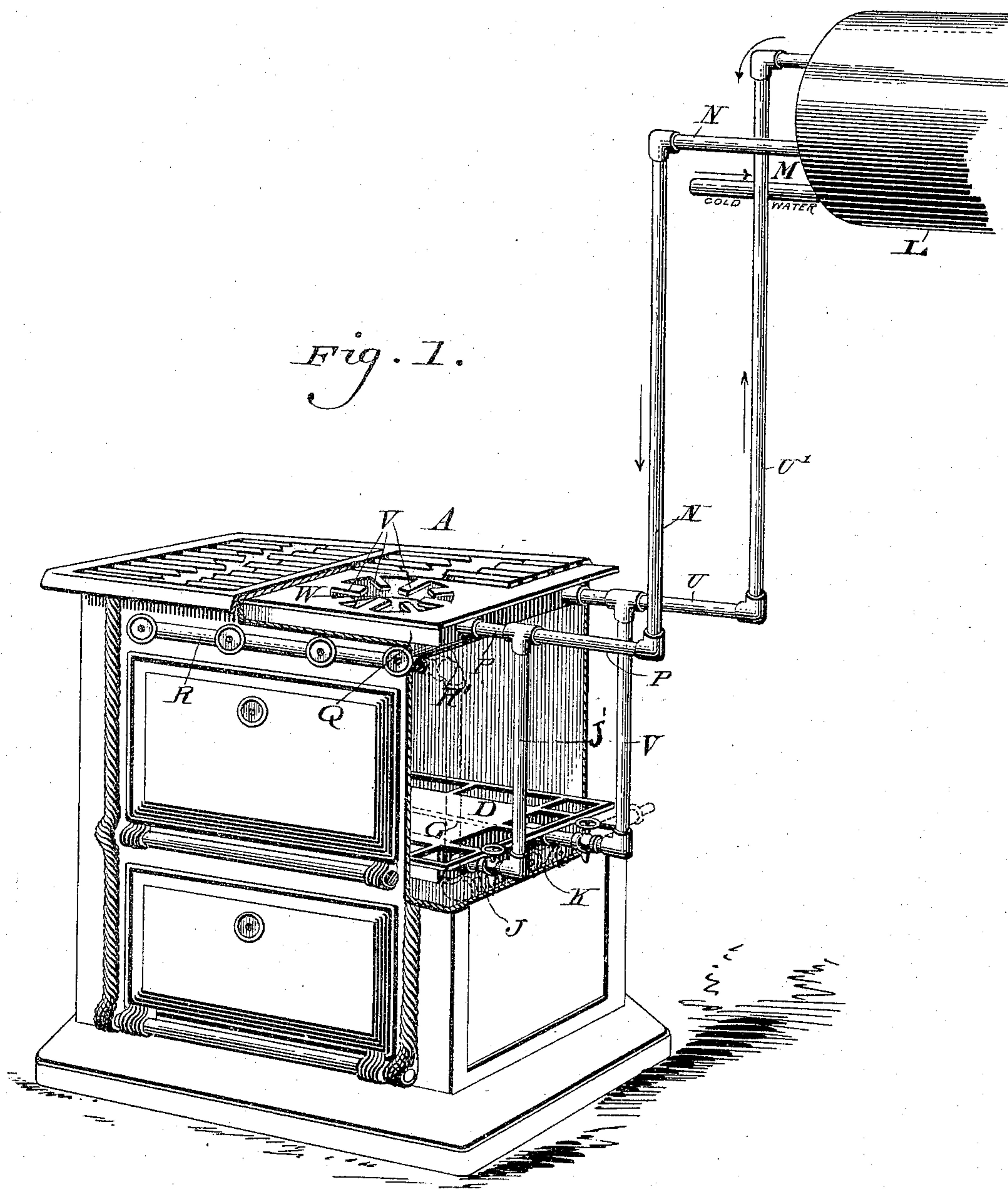
J. MANDER.

WATER HEATER FOR GAS OR OTHER RANGES.

(Application filed June 30, 1899.)

(No Model.)

2 Sheets—Sheet 1.



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2 Sheets—Sheet 2.

Fig. 2.

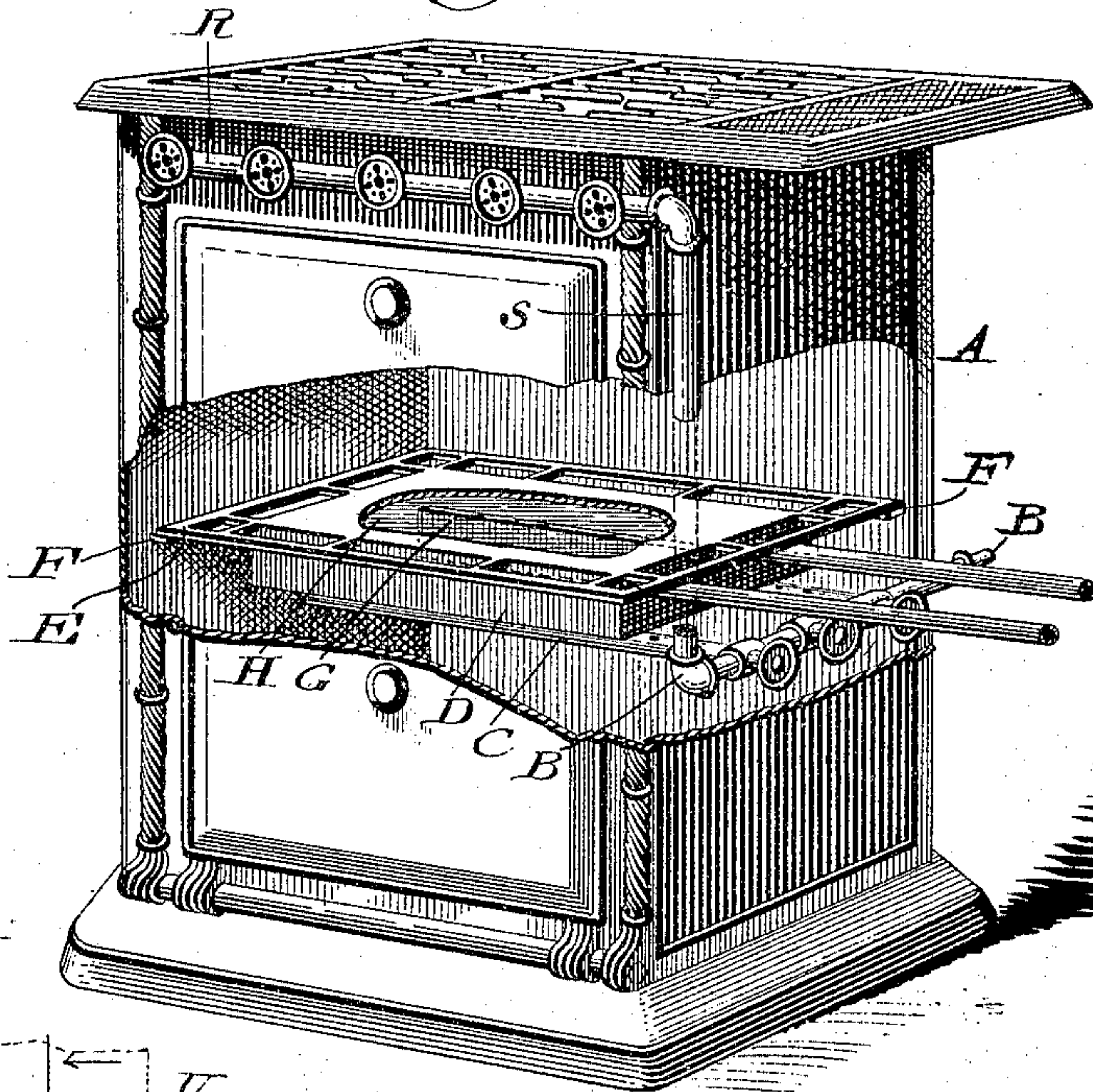


Fig. 4.

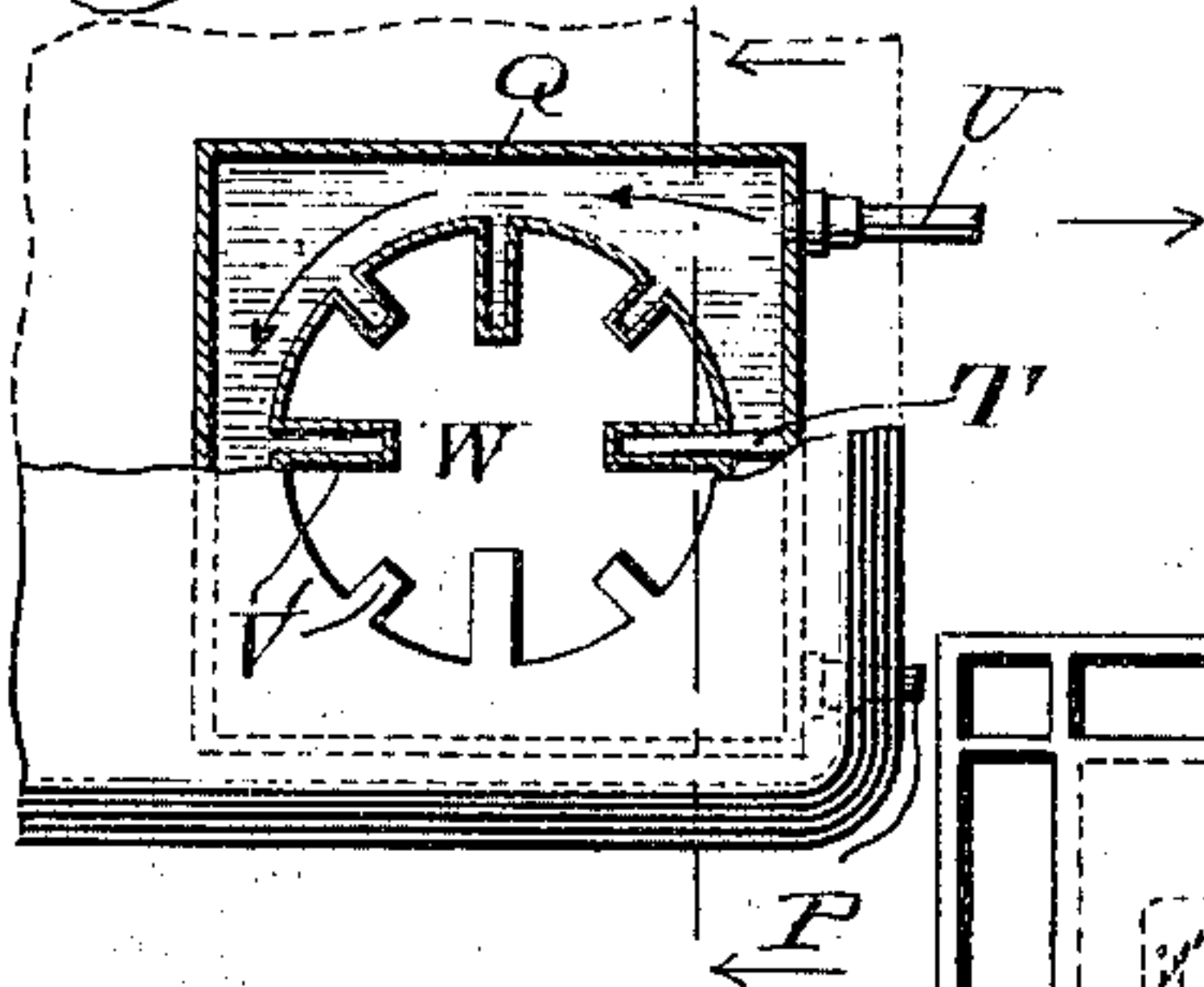


Fig. 5.

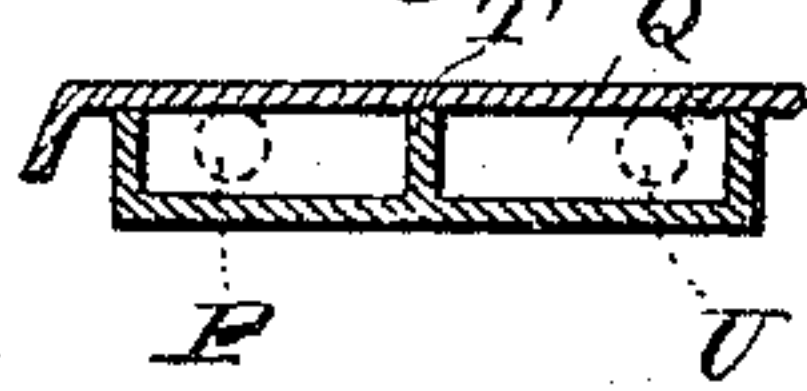
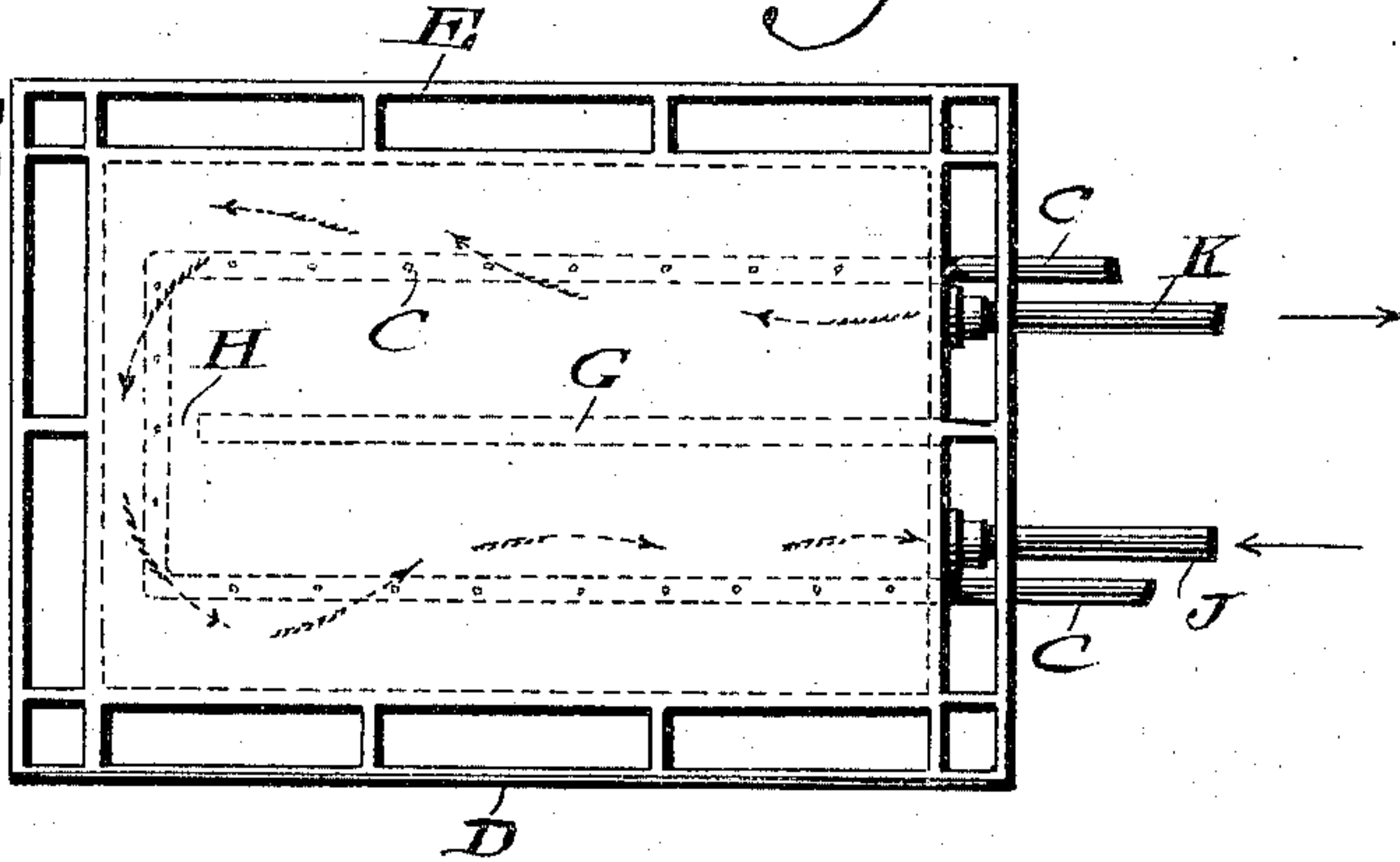


Fig. 3.



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# UNITED STATES PATENT OFFICE.

JOHN MANDER, OF PHILADELPHIA, PENNSYLVANIA.

## WATER-HEATER FOR GAS OR OTHER RANGES.

SPECIFICATION forming part of Letters Patent No. 640,924, dated January 9, 1900.

Application filed June 30, 1899. Serial No. 722,379. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN MANDER, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Water-Heaters for Gas or other Ranges, which improvement is fully set forth in the following specification and accompanying drawings.

My invention relates to an improvement in a gas or other range; and it consists in providing such range with a water-chamber at top, an additional heating-chamber beneath the same having a floor formed hollow as a water-chamber, pipes for connecting said chambers providing for the circulation of water therebetween, a burner beneath said floor, and a spaced rim around said floor for directing the products of combustion from said burner to the upper water-chamber, they then escaping through the opening in the top plate of the range, said upper water-chamber being also adapted to be heated by a burner independent of the burner for the water-chamber beneath it.

Figure 1 represents a perspective view of a water-heater for a gas or other range embodying my invention, showing also a boiler to which the same is applicable and pipes and connections common thereto and to said heater. Fig. 2 represents a perspective view of a range detached from the boiler and pipes seen in Fig. 1, the same being broken away to show the relative position of the heater contained in its interior, an upper water-heater employed being omitted for the sake of clearness of illustration. Fig. 3 represents a plan view of the floor of the additional heater, on an enlarged scale, removed from the body of the range. Fig. 4 represents a partial plan view and partial horizontal section of a portion of the top of the range. Fig. 5 represents a vertical section of a portion on line *x x*, Fig. 4.

Similar letters of reference indicate corresponding parts in the figures.

Referring to the drawings, A designates a gas or other range which is provided with the gas-pipe B, which is omitted from Fig. 1 for clearness of illustration, said pipe being provided with the apertured branches C, the

general contour of which can be best understood from Fig. 3.

D designates a water-holding chamber which has secured to its outer portion the open rim E, whereby it may be supported upon the lugs F on the frame above the heater-pipes C and heat may pass through the spaces of said rim as flues and over said chamber and so reach the upper water-chamber, through the opening of which and the top plate the products of combustion escape, it being noticed that the sides of the range and the chamber D form a heating-chamber.

G designates a partition located in the water-chamber D and terminating near an end thereof, whereby the passage H is provided for the water to flow from the inlet-pipe J around to the outlet-pipe K, the water flowing from the latter to the boiler L, which is utilized as a reservoir for hot water, it being provided with the inlet-pipe M for cold water, the latter leaving the boiler through the pipe N and passing downwardly into the pipe P, which leads to the water-holding chamber Q, located in the upper portion of the range above the gas-pipe R, which connects with the pipe B by means of the pipe S and is provided with valves and branches R', extending inwardly, whereby said chamber Q may be heated.

Within the chamber Q is a partition T, whereby water is caused to flow in the direction of the arrows seen in Fig. 4, and thus leave the chamber Q through the pipes U and U', the pipe U' leading to the boiler L and having the branch V, which leads to the pipe K, the pipe P being connected with pipe J by the pipe J', whereupon it will be seen that provision is made for a continuous circulation of water between the boiler and either chamber D or Q or both chambers, the flow of the same being of course controlled by cocks or check-valves, as desired.

The chamber Q is provided with inwardly-extending legs V', having closed ends which are adapted to be filled with water and terminate a short distance from each other, so that a passage W is provided, through which the heat may pass.

It will be seen that the water contained in the chambers D and Q is heated and circu-



lates between the boiler L and said chambers, it being noticed that the water-chamber Q is at the upper portion of the range, and the water-chamber D constitutes the floor of a  
5 heating-chamber intermediate of the top and bottom of the range and the open rim E, which supports said chamber D, the spaces of which rim form a series of flues for the passage of the products of combustion from the burners of  
10 the branches or pipes C around the sides of said chamber and above the same to the upper chamber Q, and then through the openings of the top plate, as usual.

Having thus described my invention, what  
15 I claim as new, and desire to secure by Letters Patent, is—

1. In a gas-range, the combination of the top plate, water-heating chambers separated from each other and forming in conjunction with  
20 the sides of the range, a heating-chamber, the lower water-chamber being spaced from the sides of the range to form flues, a water-cir-

cuit having communication with said water-heating chambers and a burner situated below the lower water-heating chamber. 25

2. In a gas-range, the combination of a top plate, water-heating chambers separated from each other and forming in connection with the sides of the range a heating-chamber, pipes for connecting said water-heating chambers  
30 providing for the circulation of water therebetween, a burner beneath the lower water-heating chamber, a spaced rim around the latter forming flues for directing the products of combustion from said burner to the upper  
35 water-heating chamber and thence through the opening of the top plate, a burner for the upper water-chamber, connecting-pipes for said burners and lugs on the frame of the range on which said rim is supported.

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