No. 745,712. PATENTED DEC. 1, 1903.

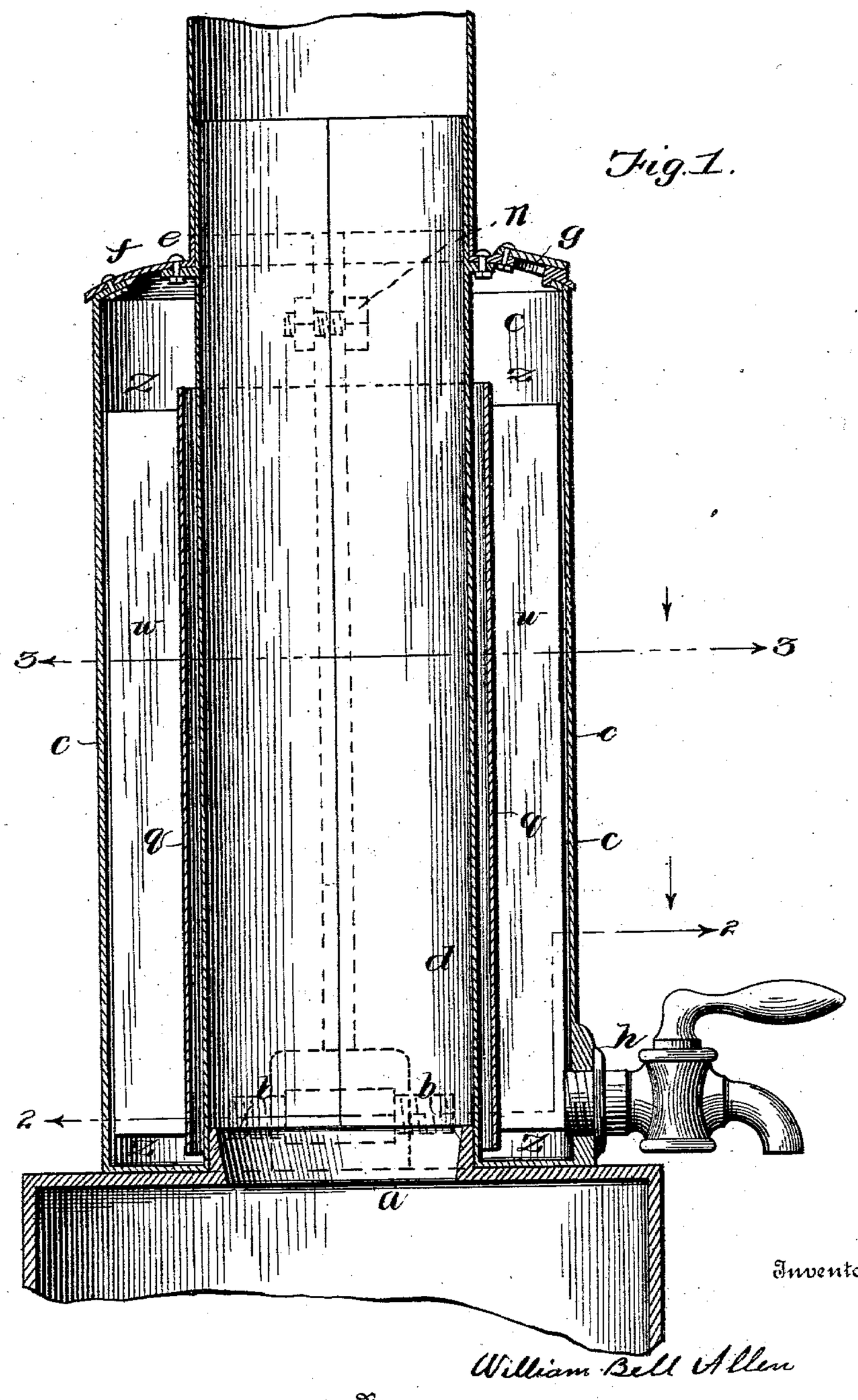
W. B. ALLEN.

WATER HEATER.

APPLICATION FILED MAR. 30, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.



Witnesses

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George M. Auburn

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WATER HEATER.

APPLICATION FILED MAR. 30, 1903.

NO MODEL. 2 SHEETS—SHEET 2.

Fig. 2.

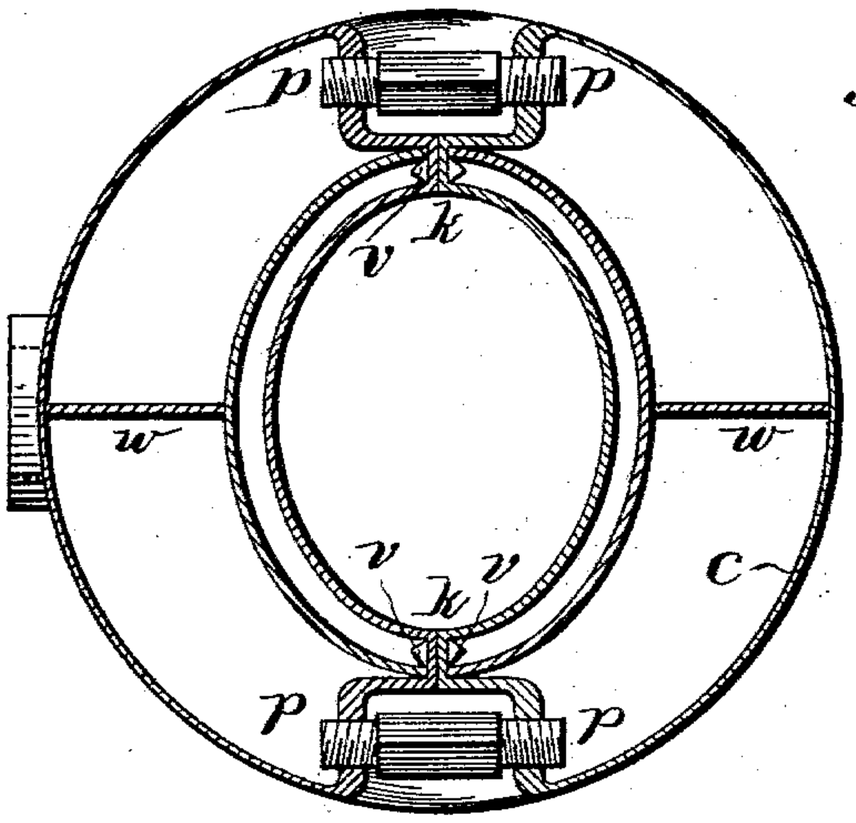


Fig. 5.

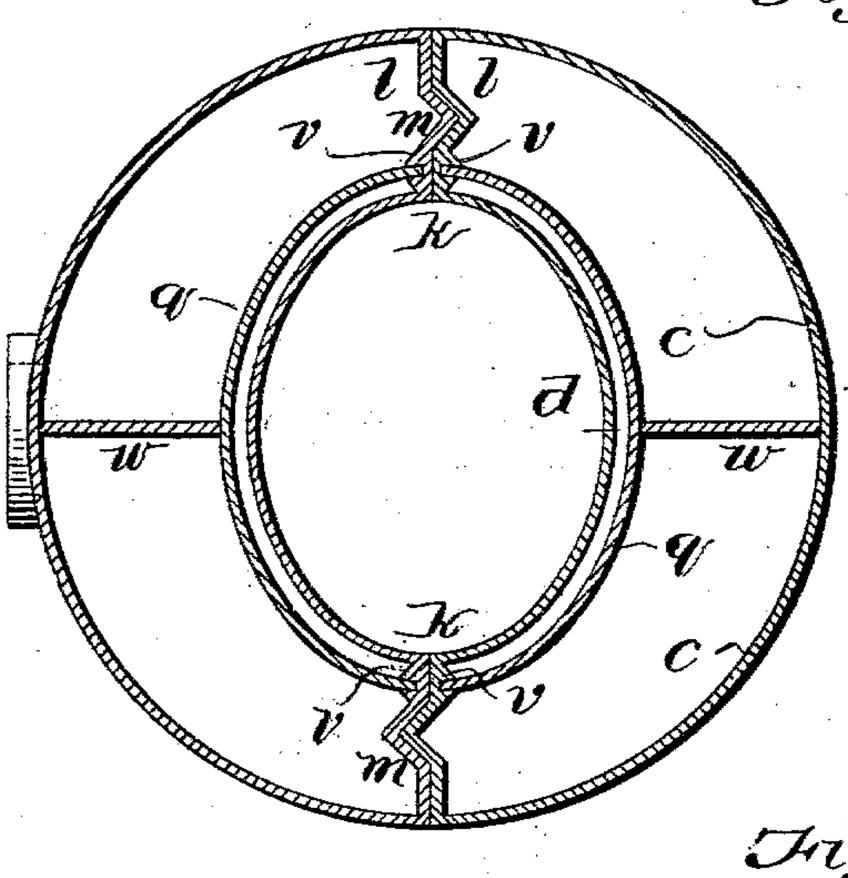
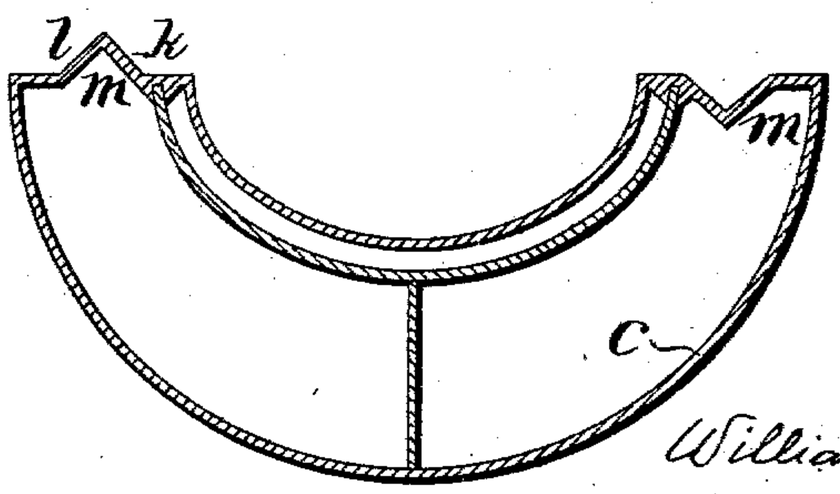


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM BELL ALLEN, OF LONGVIEW, TEXAS.

WATER-HEATER.

SPECIFICATION forming part of Letters Patent No. 745,712, dated December 1, 1903.

Application filed March 30, 1903. Serial No. 150,246. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM BELL ALLEN, a citizen of the United States, and a resident of Longview, in the county of Gregg and State of Texas, have made a certain new and useful Invention in Water-Heaters; and I declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it appertains to make and use the invention, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The invention relates to water-heaters designed for use chiefly in connection with stoves and heaters which have smoke-pipes; and it consists in the novel construction and combinations of devices, as hereinafter set forth.

In the accompanying drawings, Figure 1 is a central vertical section of the invention as applied. Fig. 2 is a cross-section of the heater through its tubular connecting-bolts. Fig. 3 is a cross-section of the same about midway of its height, and Fig. 4 is a sectional detail view of one of the heater-sections.

In the drawings, the letter *a* represents the portion of a stove to which a section of pipe is ordinarily attached to draw off the smoke, and *b* a flange rising from the top of the stove around the flue-opening and serving as a seat for the end of the pipe-section.

c represents an annular cylindrical water-heater which is designed to be placed upon the stove to take the place of the first section of stovepipe, and to this end it is provided with a central flue-wall *d*, the lower end of which is designed to engage the pipe-seat flange *b* of the stove. The top of the flue-wall *d* is provided with a flange *e* to receive the end of the lower section of stovepipe. In this manner the cylindrical water-heater is designed to form the first section of the smoke-flue above the stove and receive the heated products of combustion at their highest degree of temperature. The top *f* of the annular water-heater is usually removable, but it may be secured in position in water-tight manner where the heater forms a part of a water-heating system having circulation-pipes in connection with its upper and lower portions.

The water-heater is provided with an opening *g* in the top for purposes of inspection and filling, said opening having a suitable cover. The discharge pipe or faucet is located at the bottom of the heater, as at *h*.

It is designed, preferably, to construct the annular heater in two vertical sections of semi-cylindrical form. Such sections are indicated at *k k*. The lateral or inner abutting walls *l* of these sections are provided with longitudinal engaging channels and ribs, as indicated at *m*, in order to insure close and secure fitting of the sections together. The sections may be secured together by bolts, as at *n*, these bolts engaging the walls *l*, which are of planular character. Circulation is provided between the sections by means of hollow connections *p*, which are preferably made in the form of right and left threaded pipes or nipples having turning seats in their middle portions. In this way they may serve to hold the sections securely together as well as to provide communication from one section to the other. In each section circulation of the water is set up by means of the vertical curved partition-plates *q*, which have the edges engaging rib-seats *v* of the side or edge walls, and vertical central plates *w* may be used in the middle portion of each section. These partition-plates are shorter than the interior of the heater and are supported in such wise that intervals *z* are left between their upper and lower ends and the top and bottom, respectively, of the heater in such wise that when the water is heated by its contact with the flue-wall a circulation will be rapidly established in the main volume of water in the heater.

This water-heater is designed to utilize the waste heat of a stove. It occupies the place of the first section of stovepipe and rests firm upon the top of the stove around the pipe flange or collar. No drilling, bolting, or other means of fastening is required. The top of the heater is held firm by the stovepipe in engagement therewith. When constructed in sections, it is of economical manufacture, being easy to mold. The sectional form also serves to equalize strain. The water-pressure is equalized in the sections, and circulation is provided for. The partition near the inner or flue wall separates a thin sheet of water

from the main body in the section, and this becoming highly heated rises and creates a circulation, which assists in rapidly raising the temperature of the whole. When the water is low in the heater, this heated portion being still caused to rise in the partition-chamber next the flue-wall prevents this wall from becoming overheated and burning or from cracking through sudden chilling of the metal when cold water is poured into the chambers. When the top is movable, it is designed to be of annular form and may be slipped upward on the pipe-section above the heater, so as to facilitate cleaning the latter without removing it from its position on the stove. When the heater is designed to be used in connection with a pressure system, the top is securel bolted in place, and gaskets are provided in the joints to prevent leakage.

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

1. A sectional water-heater, having the annular chamber, the sections of said heater having longitudinal engaging ribs and channels, and the tubular connecting-bolts, substantially as specified.

2. A sectional pipe water-heater, having the annular chamber, the intermediate annular partition in close proximity to the inner wall of said chamber and forming a narrow passage therewith, said intermediate partition being separated from top and bottom of said chamber by intervals or passages, the sections of said heater having longitudinal engaging ribs and channels, and tubular connecting-bolts, substantially as specified.

3. A sectional water-heater having the annular chamber and consisting of the vertical sections having convex outer walls and planular abutting inner walls, and the tubular connecting-bolts engaging said abutting inner walls, substantially as specified.

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

WILLIAM BELL ALLEN.

Witnesses:

E. M. BRAMLETTE,

CHAS. D. SMITH.