

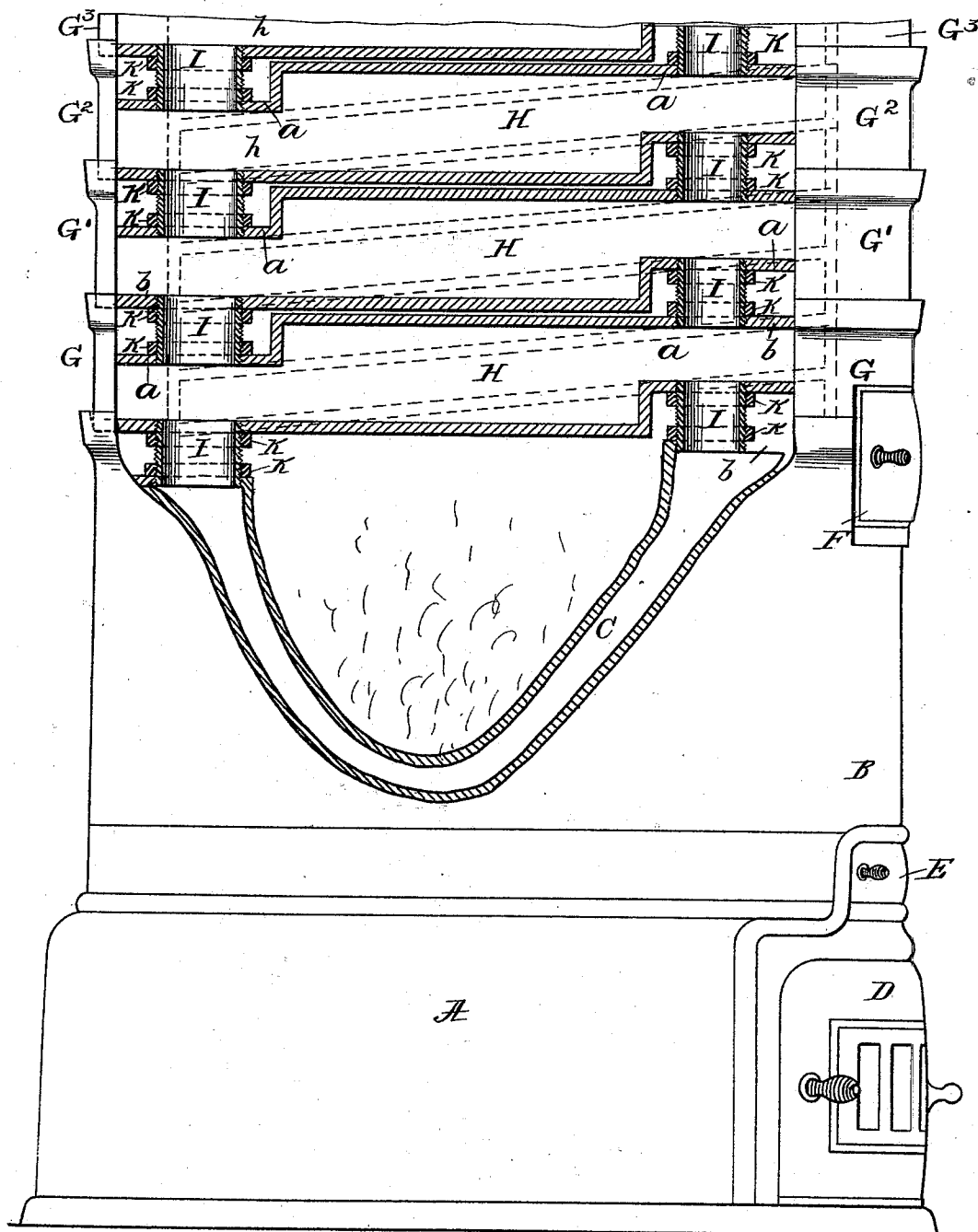
(No Model.)

2 Sheets—Sheet 1.

A. C. A. BAUER & F. D. JOHNSON.
SECTIONAL BOILER OR HEATER.

No. 519,297.

Patented May 1, 1894.



WITNESSES:
Edward C. Rowland.

John Rittenband

Fig. 1.

INVENTORS
Albert C. Bauer and
Frederick D. Johnson
BY
Phillips Abbott
ATTORNEY

(No Model.)

2 Sheets—Sheet 2.

A. C. A. BAUER & F. D. JOHNSON.
SECTIONAL BOILER OR HEATER.

No. 519,297.

Patented May 1, 1894.

Fig. 2.

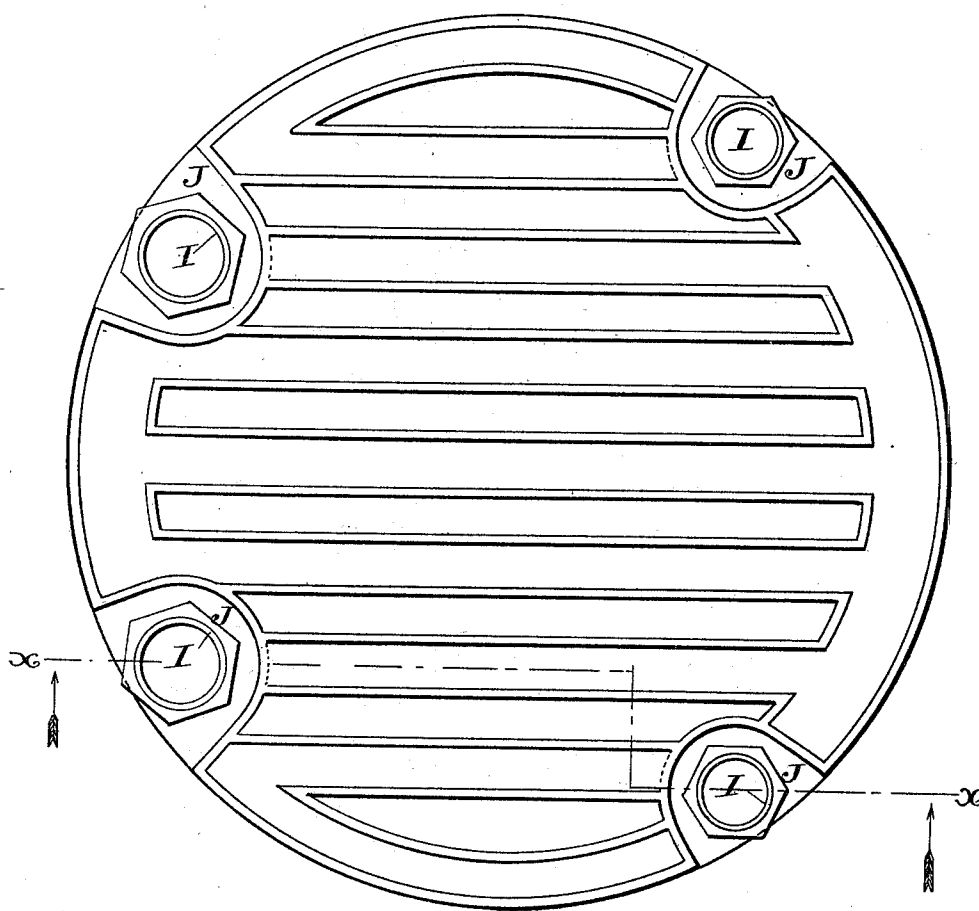
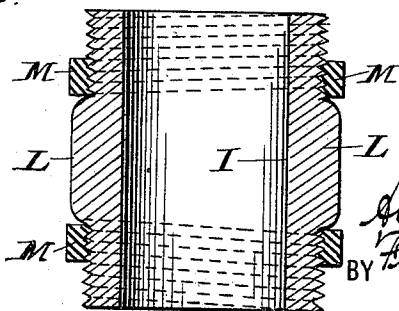


Fig. 3.



WITNESSES:

Edward C. Rowland.
John Pitterband

INVENTORS
Albert C. A. Bauer and
Frederick D. Johnson
BY
Phillips Abbott
ATTORNEY

UNITED STATES PATENT OFFICE.

ALBERT C. A. BAUER AND FREDERICK D. JOHNSON, OF UTICA, NEW YORK,
ASSIGNORS TO RUSSEL WHEELER AND FRANK E. WHEELER, OF SAME
PLACE.

SECTIONAL BOILER OR HEATER.

SPECIFICATION forming part of Letters Patent No. 519,297, dated May 1, 1894.

Application filed June 14, 1893. Serial No. 477,616. (No model.)

To all whom it may concern:

Be it known that we, ALBERT C. A. BAUER and FREDERICK D. JOHNSON, citizens of the United States, and residents of Utica, in the county of Oneida and State of New York, have invented certain new and useful Improvements in Sectional Boilers or Heaters, of which the following is a specification.

Our invention relates to improvements in hot water heaters or boilers, especially those used in conjunction with hot water heating or steam systems for buildings, but adapted to use in various other forms of boilers.

Our invention is applicable to what are known as sectional boilers of the form in which the various sections are united by nipples or short tubes, which are threaded into the several sections composing the boiler, and by our invention, we secure various important advantages, not before realized, so far as we are aware. Among these improvements are the following: We reduce the height of the boiler: we prevent any water trappings or air pockets—on the contrary give perfect drainage and perfect air escape, during the drawing off of the water from the boiler, or refilling it again: we improve its appearance and add to its strength and ease of repair. We reduce the height, because we do not set the nipples in between the sections, thus separating the sections, but on the contrary, locate them in pockets or recesses formed in the sections vertically, so that the boiler is no higher than the aggregate height of the sections. We prevent water trappings or air pockets, because our sections are provided with inclined water ways, which extend from side to side of each section, and the nipples are connected at the highest and lowest points respectively of these inclined water ways, so that when the water is drawn off, there is complete drainage of it, always on a downward inclination: thus no water can be entrapped in the sections and on the other hand, when the boiler is refilled, the water always rising from below, upwardly, the air escapes in the reverse direction, so that there are no air pockets within the boiler. The appearance of the boiler is improved because the pockets or recesses within which the nipples are located are set substantially within the

peripheral line of the boiler, so that it may be jacketed or masonry may be applied to it with more ease, and with better appearance than in other boilers, as sometimes constructed. The strength of our boiler is increased, because the sections rest upon each other, and are not supported upon the nipples. The nipples simply pull them down close and snugly upon each other. Their weight is not supported by the nipples, but by the sections themselves.

Referring to the drawings hereof, Figure 1, is an elevation, partly in section (the section being taken on the line X, X of Fig. 2, looking in the direction of the arrows on that figure) showing the base of the boiler, including the ash pit and fire pot sections and three superposed boiler sections. The fourth section is broken off on substantially a horizontal line. Fig. 2, is a plan view of one of the superposed sections. Fig. 3, is a longitudinal section of one form of nipple.

A is the base or ash pit.

B is the fire section.

C is the water jacket in the fire pot section.

D is the ash pit door.

E is the shaker rod door.

F is the feeding door.

G, G', G², G³ are the boiler sections.

H, H, H, &c., are water ways; they extend from side to side of the sections on an incline as shown in dotted lines.

The fire flues may be made in the sections in any of the various well-known ways.

I, I, I, &c., are the several nipples. They are hollow as shown and constitute the water posts connecting the water chambers and passages in the several sections. These nipples are placed in pockets J, J, J, J (see Fig. 2) and are preferably provided with lock nuts K, K, &c., which being screwed up tight against the adjoining faces of the sections above and below, give strength and water tightness to the nipples. These nipples are threaded into the sections above and below, therefore, when they are properly run in with white lead or other suitable material, they make an absolutely water tight joint, and do not require packing of any kind, and, in addition to this, the lock nuts, if used, additionally tighten these joints, and it will be especially observed that the nip-

ples are so located relative to the inclined water ways, that they engage with the upper and lower portions thereof respectively, so that the water in the sections will completely drain off through the nipples; thus no water trap will be possible, and no air spaces will be formed, and furthermore that the nipples are placed in pockets J, J, which are formed in the sections preferably within the peripheral line, so that the nipples are protected from injury, and yet they are easily accessible from the exterior of the boiler, so that should any of them require repair, it can be attended to by itself, without disturbing any other nipple, and without taking down the boiler. Also that the sections rest flat upon each other, and the nipples are made just long enough to securely hold them together and afford water tight joints. Therefore the height of the boiler is not increased, there being absolutely no lost space within the boiler, the water heating surfaces are brought as close to the fire as it is possible to make such a structure, and the weight of the sections is supported by their resting flat upon each other and not upon the nipples. The nipples may be threaded from end to end with a running thread, and as each section is in place, they may be run down through the upper one, until they properly engage with the lower one, or they may be threaded right and left, and the sections be thus drawn together in a manner well understood. Of course, suitable lugs or angled surfaces may be employed either on the outside or on the inside of the nipples with which the wrench or other tool employed to turn them may engage.

In Fig. 3, we show a very good form of right and left hand threaded nipple. It is lettered I, as before; L, L represent projections on the exterior of the nipple, there being preferably a number of them in its circumference, against which a suitable wrench or tool will engage. M, M represent the lock nuts, which are preferably six-sided, as shown in Fig. 2. They may be of any other form, however.

In putting boilers together when such a nipple as shown in Fig. 3 is employed, the sections may be suspended over each other, so that all water post openings, which are made in the bottoms and tops respectively of the sections marked A and B, on Fig. 1, properly register with each other. Then the nipples are placed by hand or otherwise in the pockets, and the superposed section is then slowly lowered until the threads of all the nipples properly engage

both above and below. Then, upon turning the nipples all at the same time or practically so, the two sections are drawn together until their faces meet, then each nipple will be set up hard and tight, and after that, the lock nuts, if they are employed, will be run up against the top and bottom plates respectively of the pockets in the sections, thus completing the work and making a secure, water-tight, and substantial joint.

We have not herein shown or described anything further than those parts which specially appertain to our invention, because the general construction and arrangements of water heaters of this class are now too well-known to require full description, and our invention is more clearly shown and easily understood by eliminating unnecessary parts from the drawings.

We claim—

1. The combination in a sectional boiler, of sections having water ways running across them from side to side upon an inclination, pockets for the reception of nipples made in said sections and connecting with the water ways at their upper and lower ends, and nipples connecting the several sections within the said pockets, said pockets being within the peripheral lines of the sections, substantially as set forth.

2. A section for a boiler or heater, having inclined water ways, extending across it from its lower to its upper surface, recesses or pockets for the reception of nipples, one of them extending upwardly beneath the higher ends of the water ways and the other extending downwardly over their lower ends, substantially as set forth.

3. The combination in a boiler of a series of horizontal sections, each having inclined water ways, which extend from their lower to their upper surfaces, recesses or pockets in the several sections beneath the higher ends and above the lower ends of the inclined water ways, and within the peripheral line of the sections and nipples connecting the said sections within said pockets or recesses, substantially as set forth.

Signed at Utica, in the county of Oneida and State of New York, this 8th day of June, A. D. 1893.

ALBERT C. A. BAUER.
FREDERICK D. JOHNSON.

Witnesses:

G. ERNEST NICHOLS,
GEO. A. TYLER.