

J. T. ABBE.  
Water Back for Stoves.

No. 232,164.

Patented Sept. 14, 1880.

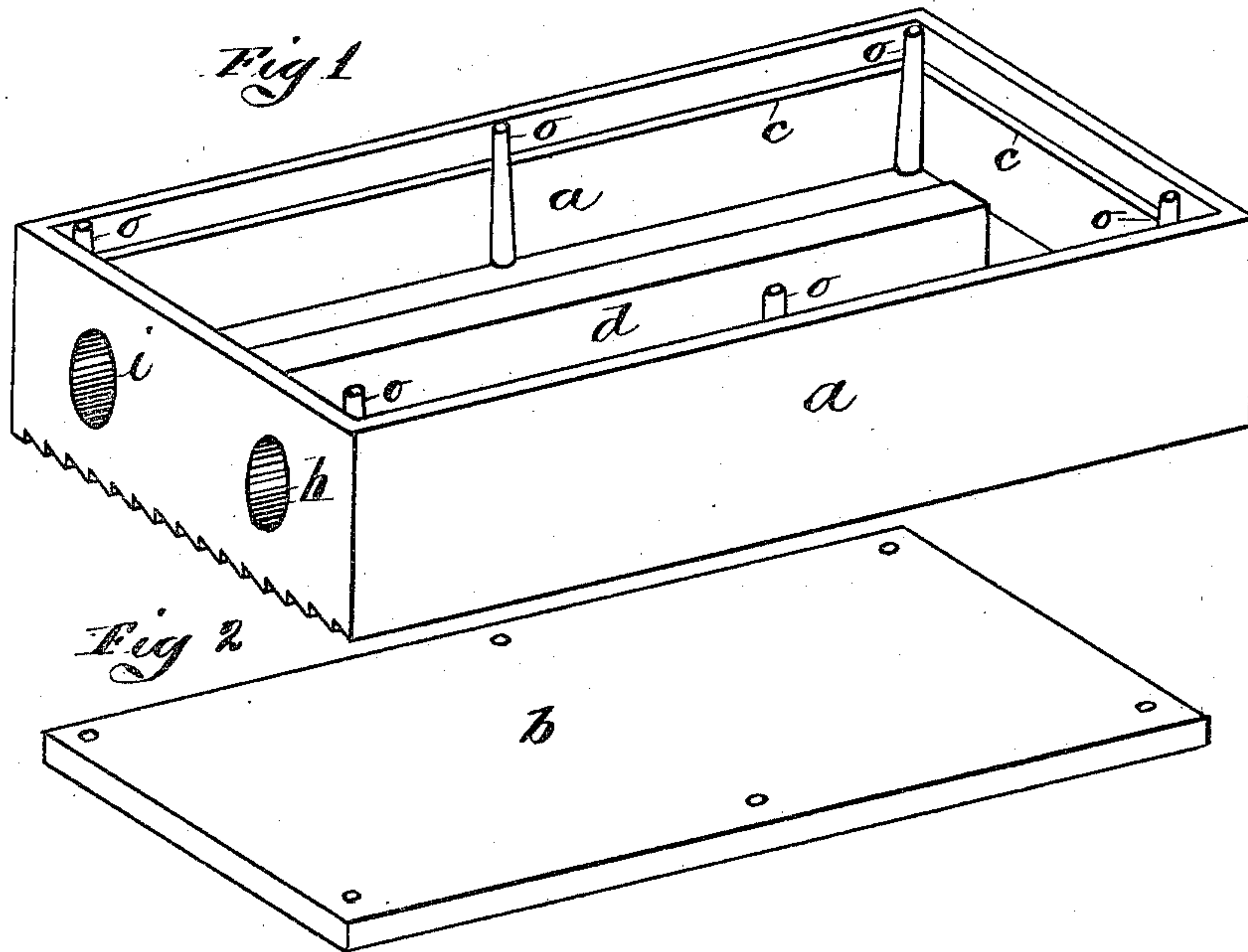


Fig 2

Fig 3

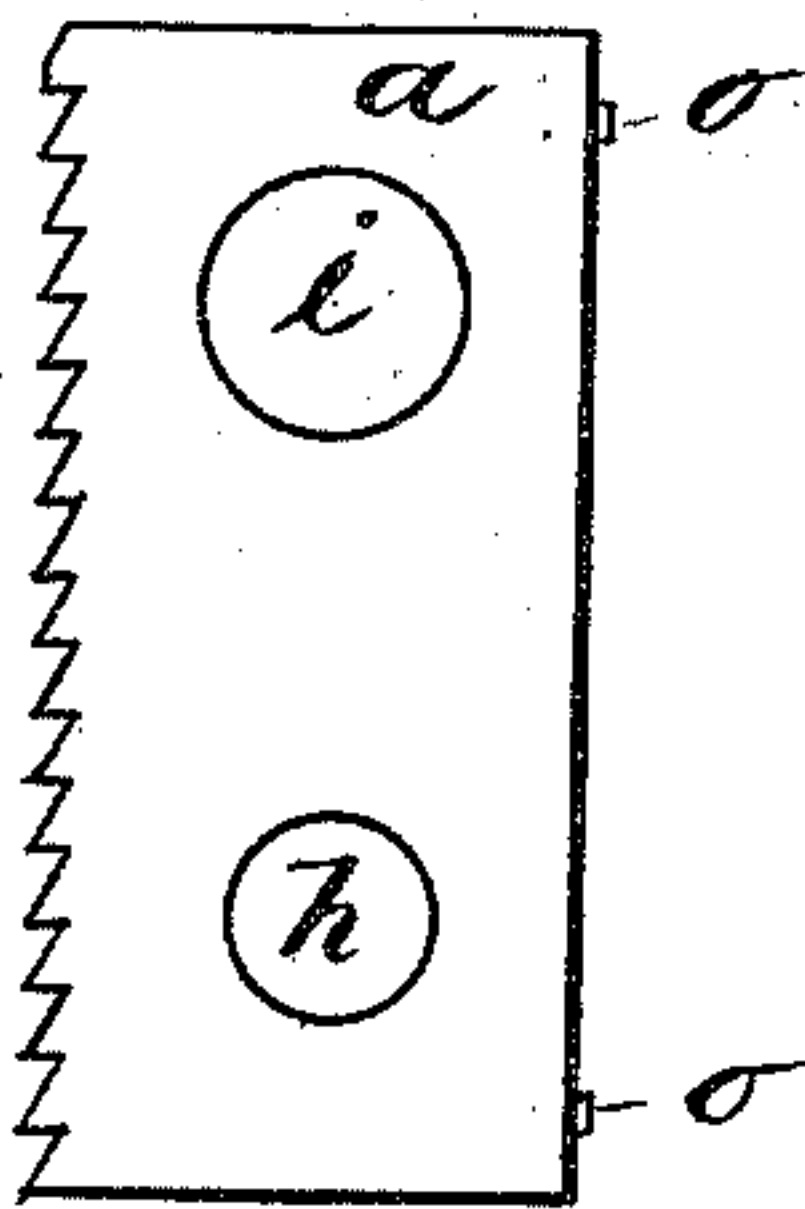
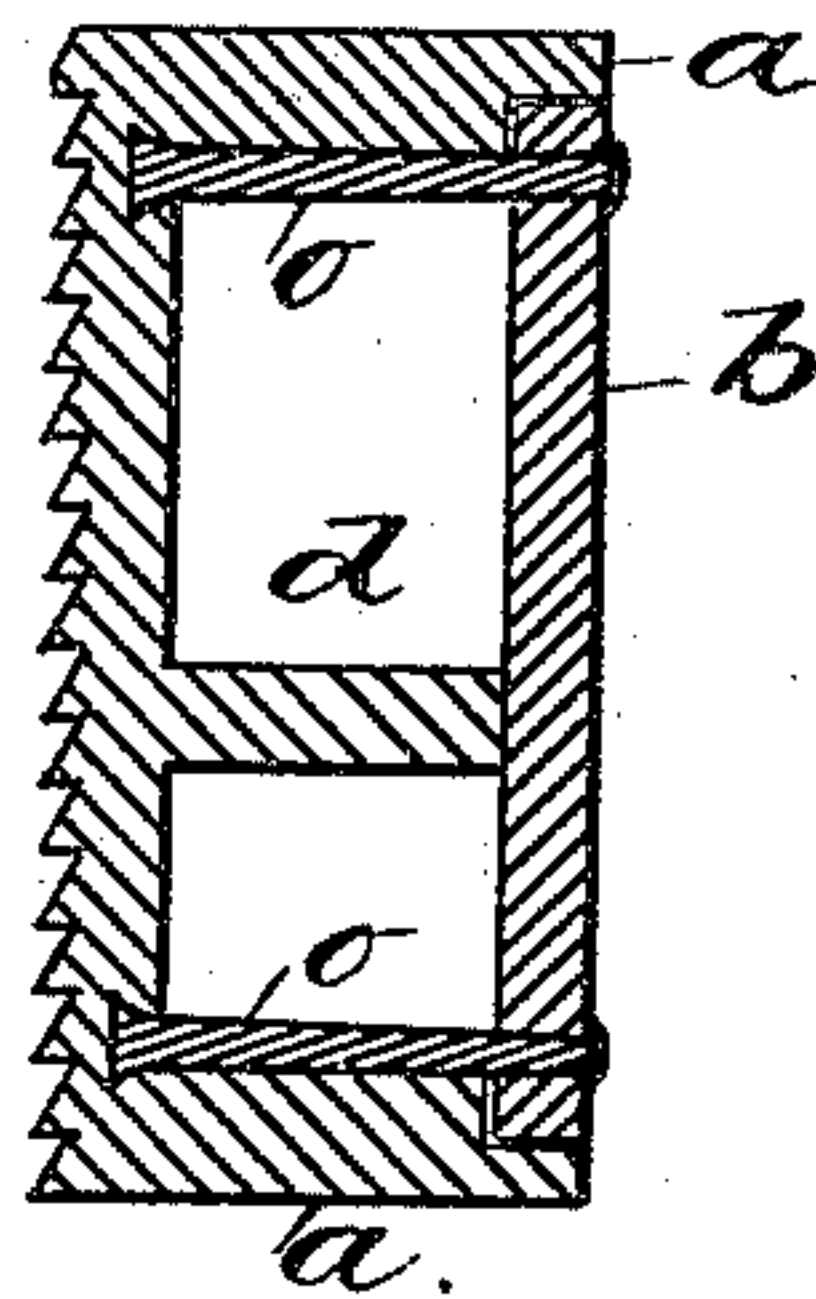


Fig 4



Witnesses  
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# UNITED STATES PATENT OFFICE.

JAMES T. ABBE, OF SPRINGFIELD, MASSACHUSETTS.

## WATER-BACK FOR STOVES.

SPECIFICATION forming part of Letters Patent No. 232,164, dated September 14, 1880.

Application filed February 24, 1880.

*To all whom it may concern:*

Be it known that I, JAMES T. ABBE, a citizen of the United States, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Cast-Iron Water-Backs for Stoves, of which the following is a specification.

My invention relates to water-backs, such as are located on one side of the fire-box in cooking-stoves, and with which the water-pipes connected with the hot-water boiler and with the water-supply pipes of a building are connected.

Cast-iron water-backs, as heretofore made, have been constructed in one piece, having been cast on a core; but owing to the form of such water-backs it has been necessary to employ a long and slender core, and there has been no adequate means of anchoring it, or of so supporting it by "prints" or otherwise, as to prevent many poor castings from being made, owing to core deviations and imperfections; and the object of my invention is to provide such improved construction as obviates all "coring," and insures good castings in every case, and to provide improved water-passages in said backs, and an improved form of corrugations on the outer face thereof.

I attain these objects by the construction illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of the body of the water-back. Fig. 2 is a view of the cover. Fig. 3 is an end elevation, and Fig. 4 is a transverse section.

Like letters refer to like parts in the several figures.

I cast the body *a* of my improved water-back substantially in the form shown, open on one side, and adapt it for the reception of the cover *b*, which rests upon an inwardly-projecting portion, *c*, of the inner face of the sides and ends of said body.

The cover *b* is made of such a size and thickness that when it is inserted into one side of the body *a*, and a suitable packing, as hereinafter set forth, is interposed between it and the adjacent sides of said body, the outer face of said cover will be about flush with the surrounding edge of the body, as seen in Fig. 4.

Running from one end of the body *a* toward the opposite end thereof is a partition, *d*, of a height about equal to the distance between the two inner faces of the body when the cover is secured thereto, as seen in Fig. 4. Said partition is located one side of the center of the body *a*, as shown, providing a water-passage therein of varying area, and the inlet-hole *h* leads to the narrower part of said passage, and the outlet-hole *i* from the wider portion thereof. The body *a* is easily cast complete in the form shown in Fig. 1, with the holes *h i* therein, and ready for the reception of cover *b*.

I cast upon the outer face of the body *a*, opposite to that upon which the cover *b* is secured, a series of corrugations of a serrated form, as shown in the several figures.

In securing cover *b* in place upon the body *a*, I employ, preferably, a mixture of fine iron-borings and sal-ammoniac, which I interpose solidly between the adjacent surfaces of body and cover, making what is known as a "rust-joint." In case a stronger fastening for said cover be required, the anchor-posts *o*, of wrought-iron, may be cast in body *a*, as shown, and being allowed to project up through suitable holes in cover *b*, they may be riveted against it, thereby fastening the cover securely against any probable pressure in the water-back, although ordinarily the rusted joint will prove sufficiently strong.

After having cast and united the parts, as before set forth, and tapped the holes *h i*, in which to screw the water-connections, the water-back is completed and ready to be put in place in a stove. In so employing it it is set with its corrugated face outward or next to the fire.

Heretofore water-backs of this class have been made with wide and shallow corrugations of such form as permitted the cinders and ashes to accumulate against the surface of the water-back and prevent the heat from acting advantageously thereon. To obviate said objection I make a series of corrugations on the face, of a serrated form in section, and set closely side by side, and with the faces of the corrugations all inclining downward in such a way that no ashes can lodge thereon, and being set closely side by side, any cinders



or like matter which may lie against the surface will encounter the projecting edges of the corrugations, and a space between the outer line of the edges of the corrugations and the  
5 bottom of the grooves will be kept unobstructed for the circulation of hot air against the surface of the water-back. The back is set in the stove in the position shown in Figs. 3 and 4.

As heretofore set forth, the water-passage in  
10 the back is of varying area, and is so arranged by setting the partition *d* one side of the center, as shown in Fig. 1. The purpose of this feature of construction is to provide for the expansion of the water by heat, and thus make  
15 the circulation of the water free and regular, as it enters the water-back by the lower hole, *h*, passes between the partition *d* and the side of the back, around the end of said partition into the wider part of the water-passage, and  
20 escapes by the hole *i*.

What I claim as my invention is—

1. A cast-iron water-back, consisting of the body *a*, provided with the partition *d*, located one side of the center, as shown, and of the cover *b*, adapted to be secured tightly upon  
25 said body, substantially as and for the purpose set forth.

2. A cast-iron water-back, consisting of the body *a*, provided with the anchor-posts *o* and the partition *d*, and of the cover *b*, adapted to  
30 be secured tightly upon said body, substantially as and for the purpose set forth.

3. A cast-iron water-back, consisting of the body *a*, provided with the partition *d*, and with  
35 a series of longitudinal corrugations of a serrated form in cross-section, and of the cover *b*, adapted to be secured tightly upon said body, substantially as and for the purpose set forth.

JAS. T. ABBE.

Witnesses:

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CHAS. MAYO.