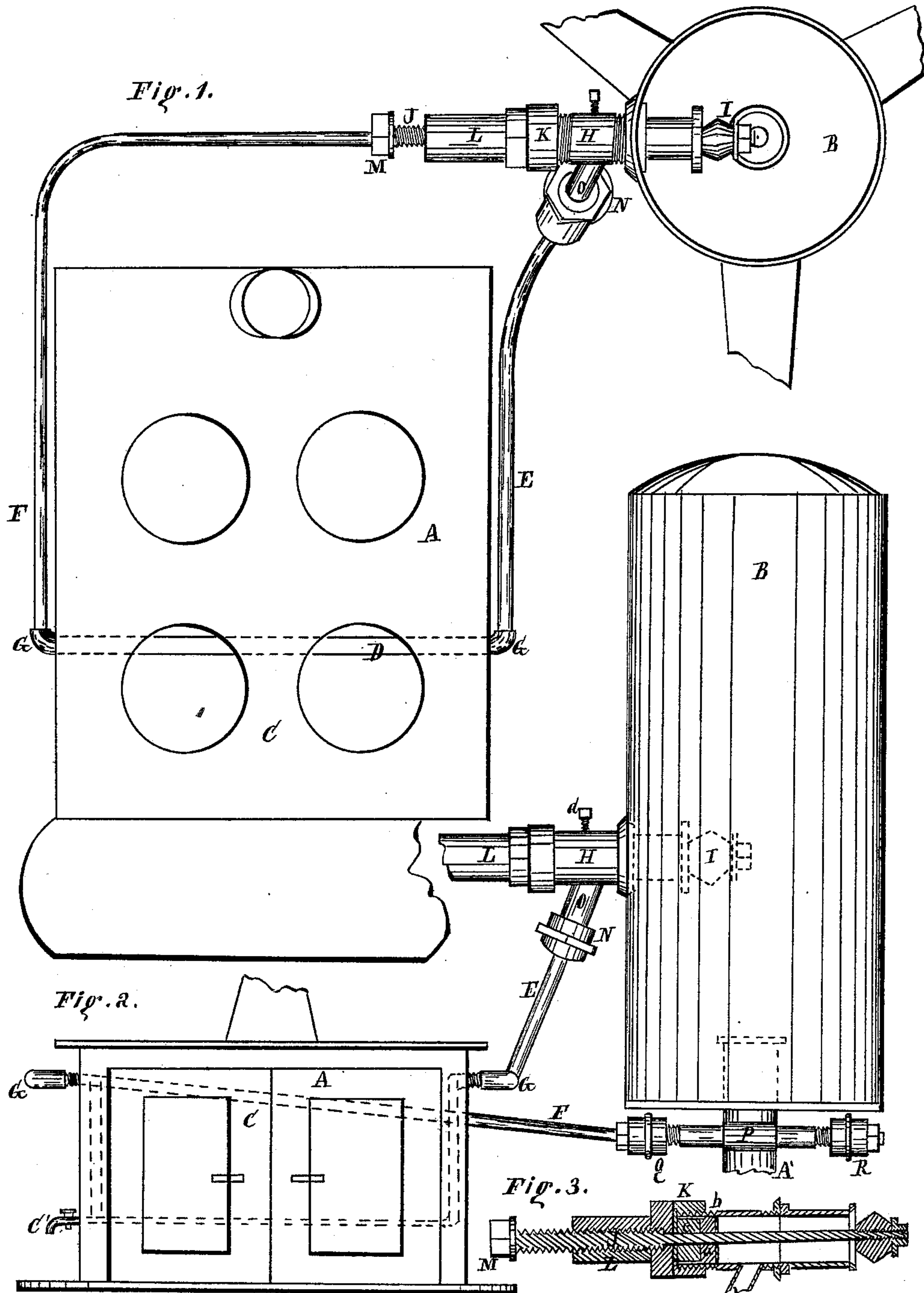


J. J. ELWOOD.

WATER-HEATERS FOR STOVES.

No. 189,551.

Patented April 17, 1877.



Witnesses,
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UNITED STATES PATENT OFFICE.

JOHN J. ELWOOD, OF CLEVELAND, OHIO, ASSIGNOR OF ONE-HALF HIS
RIGHT TO SOLOMON SLOSS, OF SAME PLACE.

IMPROVEMENT IN WATER-HEATERS FOR STOVES.

Specification forming part of Letters Patent No. **189,551**, dated April 17, 1877; application filed
January 20, 1877.

To all whom it may concern :

Be it known that I, JOHN J. ELWOOD, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and Improved Water-Heating Apparatus for Stoves, Ranges, &c.; and I do hereby declare that the following is a full, clear, and complete description thereof, reference being had to the accompanying drawings, making a part of the same.

Figure 1 is a plan view of a stove and boiler attached thereto. Fig. 2 is a front view of the same. Fig. 3 is a detached section.

Like letters of reference refer to like parts in the several views.

This invention consists of a new and improved manner of attaching a water-boiler to a stove or cooking-range; and the object of the same is to prevent the freezing of water in the several connections or pipes by drawing the same therefrom when the stove is not in use, and thereby prevent the bursting of the pipes and said connections, substantially in the manner as hereinafter described.

In the accompanying drawings, A represents a stove, (or it may be a cooking-range,) which is or may be constructed substantially like those in ordinary use. B is a water-boiler, which, also, may be like those in domestic use. Through the fire box or place C of the stove is conducted a pipe, D, the two ends of which are, respectively, attached to pipes E and F by elbows G. Said pipes are, respectively, arranged in relation to the boiler, and connected therewith, as shown in the drawings. The couplings whereby the connections are made consist of a section of pipe, H, screwed into the side of the boiler, and which projects therein a considerable distance, as will be seen in Fig. 1, the top of the boiler being removed, in order that the inside thereof may be seen. The inner end of said pipe H forms a valve-seat for the two-faced valve I, secured to the end of the valve-rod J.

A transverse longitudinal section of the valve and coupling is shown in Fig. 3, in which it will be seen that the valve-stem is made tight by a packing, *a*, placed around it in a stuffing-box, *b*, consisting of the end of the tube or pipe H and a cap, K, screwed

thereon, and of which *c* is the follower for compressing the packing around the valve-stem. The outer part of the valve-stem screws into the sleeve L, and the valve is opened and closed by a wrench applied to the head M of the valve-stem.

The pipe E is attached to the valve-coupling by a joint-nut, N, terminating the arm O of said coupling, and thereby the pipe is put in communication with the boiler. The pipe F is attached to the bottom of the boiler, and communicates therewith by one arm of a divergent pipe, P, Fig. 2, by means of a joint-nut, Q. The corresponding arm of the pipe is stopped by a similar nut, R.

It is intended, in practice, to attach to the lower end A' of the divergent pipe P a screw-valve, substantially the same as that above described, in view of which the upper end of said divergent pipe forms a valve-seat, to accommodate a valve that may be attached thereto.

It is well known to those using a water-boiler in connection with a cook-stove or a range that in cold weather, when the fire is out, the water in the pipes freezes, there being no way provided to shut the water from the pipes, they being in constant and open relation with the boiler, the result of which is a bursting of the pipes by the expansion of the ice; and in many instances an explosion of the pipes takes place, in consequence of the steam generated in the pipe in the fire box or grate on kindling the fire, there being no means of escape of the steam from the pipe, it being closed by the water frozen therein.

To avoid this bursting of the pipes is the special purpose of this invention; and this is accomplished by means of the valve-coupling connections of the pipe with the boiler. Thus, when the fire in the stove is to be allowed to go out, the communication of the pipes with the boiler is shut off by closing the valve I, which may be done by manipulating the nut M, thereby shutting off the circulation of water through the pipes and boiler. The water left in the pipes is, in part, drawn off through a stop-cock, to be attached to the divergent pipe P, referred to. No cock is, however, shown attached to said pipe; but, practically,

one—a duplicate of that above described—is to be; hence, its application thereto will be inferred.

To facilitate the escape of the water from the pipes, a vent is opened at H by turning the screw *d*; therefore no water can remain in the pipe E, it being drawn off through the cock C', Fig. 2. Also, the water from the pipe F, in part, is drawn off through said cock C', and through the cock that may be attached to the pipe at the bottom of the boiler.

This emptying of the pipes takes but a few minutes to perform, and, when done, prevents freezing and bursting of the pipes, and consequent expense and trouble in repairing them when thus damaged by their freezing, or by the steam generated in the pipe in the fire-place.

Ordinarily the water-pipes terminate directly inside of the boiler; hence, should the water freeze in the boiler, which will be that portion near the sides of the boiler, the pipes in connection therewith will be frozen, and thereby prevent a circulation of water through them.

In having the ends of the pipes terminate near the middle of the boiler, as shown in the drawings, where the water will remain unfrozen, the connection of the pipes with the boiler and the valves therein will remain open, or not frozen. Therefore, the empty pipes, on opening the valve, will be at once filled and the circulation immediately established, without loss of time and trouble in thawing out the pipes and valves.

It will be obvious that by this means time, labor, and expense will be saved in the matter of heating water for domestic use, and that all danger of explosion of the pipes by steam is or can be avoided. Also, by this

mode of attaching the pipes to the boiler, no wipe-joints are required to be made, nor are there used any lead pipes, water-back coupling, nor compression-bibbs in and about the stove and boiler. The above-described connections can also be readily applied to any of the water-boilers now in use without any, or but simple, modifications of them.

In the event it becomes necessary to draw all the water from the boiler, for the purpose of removing the sediment, or for other needful purpose, it can be done by simply removing the cap R, said cap being used instead of a sediment-cock.

Should the pipes need repairs, it can be done by shutting off the water from them by means of the valve I, thereby saving the time and labor of drawing off all the water from the boiler, which must be done when the pipes are connected to the boiler in the ordinary way, that the pipes may be repaired, and the stove also, without drawing off the water from the boiler.

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

1. The connection-valve pipe H and valve I, in combination with the boiler B, pipes E and F, and fire-place, in the manner substantially as described, and for the purpose set forth.

2. The divergent pipe P, provided with union-caps Q and R, in combination with the boiler B and pipe F, in the manner substantially as and for the purpose specified.

JOHN J. ELWOOD.

Witnesses:

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