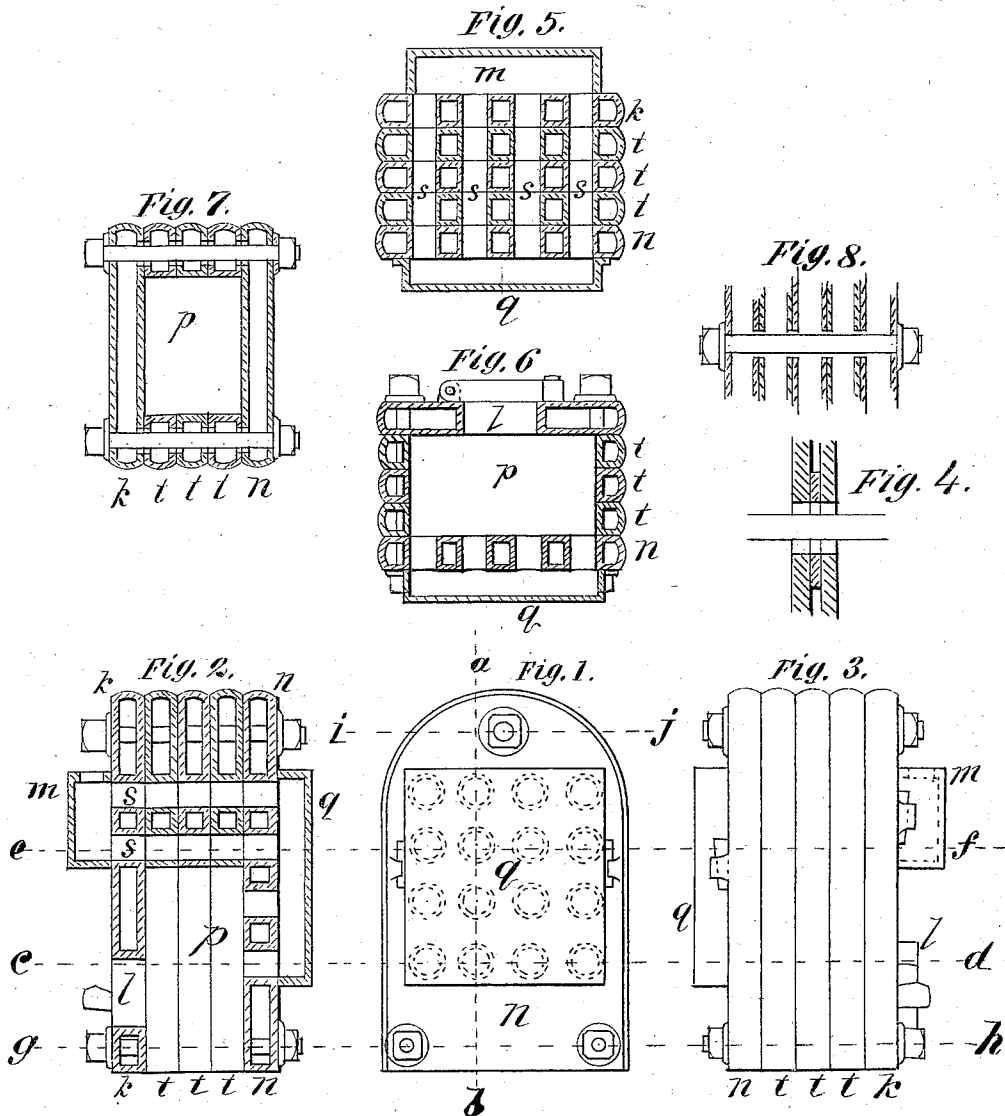


D. RUSSELL, Jr.
Sectional Steam-Boilers.

No. 147,795.

Patented Feb. 24, 1874.



Witnesses.

Geo. W. Park
George F. Piper.

Inventor.

Daniel Russell Jr.

UNITED STATES PATENT OFFICE.

DANIEL RUSSELL, JR., OF EVERETT, ASSIGNOR TO HIMSELF AND THOMAS F. BURKE, OF EAST SOMERVILLE, MASSACHUSETTS.

IMPROVEMENT IN SECTIONAL STEAM-BOILERS.

Specification forming part of Letters Patent No. **147,795**, dated February 24, 1874; application filed July 14, 1873.

To all whom it may concern:

Be it known that I, DANIEL RUSSELL, JR., resident of Everett, county of Middlesex and State of Massachusetts, have invented Improvements in Sectional Steam-Boiler for Heating Purposes, of which the following is a specification:

The object of my invention is to produce an effective boiler of simple and inexpensive construction, and convenient to take apart, all substantially as hereinafter more fully set forth.

My invention is illustrated in the accompanying drawings, of which—

Figure 1 is a rear elevation; Fig. 2, a vertical section at line *a b*; Fig. 3, a side elevation. Fig. 4 is an enlarged section, showing the packing or gasket which forms the joint around the enlarged bolt-holes, to prevent the escape of steam and water. Fig. 5 is a section at line *e f*; Fig. 6, a section at line *c d*; Fig. 7, a section at line *g h*; Fig. 8, a section at line *i j*.

The boiler is made up of sections, one of which—the front section—is marked *k*, and is provided with a door at *l*, and a smoke-box, *m*. The section *k* and smoke-box *m* are separate castings, of iron or other metal, and are locked to each other by means of hook-shaped lugs cast on section *k*, and wedge-shaped lugs cast on smoke-box *m*, which locking device is shown in Fig. 3. Section *k* has a series of flue-holes passing horizontally through it near the top of the water-space, and, with the exception of the metal around these flue-holes and around the opening *l* for a door to the fire-box, is cast hollow. (See the various sectional views.) Another section—the rear one—is marked *n*, and is provided with a return-bonnet, *q*, for the flues, and two series of flue-openings, the lower series opening into the fire-box, and the upper series connecting with the flue-openings in the other sections. The return jacket or bonnet is locked to this section in a manner similar to that shown for locking the smoke-box *m* to section *k*. This section also is cast hollow, like the section *k*, for water and steam space. Intermediate sections, of any number desired, are placed between the sec-

tions *k* and *n*, and these sections are provided also with the upper series of flue-holes, corresponding to those in sections *k* and *n*, and a large open space, (shown in Figs. 2, 6, and 7,) marked *p*, and, like those sections, are cast hollow, for steam and water space. The entire series of sections are secured together by means of through-bolts passing through the whole series. These bolts, three of which are shown in the drawing, are made to form a tight joint outside of sections *k* and *n*, for which purpose a gasket or packing is placed under the head and nut or washers, but pass through holes made larger than the bolt at all its intermediate intersections with the walls of the boiler. These enlarged holes around the bolts form the steam and water connections between the steam and water spaces in the several sections. A gasket or packing is interposed between the sections around the enlarged bolt-holes, (see Fig. 4,) to prevent the escape of steam and water.

This boiler is easily taken apart, by simply unscrewing the through-bolts, and by shortening them. Intermediate sections may be taken out, so reducing the magnitude and capacity of the boiler, and by lengthening the bolts more of the intermediate sections may be added, so increasing in a simple, convenient, and inexpensive manner the extent and capacity of the boiler.

The sections are to be cast of iron or other metal. The gaskets or packing may be of gum or lead, or other suitable material.

I claim—

The combination of the section *k*, its smoke-box *m*, single series of flue-holes, door, and surrounding water-space with one or more sections, provided with a corresponding series of the flue-holes and the fire-box space, and the section *n*, provided with the double series of the flue-holes and the bonnet *q*, substantially as described.

DANIEL RUSSELL, JR.

Witnesses:

GEO. W. PARK,
GEORGE F. PIPER.