

(No Model.)

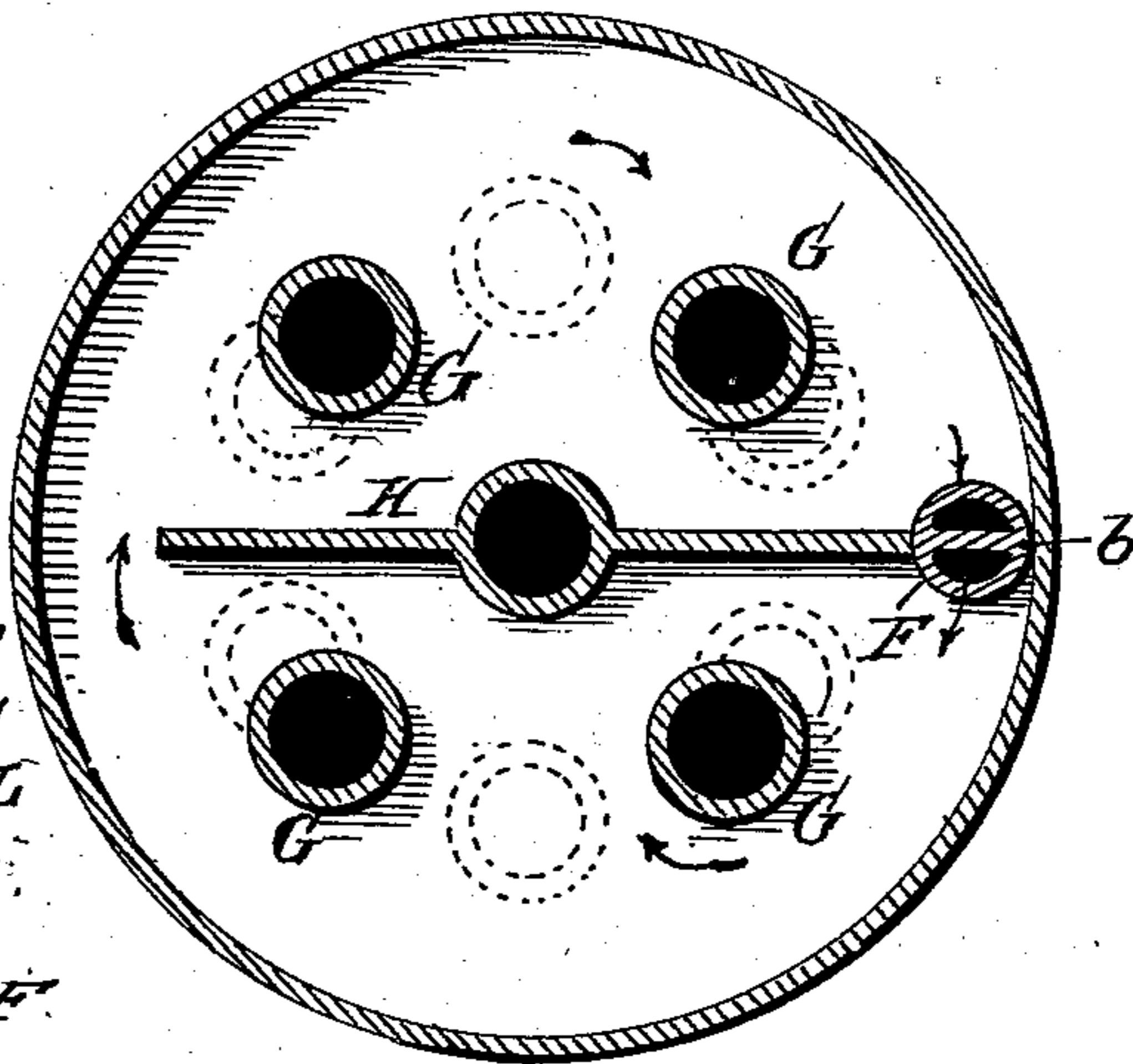
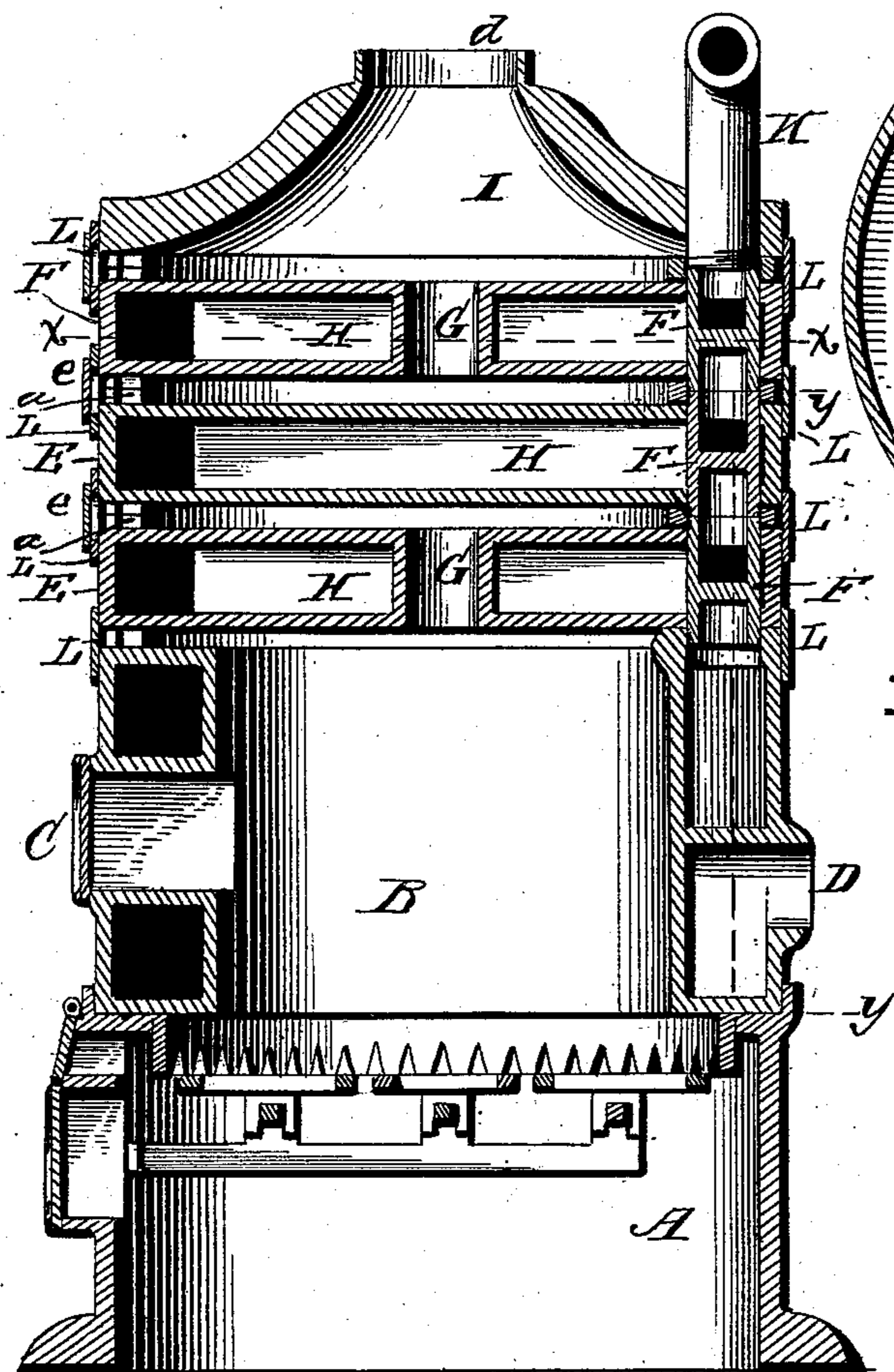
G. FILLION.  
SECTIONAL STEAM BOILER.

No. 533,878.

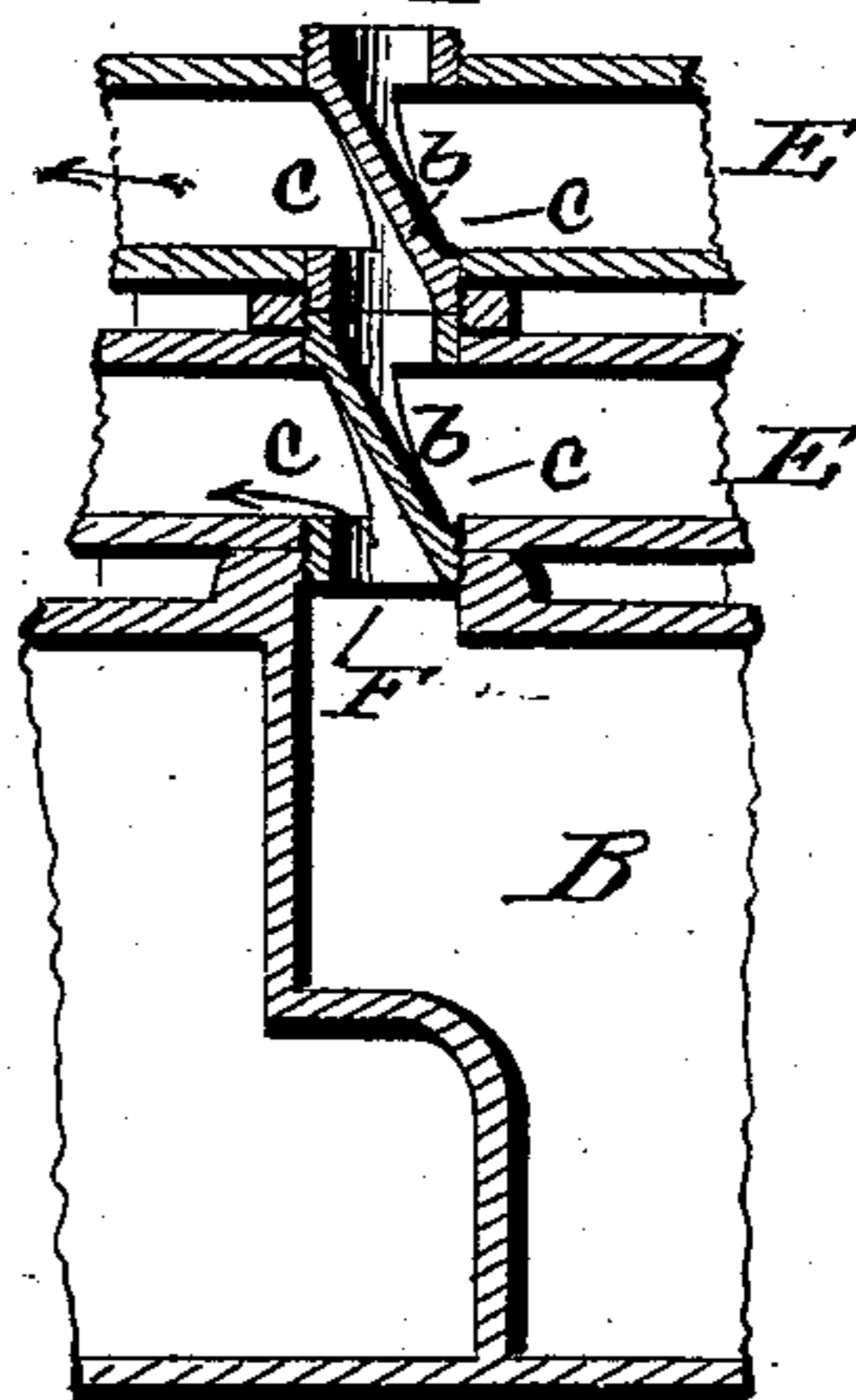
Patented Feb. 12, 1895.

*Fig. 1.*

*Fig. 2.*



*Fig. 3.*



Witnesses  
L. J. Williamson,  
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# UNITED STATES PATENT OFFICE.

GEORGE FILLION, OF LAKE LINDEN, MICHIGAN.

## SECTIONAL STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 533,878, dated February 12, 1895.

Application filed November 17, 1894. Serial No. 529,198. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE FILLION, a citizen of the United States, residing at Lake Linden, in the county of Houghton and State of Michigan, have invented certain new and useful Improvements in Sectional Steam-Boilers; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters of reference marked thereon.

The present invention has relation to that class of cast-iron sectional boilers used for supplying heating-radiators and for other purposes, and the object thereof is to provide a new arrangement of apparatus and passages for the rising of the water and the circulation thereof through one section to the other, whereby the boiler will be materially enhanced in value, and rendered both simple and practical.

The invention consists in a hot-water furnace and boiler constructed substantially as shown in the drawings and hereinafter described and claimed.

Figure 1 of the drawings is a sectional elevation of a hot-water furnace and boiler constructed in accordance with my invention; Fig. 2, a horizontal section taken on line *xx* of Fig. 1; Fig. 3, a detail sectional view taken on line *yy*.

In the accompanying drawings A represents the base or ash-pit which supports any of the well known forms of grate-bars and also supports the water fire-box B of the boiler. This fire-box has the usual door C on one side and upon the opposite side of the fire-box is an inlet D to the water space for the return water from the system. Upon the fire-box B is placed any number of hollow sections E, which are spaced from each other by the lugs *a* and the circulating connecting tubes F. The hollow sections are also provided alternately with five and six flues G for the passage of the heat and gases, and openings are provided in each section near the side thereof into which are inserted the tubes F, said tubes projecting beyond the sections to assist in supporting same. These connecting tubes F are formed with a diaphragm *b* which extends diagonally across the same, and when the tube

is in position, the ends of the diaphragm are at the top and bottom of the hollow section E, as shown in Fig. 3 of the drawings. The diaphragm is provided with openings *c*, and each hollow section E is divided vertically for nearly the entire distance across by means of a plate H. In the space between the sections around where the connecting tubes join, is placed asbestos packing, and over the upper one of the sections is a cap I which has a central opening *d* for connecting therewith a suitable smoke-pipe and also the elbow-pipe K, which latter pipe connects with the outlet of the upper one of the connecting tubes F which conducts the hot-water to the system. The spaces between the sections E are inclosed by suitable bands L which are preferably of wrought iron, and each band is provided with an ash-door *e*. These bands not only assist to form the heating spaces between the sections, but also hold each section in place.

From the foregoing description it will be readily seen that the water entering the boiler through the inlet D will gradually rise as it becomes heated, passing through one side of the connecting tube F, through the hollow sections and around the end of the plate H, thence out through the other side of the connecting tube into the next tube in the same manner until the water passes through the outlet pipe K.

It will require comparatively little coal to run the boiler when constructed in accordance with my invention, since nearly every particle of heat is transferred to the water.

Any suitable form of grate may be used and any desirable means employed for operating it.

Having now fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a hot-water boiler, the combination of the hollow sections provided with vertical division-plates, with the connecting tubes having diagonal diaphragms, substantially as and for the purpose set forth.

2. In a hot-water boiler, the combination of the hollow sections having supporting lugs, with the connecting tubes extending through and projecting beyond the sections substan-

tially the same distance as the lugs, whereby spaces are formed for the hot gases, as and for the purpose described.

3. In a hot-water boiler, the combination of  
5 the hollow sections provided with the lugs and projecting connecting tubes extending through and projecting beyond the sections, with the bands for holding said sections in place, substantially as shown and described.

10 4. In a hot-water boiler, the combination of the hollow sections provided with the lugs and projecting connecting tubes, with the band for holding the sections in place, and the ash-doors in the bands, substantially as  
15 and for the purpose set forth.

5. In a hot-water boiler, the combination of the hollow sections provided with vertical division plates, and connecting tubes having diagonal diaphragms, and the spacing lugs, and the bands for holding the sections in place, substantially as and for the purpose specified. 20

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

GEORGE FILLION.

Witnesses:

EUCCHARISTE BRULE,  
NELSON LEPAGE.