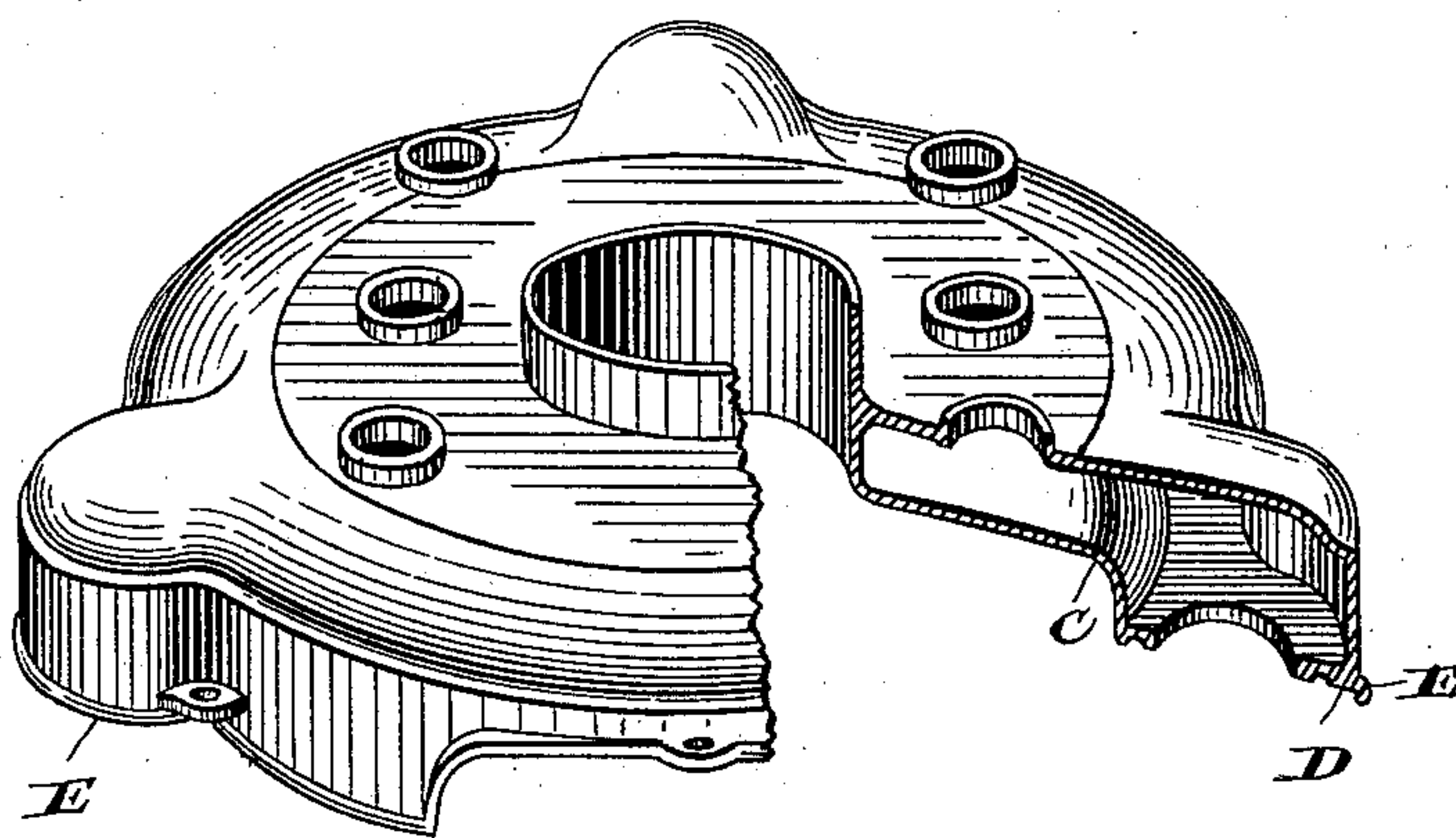


(No Model.)

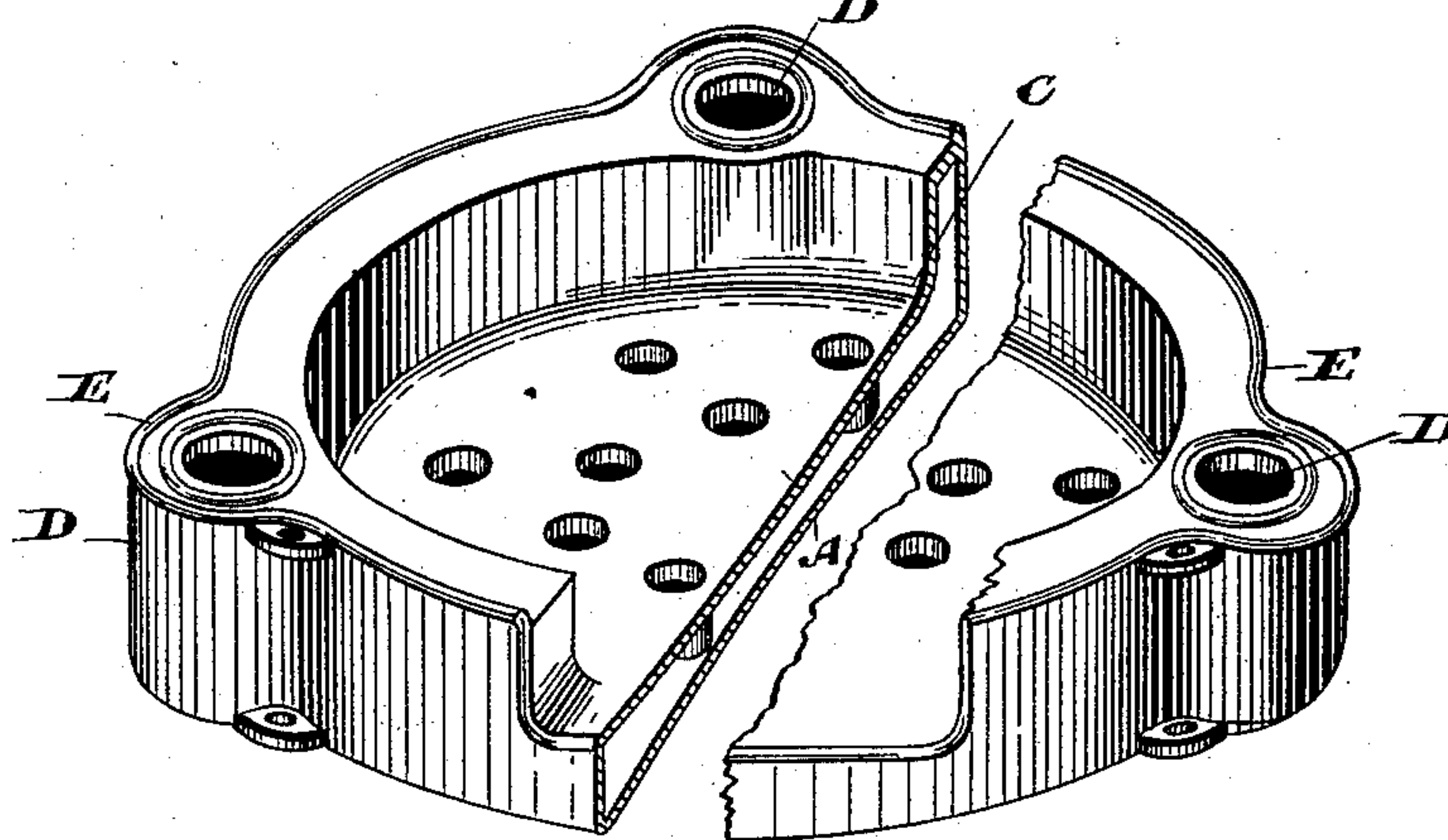
E. GURNEY.  
SECTIONAL BOILER.

No. 389,461.

Patented Sept. 11, 1888.



*Fig. 1.*



*Fig. 2.*

*Witnesses.*

*J. M. Jackson*  
*Chas. H. Riches*

*Inventor.*

*Edward Gurney*  
*By*  
*Donald C. Ridout & Co.*  
*Attys*

# UNITED STATES PATENT OFFICE.

EDWARD GURNEY, OF TORONTO, ONTARIO, CANADA.

## SECTIONAL BOILER.

SPECIFICATION forming part of Letters Patent No. 389,461, dated September 11, 1888.

Application filed May 21, 1888. Serial No. 274,562. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD GURNEY, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, manufacturer, have invented a certain new and useful Improvement in Sectional Hot-Water Boilers, of which the following is a specification.

The object of the invention is to design a hollow water-section, through which the water will flow freely with the least possible friction, and which will be strong, durable, and gas-tight when the sections are arranged together; and it consists, essentially, of a section having its top and bottom plates arched inwardly, the vertical portion connecting the top and bottom plates being curved and a bead cast on the outer edge of the bottom of each section to overlap the section on which it rests, substantially as hereinafter more particularly explained.

Figure 1 is a perspective top view of a top section of a sectional boiler, partly broken away. Fig. 2 is a perspective sectional bottom view of one of the middle sections of the boiler.

It will be noticed that the top plate, A, of the section is arched inwardly and that the bottom plate is likewise arched inwardly. It will further be noticed that the portions of the sections marked C, lying between the horizontal and vertical portions of the section, are curved on a large easy sweep. These curved lines permit a free circulation of water through the section to the various water-legs D, thus overcoming in a great degree the tendency to friction common in other hot-water heaters. The water entering through the water-legs into the section rises to the top of the section and finds curved lines both at the top and bottom leading to the exits. The water rising to the top constantly meets with curved surfaces as it goes to the center and returns from the center to the several points of egress.

In addition to the advantage of the free circulation mentioned, I secure an important advantage

in the manufacture of the section. In making sections of a boiler previous to my present invention I found that the amount of core material was so small in proportion to the amount of iron running over its surface that when made in sharp angles, as the sections were formerly constructed, the surface of the core would be carried away, thus causing the castings to be imperfect; but by adopting long sweeping curves, as described, the rounded surfaces have a strong tendency to preserve intact the surface of the cores. I am therefore enabled to reduce the quantity of iron in the section and secure greater efficiency at a less price than could be done were the sections formed angular, as before.

The inwardly-arched top and bottom plates permit the casting to spring when subjected from any cause to unequal expansion and contraction, and they better resist the internal pressure.

By casting a bead, E, on the outer bottom edge of the section instead of on the top of the section I completely cover and hide the joints between the sections.

What I claim as my invention is—

1. A boiler-section having its top and bottom plates arched inwardly toward each other, the vertical portion connecting the top and bottom plates being curved on a large easy sweep, substantially as and for the purpose specified.

2. A boiler-section having its top and bottom plates arched inwardly, the vertical portion connecting the top and bottom plates being curved on a large easy sweep, and a bead cast on the outer edge of the bottom of each section to overlap the section on which it rests, substantially as and for the purpose specified.

Toronto, May 4, 1888.

EDWARD GURNEY.

In presence of—

CHARLES C. BALDWIN,  
CHAS. H. RICHES.