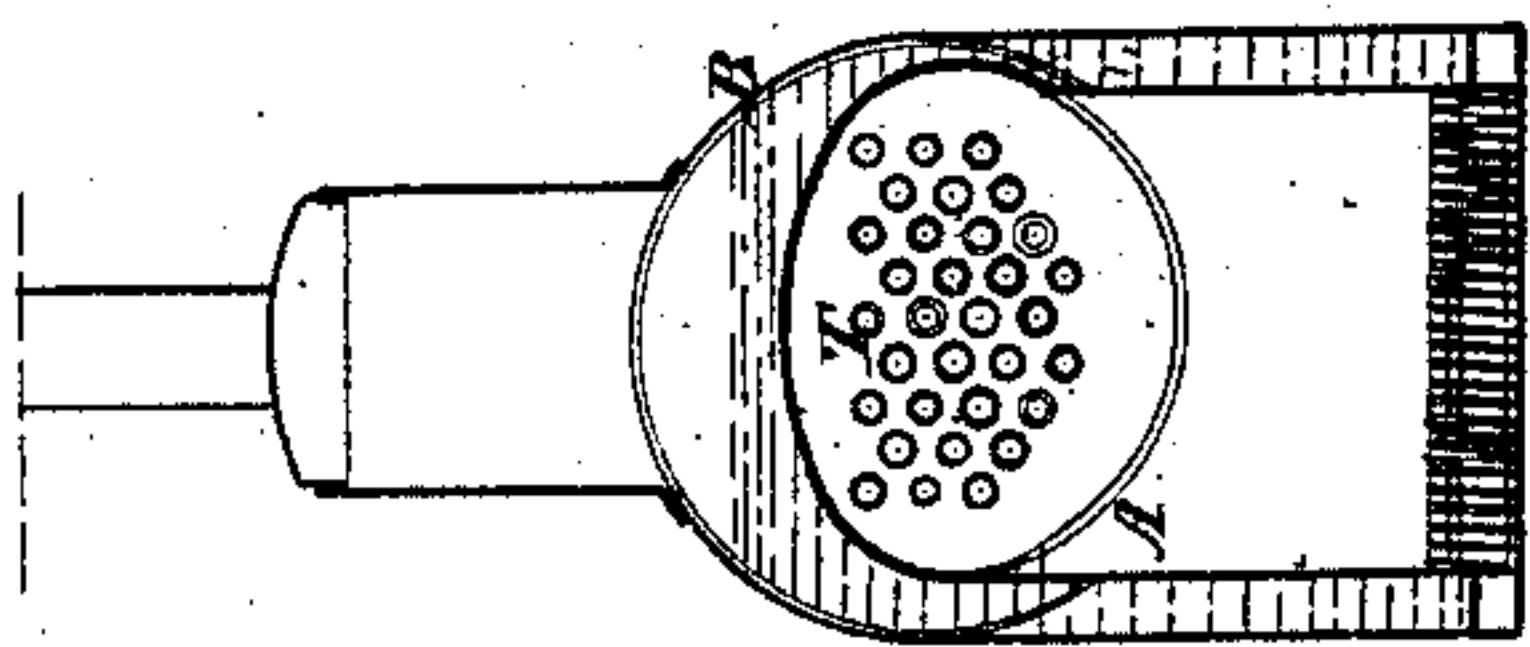


# *Bezy & Desnoyer,* *Steam-Boiler Fire-Box.*

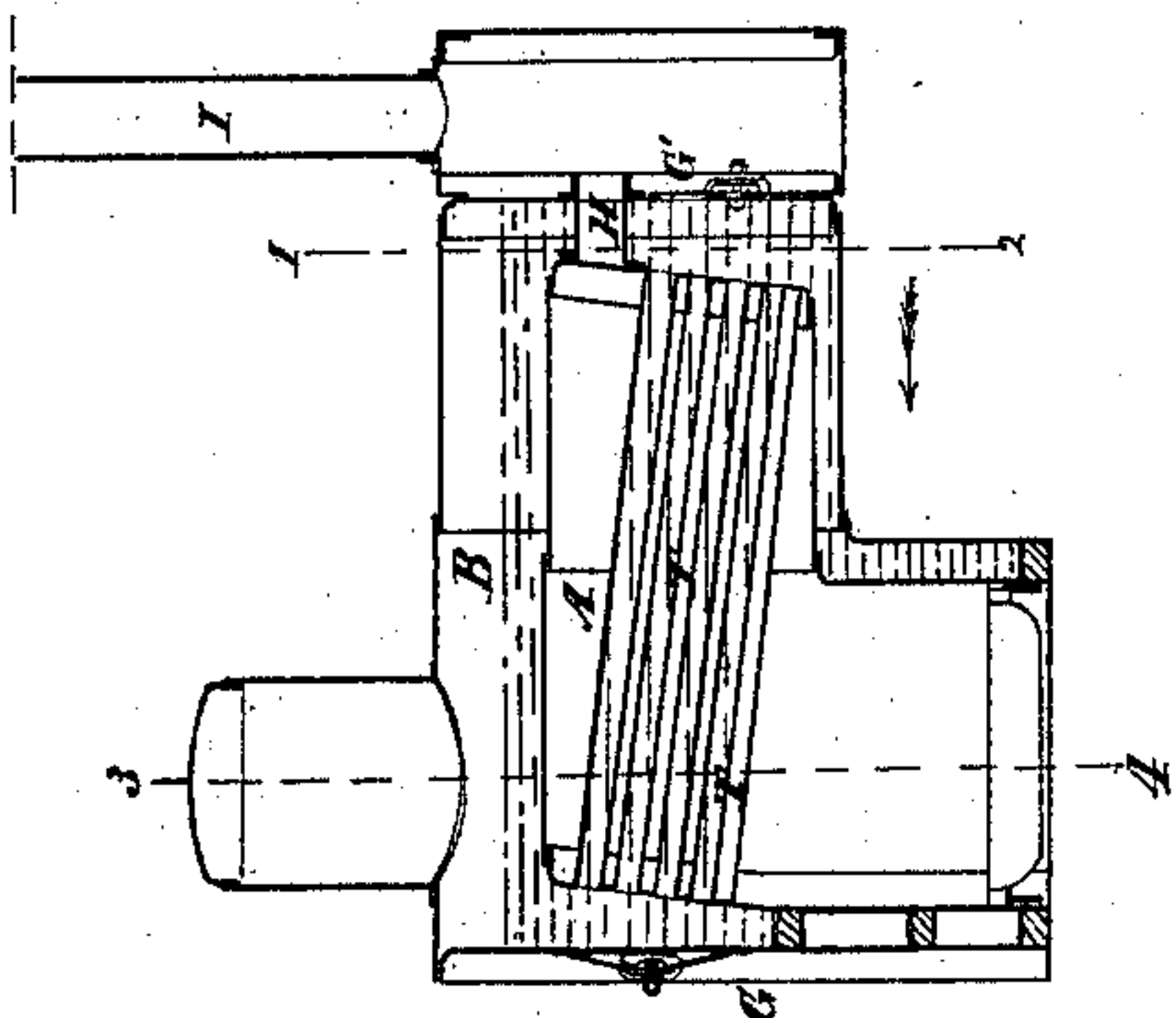
*N<sup>o</sup> 82,198.*

*Patented Sep. 15, 1868.*

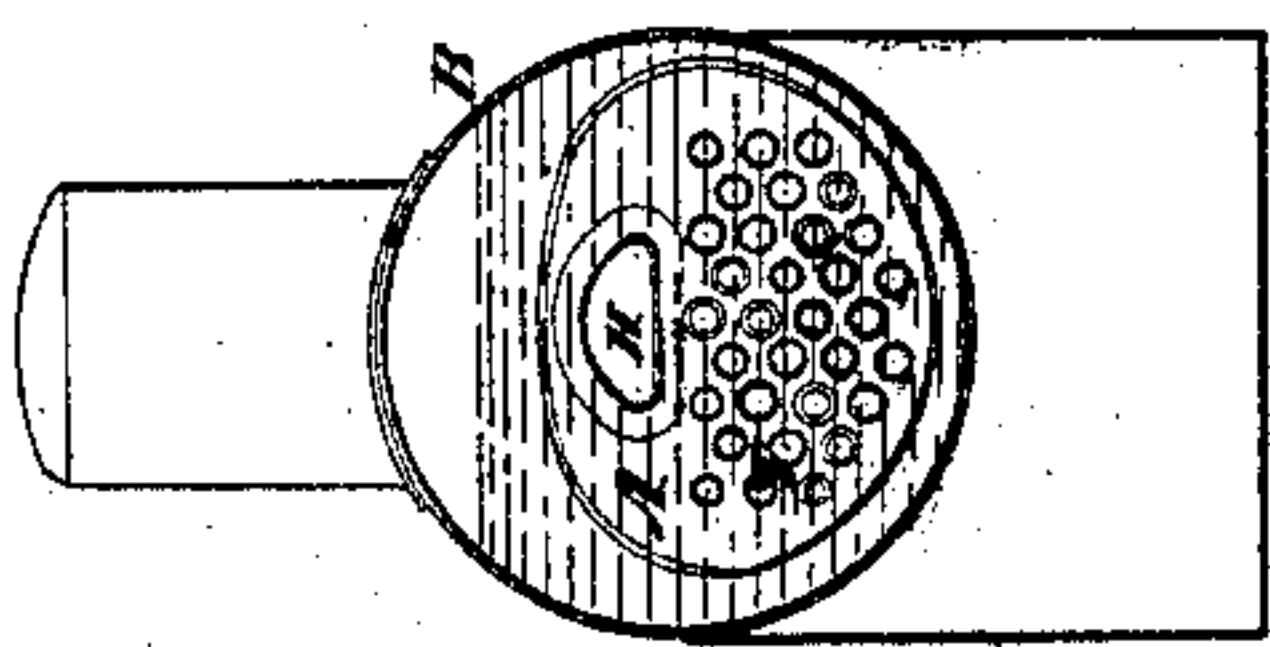
*Fig. 3.*



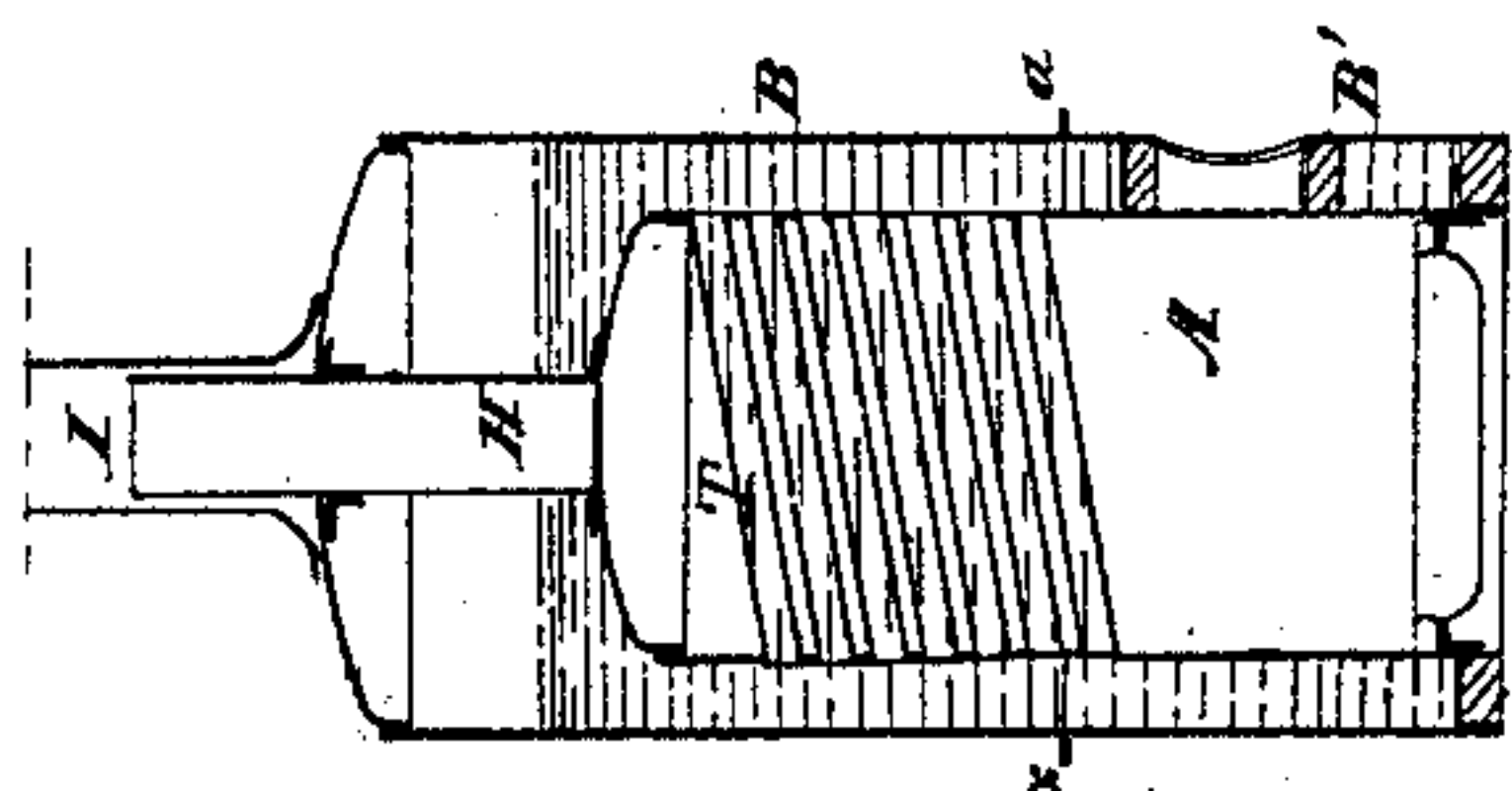
*Fig. 1.*



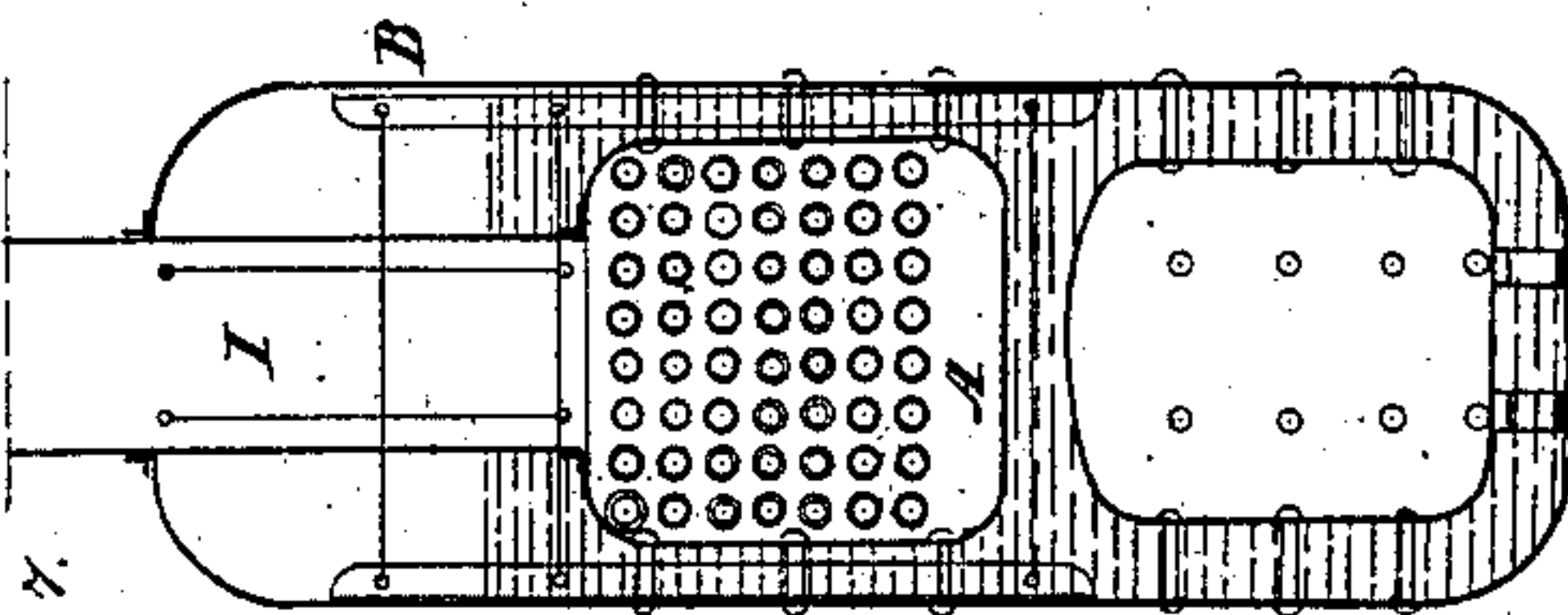
*Fig. 2.*



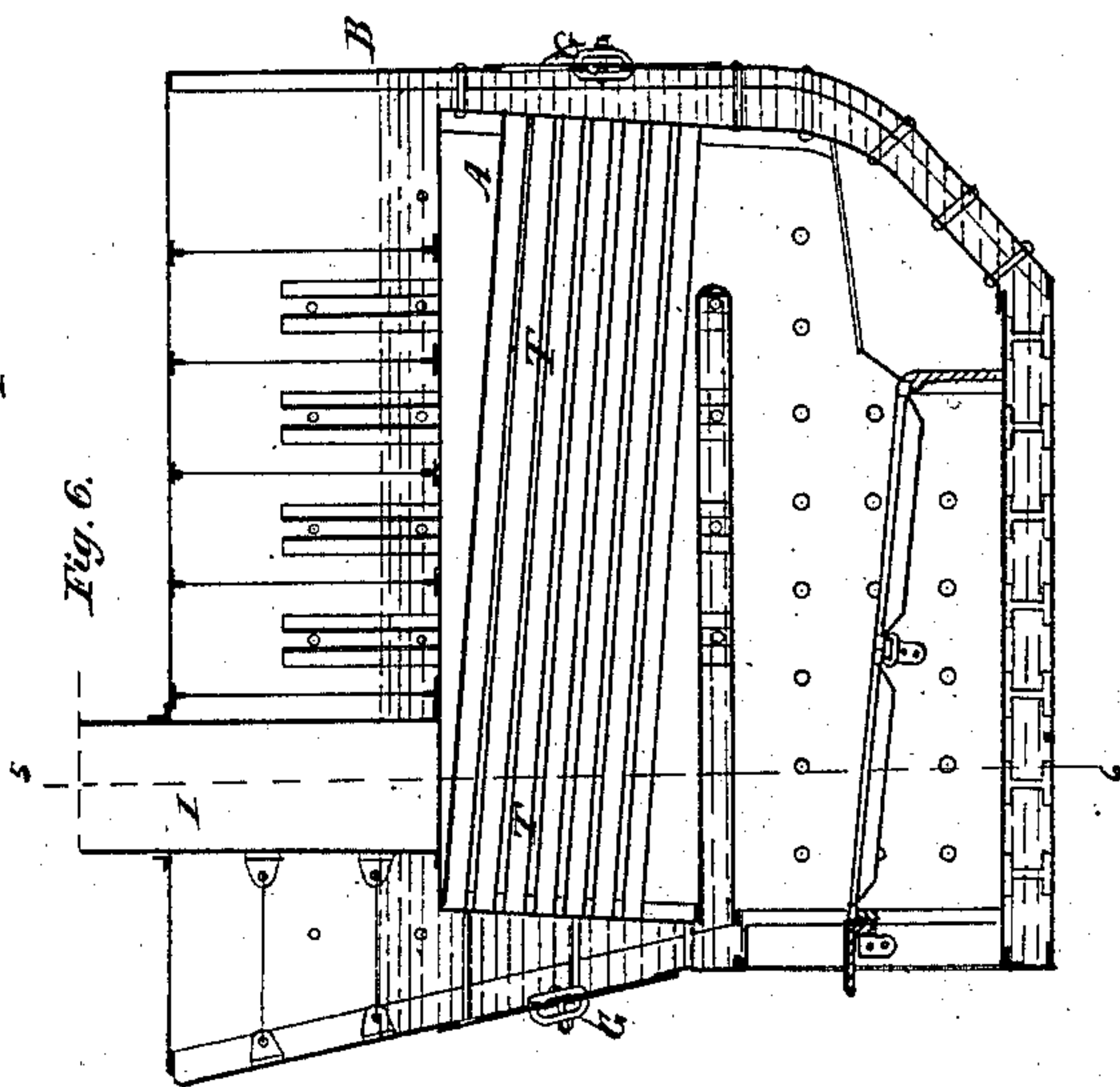
*Fig. 4.*



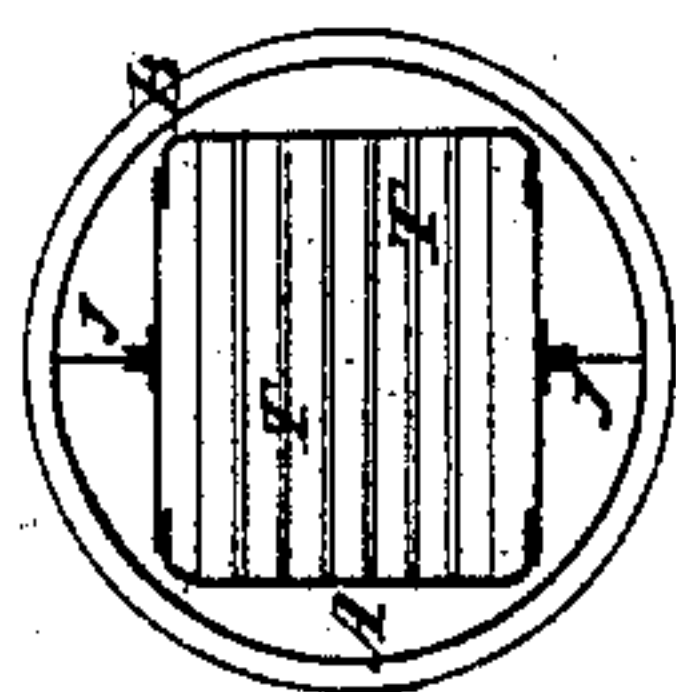
*Fig. 7.*



*Fig. 6.*



*Fig. 5.*



*Witnesses:*  
*John Bulkley*  
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*Inventors:*  
*A. L. Bezy*  
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*H. Houson*

# United States Patent Office.

AUGUSTE LEON BEZY AND ISIDORE AGNAN DESNOYERS, OF PARIS, FRANCE.

*Letters Patent No. 82,198, dated September 15, 1868.*

## IMPROVEMENT IN STEAM-GENERATORS.

The Schedule referred to in these Letters Patent and making part of the same.

### TO ALL WHOM IT MAY CONCERN:

Be it known that we, AUGUSTE LEON BEZY and ISIDORE AGNAN DESNOYERS, of Paris, France, have invented certain Improvement in Steam-Boilers; and we do hereby declare the following to be a full, clear, and exact description of the same.

Our invention relates to certain arrangements, fully described hereafter, of the tubes and casings of a steam-boiler, whereby a constant and rapid circulation of the water is maintained, and the removal or replacing of the tubes or other parts within the boiler is facilitated.

In order to enable others skilled in the art to make and use our invention, we will now proceed to describe its construction and operation, reference being had to the accompanying drawing, which forms a part of this specification, and in which—

Figure 1 is a sectional elevation of a boiler with our improvements.

Figure 2, a sectional elevation on the line 1-2, fig. 1.

Figure 3, a section on the line 3-4, fig. 1.

Figure 4, a sectional elevation of an upright boiler with our improvements.

Figure 5, a sectional plan of fig. 4.

Figure 6, a sectional elevation of a marine boiler with our improvements; and

Figure 7 a section on the line 5-6, fig. 6.

A is the inner and B the outer casing or shell of a steam-boiler, the inner casing communicating with a fireplace and with a flue in the usual manner, and the outer casing enclosing the fireplace, and thus forming water-spaces at the sides of the latter.

When the casings are horizontal, as shown in figs. 5 and 6, the inner casing is arranged eccentrically to the outer shell, so that the water-space at one side of the inner casing shall be wider than the other, for a purpose described hereafter.

The water-tubes T, in the present instance, extend from end to end of the casing A, and are inclined, the highest ends being over the fireplace; and in the shell B, opposite the inner ends of the tubes, is an opening or "man-hole," to which is fitted a detachable cover, G.

Inasmuch as the water-space at one side of the inner casing is wider than at the other, the water will be unequally heated, and a rapid and constant circulation round the inner casing will be maintained, while, owing to the inclination of the tubes T, the water will flow constantly through them in one direction, so that it is caused to pass continually and quickly from one end of the boiler to the other, an increase in the diameter of the tubes facilitating this flow.

Owing to the currents which result from the above-described arrangement of the casings and tubes, the deposit of sediment and formation of scale is effectually prevented, while the water is more rapidly heated, and with less heating-surface than in boilers of the ordinary construction.

The application of our improvements to marine boilers is represented in figs. 6 and 7, and to upright boilers in figs. 4 and 5. In boilers of the latter construction the outer shell is represented as in two parts, B B', which are connected by bolts passing through flanges *a* on the adjacent edges. The cap or "crown" of the outer shell is secured by screw-bolts to a flange on a chimney, extending from the inner casing, so that by removing these bolts, and those in the flanges *a*, the upper portion of the shell may be detached, and access may be had to the pipes or inner casing, to clean or repair the same.

We claim as our invention, and desire to secure by Letters Patent—

1. The arrangement of the inner and outer casings of a steam-boiler eccentrically to each other, for the purpose set forth.

2. A boiler, the outer shell of which consists of two or more flanged sections, constructed and so secured together by screw-bolts as to be detachable from each other, substantially as herein set forth for the purpose described.

In testimony whereof, we have signed our names to this specification in the presence of two subscribing witnesses.

BEZY,  
DESNOYERS.

Witnesses:

E. RICHARD,  
JAMES HAND.