

(No Model.)

2 Sheets—Sheet 1.

S. M. VAUCLAIN.
STEAM BOILER.

No. 583,314.

Patented May 25, 1897.

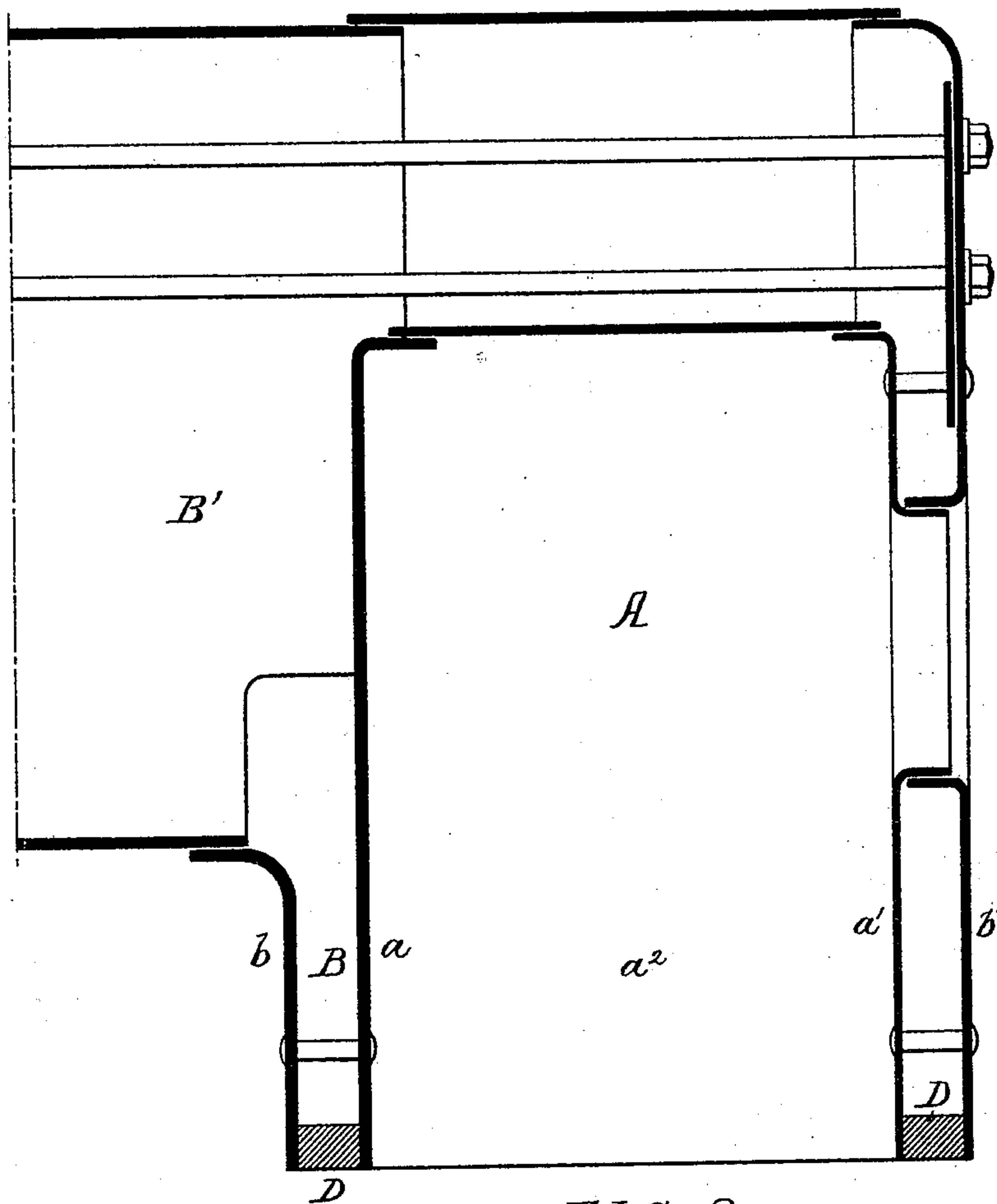


FIG. 1.

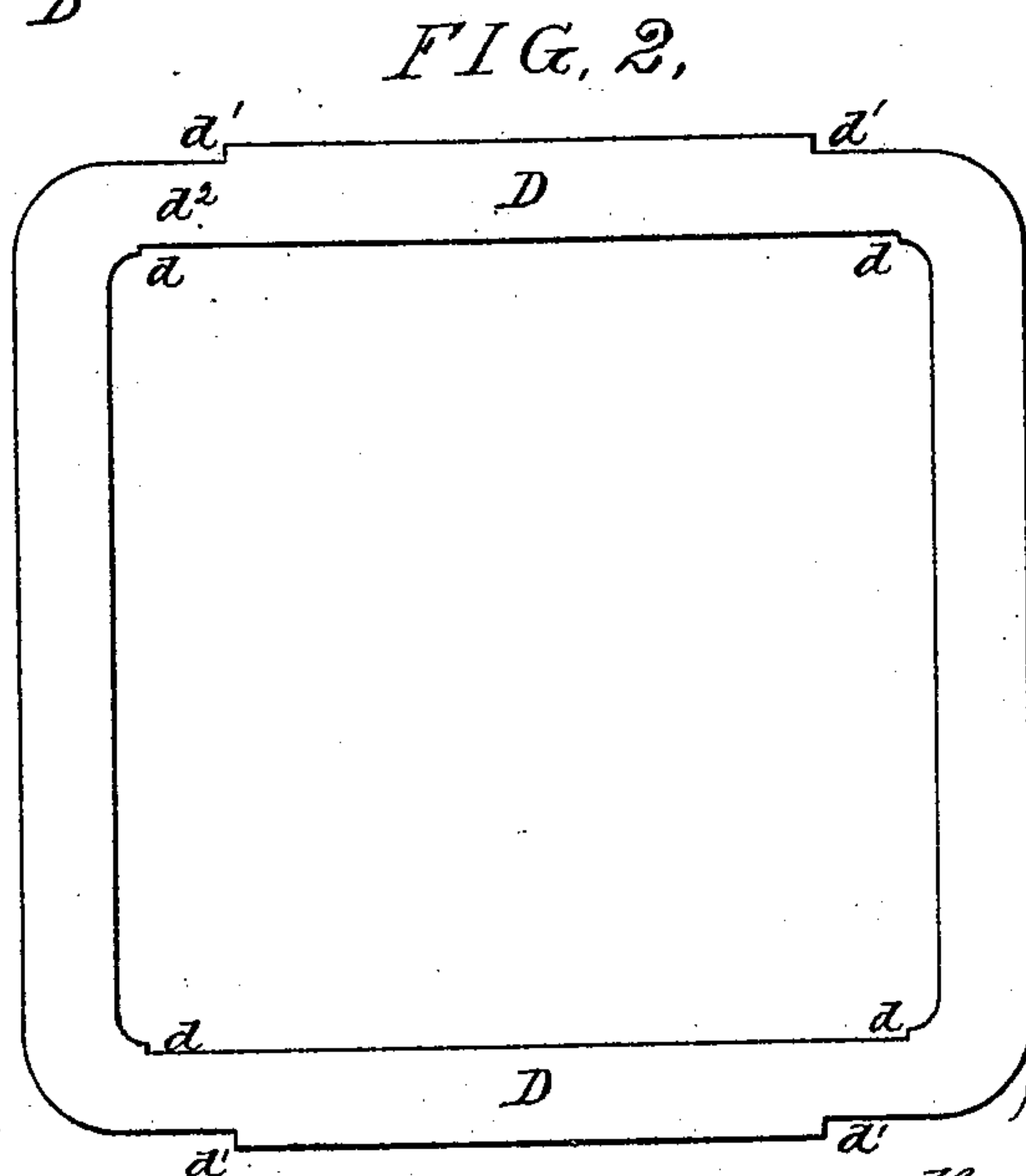


FIG. 2.

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Charles DeBour.

Inventor:
Samuel M. Vauclain
by his Attorneys,
Howson & Howson

(No Model.)

2 Sheets—Sheet 2.

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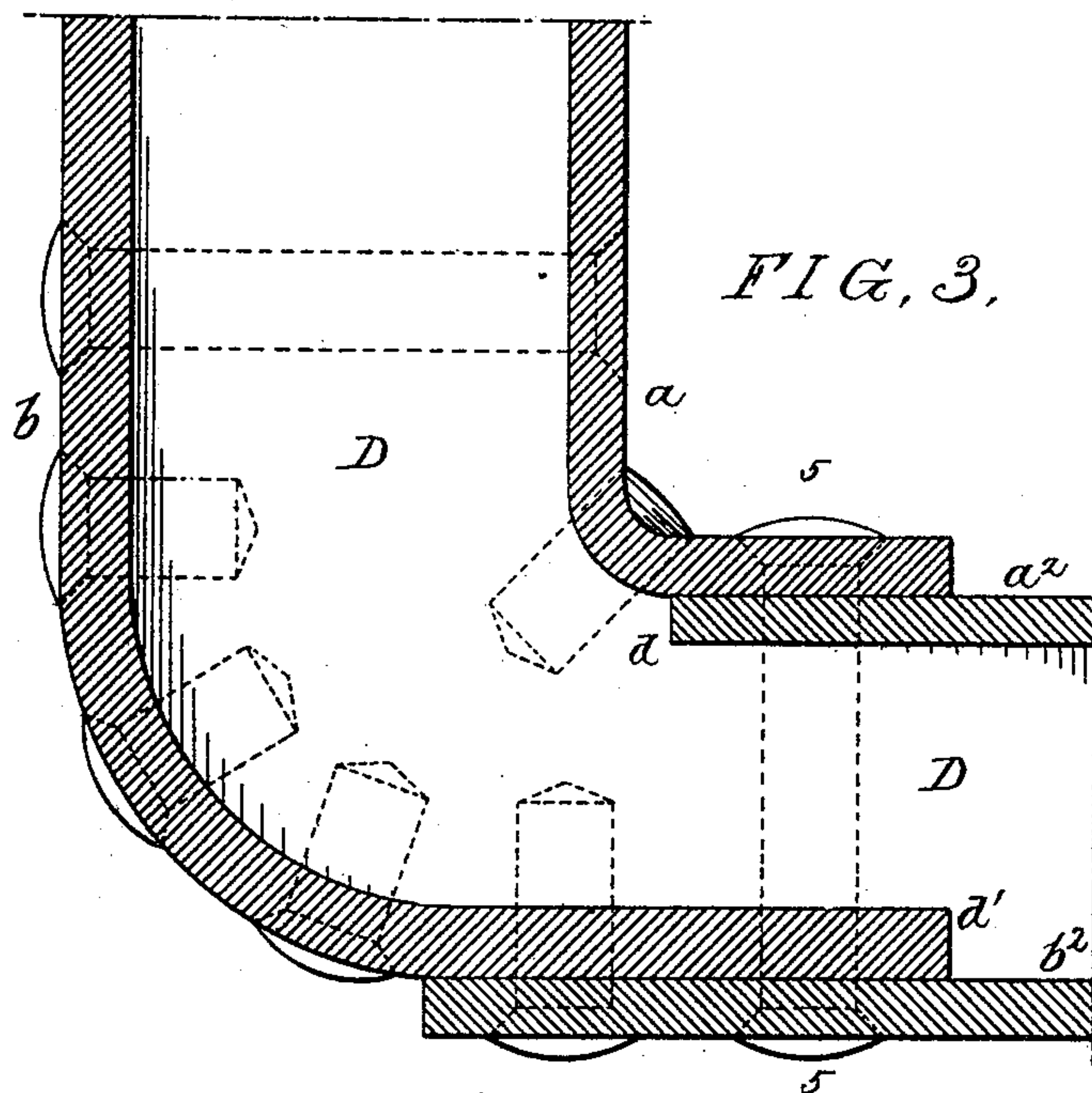
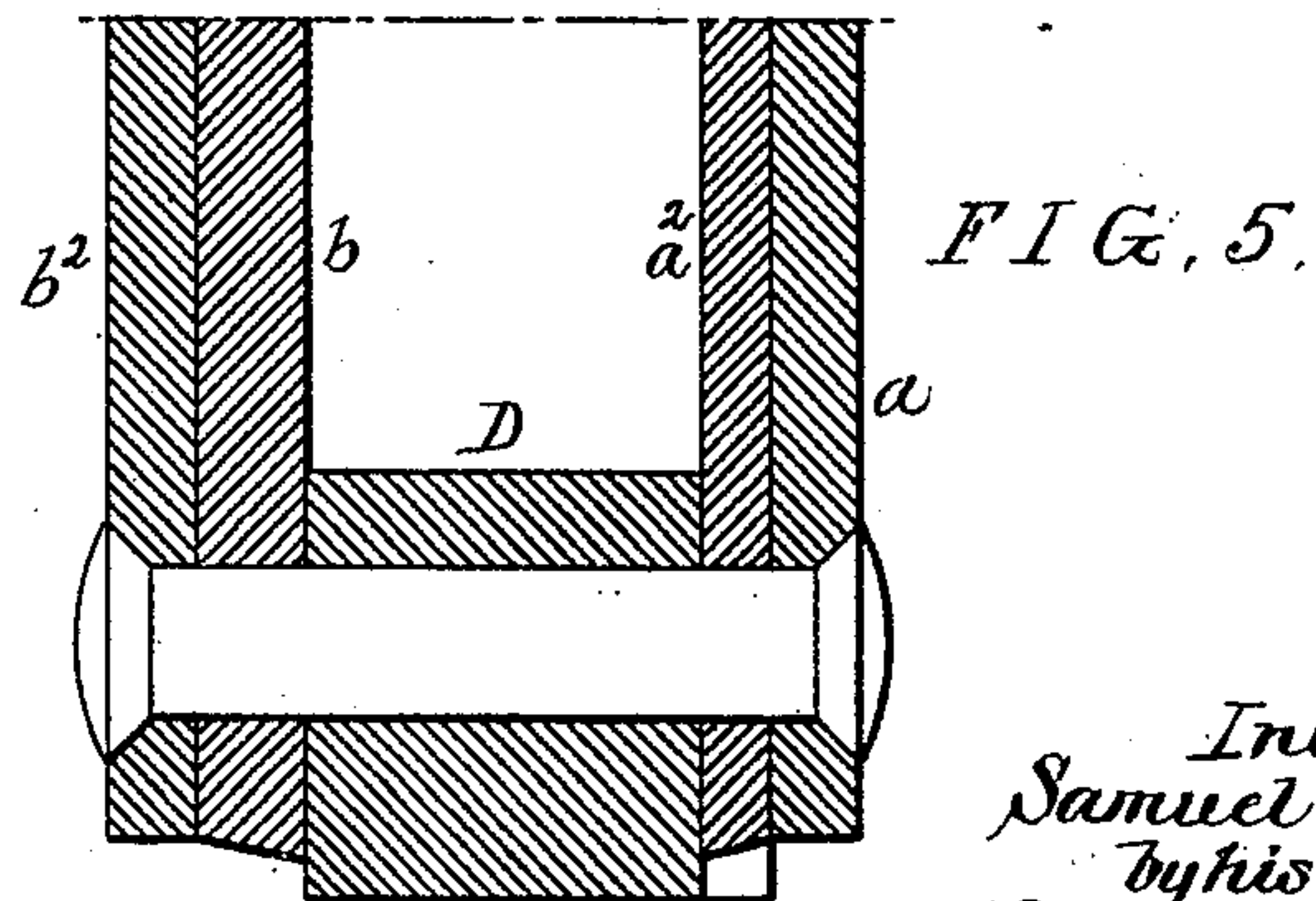
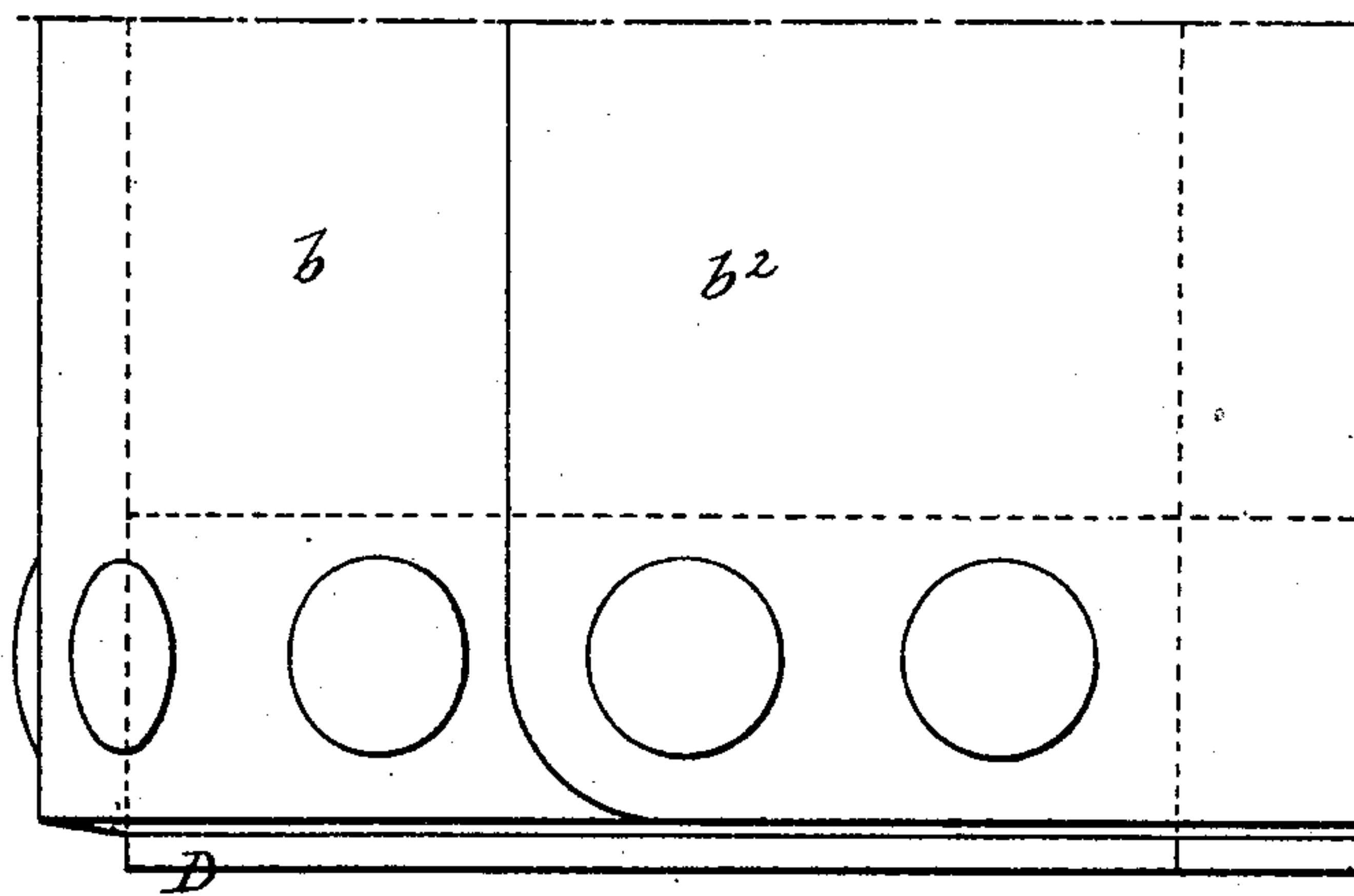


FIG. 4.



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UNITED STATES PATENT OFFICE.

SAMUEL M. VAUCLAIN, OF PHILADELPHIA, PENNSYLVANIA.

STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 583,314, dated May 25, 1897.

Application filed March 8, 1897. Serial No. 626,488. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL M. VAUCLAIN, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Steam-Boilers, of which the following is a specification.

The object of my invention is to improve the construction of the base-section of a locomotive or other boiler, particularly that surrounding the fire-chamber, so as to make a much stronger joint where the plates lap than heretofore and to dispense with the scarfing of the plates, which is the usual method employed in locomotive-boiler construction.

In the accompanying drawings, Figure 1 is a sectional view of sufficient of a locomotive-boiler to illustrate my invention. Fig. 2 is a plan view of the base-frame, to which the side plates are secured. Fig. 3 is an enlarged view of one of the corners of the boiler, illustrating my invention. Fig. 4 is a side view of Fig. 3; and Fig. 5 is a section on the line 5 5, Fig. 3.

A is the fire-chamber of the boiler, bounded on one end by the tube-plate a and at the front by the plate a' and at each side by a plate a^2 , and surrounding these plates are the plates b b' b^2 , forming a water-space B, which communicates with the main water-space B' of the boiler.

D is the base frame or ring, to which the several plates are secured by rivets or bolts. It has been the usual practice in securing the plates to this frame D to make the frame perfectly plain without notches and to scarf the edges of the plates where they lap, so as to make a joint which will be about the same thickness as the plates.

In manufacturing boilers in this manner it has been very difficult for the boilermaker to make a neat fit, and the joint is necessarily weak, owing to the scarfing of the two edges of the plates, and, moreover, the joint has to be very carefully calked, otherwise it is liable to leak. Consequently the plates prior to being assembled have to be carefully scarfed and the holes for the rivets bored or punched so as to properly aline, and the boiler when finished looks more or less crude at this point.

By my invention I am enabled to use plates of even thickness throughout and to trim the

edges on an ordinary shearing-machine and make the joint, in fact, much stronger than the main body of the boiler.

On referring in the first instance to Fig. 2 it will be noticed that I notch the base-frame D at the four points d for the inner plates and at the four points d' for the outer plates.

In assembling the several plates of the boiler the side plates a^2 are secured to the edge and the notches are of a depth equal to the thickness of the plate, so that when the plate is secured to the frame D its surface will be flush with the surface d^2 of the frame, so that when the end plates a a' are secured in position their edges will overlap the ends of the plates a , as clearly shown in Figs. 3 and 4, and when the outer plates are secured to the frame the plates b b' are bent over and rest in the recess d' , and their outer surfaces are flush with the outer surface of the frame, so that when the side plates b^2 are placed in position they extend over the edges of the plates b b' , as clearly shown in Figs. 3 and 4, so that the joint is double the thickness of the other portions of the boiler, and when the plates are riveted together, as shown in Figs. 3, 4, and 5, they make a very rigid joint, which can be readily calked and which has a neat appearance.

The notches in the base-plate can be made so perfect that a tight joint can be made between the plates and the frame.

It will be understood that my invention can be applied to other boilers as well as those of the locomotive type without departing from my invention.

I claim as my invention—

1. The combination in a boiler, of the notched frame at the base of the fire-box casing with overlapping plates, the edges of one plate resting in a notch so that the overlapping plate will fit tightly against the frame and the underlapping plate, substantially as described.

2. The combination in the fire-box section of the boiler, of the quadrangular base-frame, having its inner and outer edges notched near the corners, inner end and side plates secured thereto, outer end and side plates secured to the periphery thereof, one set of plates resting in the notches and the other set of plates

being secured to the frame and overlapping the aforementioned plates, substantially as described.

3. The combination in a fire-box section of
5 the boiler, of a quadrangular base-frame D having rounded corners and notched at d, d' near the four corners, with a tube-plate a , front plate a' , side plates a^2 , said side plates resting in the notches d , while the plates a, a'
10 overlap the said plates a^2 , outer plates b, b' resting in the notches d' and side plates b^2

overlapping the plates b, b' at the notches, the said plates being riveted together and to the base-frame, substantially as described.

In testimony whereof I have signed my 15
name to this specification in the presence of
two subscribing witnesses.

SAMUEL M. VAUCLAIN.

Witnesses:

JACOB M. CONNELL,
GEO. H. SIMPKINS.