

J. ENGLISH.

Furnace Arch for Evaporating Pans.

No. 84,101.

Patented Nov. 17, 1868.

Fig. 1.

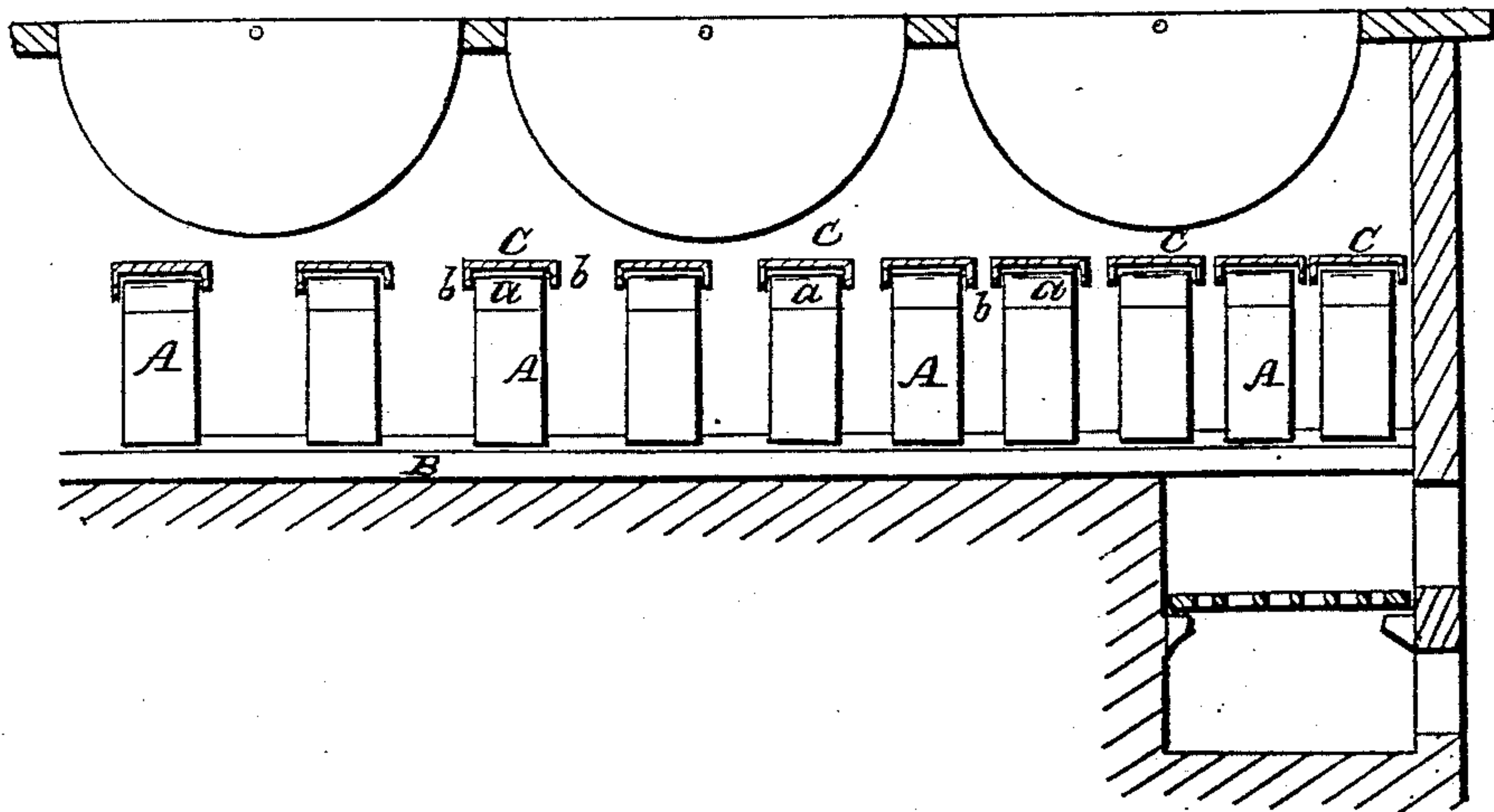


Fig. 2.

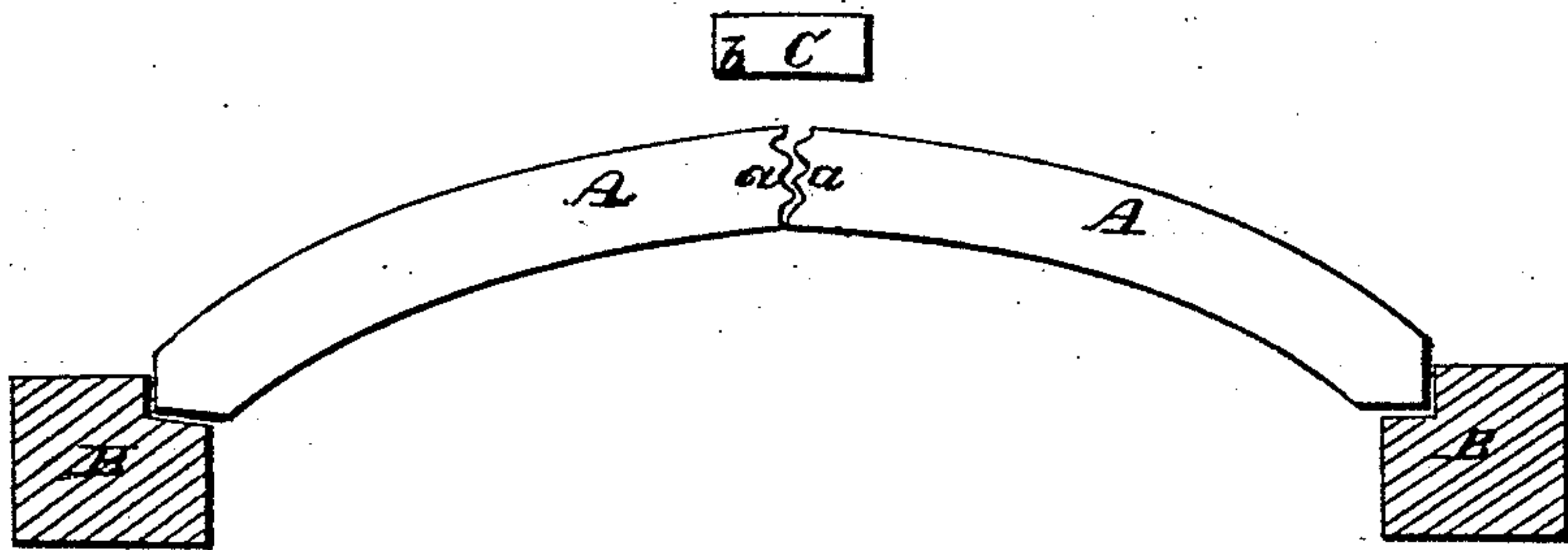
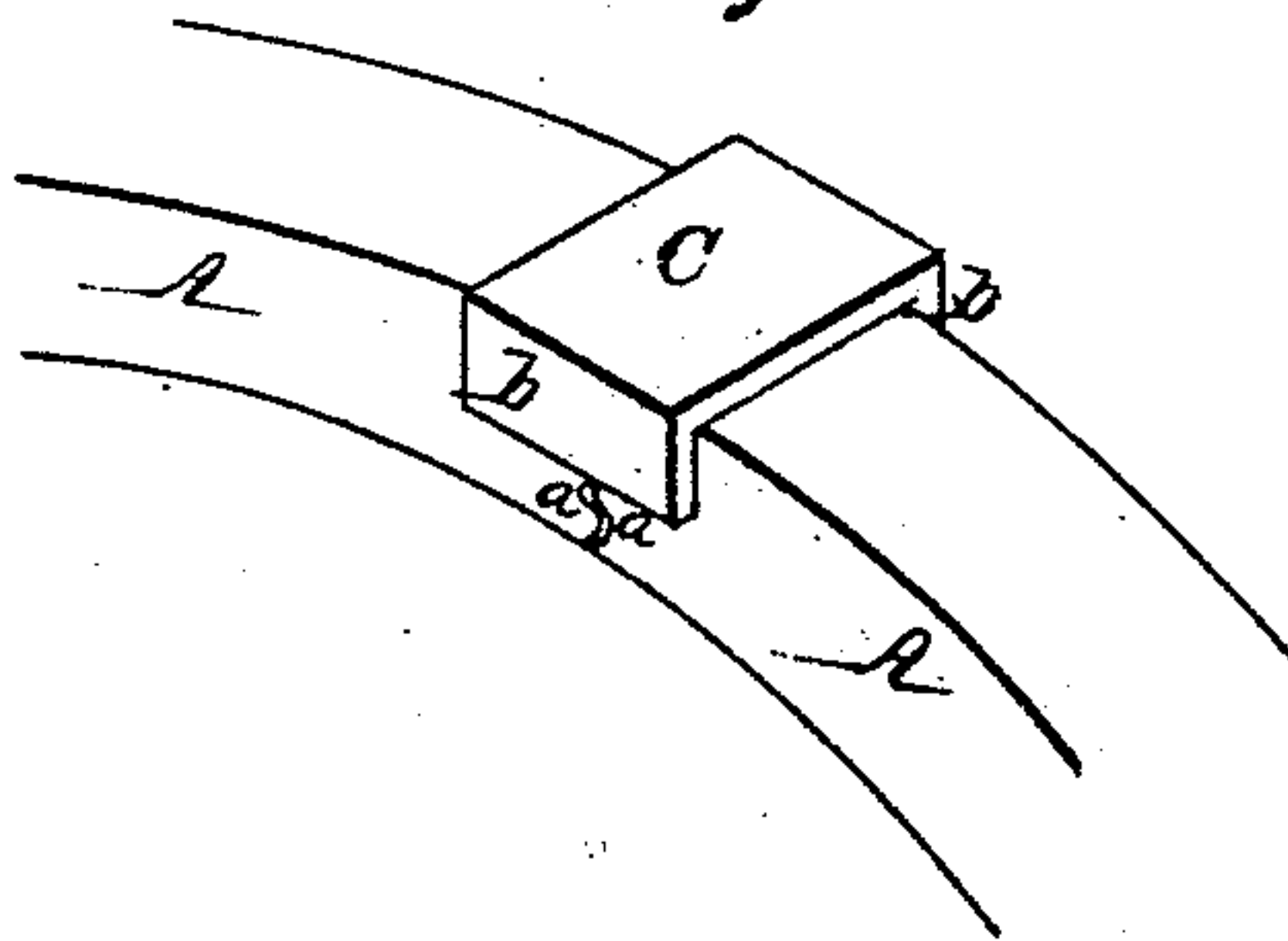


Fig. 3.



Witnesses:  
J. H. Davis  
W. J. Kreilman

Inventor:  
James English.  
By J. Fraser & Co.  
attys



JAMES ENGLISH, OF SYRACUSE, NEW YORK

Letters Patent No. 84,101, dated November 17, 1868.

IMPROVEMENT IN SHIELDING-ARCHES FOR EVAPORATING-KETTLES.

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

To all whom it may concern:

Be it known that I, JAMES ENGLISH, of Syracuse, in the county of Onondaga, and State of New York, have invented a certain new and useful Improvement in Shielding-Arches for the Furnaces of Evaporating-Kettles; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

Figure 1 shows the general arrangement of my arches as in use in the furnace.

Figure 2, an elevation of one of the arches with the shielding-cap raised.

Figure 3, a perspective view of the top of the arch, with shielding-cap in place.

Like letters of reference indicate corresponding parts in all the figures.

This improvement belongs to that class of arches used in furnaces to shield the kettles from the fire, and is similar in principle to the patent of Emil Lauss, June 2, 1868.

My invention consists in corrugating the connecting ends of the two sections of the arch, so they will remain in engagement at all times under the expansion and contraction of the supporting walls, and combining therewith a shielding-cap which covers and encloses the joint, as hereinafter set forth.

In the drawings, A A indicate the two sections of the arch; B B, the abutments or walls of the furnace on which the arches rest; and C indicates the cap or shield that covers the joint of the arch.

The engaging ends of the sections A A are provided with corrugations or cogs, *a a*, which mesh together, as shown. When the furnace is contracted, the lower cogs only engage, the upper ones standing open; but when the furnace is expanded, the cogs close more closely together.

Over the joint of the sections rests the cap C, having sides, *b b*, which clasp and hold in place the sides of the arch.

By the arrangement above described, I am enabled to bring the inner ends of the arch directly in contact

and engagement, without the use of a key-stone, and at the same time, adapt said arch, to the expansion and contraction of the side walls or abutments under different temperatures. This corrugated engagement securely retains the parts of the arch in place, and produces a better joint than can otherwise be produced, besides greatly lessening the cost over the use of a key-stone, since the cogs are cast therein, and require no fitting. Where a key-stone is employed, the encircling ends of the sections have to be cut away to such an extent, to allow the necessary turning-action under expansion and contraction, as to greatly weaken the joint. I avoid all such, by my construction, by avoiding the key-stone.

At the same time, the shielding-cap or cover serves as a perfect protection to the open joint, enclosing it in such a manner, both at top and sides, that ashes cannot enter to obstruct the action. And it also serves as a stay and stiffener to the arch.

The arches thus constructed are intended for use in evaporating-furnaces, arranged side by side under the kettles, for shielding them according to the intensity of the fire. This arrangement is shown in fig. 1.

I am aware that shielding-arches have been before employed in evaporating-furnaces, such, for instance, as in the patent of Emil Lauss, June 2, 1868, in which the central joint is formed by a cylindrical key-stone. I disclaim the broad principle involved, and also the key-stone joint.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination of the enclosing-shield C with the cogs *a a*, in the ends of the sections forming the joint, the whole arranged as described, and operating in the manner and for the purpose specified.

In witness whereof, I have hereunto signed my name, in the presence of two subscribing witnesses.

JAMES <sup>his</sup> X ENGLISH.  
mark.

Witnesses:

WILLIAM CANDIE,  
JAMES E. DRAKE.