(No Model.) 2 Sheets—Sheet 1.

C. A. SNOW.

BRICK KILN.

No. 483,638. Patented Oct. 4, 1892.

Fig. 1

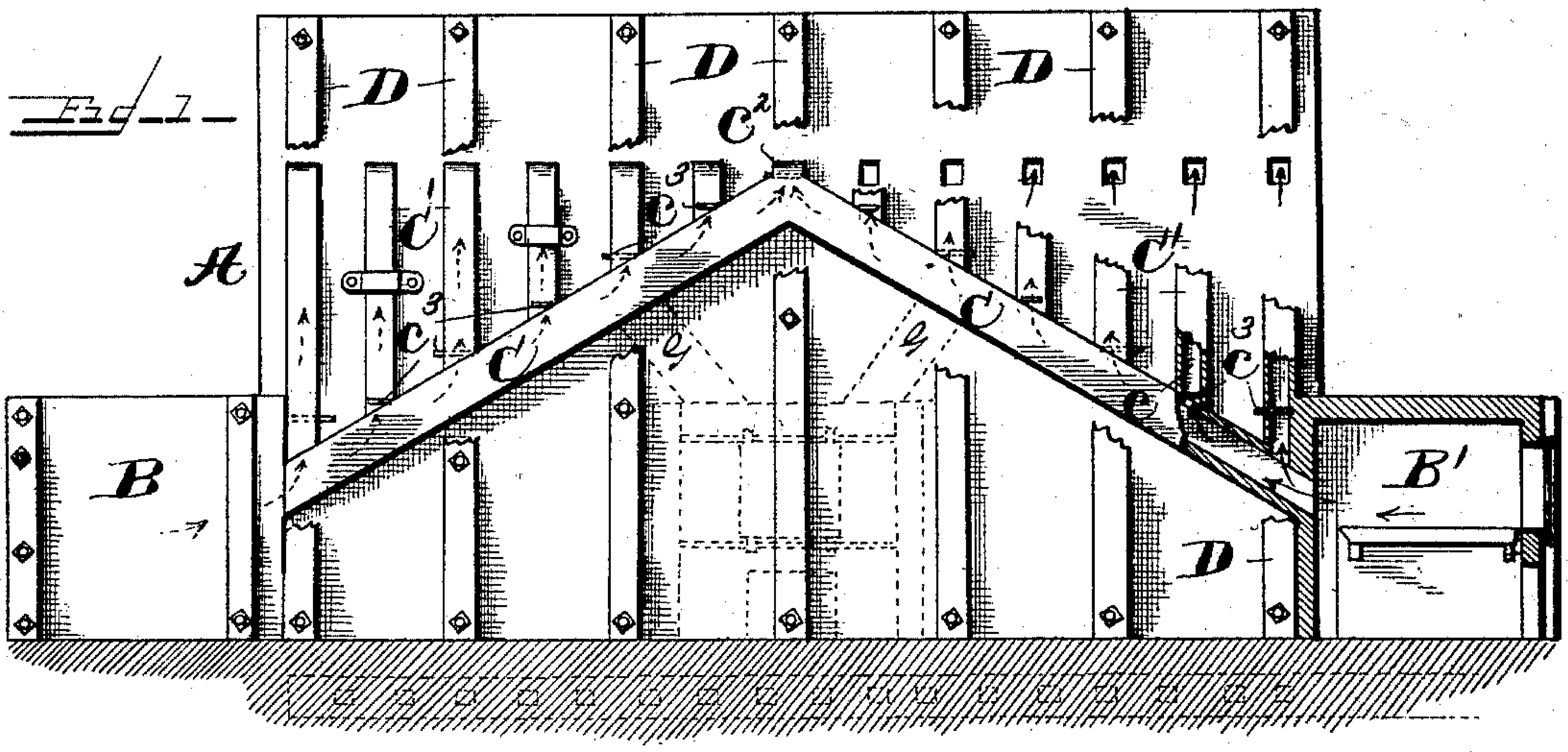


Fig. 2

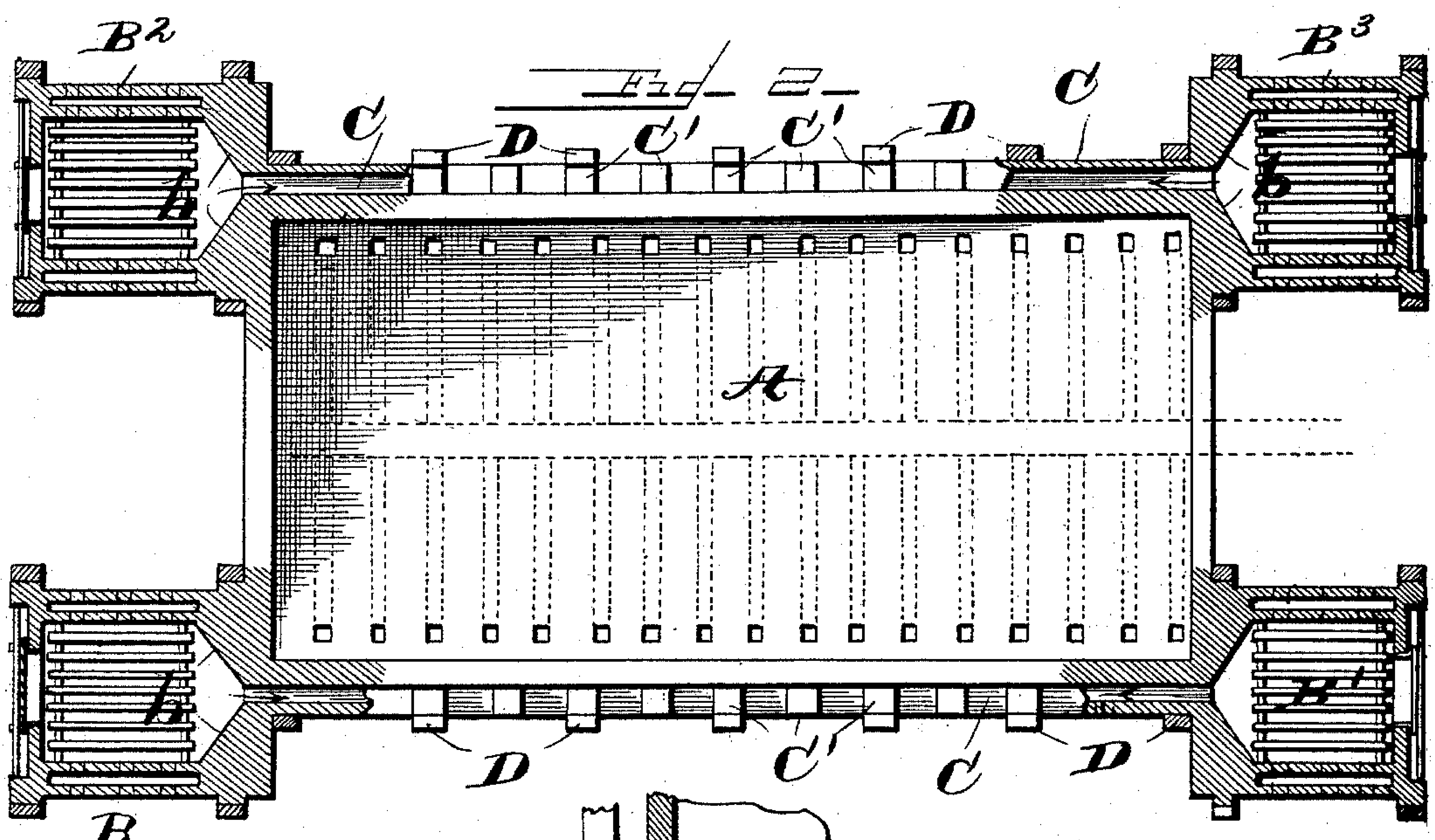
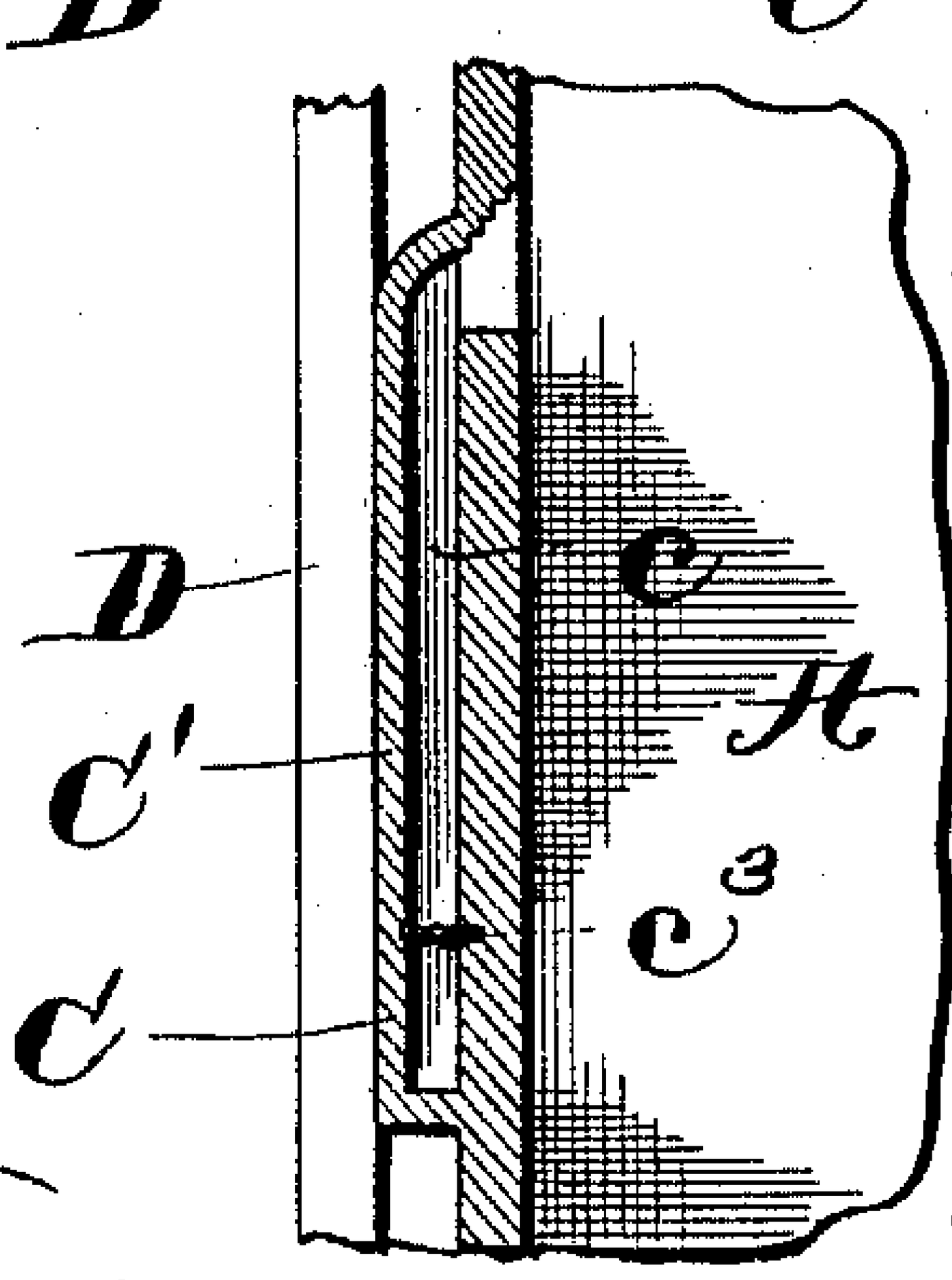


Fig. 3



Witnesses

G. A. Vauberschmidt.

C. T. Bell.

Inventor

Charles A. Snow

By Edwin S. Clarkson

his Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

C. A. SNOW.

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Fig. 4.

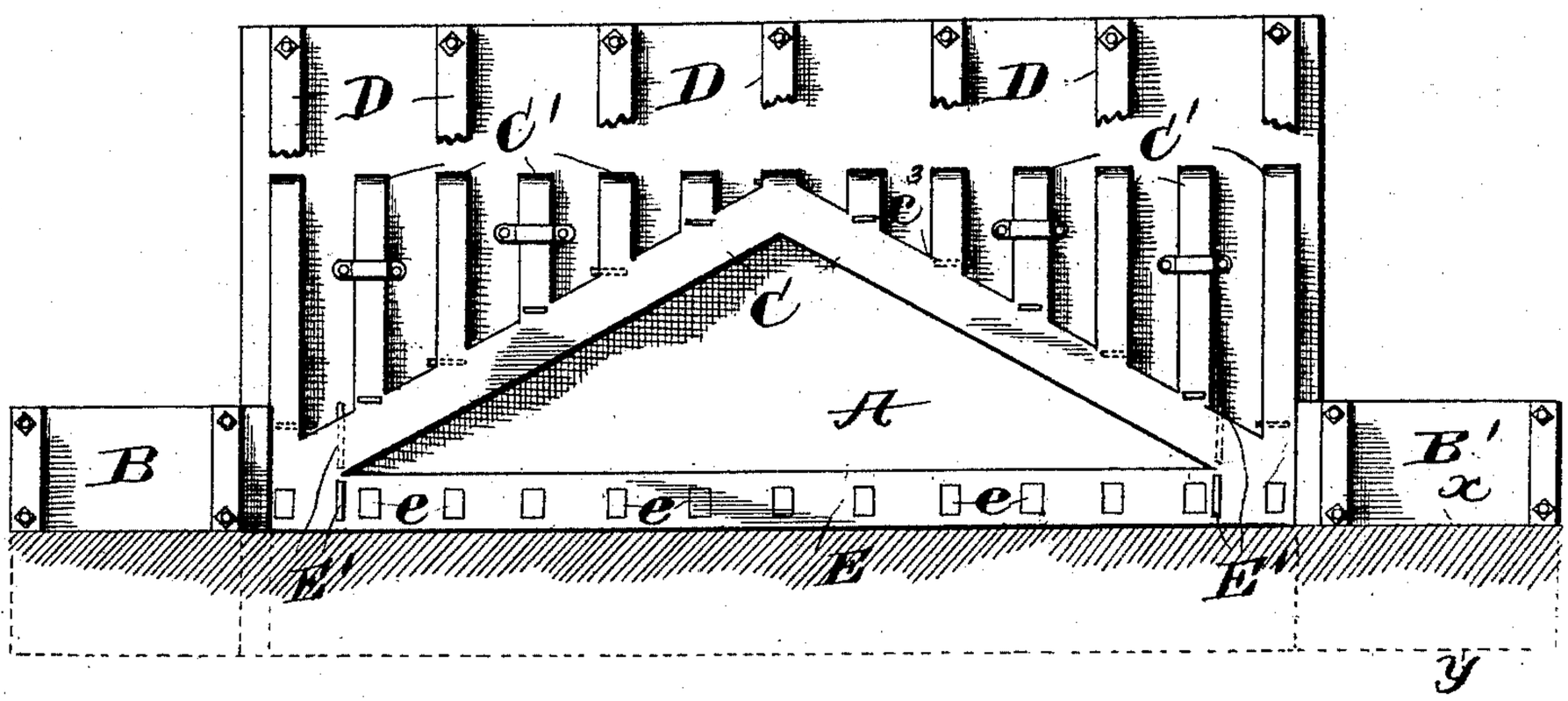


Fig. 5.

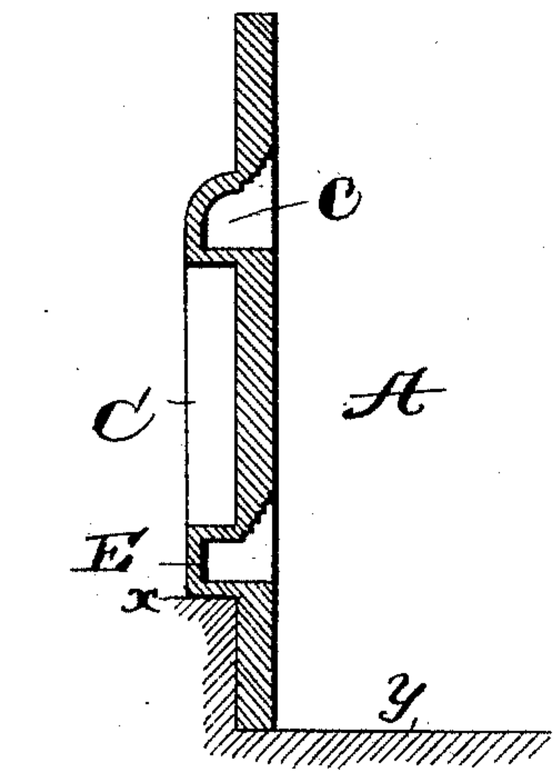
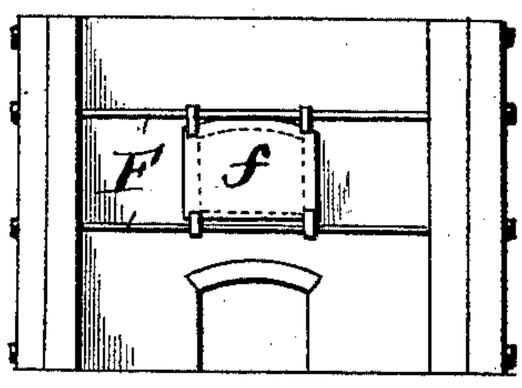


Fig. 6.



Witnesses
G A Taubenschmidt.
C J Beers

Inventor
Charles A. Snow
By Edwin S. Clarkson
his Attorney

UNITED STATES PATENT OFFICE.

CHARLES A. SNOW, OF BRICK HAVEN, VIRGINIA.

BRICK-KILN.

SPECIFICATION forming part of Letters Patent No. 483,638, dated October 4, 1892.

Application filed February 17, 1892. Serial No. 421,813. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. SNOW, a citizen of the United States, residing at Brick Haven, in the county of Alexandria and State of Virginia, have invented certain new and useful Improvements in Brick-Kilns; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates generally to brick-kilns, but more particularly to that class of kilns known to the trade as "downdraft-kilns."

The object of my invention is to produce a combined down and up draft kiln that will burn brick in the shortest time with the least expense and labor, and one in which the heat shall be effectually and equally distributed throughout the whole area of the kiln, whereby the brick placed therein will be subjected to a uniform temperature regardless of the position occupied by them within the kiln. I locate the furnaces, which may be of any desired construction, on or about the corners of the kiln, as shown in the drawings. Leading from the rear of each of these furnaces are flues of any desirable dimensions, which extend to within about three feet from the top of the wall of the kiln where the flues meet. Extending from these flues are small vertical flues, which extend about one foot above the apex of the first-mentioned flues, where they enter and pass through the walls of the kiln on an angle, said flues each being provided with a suitable fireproof damper.

In the drawings, Figure 1 is a side elevation of a kiln, showing my arrangement of flues. Fig. 2 is a plan view of the same, parts being broken away. Fig. 3 is a detail sectional view of one of the small vertical flues. Fig. 4 is a side elevation of the combined down and up draft kiln. Fig. 5 is a detail view. Fig. 6 is a front elevation of the furnace.

A represents the kiln, which may be of any shape found most desirable, the roof of which is of the "hip-dome" style.

B, B′, B^2, and B^3 are the furnaces, located, respectively, at the corners of the kiln. The rear of these furnaces is gradually narrowed, as at *b*.

C and C′ are flues leading from the rear of furnaces B and B′ up to within three feet from the top of the wall, where they meet and open into each other, thus forming a continuous flue from between the furnaces B and B′. As will be seen in the drawings, these flues are built on an angle, thus giving a good strong draft. It is obvious that I may build these flues on a circle, if desired.

c and *c*′ are small flues extending up vertically from the flues C and C′ to a point about one foot above the apex of the flues C and C′, and c^2 is a flue in the apex of said flues, extending upward equal with the flues *c* and *c*′. These flues *c*, *c*′, and c^2 all enter and pass through the wall of the kiln on an angle, as clearly shown in Fig. 3, and open into the kiln. c^3 are dampers of suitable material.

D are the usual braces, which lie against some of the flues *c* and *c*′ and the flues C and C′, thus helping to keep said flues in place and stay them against the action of the intense heat incident to brick-kilns.

There are many ways in which I can tie the flues to the walls of the kiln. Hence I do not claim any specific manner to so secure them.

In Fig. 4 I show a combined up and down draft kiln. The construction for the updraft having been hereinbefore described, I will not refer to it specifically in the description of this figure. When I build my kiln as a combined up and down draft kiln, the furnaces are put in a pit, as will be seen in this figure, X representing the grate-bars, which are on a line with the bottom of the kiln, and Y represents the bottom of the pit. E is a horizontal flue extending from and connecting the two furnaces B and B′, and extending into the kiln from this flue E are small flues *e*. E′ are suitable dampers. The furnaces have air-chambers 2. F are rods upon which slides the door *f*, said rods also serving as ties for the furnace.

The operation is as follows: The fire being started, the heat, as general, passes into the flues C and C′ and is distributed through the flues *c*, *c*′, and c^2, thence into the kiln, where it distributes itself equally all over the kiln and the draft draws it down through the brick through flues in the floor, thence to the

stack, located apart from the kiln in a well-known manner. Should a greater amount of heat pass up the vertical flues *c* and *c'* nearest the furnace, (this can be readily ascertained by observant "burners,") I simply close the damper in such vertical flues. Thus it will be seen that the kiln is entirely under the control of the burner, who can at will direct the heat in any part of the kiln.

If at any time I desire to use the kiln as an updraft kiln, I simply close the dampers E', thus deflecting the heat into the flue E, from which it is distributed through the kiln by means of the small flues *e*. When thus used, the damper in the flue under the kiln leading to stack is also closed.

If any one operating the kiln should desire more heat than the four furnaces will give, I may locate a furnace, as shown in dotted lines in Fig. 1, provided with the flues G, also in dotted lines, said flues G to enter the flues C and C'.

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

1. In a brick-kiln, the combination, with the furnaces, of flues extending on an angle from said furnaces to a point below the top of the kiln and provided with smaller flues extending therefrom and opening into the kiln.

2. A brick-kiln having furnaces arranged in pairs and flues extending from said furnaces on an angle to a point below the top of the kiln, where they meet and open into each other, thus connecting said furnaces, and smaller flues extending vertically from said flues to a point above the apex of the first-mentioned flues, where they enter the kiln on an angle, substantially as described.

3. A brick-kiln having furnaces arranged in pairs and flues extending from said furnaces on an angle to a point below the top of the kiln, where they meet and open into each other, thus connecting said furnaces, said flues being provided with smaller flues opening into the kiln, for the purposes described.

4. A brick-kiln having furnaces arranged in pairs and flues extending from said furnaces on an angle to a point below the top of the kiln, where they meet and open into each other, thus connecting said furnaces, smaller flues extending vertically from said flues to a point above the apex of the same, dampers located in said vertical flues and the horizontal flue at the bottom of the kiln, also connecting the furnaces, and provided with small flues extending horizontally into the kiln, and a damper located at the junction of the two main flues, all combined and operating substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES A. SNOW.

Witnesses:
EDWIN S. CLARKSON,
M. DORIAN.