

(No Model.)

J. W. BONTA.

LEER OR ANNEALING FURNACE FOR SHEET OR PLATE GLASS.

No. 480,230.

Patented Aug. 2, 1892.

FIG. 1.

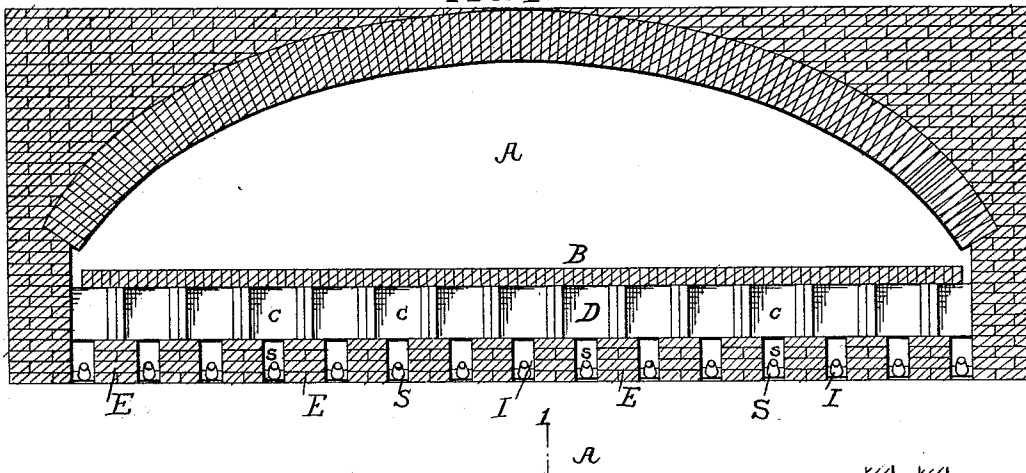


FIG. 2.

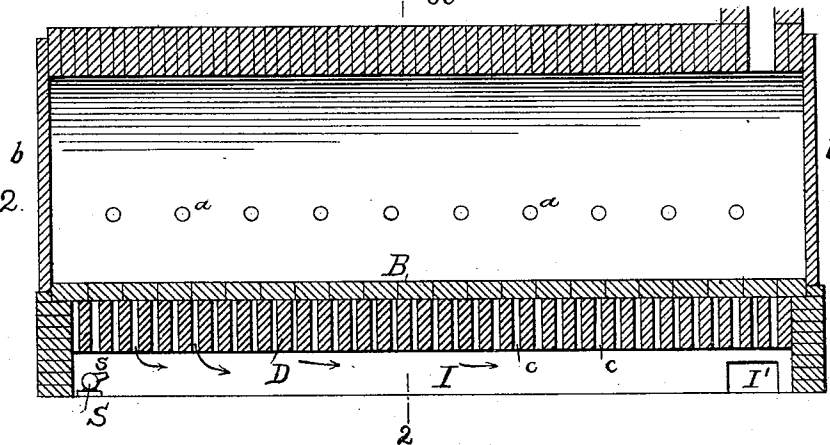


FIG. 3.

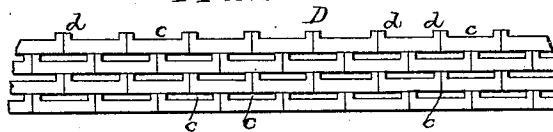
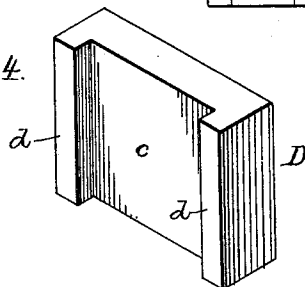


FIG. 4.



Witnesses:

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UNITED STATES PATENT OFFICE.

JAMES W. BONTA, OF WAYNE, ASSIGNOR TO JAMES H. SHAKESPEARE,
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LEER OR ANNEALING-FURNACE FOR SHEET OR PLATE GLASS.

SPECIFICATION forming part of Letters Patent No. 480,230, dated August 2, 1892.

Application filed July 24, 1891. Serial No. 400,550. (No model.)

To all whom it may concern:

Be it known that I, JAMES W. BONTA, a citizen of the United States, and a resident of Wayne, Delaware county, Pennsylvania, have
5 invented certain Improvements in Leers or Annealing-Furnaces for Sheet or Plate Glass, of which the following is a specification.

The object of my invention is to so construct
a leer or annealing-furnace for sheet or plate
10 glass that the furnace-bottom when being heated to the required temperature for receiving the rolled plate-glass will not "heave" or expand irregularly, so as to throw the bottom off a true surface, thereby overcoming an
15 objection to ordinary furnace-bottoms built up of solid material and insuring the preservation of the true level of the glass at all stages of annealing, thus enabling me to produce the original plate with the use of less glass in
20 rolling and materially reducing the subsequent grinding to obtain perfect surfaces.

In the accompanying drawings, Figure 1 is
a transverse sectional view of my improved
leer or annealing-furnace on the line 1 2, Fig.
25 2. Fig. 2 is a longitudinal sectional view. Fig. 3 is a plan view of a portion of the table-supporting structure of the leer, and Fig. 4 is a perspective view of one of the ventilated bricks of said supporting structure.

30 In leers for annealing plate-glass a solid table is usually made, the top of the table being composed of a layer of salmon bricks, and gas is introduced through side openings until the furnace is heated to the desired temperature, the glass being then placed directly
35 upon the brick-table, and the leer is then allowed to gradually cool. In furnaces or leers at present in use, in which the table or bottom of the furnace is built up solid, portions of this solid mass of brick and mortar are more dense than other portions. Hence the
40 table on heating the furnace is caused to expand unequally and unevenness in the table therefore results, which unevenness is reproduced in the plate which is being annealed. Hence the original plate has to be of considerably greater thickness than the finished
45 plate to provide for grinding off these irregularities. I overcome this difficulty in the fol-

lowing manner, and am enabled to make the
original glass plate much thinner than heretofore, owing to the special construction of the furnace.

A is the furnace, having the table B, an
arched roof, and gas-inlets *a*, and provided
55 with doors *b b* at each end in the ordinary manner.

B is the table, on which rests the glass to be annealed, this table being simply a layer of salmon or soft bricks. Supporting the
60 table is a row of bricks D, and between these bricks are ventilating-spaces *c*, which extend to the under sides of the salmon bricks B. The bricks D are made in the present
instance as shown in Fig. 4, having ribs *d d* at
65 each side, forming the air-channels *c*. When these bricks are placed together, therefore, they form a floor, as shown in Fig. 3, ventilated throughout by the air channels or spaces
70 *c*. The bricks D are supported by a series of foundation-walls E, which are at such a distance apart as to form air-passage ways I, extending from the front to the rear of the furnace and communicating with the air-spaces
75 *c* in the bricks D and also at one end with an outlet-flue I'.

During the operation of the furnace air is blown into the flues I from nozzles *s* on a blast-pipe S, which, in connection with the ventilating character of the bricks D, serves
80 to prevent any such heating of the supporting structure formed by said bricks as to cause the said structure either to heave or "sag." Hence the soft-brick table B, mounted
85 on the bricks D, is kept at its proper and uniform level during the annealing operation, and as unevenness in the glass plate is thereby likewise prevented I am enabled to roll
said plate much thinner than usual in the
90 first instance, as the same margin does not have to be allowed for the subsequent grinding.

In some instances the blast-pipe may be dispensed with and openings made in the wall to admit air, and in this case the natural
95 draft of the flue will be sufficient.

It will be understood that I do not limit myself to the special construction of leer shown and to the precise form of ventilated bricks

described, as the support for the table may be made in any manner and of any material which will properly ventilate the table.

I claim as my invention—

5 1. The combination, in a leer or furnace for annealing sheet or plate glass, of the flat bed or table on which the sheet or plate of glass is laid, and a supporting structure for said table, having air-spaces open only at the bot-
10 tom, whereby the supporting structure is ventilated without unduly cooling the table, substantially as specified.

2. The combination, in a leer or furnace for annealing sheet or plate glass, of the flat bed
15 or table on which the sheet or plate of glass is laid, and a supporting structure for said table, having air-spaces open only at the bottom, and a foundation having air-circulating passages communicating with said air-spaces,
20 substantially as specified.

3. The combination, in a leer or furnace for annealing sheet or plate glass, of the flat bed or table on which the sheet or plate of glass

is laid, and a supporting structure for said table, having air-spaces open only at the bot- 25
tom, and a foundation having air-passages communicating with said air-spaces, and air-jet pipes and outlets whereby a circulation of air through said passages is effected, substantially as specified. 30

4. The combination, in a leer or furnace for annealing sheet or plate glass, of the flat bed or table on which the sheet or plate of glass is laid, and a supporting structure for said table, composed of bricks having ribs at the 35
ends, whereby when said bricks are assembled air-spaces are formed in the supporting structure, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of 40
two subscribing witnesses.

JAMES W. BONTA.

Witnesses:

HENRY HOWSON,
HARRY SMITH.