

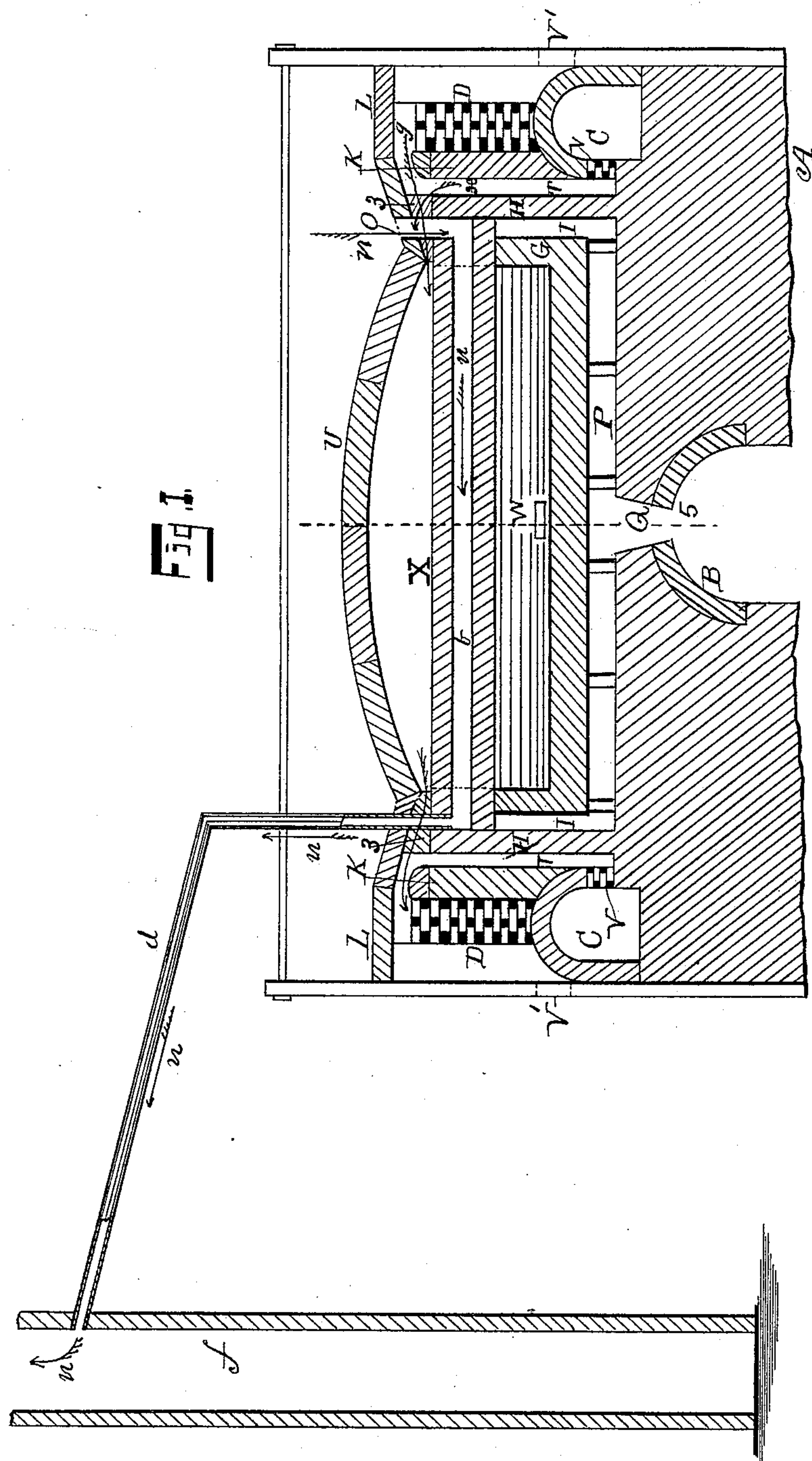
(No Model.)

2 Sheets—Sheet 1.

W. F. MODES.
GLASS MELTING FURNACE.

No. 405,317.

Patented June 18, 1889.



Witnesses
Peter Hoff
F. H. Moore.

Inventor
William F. Modes.
By G. R. Chapin. Atty.

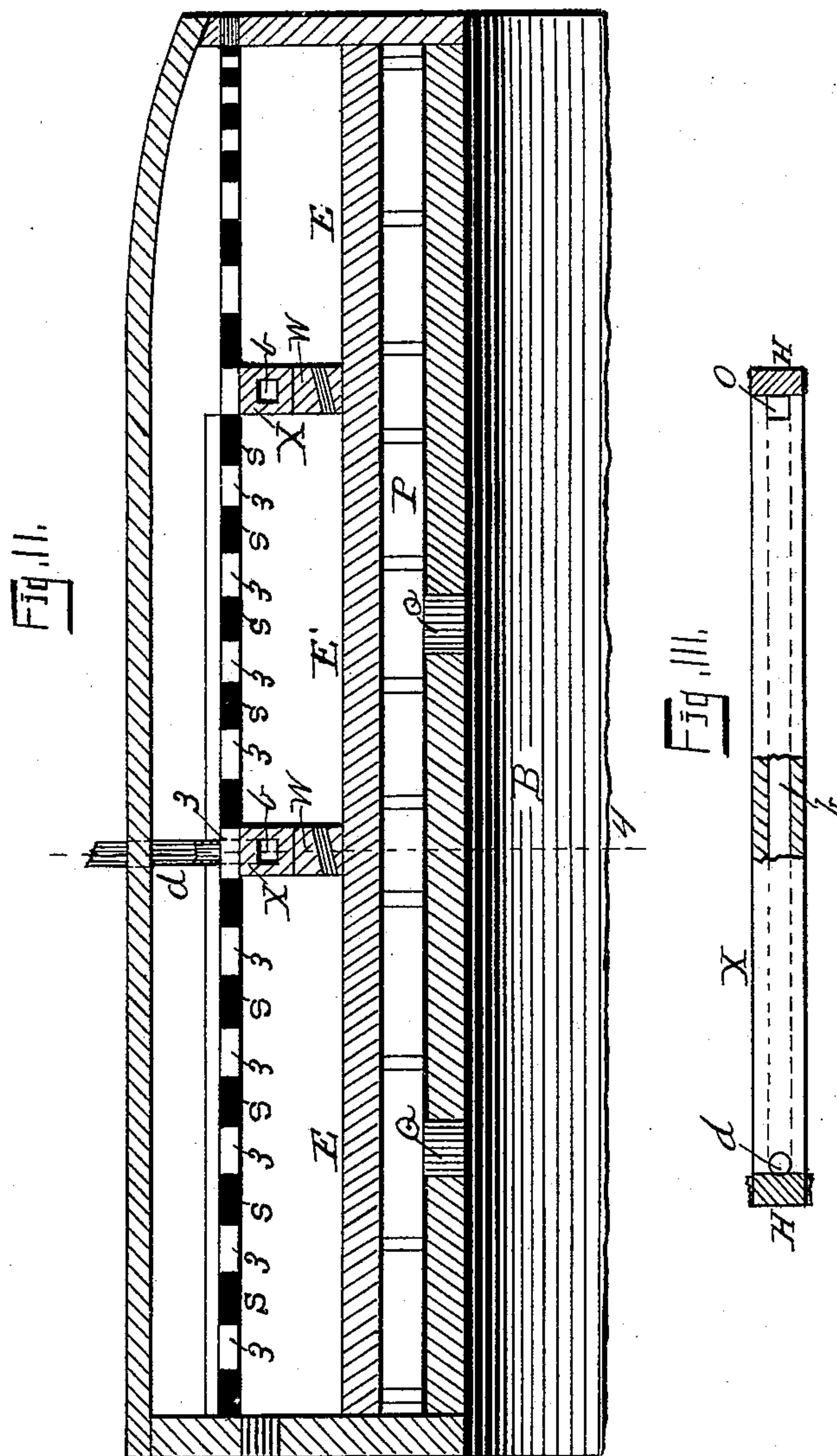
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UNITED STATES PATENT OFFICE.

WILLIAM F. MODES, OF STREATOR, ILLINOIS.

GLASS-MELTING FURNACE.

SPECIFICATION forming part of Letters Patent No. 405,317, dated June 18, 1889.

Application filed December 15, 1888. Serial No. 293,673. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. MODES, a citizen of the United States, and a resident of Streator, county of La Salle, and State of Illinois, have invented new and useful Improvements in Glass-Melting Furnaces, of which the following is a specification, reference being had to the accompanying drawings (two sheets) illustrating the invention, in which—

Figure I is a sectional elevation of an improved glass-melting furnace for which an application for a patent for some portion thereof was filed on September 11, 1888, Serial No. 285,109, the section being taken on line 4, Fig. II, Sheet 2; Fig. II, Sheet 2, a central longitudinal vertical section on line 5, Fig. I. Fig. III is a top view of the bridge-wall and broken sections of the partitions removed from the other parts of the furnace.

This invention relates to an improved bridge-wall employed in a glass-melting furnace.

The novelty of the invention consists, in brief, of a bridge-wall for dividing the glass-tanks of the furnace, which is provided longitudinally with an internal air-channel, and on the upper side of the bridge-wall and at each end is formed a pipe or opening, the one being for taking cold air into the bridge-wall and the other for carrying off the heated air, and thereby keeping cold air passing through the bridge-wall by a current of air taken in at the top of one end of such wall. It has been the custom to take the hot air out of the top portion of one end of the bridge-walls to glass-furnaces, and also the custom to take the cold air in at bottom of such wall and discharge the heated air in the same manner substantially as I do; but practical experiments have demonstrated that the shorter the pipe which conducts the cold air to the longitudinal hollow in the wall the cooler the bridge-wall will be kept. In these furnaces the shortest distance to the hollow of such wall is between the arch over the tanks and the arches over the checker brick-work and the gas-channels. It is therefore at these points that the air-inlet and air-exit are formed. In practice it is found that where cold air is taken in at the side of the furnace or at the bottom thereof the air becomes so heated before reaching the bridge-wall that it serves but little pur-

pose in keeping such wall cool enough to prevent its disintegration.

A represents the foundation of my said furnace; B Q P I, the tunnel for the cold-air supply for the bottoms and sides of the tanks E E' E''.

D is the brick checker-work, through which air passes to unite with the gas coming from chamber C, through parts of checker-work V, and up through the channels T, to produce combustion and heat for melting the glass in said tanks.

U is the arch over the tanks, and L L the arch over the checker-work D D and partitions K K.

W X are the bridge-walls which separate the tanks. As a matter of convenience, the section X of said wall is a separate portion of fire-clay united properly to the lower portion W, which closely fits the bottom and sides of the tank, as clearly shown at Fig. I. The ends of the section X extend through sides G and abut against the partitions H H, which separate the side air-chambers I and gas-channels T and form gas-tight joints. The ends of the sections X, however, may extend into the partitions H, if desired, as a convenient construction. Longitudinally through the top section X of the bridge-wall is formed the usual hollow space *b*, and in the top of this section near an end is formed a cold-air induction port or opening O, and the port is continued up through block 3, which unites the arches L U with the top edge of the partition H and the top end portion of the section X, and also extends up through arch L. The opposite side of the furnace has a like construction to that detailed above, as also has the other end of section X of the bridge-wall, except a pipe *d* is made to communicate with the hollow *b* at that end to carry off the heated air to a stack *f*. The direction of the cold air coming in at O and escaping when heated is indicated by the darts *n n*. At Fig. II is represented a series of blocks 3 at one side of the furnace, between which at S the flames of gas and air pass to the furnace. The opposite side of the furnace has a like construction.

The bridge-wall described is represented in a furnace which alternately takes air at side ports V' and alternately takes gas through side channels T; but my improved bridge-wall,

by the ordinary skilled mechanic, can be applied to any ordinary two-tank glass-melting furnace and serve the purpose herein set forth. Those elements shown and not claimed in this application will be held as pertaining to the said application on file, as aforesaid.

I claim as new and desire to secure by Letters Patent—

1. In a glass-melting furnace having gas and air supply chambers at each side, the combination, with a melting-tank having an air-cooling chamber surrounding the same, of a bridge-wall partition composed of a perforated lower section W, resting on the bottom of the tank, and a hollow upper section X, projecting through the sides of the tank and united with partition-walls between the air-cooling chamber and gas-channels, substantially as described.

2. In a glass-melting furnace having gas and air supply chambers at each side, the combination, with a melting-tank having an air-cooling chamber surrounding the same, of a bridge-wall partition composed of a perforated lower section W, resting on the bottom of the tank, and a hollow upper section X, projecting through the sides of the tank and united with partition-walls between the air-cooling chamber and gas-channels, said upper section connecting with flues which extend vertically through the arch, and a pipe connected to one of said flues, said pipe leading to a chimney above the level of the flue, substantially as and for the purpose specified.

WILLIAM F. MODES.

Witnesses:

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