

March 24, 1925.

F. E. TROUTMAN

1,530,628

GLASS FURNACE

Original Filed March 5, 1919

FIG. 1

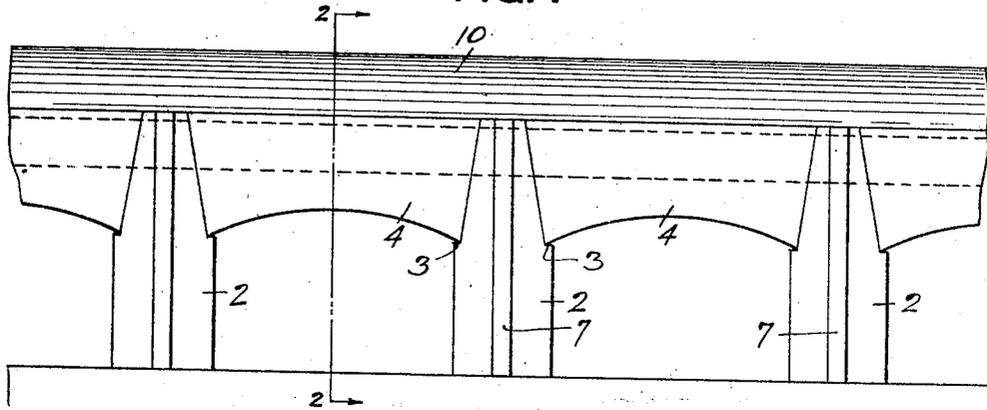


FIG. 2

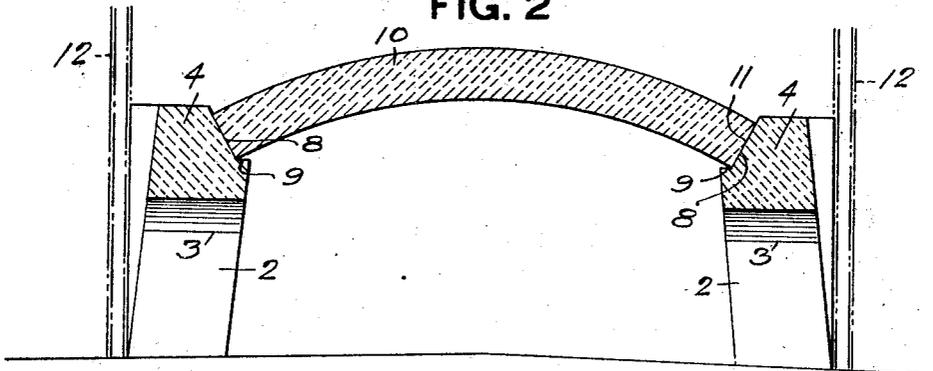


FIG. 3

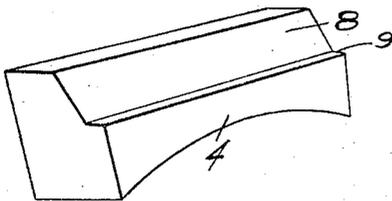
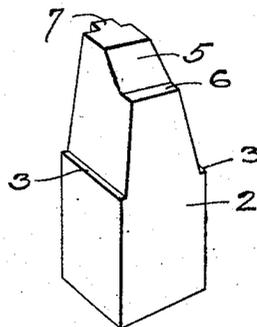


FIG. 4



INVENTOR

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UNITED STATES PATENT OFFICE.

FRANK E. TROUTMAN, OF BUTLER, PENNSYLVANIA.

GLASS FURNACE.

Application filed March 5, 1919, Serial No. 280,838. Renewed December 22, 1922.

To all whom it may concern:

Be it known that FRANK E. TROUTMAN, a citizen of the United States, a resident of Butler, in the county of Butler and State of Pennsylvania, has invented a new and useful Improvement in Glass Furnaces; and he does hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to the construction of furnaces used in the manufacture of glass.

The invention relates more particularly to the piers and arches of the furnace, and has for its primary objects the prolongation of the life of the furnace; the ease and speed of erection and the providing for the protection of the joint where the silica crown rests on the skew-back of the fire-clay pier.

In the present form of construction the piers and arches are built up of numerous small refractory blocks commonly called "stones." These stones are laid up or cemented with fire-clay or other suitable material, but the first point of wear of these arches and piers is always at the joints where the heat attacks the brick and gradually destroys the brick at these joints.

In the accompanying drawing Fig. 1 is a side elevation of a furnace showing my invention applied thereto; Fig. 2 is a cross-section on the line 2—2 of Fig. 1; Fig. 3 is a perspective view of one of the arched stones and Fig. 4 is a perspective view of one of the piers.

In the drawing I have illustrated a common type of furnace made up of the customary piers and pier arches with the top supported thereby.

The numeral 2 designates the piers which are arranged at suitable intervals and are formed of single stones or blocks of clay. These piers are formed with the ledges 3 to support the arches or lintels 4 and with the skew-backs 5 and the projecting ledges 6. Along the backs of the piers are the ribs 7 which are engaged by the ordinary buck-stays 12.

The lintel 4 which may be either arched or rectilinear is likewise made of a single stone or block of clay, and said arch is provided with the skew-back 8 and the projecting ledge 9 so that when the arches 4 are supported on the ledges of the piers the skew-backs 5 and 8 will register with each other as well as the ledges 6 and 9.

The crown or roof 10 is built up of silica-brick in the ordinary manner, and said

crown rests with its ends bearing against the skew-backs 5 and 8 of the piers and arches, as clearly indicated in Fig. 2. The ledges 6 and 9 protect the joint 11 at the point of junction between the crown and the skew-backs, said ledge not coming in contact with the silica-brick, but preventing the hot gases from direct contact with the joint 11 between said crown and the skew-back.

The arches and piers can be prepared in advance and all cut to fit, thereby greatly reducing the labor of erecting a new furnace or repairing an old one. The arches and piers being formed in one piece are not subject to the same wear as where formed of separate "stones," and this greatly increases the life of the furnace.

What I claim is:

1. A glass melting furnace comprising piers and arches, each formed of a single block of refractory material having skew-backs and horizontally projecting ledges formed on their inner faces, and a crown engaging said skew-backs beyond said ledges, whereby said ledges protect the joint between the skew-back and the crown from the direct action of the hot gases in the furnace.

2. A glass melting furnace comprising piers and arches each formed of a single block of refractory material, said piers and arches having horizontal projecting ledges formed on their inner faces, and a crown disposed between said arches and piers and above said ledges, said ledges serving to protect the adjacent surfaces of said crown and said arches and piers from the direct action of the hot gases in the furnace.

3. A glass melting furnace comprising a plurality of piers each composed of a single block of refractory material, said piers having ledges projecting toward each other and having other ledges on their inner surfaces, arches resting upon said first-named ledges, each of said arches being composed of a single block of refractory material and having a ledge on its inner surface corresponding to the inner ledges of said piers, and a crown resting on said arches and piers beyond said ledges, whereby said ledges protect the joints between the crown and the arches from the direct action of the hot gases in the furnace.

4. A glass melting furnace comprising piers and arches each formed of a single block of refractory material having sub-

stantially horizontally alined ledges formed on their inner surfaces and wall portions extending upwardly from said ledges, and a crown disposed between oppositely arranged sets of piers and arches, opposite edges of said crown resting upon the respective wall portions above said ledges and the said ledges serving to shield the contacting sur-

faces of said crown and wall portions from direct action of the hot gases. 10

In testimony whereof, I, the said FRANK E. TROUTMAN, have hereunto set my hand.

FRANK E. TROUTMAN.

Witnesses:

ROBT. D. TOTEN,
H. HECK.