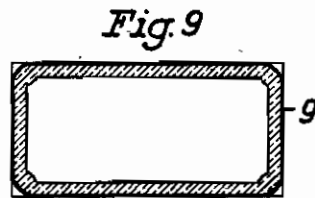
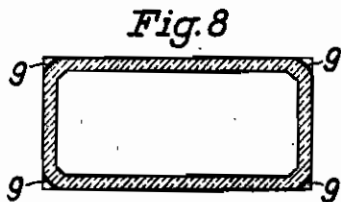
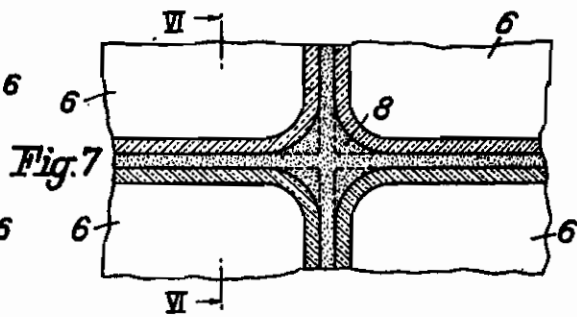
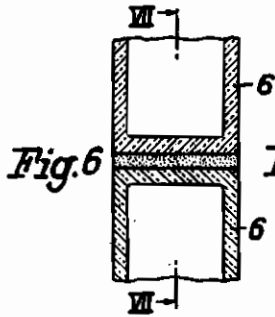
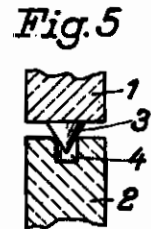
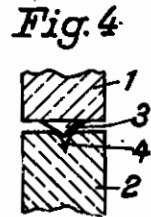
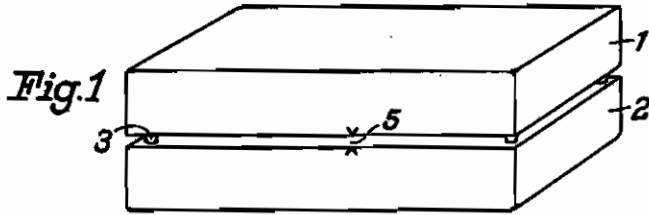


PUBLISHED
APRIL 27, 1943.
BY A. P. C.

K. RUDOLPH
HOLLOW GLASS BODIES AND METHOD
OF MANUFACTURING THE SAME
Filed March 14, 1941

Serial No.
383,370



ALIEN PROPERTY CUSTODIAN

HOLLOW GLASS BODIES AND METHOD OF MANUFACTURING THE SAME

Karl Rudolph, Dresden, Germany; vested in the Alien Property Custodian

Application filed March 14, 1941

This invention relates to hollow glass bodies, more especially glass building blocks or bricks, and a method or methods of manufacturing the same. Such blocks were hitherto produced from separate halves which were first brought into suitable relative position, then heated by gas flames at their corresponding edges and finally pressed together. However the holding and conveying devices developed for this purpose were rather complicated and yet did not warrant an exact coincidence of the conjugate parts and a perfect fusion of the engaging edges.

The object of the present invention is to provide a method by which blocks of the kind described may be fused together quite uniformly, avoiding the formation of inner tensions or opaque or metallic passages and this without the necessity of employing complicated mechanical devices. Herewith simultaneously a new surface configuration is obtained warranting the best cohesion of the blocks in the bond, practically no light being absorbed. According to this method both halves are quite uniformly heated, as far as possible immediately after their production when they are still hot, so that no thermal tensions occur in the finished blocks. The bursting of the blocks at different points of the seam of fusion which hitherto often occurred and the penetration of air and moisture into the blocks are in this way avoided. Likewise the variations in strength of the blocks hitherto prevailing are avoided or at least greatly diminished.

According to the invention the two halves of the hollow glass bodies, especially building blocks, are first provided at their faces to be joined with recesses and corresponding projections, the latter being higher than the recesses are deep. Thereupon the halves of the block coinciding owing to the projections engaging the recesses, are placed above each other while still hot from their production, a gap of uniform width being left between the adjacent edges of the halves in accordance with the difference in height of the projections and the recesses. The surfaces to be united are then heated by fusing flames or hot gases introduced into the gap and extending into the inner hollow space, and finally the halves are pressed together, the projections and recesses being squeezed into one another. The recesses and the projections may be cone-shaped, the base of the projecting cones having preferably a greater diameter than the opening of the recesses.

Another feature of the invention consists in flattening down the hollow glass blocks, when

fusing together the halves of the blocks, at their edges or in some cases at other points of the seam of fusion. Preferably the blocks still hot from the fusing operation are covered at the side faces to be masoned up with a material being a good reflector of light and reflecting part of the incident rays toward the interior of the blocks. This material may be rough by itself at its outside or it may be coated with a roughing material.

The blocks made according to the invention are therefore provided with projections and corresponding recesses arranged in the original halves of the blocks respectively. They are further distinguished by symmetrically arranged notches and finally show a layer applied to the side faces to be masoned and being a good reflector of light.

The invention is illustrated in the annexed drawings of which

Fig. 1 shows, in perspective view, two halves of a block arranged above each other;

Figs. 2 and 3 are perspective views showing two stages of the method of producing the new blocks;

Figs. 4 and 5 show cross-sections of the new glass blocks masoned up;

Fig. 6 is a longitudinal cross-section of a single block, and

Figs. 7 and 8 show, on an enlarged scale, two modifications of the glass projections and recesses in cross-section.

The halves 1, 2 are provided, preferably at their corners, with projections 3 and corresponding recesses 4. The projections consist of glass having the same or a somewhat lower fusing point than the glass forming the material of the halves of the block. When the halves are formed by pressure, the projections and the recesses may be pressed on or in, respectively, from the same material. The projections are by the width of the gap 5 longer than the depth of the recesses.

As shown in Figs. 7 and 8 on an enlarged scale, the projections 3 may have a base greater than the opening of the recesses. The projections may be cone-shaped, whereas the recesses may have the form of a trumpet or the like. The recesses may also, as shown in Fig. 8, be of cylindrical or of approximately cylindrical form.

For manufacturing the new blocks the halves provided with projections or recesses as shown in Fig. 1 are placed one above the other and made to coincide by the projections engaging the recesses, i. e. they are brought into their correct mutual position. During the fusing operation the flames pass from all sides through the gap 5

left between the projections 3, thereby heating the edges uniformly over their whole cross-sectional area. As soon as the desired degree of softening is reached, the two halves are compressed and thereby united to a unitary glass building block 6 (Fig. 2). As the heating can be maintained up to the last moment, and even during the compression, the formation of a tight joint over the whole cross-sectional area is absolutely warranted.

In order to improve the uniting by fusion, especially near the projections and the recesses of the edges of the blocks, the seam at the four adjoining edges of the blocks is preferably squeezed down to a more or less extent by the operator when he smoothes the seams. Hereby notches 7 are formed at the four shortest edges of the block, as shown in Fig. 3. These notches are placed in the middle of the edges to be masoned up and therefore afford the especial advantage of a plug of concrete 8 being formed at the point of junction of four blocks whereby the blocks are given an absolutely firm bond. Practical experiments have taught that the plug of concrete seated in these notches imparts to the glass building block a quite better stability than a normal brick has in the bond. The projections and recesses or the notches or both may be provided at points of the seam of fusion other than at the shortest edge of the blocks, but in any case they must be arranged symmetrically so as to coincide when masoning up a plurality of blocks.

As the notches and therewith the plugs of concrete 8 extend only over a small portion of the surfaces of the blocks to be masoned up, the permeability to light of the whole glass-wall is not considerably impaired by the arrangement of the notches. The slight diminution of the permeability to light effected by the notching may be compensated by coating the side faces, to be united by concrete, at the notches 7 with a layer 9 of a material reflecting light toward the interior

of the blocks (see Figs. 8 and 9). The layer may consist of a squirted metal, as aluminum, or of an aluminum or silver varnish or the like; it may also extend beyond the notches 7 and cover the whole of the side faces to be united by concrete. For producing a color effect the layer 9 may be made of a material or a mixture of materials preferably reflecting light of the desired wave length. Such glass building blocks giving a color effect could not be produced hitherto, because the glass for making glass building blocks is withdrawn from continuously working melting-pots from which practically only a glass of one unitary color can be withdrawn.

The outside of the reflecting layer may be rendered rough, or the reflecting layer may be coated with a roughing medium on its outside.

While the invention has been described in the present specification and shown in the drawings with reference to several modes of execution, I wish to emphasize that the invention is not limited to the modification shown and described, but can be carried out in various ways without departing from the gist of the invention. In the foregoing specification I have by way of example indicated that the hollow glass building blocks are to be produced from two halves of glass building blocks. This does not mean that the two parts must be in any case of the same size. For instance, the side faces to be united by fusion may differ in height so that the seam of fusion of the finished block does not divide the side face into equal halves. Furthermore the symmetrically arranged notches 7 and the layer 9 may not only be applied to blocks of the kind described, but also to other hollow glass blocks. More especially, the notches may be provided not at the edges but at other points of the faces to be masoned up. Furthermore the layer 9 may be arranged inside instead of outside the walls of the blocks to be masoned up.

KARL RUDOLPH.