

J. C. DUNTON.
 PROCESS OF MANUFACTURING BRICK.
 APPLICATION FILED MAR. 8, 1909.

958,997.

Patented May 24, 1910.

2 SHEETS—SHEET 1.

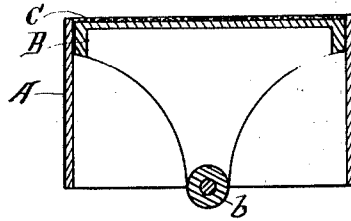


Fig. 1.

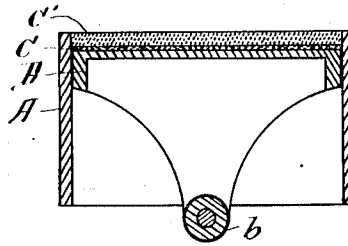


Fig. 2.

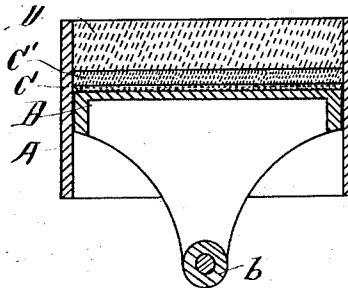


Fig. 3.

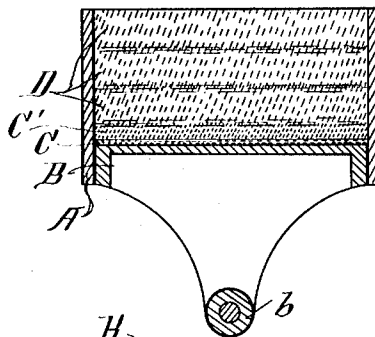


Fig. 4.

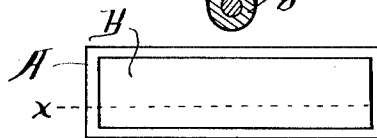


Fig. 5.

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Witnesses

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 Georgia S. Corbin.

By

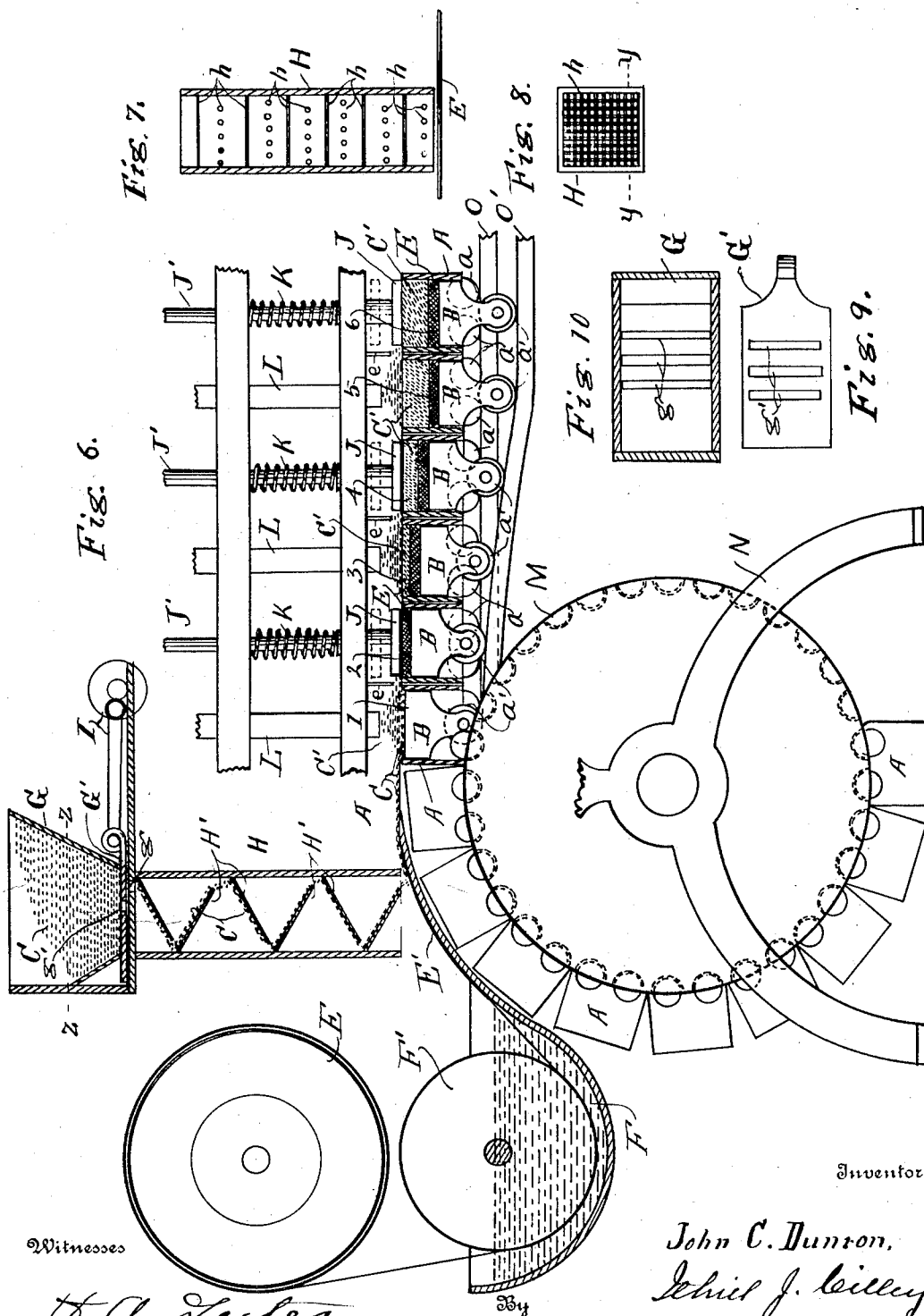
Edwin J. Willey
 Attorney

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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

JOHN C. DUNTON, OF GRAND RAPIDS, MICHIGAN.

PROCESS OF MANUFACTURING BRICK.

958,997.

Specification of Letters Patent.

Patented May 24, 1910.

Application filed March 8, 1909. Serial No. 482,191.

To all whom it may concern:

Be it known that I, JOHN C. DUNTON, a citizen of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Processes of Manufacturing Brick, of which the following is a specification.

My invention relates to improvements in the manufacture of sand or concrete brick, and its objects are: First, to provide a means whereby the brick may be faced with a permanent color of any desired shade. Second, to provide a brick with which the face may be made impervious to moisture, while the body of the brick will be of such a nature that it will absorb the greatest possible amount of moisture from the mortar in which it is laid, and, third, to provide a brick of the nature stated with which the face may be polished to a high degree. I attain these objects by the process indicated in the accompanying drawing, in which:

Figure 1 is a sectional elevation of a mold and its movable bottom, on the line $x x$ of Fig. 5, showing the material for the face of the brick, in place. Fig. 2 is the same showing the bottom of the mold lowered and the second, or face retaining course of material pressed to place above the facing. Fig. 3 is the same with the mold bottom lowered one degree farther and the first layer of the coarser material that composes the body of the brick, in place in the mold. Fig. 4 is the same advanced several stages to show the completed brick. Fig. 5 is a top plan of the mold. Fig. 6 is an elevation of one end of the machine shown and described in my application No. 451,911, filed Sept. 5 1908, shown here for the purpose of more plainly showing the process of making these brick. Fig. 7 shows a modified form of spout and its accessories for properly placing the face material into the mold, the same being shown in section on the line $y y$ of Fig. 8. Fig. 8 is a top plan of the same. Fig. 9 is a plan of the slide, and Fig. 10 is a plan of the bottom of the hopper from which the face material is fed to the molds, on the line $z z$ of Fig. 6.

Similar characters refer to similar parts throughout the several views.

The molds, B, for molding these brick, and also the mechanism for handling said molds, are practically the same as those shown and described in my application here-

inbefore referred to, that is, the molds are provided with vertically movable bottoms, and these molds are, preferably, connected to travel upon tracks in an endless line or chain, with auxiliary tracks for governing the position of the bottoms, as indicated in Fig. 6. In making these brick the face material, C, is first spread in a thin layer, over the bottom of the mold. It consists of finely pulverized glass, which is stored in any suitable hopper, as G, which may be so arranged that the slide, G', actuated by the crank I will cause the openings g and g' to register so that the pulverized glass will fall through upon the distributing plates H', in the conveyer H, and there be distributed in an even layer upon the receiving surface. For properly distributing the pulverized glass and carrying it into the molds, I find that the best appliance consists of a sheet of coarse cheese cloth, properly reeled, as shown at E, passed under a roller F' and through a tank of water, as F, thence over an inclined plane, as at E', to position directly under the conveyer H, where it is arranged so that it will receive a thin, even layer of the pulverized glass, which is held to and carried by the cheese cloth conveyer E by means of coming in contact with the wet surface of this cloth, and is carried to position over the first mold, B, when a quantity of very rich concrete is distributed over it from the spout L, as indicated at C' in the position marked 1, whence it is carried to position 2 where one tamp J, supported upon the rod J' and actuated in one direction by any available means, as, for instance, the spring K, to tamp the loose concrete firmly into the mold when it has reached said second position. At this point the bottom B of the mold A has dropped sufficiently to form a receptacle for the entire quantity of material deposited on the cloth from the spout L. This forces the face material to place and places the richer securing material in the mold and thoroughly tamps it. From here the mold A moves along to the third position and the bottom B drops a little lower down to receive a charge of concrete from the corresponding spout L, whence the mold moves to the fourth position and the bottom drops still lower, so that the concrete received at 2 is thoroughly tamped to place at 4, and the strain upon the cloth is sufficient to sever it and cause it to form a fabric covering over the face and

a short distance up on the sides and ends of the brick, as shown at 3, 4, 5 and 6. This process continues, alternately filling and tamping the molds, until a complete brick is formed. The concrete deposited from the spout L, at 1, must be very rich so that, with the glass facing, it will become very hard and impervious to moisture, but that deposited from the spouts L L at 3 and 5, and any further number of deposits it is desirable to make, should be much weaker and coarser so as to produce a concrete body to the brick that will readily absorb a large amount of moisture from the mortar in which the brick is laid.

The spout shown in Figs. 7 and 8 is provided with a number of rows of small rods, *h*, placed in alternate rows across it so that when the small particles of glass are dropped from the hopper they will come in contact with these rods and will be evenly distributed upon the surface of the cloth, E, or upon the bottom of the mold. By the use of this form of distributor the particles may be deposited directly into the mold, without the necessity of placing the cloth E under the distributing spout. This spout is intended more for use in manufacturing these brick where it is not convenient to provide the machine shown in Fig. 6, or its near equivalent.

In Fig. 6 the molds at the points 1 to 6 are shown in section practically on the line *x x* of Fig. 5, to more plainly illustrate the process of manufacturing the brick, in its several stages of construction.

It is desirable that as many tappings be made as is consistent, so that the brick may be packed to as nearly a uniform density, as possible.

When the cloth conveyer is used the cloth, of course, adheres firmly to the face and sides of the brick, but no injury is done the brick thereby, as the cloth is fully removed by the heat in the drying oven, and, besides, with the extreme pressure brought to bear upon the brick when tamping it into the molds, the threads of the cloth may be so imprinted upon the surface of the brick as to add materially to the beauty of the face of the brick.

To polish the brick to a fine glossy surface it is only necessary to use the usual means of sand polishing, practically as used in polishing marble, though, of course, greater labor must be exercised as the particles of glass are much harder to grind down and bring to the desired polish than are the grains of marble.

I am aware that there are many different classes of material that may be used as a facing for these brick, with good success,

and many means whereby the face of the brick may be colored, as, for instance, copper, or any other metal, mineral pigments &c., but I greatly prefer the use of pulverized glass as it is the only known material with which the brick may be faced, that will absolutely retain its color regardless of atmospheric influences.

In the manufacture of these brick, any desired ornamentation may be given to the face by simply forming the same in the face of the movable mold bottom.

a a, in Fig. 6, represent wheels mounted upon the sides of the molds and made to travel on the tracks O, of which there is one at each side of the molds.

a' a' represent antifriction rollers revolvably mounted at the lower ends of the mold bottoms, B, and adapted to travel over the track O' to adjust the bottoms to the desired position in the molds, thus, at the position indicated at 1 the bottom of the mold is raised to position so that but a thin layer of material can be placed in the mold, and the bottom gradually lowers as it passes to each successive position until it reaches 6 where the track is level and in position so that the depth of the mold is just the width that it is desired to make the brick.

e e e are gages extending downward from the spout supporting frame to position to scrape the concrete C' to the best possible position to be properly tamped into the molds, as they are moved along under the several spouts L L.

What I claim as new, and desire to secure by Letters Patent of the United States, is:

1. The process of manufacturing brick consisting of: passing a porous fabric through water, coating the surface of the fabric with a pulverized surface material, passing the fabric and facing material over molds and then firmly tamping plastic body material in the molds over the facing material, and then removing and curing the brick, substantially as herein described.

2. The process of manufacturing brick consisting of distributing finely pulverized facing material over moistened fabric and then passing the coated fabric over properly prepared molds and firmly tamping prepared plastic body material into the molds upon the facing material, in successive layers, and then removing the brick and curing it in a heat sufficient to destroy the fabric, substantially as herein described.

Signed at Grand Rapids Michigan March 2, 1909.

JOHN C. DUNTON.

In presence of—
JOHN A. THOMPSON,
I. J. CILLEY.