F. W. BUTTERWORTH.

METHOD OF MAKING BRICKS.

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1,229,582.

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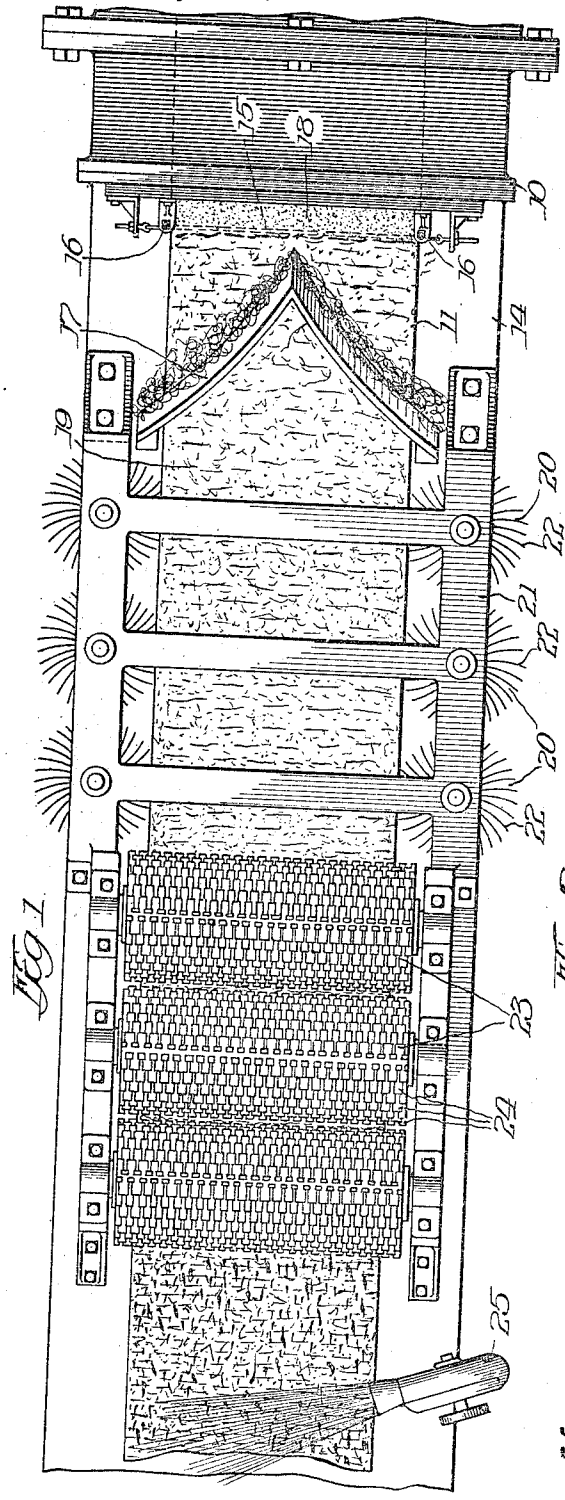


Fig. 1.

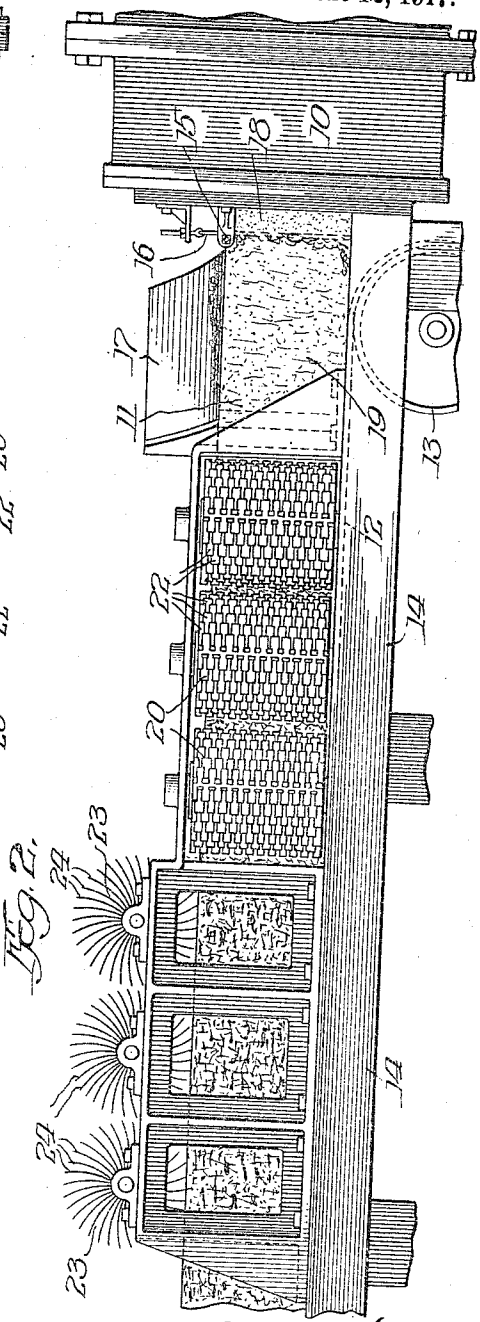


Fig. 2.

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METHOD OF MAKING BRICKS.

1,229,582. Specification of Letters Patent. Patented June 12, 1917.

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To all whom it may concern:

Be it known that I, FRANK W. BUTTERWORTH, a citizen of the United States, residing at Danville, in the county of Vermilion, State of Illinois, have invented certain new and useful Improvements in Methods of Making Bricks, (this application being a division of my application for Letters Patent filed by me on the 19th day of August, 1915, Serial No. 46,236,) of which the following is a specification.

My invention relates to methods of manufacturing bricks, and refers particularly, although not exclusively, to a method of manufacture used in connection with the well-known "stiff-mud" process.

It is one of the objects of my invention to construct bricks or similar articles which shall have a roughened surface without predominating lines extending in any direction, while at the same time the light effect produced on the bricks shall be soft and light-absorbing rather than light-reflecting.

It is a further object of my invention to produce bricks which may be laid in any position in a wall and in whatever position they are laid they will have the same appearance in so far as the effect of the light on the surface of the bricks is concerned.

Further objects of my invention consist in producing bricks of the desired characteristics by a method which shall be inexpensive and capable of producing bricks in large quantities.

Stated in general terms, my invention consists in a method for producing bricks having a roughened surface without predominating lines extending in any direction, and provided on their surface with a large number of minute indentations, which assist in giving the brick the desired qualities. My improved method is used in connection with the ordinary "stiff-mud" process, and consists of first preliminarily roughening the surface of the clay-ribbon and then subjecting it to a stippling action, the latter being preferably accomplished by means of brushes carrying resilient bristles of wire or the like. By this stippling action the preliminarily roughened surface of the clay-ribbon is brought into the desired condition by which all traces of cracks or lines are removed, while the desired appearance is secured by the stippling action which forms minute indentations in the surface of the ribbon.

These and other advantages of my invention will be more readily understood by reference to the accompanying drawings, which show a preferred embodiment of means for carrying out my improved method, and in which—

Figure 1 is a plan of a brick-making machine used for carrying out my improved method; and,

Fig. 2 is a side elevation of the machine shown in Fig. 1.

I will first describe the machine for carrying out my improved method, after which the description of the method itself may be more readily understood.

A brick-press, of any well-known type, is provided with the die 10, from which is pressed the clay-ribbon 11, which is received by the endless conveyer belt 12, which passes around sheaves or pulleys 13, one of which is shown in Fig. 2. A table or platform 14 is provided which has a surface approximately at the level of the upper surface of the conveyer belt 12.

A horizontal wire 15 and the two vertical wires 16 are provided near the mouth of the die 10, the horizontal wire 15 serving to remove a thin layer from the upper surface of the ribbon 11 and the wire 16 performing a similar function with reference to the sides of the clay-ribbon. The plow-shaped member 17 supported on the table or platform 14 serves to remove from the upper surface of the clay-ribbon the layer of material shaved therefrom by the wire 15. The clay-ribbon 11 as it leaves the die 10 has a smooth surface, as indicated in the portion 18 of the ribbon. The wires 15 and 16, however, serve to roughen the surface of the ribbon in the manner shown in the portion 19 of said ribbon, a number of more or less fine transverse cracks being formed in this surface. A plurality of side brushes 20 are rotatably mounted in the frame 21. The bristles 22 of these brushes 20 engage the sides of the ribbon 11 so that the travel of the ribbon itself on the conveyer 12 causes the brushes to be rotated, and during this rotation the bristles 22 (which are preferably made of narrow flat strips of tempered

steel) are bent so that when an individual bristle is almost disengaged from the surface of the clay-ribbon the resiliency of the bristle causes the latter to straighten out and perform a "picking" action by which a small amount of clay is removed from the surface of the ribbon. In order that the picking may throw the small cut particles of clay in the direction in which the ribbon is traveling, I prefer to have the bristles 22 made with a slight permanent bend; otherwise, upon engagement of the end of a bristle by the clay-ribbon its curvature would be formed in the opposite direction from that which is represented in Fig. 2 and the subsequent picking action would not be as effective. It will be evident that by the engagement of the bristles 22 with the surface of the clay-ribbon a stippling action is performed by which the surface is covered with a large number of minute indentations, and from this surface small particles of clay are removed by the picking action just described.

The top brushes 23 are similar to the side brushes 20, and are mounted so that the bristles 24 engage the upper surface of the clay-ribbon 11 and subject it to a stippling action in exactly the same manner that the sides of the clay-ribbon are subjected to a similar action by the bristles 22 of the brushes 20. If desired, the side brushes 20 and the top brushes 23 may be provided with brakes so that they will have a greater lag when their bristles are engaged by the clay-ribbon. In this way the bending of the individual bristles and the picking action may be increased, but it will be apparent that the braking action must not be so great that the brushes will not be readily rotated by the movement of the clay-ribbon, as otherwise the bristles of the brushes would simply score the surface of the clay-ribbon with longitudinal lines and would not perform the stippling action which is characteristic of my invention.

The particles of clay which are picked from the sides of the ribbon fall from the ribbon by their own weight, whereas the particles picked from the upper surface by the action of the brushes 23 remain on the surface of the ribbon. These particles of clay may be removed by any suitable means, but I prefer to employ a blower 25, which effectually blows these particles away from the upper surface of the ribbon without affecting the texture of this surface.

From the above description of the machine which I employ it will be evident that after the clay-ribbon is extruded from the die 10 the more or less hardened skin on the upper and side surfaces of the ribbon is removed by the action of the wires 15 and 16, which serve to leave the upper and side surfaces of the ribbon in a somewhat roughened condition. The material removed from the upper surface of the clay-ribbon is carried away from this surface by the action of the plow 17. Minute indentations are then formed in these surfaces by the action of the bristles 22 and 24 of the brushes 20 and 23, respectively, these brushes being rotated by the movement of the clay-ribbon itself. Not only are the minute indentations formed, but small particles of clay are removed or picked from these surfaces, and such particles which are on the upper surface of the clay-ribbon are removed therefrom by the action of a blower, or by other similar means.

After the operations just described have been completed, the clay-ribbon is cut into bricks by wire, or other suitable means, according to any well-known process, thereby forming a plurality of bricks, which are subsequently heated in kilns according to any of the well-known systems.

It will be apparent to those skilled in the art that many changes could be made in the details of the method which I have described without departing from the spirit or scope of my invention, as defined in the appended claims.

What I claim is:

1. The method of manufacturing bricks, or the like, which consists in shaping ceramic material into a moving ribbon, forming minute indentations in the surface of said ribbon, and picking relatively small amounts of material from the surface of said ribbon at the outer ends of said indentations.

2. The method of manufacturing bricks, or the like, which consists in shaping ceramic material into a moving ribbon, roughening the surface of said ribbon, forming minute indentations in said roughened surface, and picking relatively small amounts of material from the surface of said ribbon at the outer ends of said indentations.

3. The method of manufacturing bricks, or the like, which consists in shaping ceramic material into a moving ribbon, roughening the surface of said ribbon, forming minute indentations in said roughened surface, picking relatively small amounts of material from the surface of said ribbon at the outer ends of said indentations, and removing from the surface of the ribbon the material which has been picked therefrom.

4. The method of manufacturing bricks, or the like, which consists in shaping ceramic material into a moving ribbon, removing a relatively thin layer of material from the surface of said ribbon, forming minute indentations in the surface of said ribbon from which said layer has been removed, and picking relatively small amounts of material from the surface of said ribbon at the outer ends of said indentations.

5. The method of manufacturing bricks, or the like, which consists in shaping ceramic material into a moving ribbon, removing thin layers of material from the upper surface and sides of said ribbon, forming minute indentations in the surfaces of said ribbon from which said layers have been removed, and picking relatively small amounts of material from the surface of said ribbon at the outer ends of said indentations.

In witness whereof, I hereunto subscribe my name this 8th day of March, A. D. 1916.

FRANK W. BUTTERWORTH.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."