J. L. BUCKLEY.

BRICK MACHINE.

APPLICATION FILED NOV. 8, 1915.

1,207,272.

Patented Dec. 5, 1916

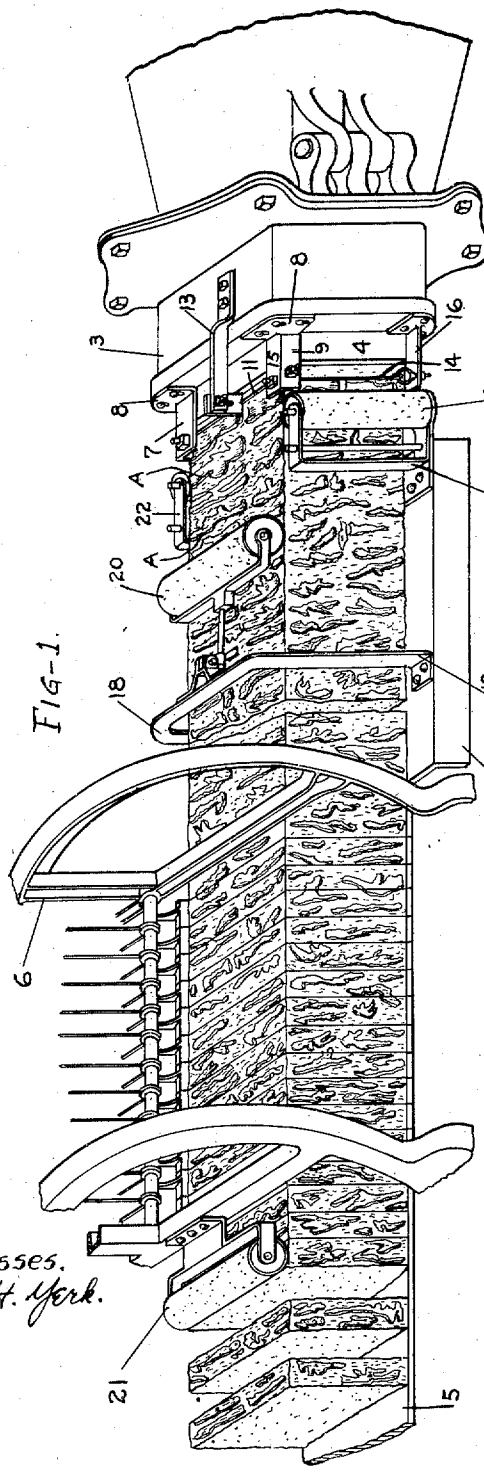


FIG-1.

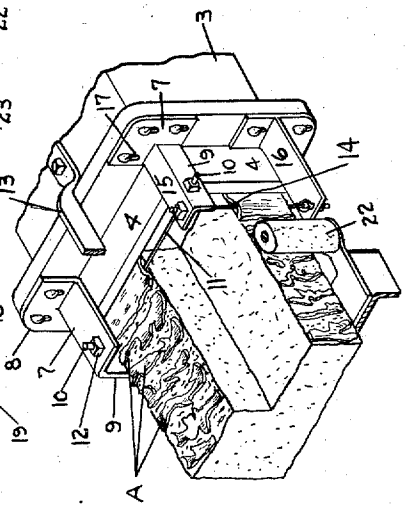


FIG-2.

Witnesses.
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BRICK-MACHINE.

1,207,272. Specification of Letters Patent. Patented Dec. 5, 1916.

Application filed November 8, 1915. Serial No. 60,259.

To all whom it may concern:

Be it known that I, JOSEPH L. BUCKLEY, a citizen of the United States of America, and resident of Davenport, Scott county, Iowa, have invented a certain new and useful Improvement in Brick-Machines, of which the following is a specification.

My invention relates to improvements in brick making machines, in which the bricks are cut, ready for burning, from a continuously formed column of stiff clay, and has for its object the providing of means for embossing or projecting figures in relief on one or more surfaces of the clay column, whereby a finished brick is produced, having one or more of its faces ornamented in simulation of the bark of an oak tree, and another object is the affecting of such ornamentation without interruption to the continued flow or movement of the clay column from the machine.

With these objects in view, my invention consists in certain novel features of construction hereinafter described and shown in the accompanying drawing, in which—

Figure 1, is a perspective view of my improved device as applied to an ordinary stiff-mud brick machine, parts of which are diagrammatically shown, and Fig. 2 is a detail in perspective of a portion of my improvement.

In the drawing, in which similar reference characters refer to similar parts in the different views, I have illustrated the preferred form of my invention, and show same as comprising the head 3, of an ordinary stiff-mud machine which is provided with die plate 4, through which the clay column is ejected, the column having a width and thickness corresponding to the length and width of a finished brick. As the means of conveying the clay column from the machine forms no part of my invention, any well known moving table or belt conveyer that will carry the clay column in an unbroken mass from the die to the cutting apparatus, may be employed. In the drawings the conveying means is diagrammatically shown as at 5. The cutting device, consisting of wires under tension by which the clay column is cut into brick size, may be of the usual construction, and is diagrammatically shown as at 6.

To remove the undesirable slick, silvery surface formed on the clay column by the passage of the moistened mass through the smooth die, and to produce the present day brick with the much desired roughened surface, it is the common practice to remove a slice of considerable thickness from the upper surface and edges of the column (as these surfaces become the exposed faces of the finished brick when in a building or other structure) leaving a raw and more or less ragged surface, or tear the surface into ridges or furrows by passing same through a mass of sharp pointed pins arranged in front of the die and caused to penetrate the surface of the clay mass to a considerable depth.

The principal object of my invention is in the providing of means whereby the surface of the brick, while roughened to the desired degree, is also highly ornamented by projecting portions of the surface of considerable area in sharply defined relief, with a raw, more or less ragged surface, as a background.

While a design of most any desired configuration could be embossed in relief on the surface of the brick by subjecting each individual brick to the pressure of a die press, the operation is not only expensive, but the product would oftentimes prove unsatisfactory due to the lack of variety—as each brick would be an exact duplicate of the other. This lack of variety would prove exceptionally objectionable in a design simulating "oak bark."

In producing "oak bark" brick, the slick shiny surface of the clay column must be completely separated from the column. This is best accomplished by scraping the exposed surfaces of the column as it passes from the die. The scraps or loosened particles released by the scraping apparatus, when the scraping apparatus is properly positioned with respect to the edges of the die, take the form of elongated chips or shavings with their edges more or less curled up, and which arrange themselves with more or less regularity in rows transversely of the surface scraped. While a complete separation will thus be effected between the scrapings and the body of the clay column, the moist sticky consistency of the mass, affords means whereby the shavings or scrapings maintain their position relative to the column, assumed upon leaving the scraping apparatus.

To straighten out the more or less curled up edges of the shavings, and to more se-

curely reunite same to the body of the column, whereby they will not become displaced when subjected to the action of the cutting wires in reducing the column to brick size, they are subjected to pressure immediately upon formation, and after leaving the brick-size cutting wires they are again subjected to pressure to cause them to firmly adhere to the body of the finished brick and to square up any edges that may have become slightly torn up or roughened by the action of the cutting wires, thus projecting the shavings in sharp bas relief from the surface of the brick, with no two brick ornamented with exactly the same configuration.

In the drawing I have illustrated the preferred form of scraping and pressing means and show same as consisting of the brackets 7, which may be secured to any convenient point on the head 3, as at 8. These brackets may be of angular form and extending through the vertical members 9, are the threaded eye-bolts 10. Extending across the opening in the die plate 4, and in close proximity to the upper horizontal edge thereof is the scraper 11, which may consist of a piano wire secured at its ends to the eye-bolts 10, through the medium of which it can be stretched taut by the aid of the nuts 12. To prevent bowing up of the wire at its center, to insure shavings or scrapings of uniform thickness, I provide the angle shaped bracket 13, which is secured at one end to the head 3, and has its other end in contact with the wire at about its center of length. If desired, the free end of this bracket can be made to extend to a point on a plane with the lower side of the scraper and have its end drawn to a knife edge so that it will sever the transversely extending shavings into shorter lengths and thus more thoroughly simulate the appearance of "bark." The edges of the column are similarly scraped by the scraping wires 14, which may also be tautly secured in close proximity to the vertical edges of the die plate 4, by eye bolts passing through the horizontal member 15 of the bracket 7 at one end and to the bracket 16, at the other end.

When the clay column comes in contact with these scrapers, the surface is peeled off in shaving-like formation having irregular edges more or less curled up and the surface more or less crinkled longitudinally, and arranged in a general transverse direction in substantially parallel rows as shown at *a a a*.

When the scrapers are positioned at too great a distance from the edge of the die in toward the opening, they function more as cutters severing an unbroken slice from the column, thereby negativing the very end sought, that is, the formation of the shaving like portions with their irregular outlines, crinkled surface, and curled up edges.

The discovery that the wires or cutters could be positioned at a point relative to the surface of the column where they would cease to slice off an unbroken mass but function as scrapers, bringing forth the segregated, shaving like formation, I consider the important feature of my invention. The exact point at which the slice separated will disintegrate into the much desired segregated shaving like formation is dependent in a large measure on the percentage of moisture in the clay and speed of travel of the column, it being the aim to produce as thick a shaving as possible. The brackets 7, and 16, may therefore be adjustably secured by providing same with the slotted holes 17, or by any other suitable means, whereby the scrapers may be properly positioned relative to the surface of the column.

Immediately upon converting the surface of the column into the above described formations, means are provided to apply sufficient pressure thereto, whereby their more or less curled up edges are flattened out and they are more thoroughly reunited to the body of the column, so that they may undergo the process of cutting to brick-size without appreciable displacement or injury. This pressure-applying means may consist of bracket 18, or the like, secured in any suitable manner to the frame 19. Hinged to this bracket at about its center over the clay column is the roller 20, provided with the usual lamb's wool covering. The parts may be made of a weight that gravity alone will produce the necessary pressure of the roller on the shavings, or the pressure may be produced by the use of an ordinary spring fringe.

After the column has passed through the usual brick-size cutting device as shown at 6, the surface is again subjected to the weighted roller 21, suitably mounted to the rear of the cutting frame, whereby the shaving formations are firmly reunited to the body of the brick and any unevenness or roughness that may have been caused by the cutting wires is smoothed out and obliterated, leaving the ornamentation clean cut and in bold relief. The pressure applying means to act upon the edges of the column may consist of the rollers 22, secured to the frame in any suitable manner, as by the bracket 23.

If it be desired to ornament the face of the finished brick but not the ends, the rollers 22 may be removed and the scrapers 14, adjusted by setting same farther in from the vertical end of the die plate, so that it will cut off an unbroken slice of the column, permitting same to drop to the floor, from which it may be returned to the mixing machine. The smooth shiny surface of

the edges of the column (which become the ends of the finished brick) will thus be removed—leaving a raw, more or less roughened surface.

Having thus described my invention, what I claim as new is:

1. In a brick-making machine, the combination of means for continuously forming a plastic bar or column of clay, and a device behind the same so located as to sever a thin slice from one face of the column and simultaneously break the slice into irregularly-shaped fragments and allow the fragments to be deposited back upon the face from which they were severed in irregularly-spaced relation, means for pressing these irregularly-spaced fragments against said face to cause them to unite thereto, and means for severing the column into blocks.

2. In a brick machine, the combination of a die plate for continuously forming a plastic column of clay, a wire stretched behind the same in such position as to sever a thin slice from one face of the column and simultaneously break the slice into irregularly-shaped fragments and allow the fragments to be immediately deposited back upon the face from which they were severed in irregularly-spaced relation, a device for rigidly supporting the wire at a point between its ends, means for pressing said irregularly-spaced fragments against said face to cause them to unite thereto, and means for severing the column into blocks.

Signed by me at Davenport, Iowa, this 5th day of November, 1915.

JOSEPH L. BUCKLEY.