Nov. 22, 1932. S. C. DUTY 1,888,376

PROCESS OF AND APPARATUS FOR FORMING FACE BRICK

Filed July 18, 1929 2 Sheets-Sheet 1

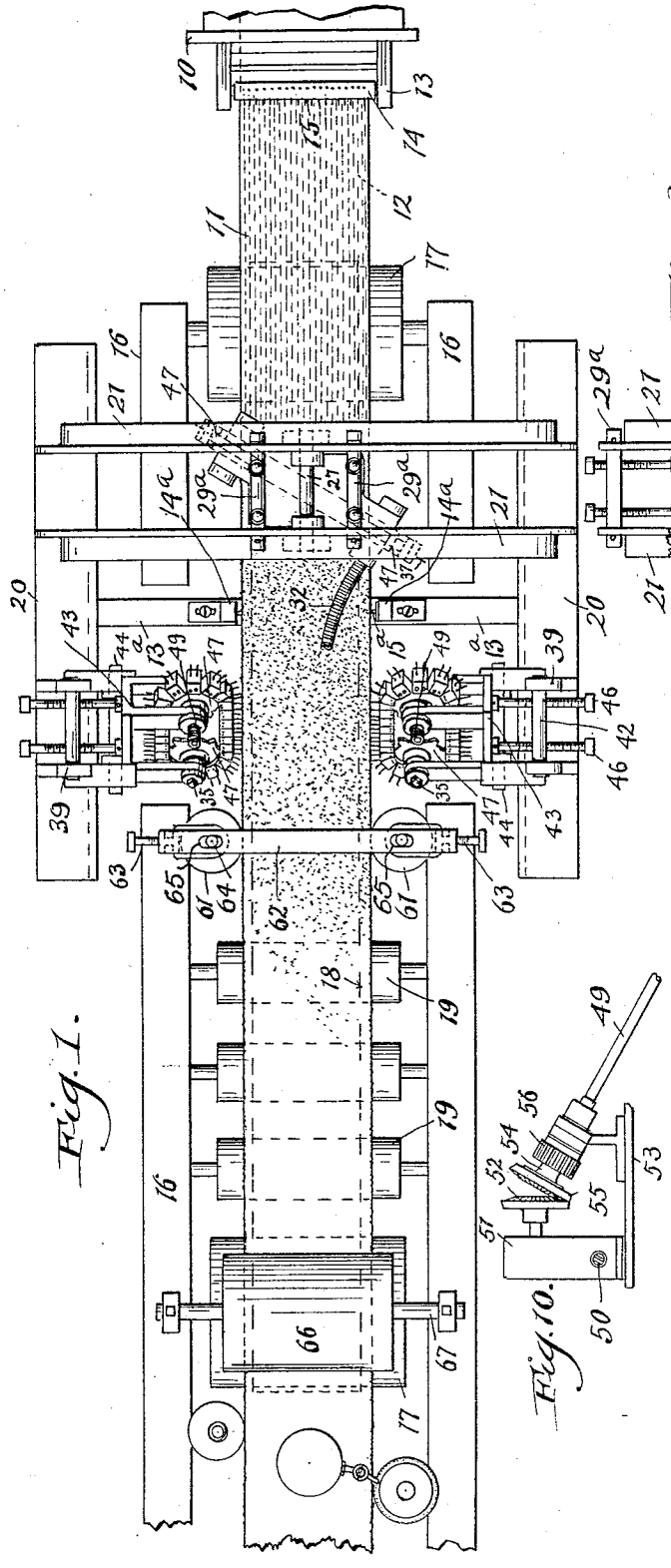

Fig. 1.

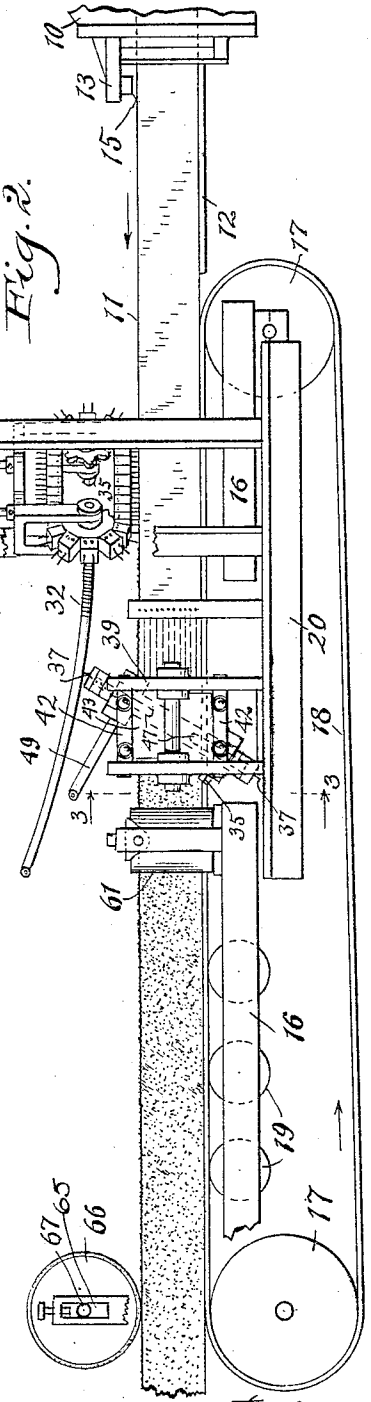

Fig. 2.

Fig. 10.

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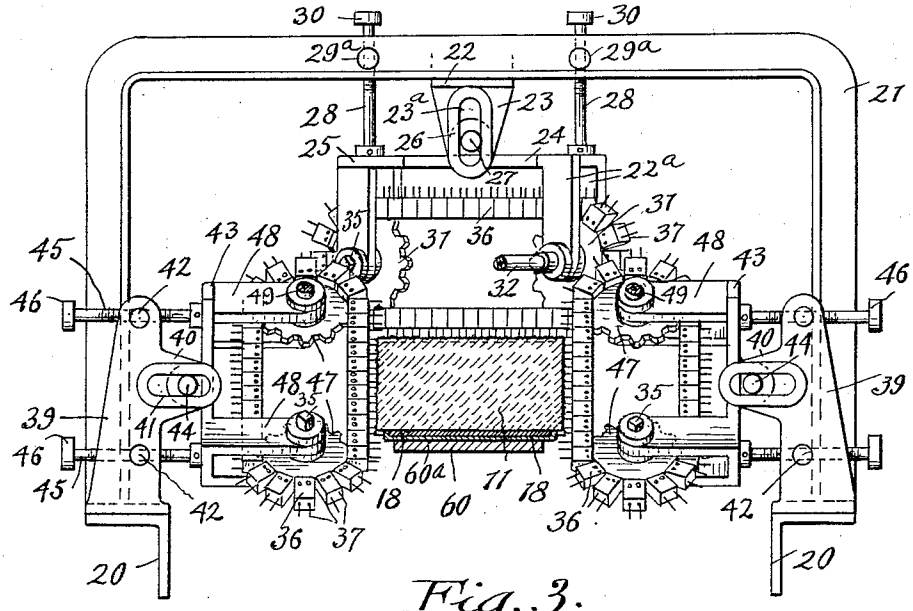
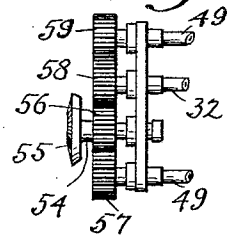


Fig. 3.

Fig. 4.



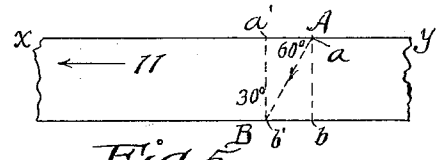
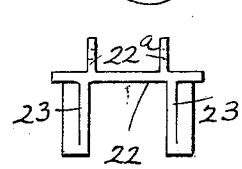


Fig. 5.



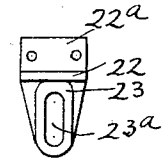


Fig. 8 Fig. 9.

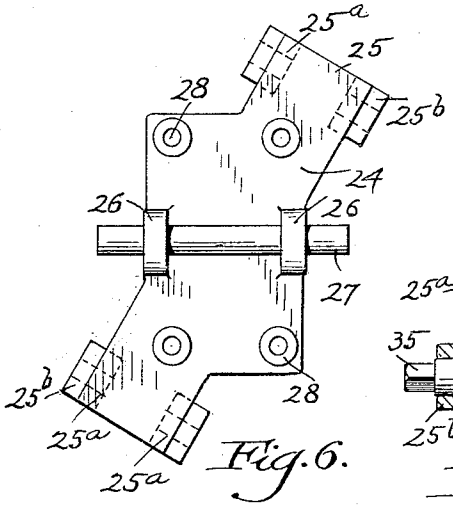


Fig. 6.

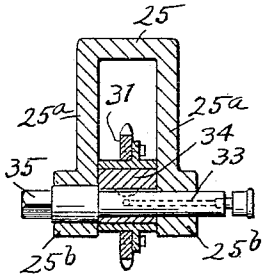


Fig. 7.

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Patented Nov. 22, 1932 1,888,376

UNITED STATES PATENT OFFICE

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PROCESS OF AND APPARATUS FOR FORMING FACE BRICK

Application filed July 18, 1929. Serial No. 379,216.

This invention relates to a process of and an apparatus for forming face brick, such as enter into the construction of dwellings and other buildings.

As is well known, brick produced by the stiff mud process are made by forcing clay or ground shale through a die by means of an auger, the clay being extruded from the die in the form of a continuous column, which then is cut into brick by means of wires or other suitable cutting means. As the brick produced by this method would, unless given a surface treatment either as the column is extruded or after the column has been cut into sections, have an objectionable shine and glisten and would be so regular and smooth as to produce a monotonous harsh wall, certain surface treatments have been resorted to.

A widely used form of treatment is to subject the surface of the clay column while being extruded to the scratching action of a number of wires which are held in a bracket and engage the different surfaces of the column in a fashion similar to the teeth of a comb. Ordinarily, this bracket and the wires carried thereby are attached to the die and extend across the top and two sides of the clay column. These wires roughen and break up the surfaces of the column by making a number of parallel scratched longitudinal lines in the surfaces thereof and the brick thus produced are what is commonly known as "vertical texture" brick. Though these brick have been and are used very extensively, the roughness thus produced on the surfaces thereof is mechanical since the lines are so regular as to immediately be noticed by the eye and thus give a wall formed of such brick a harsh and unpleasing appearance.

The principal object of the present invention is, therefore, to provide a new process of and apparatus for making face brick, whereby the appearance of the brick both in texture and range of colors is greatly improved without affecting the durability thereof. More particularly, it is an object of the present invention to produce brick the texture and color effects of which are such as to give a pleasing appearance to the wall or building and to overcome the objections to the brick which are used to a large extent at the present time, namely the objectionable and monotonous shiny appearance of die surfaced brick and the mechanical roughness or harshness produced by merely forming a plurality of parallel longitudinally extending lines in various surfaces of the brick.

More specifically, another object of the present invention is to provide a process of and an apparatus for forming face brick whereby a surface or surfaces of the brick will be given the desired roughened appearance without any trace of regular lines or designs.

Another object is to provide a method of and apparatus for forming face brick which may be readily adapted to and used with the various brick forming machines now in use.

Another object is to provide an apparatus for forming face brick capable of properly roughening a surface or surfaces of the brick without breaking the edges thereof.

Another object is to provide an apparatus of this character which is simple in construction and operation and which may be readily adjusted for various sized bricks, as well as for various degrees of roughness desired.

Additional objects and advantages will become apparent hereinafter as the detailed descriptions of the method and of an apparatus for carrying out the method are set forth.

Broadly, the invention contemplates the roughening of a surface or surfaces of the clay column by ruffling such surface or surfaces and forming thereon small protruding bits of clay, thickly distributed and arranged without trace of regular lines or designs, and then pressing such protruding bits of clay into firm contact with the column. The formation of the protruding bits of clay is accomplished by first subjecting the surface or surfaces of the moving clay column to the usual scratching action of stationary pins or wires arranged to form regular longitudinal lines on such surface or surfaces, in the manner previously followed in making "vertical texture" brick. The surface or surfaces of the column are then subjected to a second scratching action, the lines

formed thereby extending substantially transversely of the surface or surfaces and perpendicularly or approximately perpendicularly to the longitudinal lines, above referred to. The second scratching action produces upon the surface or surfaces of the column thickly distributed small feather-like protruding bits of clay which obliterate or conceal the lines produced by both the first and second scratching actions. These feather-like protruding bits of clay extend above the original scratched surface and are so distributed in a spongy mass as to completely cover all signs of the lines underneath and when they have been pressed back into firm contact with the column, they will adhere thereto and give the desired rough irregular appearance without the production of regular lines or designs.

In carrying out the proposed process or method a surface or surfaces of the clay column, as the column moves from the extruding die to the cutting apparatus of a brick making machine, is first subjected, as previously mentioned, to the scratching action of the usual wires or pins employed in the formation of "vertical texture" brick with the result that such surface or surfaces are provided with a plurality of parallel longitudinal scratched lines thereon. The surface or surfaces of the moving column of clay are then subjected to the scratching action of a plurality of wires or pins moving angularly across the same at such an angle thereto and at such speed with respect to the speed of the moving column that the resultant line formed by each wire or pin will extend transversely of the surface which it engages and will be at right angles or approximately at right angles to the longitudinal lines already formed therein. As a specific illustration of the manner in which the process or method may be carried out, each of the second set of wires or pins traveling in the same general direction as the column would cross the column at an angle of 60° from the side thereof. It will be seen that the side of the column from which the second set of wires or pins starts its movement across the same will form the bases of right angle triangles, the hypotenuse of which are the lines of travel of the wires or pins, while their vertical sides are the resultant scratched lines formed by each wire or pin during its travel across the column. Since the base angle of each triangle is 60°, the hypotenuse thereof will be twice the length of the base and, therefore, if the wires or pins are traveling at exactly twice the speed of the column, the resultant scratched line formed by each wire or pin will be a perpendicular straight line transversely across the surface of the column. Of course, it is not necessary that the set of wires or pins travel across the column at an angle of 60° since it is clearly understood that if an adjustment is made in the relative speeds of the wires or pins and the column, this angle may vary. If the angle is increased, the speed of the wires or pins must also be increased proportionately, while if the angle is decreased, the speed of such wires or pins must be decreased proportionately. It is to be understood that the angle of 60° was chosen simply for the purpose of illustration.

The foregoing explanation of the method or process, when taken in conjunction with the following description of the construction and mode of operation of an apparatus for carrying out the same will be sufficient to adequately and fully explain such method or process.

In the accompanying drawings, illustrating an apparatus for carrying out the process or method,

Fig. 1 is a top plan view of a portion of a brick making machine embodying such apparatus;

Fig. 2 is a side elevational view thereof;

Fig. 3 is a sectional view thereof, taken substantially on line 3—3 of Fig. 2, looking in the direction of the arrows;

Fig. 4 is a fragmentary detail view;

Fig. 5 is a diagrammatic illustration of the manner in which a second set of wires or pins moves across a surface of the moving column of clay;

Fig. 6 is a detail view of a sprocket supporting member;

Fig. 7 is a sectional view through the bearing mounting for the idler sprocket of each pair of sprockets; and

Figs. 8, 9 and 10 are detail views.

With the exception of the apparatus for forming the second set of lines in a surface or surfaces of the clay column, to thereby obliterate the first set of lines and to produce the feather-like protruding bits of clay which furnish the desired roughened appearance to the brick and the manner in which the scratching devices for initially scratching the sides of the column are arranged, the brick making machine illustrated is conventional and well known and will, therefore, only be briefly described herein to an extent sufficient to illustrate the manner in which the apparatus embodying the invention functions, as well as the manner in which the method or process of the invention may be carried out.

As is usual in machines for making "vertical texture" brick by the stiff mud process, ground shale or clay is forced through an extruding die 10 by means of an auger, so as to be ejected therefrom in a continuous column 11 which is subsequently cut into the separate brick. As the column 11 is extruded from the die 10, it passes onto a supporting table 12 arranged at the exit end of the die, which table supports the column as it passes

from the die onto a conveyor belt later to be described. A bracket 13 is suitably supported by the die 10 and carries a member 14 which extends across the upper surface of the clay column 11. This member 14 carries a plurality of downwardly extending wires or pins 15 which enter the upper surface of the moving column and form a plurality of regular longitudinal scratched lines therein. As previously stated, this arrangement is usual in machines for manufacturing "vertical texture" brick and only forms a part of the present invention in so far as its combination with the apparatus thereof produces the new result sought. Forwardly of the die 10 and slightly beyond the forward end of the supporting table 12 the machine includes longitudinally extending frame members 16 arranged in parallel spaced relationship and forming the supporting means for a pair of rollers 17 extending transversely therebetween and arranged at opposite ends thereof. These rollers 17 carry an endless belt 18 which forms the conveyor for transporting the column 11 from the table 12 to the machine which cuts the column into the separate brick but which is not illustrated or shown herein as it forms no part of the present invention.

The frame members 16 also support adjacent their forward ends a plurality of transversely extending idler rollers 19 upon which the conveyor belt 18 rests so that it will more substantially support the column.

In applying the apparatus of the present invention to the machine, the frame members 16 are cut away intermediate their ends so that certain parts of the apparatus can extend inwardly to a point adjacent the column 11. At the cut-away portion of the frame member 16, longitudinally extending angles 20 are arranged on each side of the machine, such angles being suitably supported by the frame of the machine in a manner not shown, their purpose being to carry the supporting means for the operating or moving parts of the apparatus about to be described. This means includes a pair of substantially U-shaped angle members 21 secured to the angle members 20 adjacent the rear end thereof and arranged to straddle the column of clay in parallel relationship and spaced from each other longitudinally of the column. A member 22 is secured to the middle portion of the angle members 21 and is in the form of a plate having upwardly extending arms 22*a* intermediate its ends, which constitute with the plate angles adapted to engage each angle member 21 and to be secured thereto. Lugs 23 extending downwardly from each end of the plate 22 are provided with aligned slots 23*a* extending vertically thereof throughout substantially the entire length of the lugs 23 (see Fig. 8). A sprocket carrying member, indicated generally as 24, is supported by the member 22 so as to be adjustable with respect to the clay column. The sprocket carrying member 24 comprises a rectangular plate from diametrically opposite corners of which extend portions 25 (see Fig. 6) having at their outer ends downwardly extending parallel arms 25*a*, the lower ends of which are provided with aligned bearing bosses 25*b*.

The rectangular plate is angularly disposed with respect to the portions 25 and is provided at the middle of its longitudinal edges with upwardly extending lugs 26, between which extends a pin 27 having its opposite projecting ends slidably supported in the slots 23*a* of the lugs 23. The arrangement of the sprocket carrying member 24 is such that when assembled with the supporting angle members 21, it will be disposed in the desired angular relationship with respect to the column of clay. It is obvious from this construction that the sprocket supporting member 24 is adjustably carried by the angle members 21 and may be raised or lowered vertically with respect to the column 11 as desired, for which purpose threaded bolts 28 are swivelled to the plate of the sprocket supporting member 24 at the corners thereof and extend upwardly through threaded openings 29 formed in rotatable rods 29*a* extending between the angle members 21, there preferably being four of these threaded bolts, whereby such sprocket supporting member may be accurately adjusted when the heads 30 of the bolts are turned.

A sprocket wheel 31 is rotatably journalled between each pair of the parallel arms 25*a* upon spindles supported by the bearing bosses 25*b* formed in the lower end of each of the arms. One of the sprockets 31 is suitably connected with a flexible drive shaft 32 so as to be positively driven by a driving mechanism later to be described. The other of the sprockets 31 is freely rotatable upon a spindle 33, the mounting for such sprocket being an adjustable one. Referring to Fig. 7, it will be seen that the spindle 33 has keyed thereto intermediate the bearing bosses 25*b* an eccentric bushing 34, upon which bushing the sprocket wheel 31 freely rotates. Therefore, when the squared end 35 of the spindle 33 is rotated, this sprocket 31 will be moved toward or away from the clay column and toward or away from the other sprocket because of the movement of the eccentric bushing 34 which forms its bearing, thereby serving to take up slack in the chain or to loosen the same when desired. Each sprocket 31 is located adjacent an edge of the upper surface of the clay column and because of the angular disposition of the sprocket supporting member 24 will cause a chain extending around the sprockets to travel across the column at the desired angle, such angle in the present illustration being 60°. The chain 36, which

is mounted on the sprockets 31 and which may be of any desired construction is provided throughout its length with a plurality of aligned pins or wires 37 which project from the chain in such manner that they will enter into the surface of the clay column as the chain travels around its sprockets. Of course, the amount or degree to which these wires or pins 37 enter into the clay column depends upon the adjustment given to the sprocket supporting member 24 by means of the threaded bolts 28 with the result that the action of these pins or wires may be varied to suit different conditions. It is apparent that irregularities in the size or shape of a column, due to swelling, etc. may be adequately taken care of by the various adjustments of the sprocket supporting member which it is possible to make.

Secured to the angle members 20 forwardly of the members 21 are inwardly extending members 13*a* which have adjustably associated with their inner ends vertically extending members 14*a* carrying a plurality of inwardly extending vertically aligned pins or wires 15*a* which impact the longitudinal lines in the side surfaces of the column for the initial scratching thereof. Forwardly of the members 13*a* and secured to the horizontal arm of each of the angle members 20 on both sides of the column is a substantially U-shaped member, indicated generally at 38, the purpose of which is to support the sprocket supporting members which, in turn, carry the sprockets and chains for roughening the side surfaces of the column. Each of the arms 39 of the U-shaped member 38 extends upwardly and is provided intermediate its ends with an inwardly extending portion 40, which portion is provided with an elongated horizontal slot 41, the purpose of which is the same as the slot 23*a* in the lugs of member 22. Rods 42 extend between the arms 39 of the U-shaped members 38 and are each provided with a pair of threaded openings through which extend adjusting screws, later to be referred to.

A sprocket supporting member 43, similar to the sprocket supporting member 24, previously described, is adjustably associated with each U-shaped member 38, being supported upon a pin 44 the opposite ends of which are slidably arranged in the horizontal elongated slots 41 formed in the portions 40 of the arms 39. Four adjusting screws 45 are swivelled to the sprocket carrying members 43 and extend through the threaded openings provided in the rods 42, whereby when the heads 46 of the adjusting screws are turned, the sprocket carrying members 43 may be adjusted with respect to the sides of the column in the same way as is the sprocket supporting member 24 adjusted with respect to the top of the column. Sprockets 47 are carried by the inner ends of the arms 48 of the members 43 and as in the case of the sprockets 31, one of the sprockets 47 is driven and the other is freely rotatable. In the present form, it is the upper of the sprockets 47 which are driven, the same being connected to a flexible shaft 49, which is driven by a suitable mechanism later to be set forth. The lower of the sprockets 47 is freely rotatable and is mounted on the same type of adjustable bearing as is the freely rotatable sprocket 31. The chains 36 provided with the pins or wires 37 extend around the sprockets 47 and when the drive sprocket 47 is operated, these chains will have a movement such that the pins will pass across the sides of the clay column at an angle of 60° to the upper edge thereof and dig into the surface of the same. The action of the pins 37 upon the sides of the clay column is from the top downwardly, since it is advantageous not to break the upper longitudinal edges of the column by having the pins leave the column at these points since such edges have already been weakened by the action of the pins 37 which have roughened the upper surface of the column.

As previously stated, the driven sprockets are driven by the flexible shafts 32 and 49, the shaft 32 being operatively connected with the driven sprocket 31 and the shafts 49 with the driven sprockets 47. The shafts 32 and 49 are driven by a motor (not shown), the shaft 50 of such motor being operatively connected through a gear reduction 51 to the bevel gear 52. The motor and the gear reduction is preferably suspended above the machine although, of course, the particular position or mounting of this part of the apparatus is immaterial. The frame 53 which supports the gear reduction 51 also supports a stub shaft 54 which is provided with a bevel gear 55 meshing with the bevel gear 52. The shaft 54 has a spur gear 56 keyed thereto, such spur gear meshing with a spur gear 57 keyed to an end of one of the shafts 49 and with a spur gear 58 keyed to the end of the shaft 32. The spur gear 58 in turn meshes with a spur gear 59 keyed to the end of the other shaft 49, the result being that the spur gears 57 and 58, together with one of the shafts 49 and the shaft 32 will be rotated in one and the same direction, while the spur gear 59 and the other shaft 49 will be rotated in the opposite direction. It will thus be seen that when the drive motor is actuating the chains 36, the chain which passes across the upper surface of the column will move in one direction while the chains which pass across the sides of the column will move from the top of the column downwardly. A suitable rheostat, not shown, is provided for varying the speed of the motor, since the speed of the chains must be so regulated that it will be in the desired proportion to the speed of movement of the conveyor and the moving clay column.

Referring to the diagrammatic showing in Fig. 5, the chain which carries the pins across the column 11 (either the upper or the side surfaces thereof) is indicated by the line A—B, which line extends across the column from the side X—Y thereof and at an angle of 60° to such side. Since the triangle diagrammatically shown by the lines a, b', a' is a right angle triangle, the base angle of which is 60°, the hypotenuse ab' will be twice the length of the base aa'. Therefore, when the chain is travelling at exactly twice the speed of a column, each wire or pin carried by the chain will scratch a perpendicular straight line transversely of the column as indicated at a' b'. That such straight line will be the resultant scratched line is clear since, while the pin or wire is travelling from a to b', the column advances so that point b which is opposite to point a has advanced to position b', the point where the pin makes its exit. Of course, it should be understood that the pins and chains may cross the column at different angles than 60° and still produce lines perpendicular to the flow of the column, provided, of course, that the proper adjustments are made in the speed of the chain and of the column, to wit: as the angle is increased, the speed of the chain must also be increased proportionately, while if the angle is decreased, the speed of the same must be proportionately decreased.

It will be noted that the apparatus disclosed herein scratches the upper surface of the column first and after which the sides of the column are scratched with the direction of the moving pins being downwardly. While other arrangements might be used to advantage, this arrangement is thought to be preferable since there is less likelihood of the edges of the column being broken where only one set of pins make their exit at an edge of the column than there would be were two sets of pins to make their exit at an edge. It should be again pointed out at this time that the apparatus described herein provides a complete control as to the amount or degree of penetration of the scratching pins, which results in the ability to secure the desired rough surface without definite lines or designs, under varying conditions. If the pins penetrated too lightly into the column, there would only be crossed lines scratched thereon which would produce with the longitudinal lines a series of well defined squares upon the surfaces of the column. However, with the penetration of the pins too deep, the whole surface will be torn loose. Therefore, it is important that the penetration of the pins be so adjusted that as they move across the surfaces of the column, they cause a feathering action of the surface material which will conceal or obliterate the lines and, at the same time sufficiently roughen such surface or surfaces as to produce the desired effect.

In order to adequately support the advancing column at the point where the feathering of the surfaces takes place, a supporting table 60 extends beneath the column but which, together with the belt is of less width than the column, so that the pins will not strike against the same when they penetrate into the sides of the column. There is also provided a flanged channel member 60a, the web of which lies between the belt 18 and the table 60. Of course suitable openings are provided in the flanges of the member 60a for the passage of the pins or wires. A pair of vertical rollers 61 covered with suitable material are rotatably mounted, one on each side of the column forwardly of the vertically movable chains 36, and are adjustably supported by a U-shaped supporting member 62 carried by the frame members 16. These rollers 61 may be moved toward or away from the sides of the column by means of adjusting screws 63. Since the brackets which support the spindles 64 of the rollers are movable because of the elongated slots 65 in the cross arm of the member 62 within which the spindles 64 have sliding movement, the rollers may be adjusted to various sized columns and also to exert the desired necessary pressure upon the sides of the column to roll the feather-like protuberances thereon into a homogeneous rough mass. Forwardly of the rollers 61, a rotatable roller 66 extends transversely across the upper surface of the column and is mounted at each end in an adjustable bearing 67, which bearing in turn is supported by the frame member 16. The purpose of mounting the roller 66 in an adjustable bearing is the same as is the purpose of mounting the rollers 61 in adjustable bearings, namely, so that the roller may be positioned to contact with the upper surface of the column with the desired pressure to roll the feather-like portions or protuberances thereof into a mass but still not to compact the same completely back into the main mass of the column.

From the foregoing description, the operation of the apparatus will be understood as will also the mode of carrying out the process of the invention, but it should be stated herein that the specific example of the invention so set forth is by way of illustration and that the invention should not be limited thereto except in so far as the scope of the appended claims so limits it.

Having thus described my invention, I claim:

1. The method of making brick which comprises forming a series of longitudinal parallel lines on a surface or surfaces of a column of brick material, and then ruffling the surface or surfaces to obliterate such lines by forming a series of transverse parallel straight lines perpendicular or substantially

perpendicular to the first mentioned lines on such surface or surfaces to thereby produce feather-like protuberances thereon free from visible regular lines or designs.

2. The method of making brick which comprises moving a column of brick material longitudinally, forming a series of parallel longitudinal lines on a surface or surfaces of such moving column, and then forming a series of transverse lines substantially perpendicular to the first mentioned lines upon such surface or surfaces of the moving column.

3. The method of making brick which comprises moving a column of brick material longitudinally, scratching a series of parallel lines in a surface or surfaces of said moving column, scratching a series of transverse lines substantially perpendicular to the first mentioned lines in said surface or surfaces of the moving column to produce feather-like protuberances thereon, and then rolling such protuberances into the surface or surfaces of the column to produce a roughened surface.

4. The method of making brick which comprises moving a column of brick material longitudinally, forming a series of parallel lines in a surface or surfaces of the column, and then moving scratching devices obliquely across such surface or surfaces of the moving column at such an angle thereto and such speed with relation therewith that the resultant lines formed by such devices in such surface or surfaces will extend transversely thereof and substantially perpendicularly to said first mentioned lines.

5. The method of making brick which comprises moving a column of brick material longitudinally, scratching a series of longitudinal parallel lines in a surface or surfaces of the column, then moving scratching devices obliquely and in one direction only across such surface or surfaces of the column at such an angle thereto and at such a speed with relation therewith that the resultant lines formed by such devices will be straight and will extend transversely of the column to thereby ruffle the surface or surfaces and produce feather-like protuberances thereon which obliterate the lines underneath, and then rolling such protuberances into a roughened mass.

6. The method of making brick which comprises extruding a column of brick material, moving said extruded column of material longitudinally, forming a series of parallel spaced longitudinal lines in a surface or surfaces of such column, then ruffling such surface or surfaces to form feather-like protuberances thereon by moving scratching devices obliquely of the direction of travel of the column and across such surface or surfaces at an angle thereto and at a relative speed therewith so that the resultant scratched lines produced thereby will be straight and perpendicular or substantially perpendicular to the first mentioned lines and extend transversely of the column, and then rolling such surface or surfaces to press the protuberances into a roughened mass.

7. The method of roughening the top and side surfaces of a moving column of brick material which comprises moving a scratching device across the top surface of the moving column, and then moving scratching devices across the side surfaces of the moving column, the scratching devices in each instance moving across its respective surface of the column at such angle with respect to an edge thereof, and with such speed with respect to the moving column that the resultant line scratched thereby will be substantially perpendicular to such edge and extend transversely of the surface.

8. The method of roughening the top and side surfaces of a moving column of brick material which comprises moving a scratching device across the top surface of the moving column and then moving scratching devices across the side surfaces of the moving column from the top edge thereof toward the bottom edge, the scratching devices in each instance moving across its respective surface of the column at such angle with respect to an edge thereof and at such speed with respect to the moving column that the resultant line scratched thereby will be substantially perpendicular to such edge and extend transversely of the surface.

9. The method of roughening the top and side surfaces of a moving column of brick material which comprises forming longitudinal parallel lines on such surfaces, then moving a scratching device across the top surface of the moving column, then moving scratching devices across the side surfaces of the moving column from the top edge thereof toward the bottom edge, the scratching devices in each instance moving across its respective surface of the column at such angle with respect to an edge thereof and at such speed with respect to the moving column that the resultant line scratched thereby will be substantially perpendicular to such edge and extend transversely of the surface and will ruffle the surfaces to produce feather-like protuberances thereon serving to obliterate both the longitudinal parallel lines first formed thereon and also the second lines, and then rolling the side and top surfaces of the column to press such feather-like protuberances into a roughened mass.

10. The method of roughening the top and side surfaces of a moving column of brick material which comprises forming a series of longitudinal parallel scratched lines in such surfaces, then moving a plurality of scratching devices across the top surface of the moving column and then moving a plurality of scratching devices across the side sur-

faces of the moving column, the scratching devices in each instance moving across its respective surface of the column at an angle of 60° with respect to an edge thereof, and at twice the speed of the moving column, whereby the resultant lines scratched by such devices will be perpendicular to such edge and to the longitudinal parallel lines first mentioned, and extend transversely of the surface.

11. A brick making machine comprising means for extruding a column of brick material, means for moving the column longitudinally, means for forming a series of parallel longitudinal lines on a surface or surfaces of the moving column, and means for forming a series of transverse parallel lines substantially perpendicular to the longitudinal lines on said surface or surfaces.

12. A brick making machine comprising means for extruding a column of brick material, means for moving the column longitudinally, means for scratching a series of parallel lines in a surface or surfaces of the moving column, and means moving obliquely across such surface or surfaces of the moving column for scratching therein a series of transverse lines substantially perpendicular to the first mentioned lines.

13. A brick making machine comprising means for extruding brick material in a column, means for scratching a series of parallel longitudinal lines in a surface or surfaces of the extruded column, means for moving the extruded column longitudinally, and means for scratching a series of transverse lines in such surface or surfaces of the column, said means comprising scratching devices moving obliquely of such surface or surfaces of the column at an angle thereto and at a relative speed therewith, such that the resultant lines scratched thereby will be substantially perpendicular to the first mentioned lines.

14. A brick making machine comprising means for extruding a column of brick material and moving the same longitudinally, means for scratching in a surface of the extruded column, a series of parallel longitudinal lines, and means for scratching in such surface a series of transverse parallel lines substantially perpendicular to the first mentioned lines, said last named means comprising a scratching device moving obliquely across the surface of the moving column at such an angle thereto and at such speed in relation therewith that the resultant lines scratched thereby are substantially perpendicular to the longitudinal lines first mentioned.

15. A brick making machine comprising means for extruding a column of brick material and for scratching a series of parallel longitudinal lines in a surface thereof, means for moving the extruded column longitudinally, and means for scratching a series of transverse lines in such surface of the column and substantially perpendicular to the longitudinal lines, said last named means including a series of scratching elements moving transversely of the surface at a predetermined angle with respect to an edge thereof and at a predetermined relative speed with relation thereto whereby the resultant line scratched by each element will be perpendicular or substantially perpendicular to the longitudinal lines and will ruffle such surface so as to create feather-like protuberances which obliterate all the lines.

16. In a brick making machine in which a column of brick material is moved longitudinally, an endless series of scratching devices, and means for moving said scratching devices across a surface of the moving column at a predetermined angle to the direction of movement thereof and at such speed in relation therewith that the lines scratched thereby will extend transversely of such surface and substantially perpendicularly to an edge of the surface.

17. In a brick making machine in which a column of brick material is moved longitudinally, sprockets arranged adjacent each edge of a surface of the moving column, a chain extending around said sprockets and having a continuous series of scratching devices which engage the adjacent surface of the column, said sprockets having axes disposed so that said chain travels obliquely across the surface of the moving column in one direction, and means for driving one of said sprockets.

18. In a brick making machine in which a column of brick material is moved longitudinally, sprocket supporting members arranged adjacent the top and side surfaces of the moving column, means for moving said members toward and away from the adjacent surface of the column, a pair of sprockets supported by each of said members, one sprocket of each pair being adjustable toward and away from the adjacent surface of the column independently of the positon of the other sprocket, a chain extending around the sprockets of each pair of sprockets and having a series of scratching devices which engage the adjacent surface of the column, the sprockets of each pair of sprockets being disposed so that said chain extends obliquely across the adjacent surface of the moving column, and means for driving one sprocket of each pair of sprockets to thereby cause the chain mounted on each pair of sprockets to move therearound with the scratching devices carried thereby scratching lines in the respective surfaces of a column.

19. The method of making brick which comprises forming a series of straight longitudinal lines on a surface or surfaces of a column of brick material, and then forming

a second series of straight lines on such surface or surfaces extending transversely thereof from one longitudinal edge to the other longitudinal edge and at such angle to the first named series of lines as to ruffle the said surface or surfaces and obliterate all the lines.

In testimony whereof, I hereunto affix my signature.

SPENCER C. DUTY.