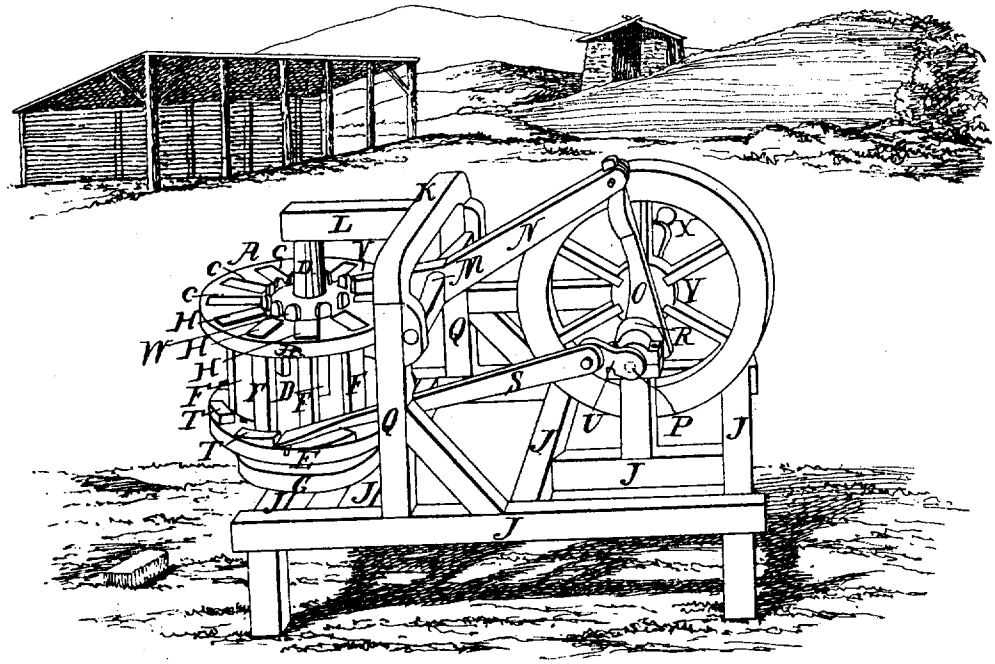
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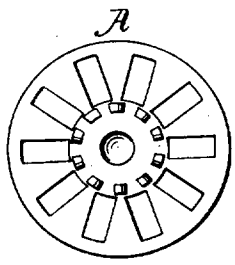
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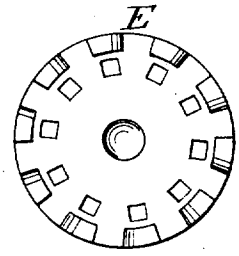
W. C. Grimes,

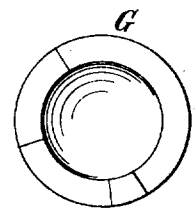
Brick Machine,

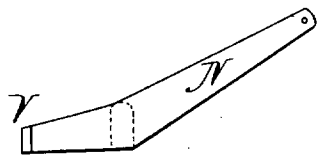
Patented Dec. 2, 1834.

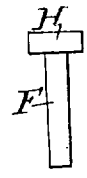












A.M. PHOTO-LITHO. CO. N.Y. (OSBORNE'S PROCESS)

Dec 2. 1834

8517X

William C. Gaines of York, Pennsylvania

Letters Patent.

The Schedule referred to in these Letters Patent and making part of the same, containing a description in the words of the said William C. Gaines himself of his improvement in a Machine for Moulding Brick.

To all to whom these presents shall come

Be it known that I William C. Gaines of York in the County of York and State of Pennsylvania, have invented a new and useful Machine for moulding Bricks and that the following is a full and exact description of the construction and operation of the said Machine, reference being had to the accompanying drawing which makes a part of this Specification.

This Machine is constructed upon the following general principles. A wheel is affixed Horizontally to, and revolves with an upright shaft, the latter being properly supported above and below, by a suitable step and box, in which its gudgeons turn. The moulds in which the bricks are to be formed, are placed around and upon the face or upper side of the wheel, near its periphery. These may stand in the direction of radii, from the centre of the wheel, or otherwise, and two or more Moulds may be united or connected together. A hopper or trough of sufficient capacity is placed in an inclined position with its lower end over the wheel and over one or more of the moulds, as they pass under it. This hopper is to contain the tempered clay of which the bricks are to be made, and through that part of the bottom of it, which projects over the mould, or moulds, a hole or holes, an opening or openings, are made of the length and width of a brick, through which the clay is to descend into the moulds. The motion of the wheel is not to be continuous, but intermitting; while it is at rest a mould is immediately beneath the opening

C. B.

in the bottom of the hopper, or trough, and the clay is thus forced by a piston down into it; the piston then rises and the wheel moves, and the moulds are thus filled in succession. As the filled moulds pass round upon the wheel they are removed, and replaced by empty ones. It is manifest that two or more moulds may be filled at the same time, by the use of two or more openings and pistons, and the employment of such other devices, as may thereby be rendered necessary sufficient power being applied for that purpose. The wheel A receives its irregular or intermitting motion from the crank N. to which is attached to the pall or ratchet C. that takes into the teeth D.D. affixed for that purpose, to the periphery of the wheel A; these teeth are to be equidistant from each other, and to correspond in number with the moulds E.E.E. upon the wheel A. The number of the moulds will depend upon the diameter of the diameter of the wheel, which will admit of considerable variation, but from four to six feet I think the most economical. The moulds must be slightly attached to the face of the wheel, which may be done in various ways. The following being among the best. From the underside of the moulds, project two dowell pins; which fit into corresponding holes in the face of the wheel, by which means the moulds are kept from any lateral or horizontal movement. The dowel pins should be short, so that the moulds may be readily disengaged from the wheel. The holes for the pins or dowels in the face of the wheel should be pierced through it so as to prevent them from being filled or choaked with dirt &c. Two or more moulds may be united in one frame as is usual in Brick Moulds. The out frames of the moulds, are inclined from each other, like key stones, so as to stand as radii from the centre of the wheel, thus forming the proper arch or curvature around the wheel; and their upper surfaces should form a true plane. Each frame of moulds should have a thin plate or board F. which is equal in length

in length and breadth to it corresponding frame, and forms the bottom or bed of the moulds, the aforesaid dowell pins pass loose thro' holes made for that purpose in this plate the latter not being otherwise fastened to the moulds. its use will be apparent to any one acquainted with the usual mode of moulding bricks. The trough or hopper G. which is to contain the tempered clay, should have its sides very much inclined, thereby narrowing its bottom. that part of the bottom of the trough which lies over the moulds, should consist of Metal, or be faced with it around the opening. the bottom of the trough around the aforesaid opening, is not a part of the plane of the bottom, but consists of four planes, each commencing at its respective side of the opening, and rising at an angle, of one three or four degrees from the horizon, in the form of a shallow hopper (see Fig 1.2.3.) inside of the trough or hopper, the bottom is chamfered off, around and down into the opening, so that the edge of the opening is reduced to about one eighth of an inch in thickness H Fig 2. this allows all the surplus clay to flow or pass out laterally from beneath the piston as it passes down almost to the moulds. the thin or chamfered edge answering also to strike or smooth the upper side of the brick, as it passes from beneath the opening. The wheel A. which carries the moulds, turns just above and at one end of a low oblong frame I. upon which there are suitable cross pieces to support the trough or hopper E. upon the other or opposite end of the said oblong frame, is affixed a flywheel K. and shaft L; the length of the latter being about half the width of the frame I. upon which it is supported. upon each end of the shaft L. and outside of its bearings or journals, is affixed a crank M. and another N. the crank M. not seen in the drawing, gives motion to the piston O. and is about midway across the frame; the crank N. is outside of the frame and gives motion to the Mould wheel A. by the pall or ratchet C. crank N. describes a circle somewhat greater in diameter than the distance between two contiguous teeth on the periphery of the mould wheel; hence the ratchet passes over but one tooth in each revolution of the crank, thereby giving the requisite motion to the mould wheel, and causing it

it always to stop with one of the moulds directly beneath, and corresponding with the before described opening in the bottom of the trough, or hopper, being held there by a ratchet. The crank M. gives a vertical motion to the piston O. in the following manner. Two upright posts Y.Y. standing one upon each side of, and about midway between the ends of the frame F. have their upper ends framed into a suitable cap piece, to keep them in their relative position, they may rise to the height of four or five feet (more or less) above the top of the frame. A beam or shaft R. with round tenons or gudgeons upon its ends, hopes from one to the other of the upright posts YY. there being suitable boxes near the upper ends of the posts for the gudgeons of the said shaft to turn in. The shaft R. is a support and fulcrum to the balance beam S. which is affixed to it at right angles, the beam lies in a horizontal position, and to one end of it is jointed the upper end of the shackle bar T. which is connected below to the crank M: to the other end of the beam is jointed the rod or stem of the piston O. which passes down through the piece U. fixed on the top of the trough or hopper; serving to guide the piston to the moulds below. Near that end of the beam to which the shackle bar is jointed, an arm V. is framed into its under side, which is to be firmly braced to it, and descend near to the most elevated end of the trough or hopper; to the lower end of this arm is jointed a feeder shaft W. which lies in an inclined position with its feeder resting upon the inclined bottom of the trough or hopper. Now it will be perceived that as the vertical piston O. rises and falls, the feeder with the inclined shaft W. will have a movement nearly horizontal upon the bottom of the trough. As the vertical piston O. rises, the feeder which rests upon the bottom of the trough, approaches the aforesaid opening above the moulds (and vice versa) the object of which is to force the clay beneath the vertical piston. The machine may receive its motion from a strap, carried around the fly-wheel, and over a drum or pulley, which last may be driven by any competent power. or the machine

may

may receive its motion by a crank attached to the fly wheel shaft, or in any other convenient mode. I do not mean to confine myself to the peculiar form or arrangement of the parts, as before specified, but to vary them as experience or convenience may dictate; whilst the general principle remains unchanged.

What I claim as new, and as my invention, and for which I ask Letters patent is. 1st The moulding of brick upon, or in moulds upon the face of a revolving, horizontal wheel, disc, or rim, constructed and acting upon the principle herein specified.

2nd The manner of forcing the clay into the moulds by the combined action of a feeder and piston. 3rd The general construction and combination of the respective parts of the above described machine, from which general combination it derives that character by which it will be readily distinguished by any competent machinist from the various machines for moulding bricks already in use. And I hereby declare that I do not intend to claim as my invention, the piston, crank, hopper, or any other part of the said machine taken separately and individually, as these may constitute the elements of other machines; but as aforesaid, the construction and combination of these parts upon the principle by me devised, and herein fully exemplified.

Witnesses
Robt. Clarke
Ebenezer Talbot.

William C. Grimes

Drawing

1937 Words]