

W. C. HALL.

PROCESS AND MACHINE FOR TREATING BRICK.

Patented Dec. 19, 1876.

Fig. 1.

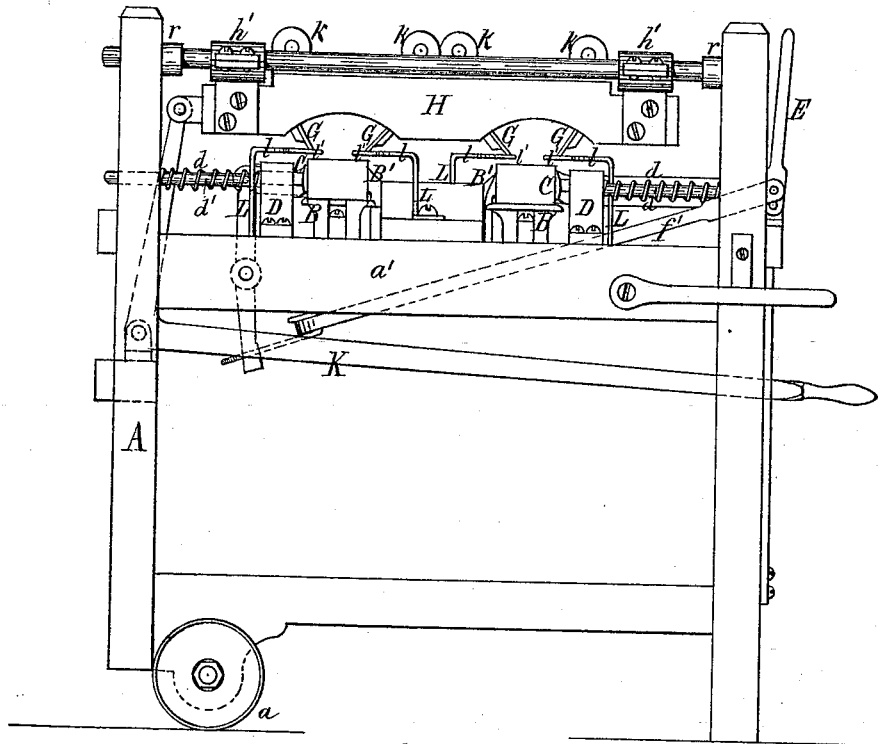
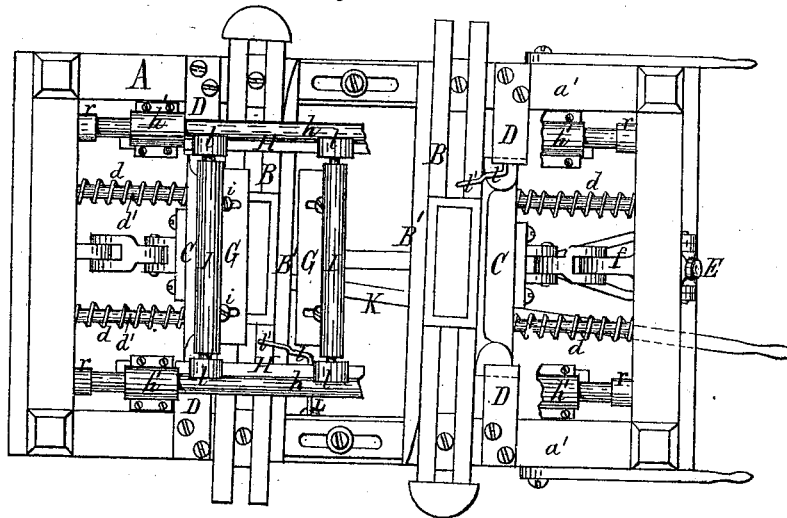


Fig. 2.



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Fig. 3.

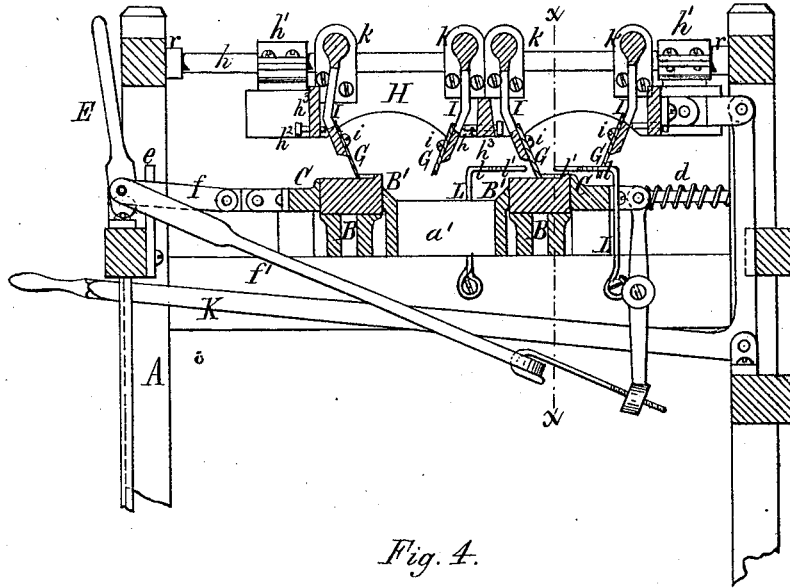
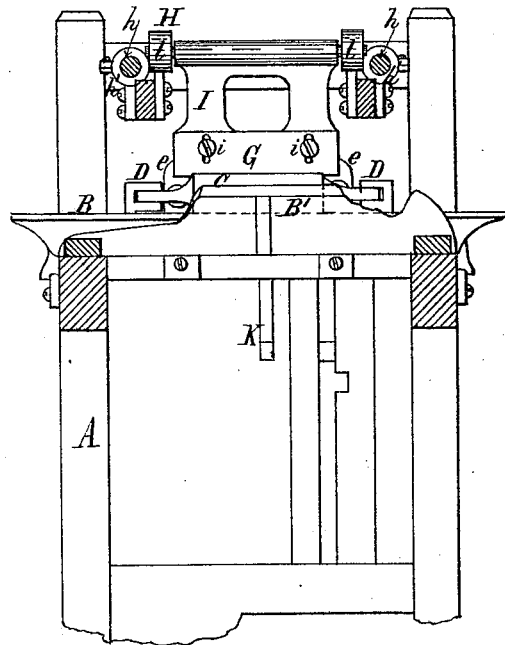


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM C. HALL, OF BUFFALO, NEW YORK.

IMPROVEMENT IN PROCESSES AND MACHINES FOR TREATING BRICKS.

Specification forming part of Letters Patent No. 185,394, dated December 19, 1876; application filed October 23, 1876.

To all whom it may concern:

Be it known that I, WILLIAM C. HALL, of the city of Buffalo, in the county of Erie and State of New York, have invented certain Improvements in Process and Machine for Treating Bricks, which improvements are fully set forth in the following specification, reference being had to the accompanying drawings.

Building-bricks, when formed in the ordinary manner, by molding or pressing, are not uniform in thickness, their sides and edges are generally more or less uneven, and they frequently change form in drying or setting, previous to burning, so that even when turned out true by the press their form is generally more or less distorted and impaired, when ready for the kiln.

The object of my invention is to overcome these difficulties, so as to produce bricks having uniform thickness, and true sides and edges.

The first part of my invention relates to the process of treating the bricks previous to burning; and the second part of my invention relates to a machine for carrying out this process.

The nature of my invention will be fully understood from the following description.

In the accompanying drawings, consisting of two sheets, Figure 1 is a side elevation of my improved machine. Fig. 2 is a plan view thereof, with a portion of the upper parts removed. Fig. 3 is a longitudinal section of my machine. Fig. 4 is a cross-section in line *xx*, Fig. 3.

Like letters of reference refer to like parts in each of the figures.

A represents the main frame of the machine, preferably mounted on wheels *aa*, so as to be readily moved. *a'* are longitudinal beams or girders secured between the posts of the main frame, and B bed-pieces arranged transversely upon the beams *a'* for supporting the brick while operated upon. The bed-piece B is composed of two or more parallel bars arranged so as to leave a narrow opening or space between each pair of bars, through which the particles separated from the brick may drop. B' represents a stop-plate or abutment arranged on the side of each bed-piece B, and C a movable clamping-jaw ar-

ranged on the opposite side thereof, for holding the brick to be operated upon between them. The stationary and movable jaws are so constructed as to leave the upper and lower edges of the clamped brick free, as these edges frequently project more or less, and would interfere with the proper clamping of the brick. The stationary jaws B' are arranged at a short distance from the adjacent bed-piece B, so as to leave a narrow space between them through which the dust, &c., can escape. D are two horizontal ways or guides, in which the ends of the movable jaws C C are guided, and *d d* spiral springs arranged around horizontal bolts or rods *d'*, so as to bear against the jaw C, and resist the opening thereof. The bolts *d'* are guided in lugs *e* secured to the main frame. E is a hand-lever pivoted to the main frame, and connected to both movable jaws C C by connecting-rods *ff'*, so that both are opened and closed simultaneously. If preferred, however, each jaw may be actuated independent of the other. G represents the knives or cutters arranged in a reciprocating carriage, H, sliding on horizontal guide-bars *h*, by means of bearings *h'*. The knives G are adjustably secured to frames I pivoted between lugs *h* of the carriage H. Two knives or cutters, G, are arranged above each bed-piece B, preferably in such manner that the knives will travel partially over the same from opposite sides, so that each knife will cut or plane the brick placed on the bed-piece from its edge inwardly, and stop before reaching the opposite edge of the brick. The knives are adjusted on the frames I by set-screws *i* passing through slots in the knives, and with reference to the carriage H, by set-screws *h²* passing through cross-pieces *h³* of the carriage. L are springs arranged at one or both ends of each knife G, for holding the same in contact with the brick during the cutting-stroke, and lifting it away from the brick during its return stroke. The springs L consist of a vertical arm secured to the main frame, and a horizontal arm, *l*, arranged at a short distance above the cutting-edge of the respective knife, and provided with an inwardly-projecting portion, *l'*. The latter bears against the end of the knife during its forward or cutting stroke, thereby holding the knife down

to its work, while, when the knife has completed its stroke, the portion *V* springs inward, and engages against the back of the knife, thereby raising the latter during its return stroke, so that the cutting-edge clears the brick until the end of the portion *V* of the spring is reached by the knife, when it drops back to its former position by its own weight. The cutter-carriage H, as shown in the drawings, is actuated by a bell-crank lever, K, but any other suitable means may be employed for the purpose.

The bed-pieces B, abutments B', and clamping-jaws C are preferably arranged at an angle to the knives, so that the latter strike the brick in an oblique direction, which produces a slanting cut, and brings the resistance gradually upon the knives. *r* represents sleeves of rubber or other elastic material placed upon the guide-bars *h*, so that the bearings *h*¹ of the carriage H will come in contact therewith at the end of its stroke, and arrest the movement of the carriage in an easy manner.

The bricks formed in the mold or pressed in the ordinary manner are allowed to dry or set until they are ready for burning, when they are subjected to the action of my improved machine.

The brick to be operated upon is placed upon the bed-piece B, and clamped by closing the movable jaw C, the two knives being in a position equidistant from the central line of the bed-piece. The knife-carriage H is then reciprocated, so that each knife makes a complete forward and backward stroke, whereby the upper surface of the brick is planed off. The two knives cut successively inwardly from the edge of the brick, and stop before reaching the opposite edge of the brick, whereby the entire face of the brick is completely gone over, and, at the same time, the chipping or breaking off of edge is avoided, which would take place if the knives were run over the edge opposite to that from which they start. When one side of the brick is finished, the clamping-jaw C is opened and the brick reversed and clamped again, and the operation of planing repeated. In this manner the sides of the brick, which are placed horizontally when the bricks are laid in a wall are made true and even, and the bricks are made of a uniform thickness, so that they can be laid without previously sorting them, thereby saving time in laying them, and enabling them to be laid in perfectly straight courses, with well-defined joints, with ease and despatch.

When the bricks are provided with a sunken panel on one or both sides, the planing will extend only to the marginal portion surrounding the panel. When the machine is provided with two bed-pieces, B, as shown in the drawings, two operators are employed on the same, one feeding the bricks from one side onto the first bed-piece, where one side of the brick is planed off, while the other operator takes the brick from the first bed-

piece, and places it in a reversed position on the second bed-piece, where the other side of the brick is planed off.

The machine is readily moved from one part of the yard to another, as circumstances may require; but, if preferred, may be made stationary and driven by any suitable power.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The herein-described process of preparing bricks for the kiln by first forming the bricks in any suitable mold or press, then allowing the bricks so formed to set or harden, and then planing off the sides or horizontal surfaces of the bricks, substantially as and for the purpose hereinbefore set forth.

2. The herein-described process of planing the surface of green bricks from two opposite edges, inwardly, whereby the chipping off of the edges is prevented, substantially as hereinbefore set forth.

3. The combination, with the bed-piece B, of two reciprocating hinged knives, G G, cutting in opposite directions, substantially as and for the purpose hereinbefore set forth.

4. The combination, with a hinged knife, G, of a spring-arm, L, provided with an inwardly-projecting portion, *V*, for holding the knife down to the brick during the cutting-stroke, and raising it away from the brick during the return stroke, substantially as hereinbefore set forth.

5. The combination, with one or more bed-pieces, B, of the abutment B', movable clamp C, and reciprocating carriage H, provided with one or more pairs of hinged knives, G, substantially as and for the purpose hereinbefore set forth.

6. The combination, with the bed B, and fixed jaw B', of the movable clamping-jaw C, sliding in guides D, guide bars *d*', springs *d*, and actuating lever, substantially as and for the purpose hereinbefore set forth.

7. The combination, with the reciprocating hinged knives G, of the bed-piece B, provided with one or more longitudinal openings, and abutment B', arranged so as to leave a space between the latter and the bed-piece, substantially as hereinbefore set forth.

8. The stationary and movable jaws B' C, constructed so as to bear against the faces of the brick without touching the edges thereof, substantially as and for the purpose hereinbefore set forth.

9. The combination, with one or more bed-pieces B, of the reciprocating carriage H, provided with knives G, and supported by bearings *h*¹ upon guide-bars *h*, having elastic cushions *r*, substantially as and for the purpose hereinbefore set forth.

WM. C. HALL.

Witnesses:

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