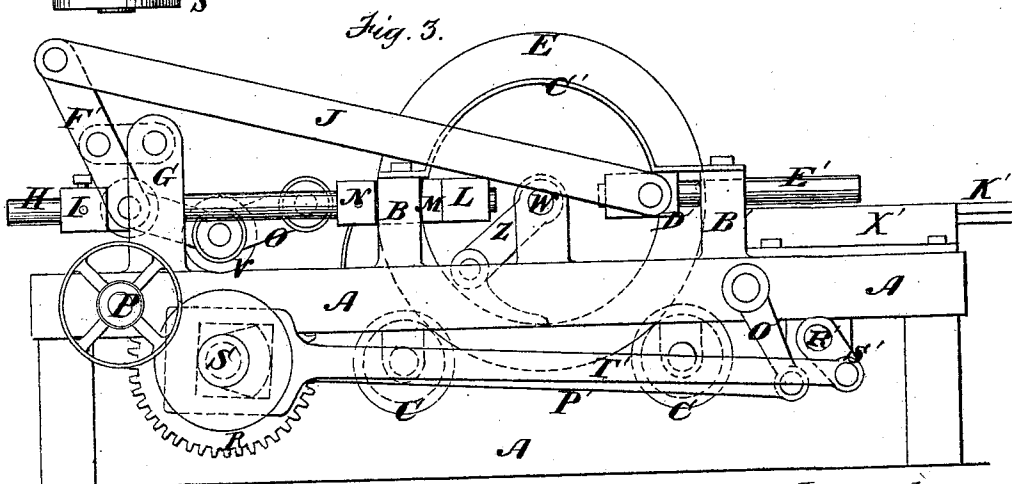
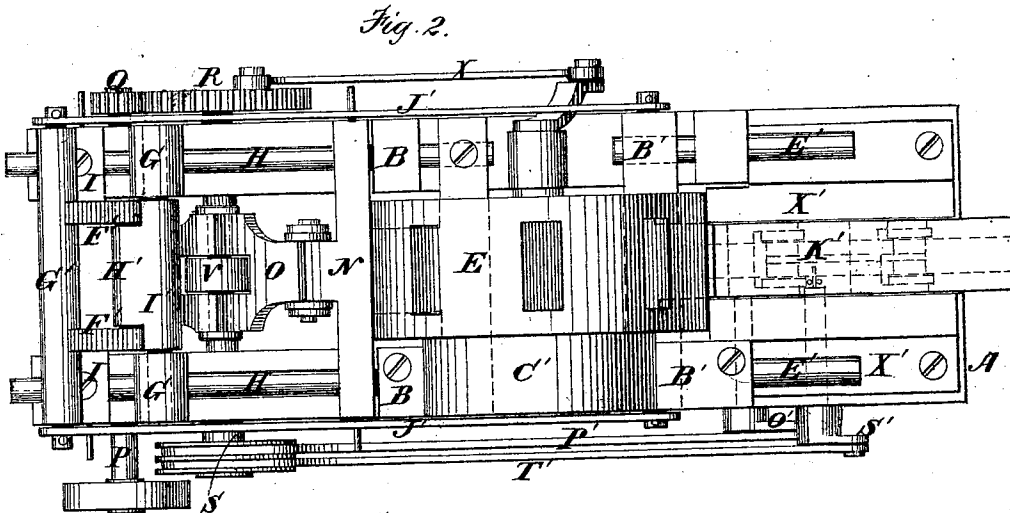
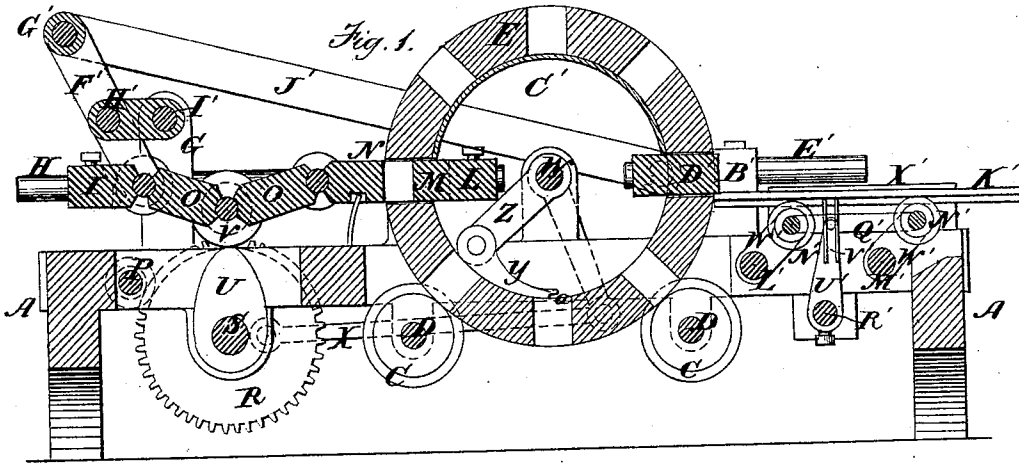


T. COOK.
Brick-Presses.

Patented April 28, 1874.

No. 150,292.



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UNITED STATES PATENT OFFICE.

THOMAS COOK, OF SING SING, NEW YORK.

IMPROVEMENT IN BRICK-PRESSES.

Specification forming part of Letters Patent No. **150,292**, dated April 28, 1874; application filed January 21, 1874.

To all whom it may concern:

Be it known that I, THOMAS COOK, of Sing Sing, in the county of Westchester and State of New York, have invented certain Improvements in Brick-Machines; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings forming part of this specification, in which—

Figure 1 is a longitudinal vertical section of the press. Fig. 2 is a top-plan view of the same, and Fig. 3 is a side elevation.

Similar letters of reference in the accompanying drawings indicate the same parts.

My invention consists in certain improvements in brick-machines, as hereinafter more fully set forth. My invention consists in a carrier having a rectilinear movement for receiving and carrying off the pressed blocks from the mold-wheel, moving them intermittently for the purpose of exposing them to a drier or cooler upon all sides. It also consists in the combination and construction of various parts, as I will now proceed to describe.

In the accompanying drawings, A is a rectangular or other suitably-formed frame mounted upon supports, and provided with two uprights, B B', upon each side, near the center. C C are flanged rollers mounted upon the ends of two cross-shafts, D D, arranged beneath the frame, at or near the ends of the central opening therein. E is the mold-wheel or rim, arranged for vertical rotation between the uprights B B', and projecting down through the frame to rest upon the flanged supporting-rollers. The mold-wheel bears upon the rollers between the flanges, so that the latter shall prevent it from lateral displacement. G are additional uprights placed upon each side of the frame, near the front end, and H H are the parallel tension-rods arranged in a horizontal position to slide freely through the uprights G B. The outer ends of the tension-bars are connected by a cross-head, I, and their inner ends by the cross-head L, which extends horizontally through the mold-wheel, and is provided with a central plunger, M, to enter the molds of the latter from the inner side. N is the pressing-platen, mounted loosely upon the parallel bars outside the face or periphery of the mold-wheel, and connected to

the outer cross-head by the toggle-lever O, arranged between such bars, as shown, so that the joint shall incline downward. P is the main driving-shaft, extending transversely through the frame at the front end, and carrying a pinion, Q, upon the end outside the frame, to engage with a gear-wheel, R, on the end of the counter-shaft S. This latter shaft also has its bearings in the frame, beneath the toggle-lever, and is provided at its center with a cam, U, which, when the machine is in operation, moves against a friction-roller, V, at the joint of the toggle-lever, to straighten the latter and move the pressing-plunger. W is a cross rock-shaft mounted in bearings of the frame so as to extend through the center of the mold-wheel, and provided with a crank-arm at one end, which is connected, by a rod, X, with a wrist-pin on the face of the gear-wheel R. Y is a dog or pawl placed within the mold-wheel, and pivoted to the end of an arm, Z, secured to the center of the rock-shaft. The pawl occupies an angular position with respect to its supporting-arm, so as to lie along the inner circumference of the mold-wheel, upon which it falls by its own gravity, and its point is formed with a shoulder, a, to engage with the inner edges of the molds, and rotate the mold-wheel when the rock-shaft is moved in one direction.

The operation of the machine thus far described is as follows: Power being applied to the driving-shaft to set the machine in motion, the substance or material to be pressed into blocks is fed into the molds at the top of the wheel by hand, or any convenient arrangement of mechanism. As the counter-shaft revolves, the gear-wheel upon its end operates the rock-shaft W through the medium of the connecting-rod and crank-arm, and causes the pawl Y to rotate the mold-wheel the distance of one mold. This carries the filled mold in line with the pressing-plunger, when the rock-shaft oscillates in the opposite direction, and the mold-wheel ceases to move. The cam on the counter-shaft then comes up against the roller of the toggle-lever, throwing the latter into line with the parallel tension-rods, and moving the plunger horizontally into the filled mold. This movement also holds the platen in position at the face of the wheel to receive the pressure

of the plunger. The block within the mold sustains all the horizontal pressure of the plunger and platen, and therefore relieves the mold-wheel of diametrical strain.

Inasmuch as the power of the toggle-lever is exerted outward against the cross-heads I L, secured to the parallel bars, the tensile strength of the latter affords the necessary resistance to prevent such force from breaking the parts of the mechanism. The tension-rods are made sufficiently large and strong to resist the force of the lever; and, as the latter possesses great power, any medium interposed between the plunger and platen is subjected to immense pressure.

When the rotation of the counter-shaft carries the cam out of the path of the toggle-lever, the latter falls at the joint by its own gravity, and retracts the plunger from the mold, so that the mold-wheel may be again rotated the requisite distance by the moving pawl.

C' is a shield arranged within the upper half of the mold-wheel to prevent the substance fed into the molds from falling through into the interior of the wheel. D' is the discharger or follower, arranged transversely through the mold-wheel upon that side of the rock-shaft opposite the plunger, so as to slide freely upon the parallel guide-rods E', secured to the uprights B' of the frame, and to the uprights which form the bearings for the rock-shaft. F' are two parallel upright arms, cast or otherwise formed upon a long horizontal cross-head, G', at right angles thereto. The lower ends of these arms are hung upon the ends of the pivot which connects the toggle-lever to the cross-head I of the tension-rods, and their centers are pivoted to the ends of a block, H', extending between them from the side of the transverse rock-shaft I', having its bearings in the upright G of the frame. The parallel arms and their cross-head constitute a lever-frame, with its fulcrum at the rock-shaft I', and with its cross-head connected to the journals of the discharger by the side rods J'. When, in the operation of the machine, the plunger moves into the molds of the wheel, the tension-rods and outer cross-head, of course, move outward from the wheel, and carry the lower end of the lever-frame with them. This throws the upper end of such frame inward, causing the connecting-rods to move the discharger horizontally into the mold opposite the plunger, and discharge its contents outward through the wheel. As the plunger is withdrawn from a mold the movement of the discharger is reversed, and it is retracted from the mold, so that the wheel may be again turned by the moving pawl. The compressed blocks discharged from the mold-wheel pass out upon a long carrying-plate, K', arranged in line with such wheel upon the arms W' of two rock-shafts, L' M'. These arms are keyed to the rock-shafts at the center, so as to work in a central opening of the frame, and are provided with flanged friction-rollers N', upon

which the carrying-plate rests. A central rib on the under side of the carrying-plate also rests upon the rollers between the flanges, to serve as a guide and prevent the plate from being displaced laterally. One end of the inner rock-shaft is provided with a crank-arm, O', outside the frame, which is connected by a rod, P', with an eccentric upon the counter-shaft, and the arms of the two rock-shafts L' M' are united by a short bar, Q', slipped upon the journals of the flanged rollers. R' is a short rock-shaft, having its bearings in the frame between the shafts L' M', and also connected, by a crank-arm, S', and rod T', with an eccentric on the counter-shaft. The inner end of this short shaft is provided with a vertical arm, U', having a short lateral pin at its end, to fit between two arms, or within a link, V', projecting downward from the under side of the carrying-plate. The function of the rock-shaft arms W' is to raise and lower the carrying-plate, maintaining it at a uniform level, and the function of the rock-shaft arm U' is to move the plate back and forth longitudinally upon the flanged friction-rollers. The arrangement of the eccentrics with respect to each other upon the counter-shaft is such that the rock-shafts are moved alternately in the following manner: When the compressed block is discharged from the mold-wheel the rotation of the inner eccentric carries the arms W' to the highest point of their throw, and holds the carrier level, or nearly so, with the lower edge of the mold. The outer eccentric then operates to rock the shaft R', so that its vertical arm U' shall move the carrier outward from the wheel along the flanged friction-rollers. As soon as it has reached the limit of its outward movement the shaft R' ceases to operate, and the carrier-arms are again set in motion to lower the carrier at that point where they stop, and the arm U' begins its return throw to move the carrier back along this lower plane toward the wheel. Here the arm U' again stops, and the lifting-arms W' raise the carrier to the position from which it started, ready to receive the next block from the wheel.

By this arrangement of mechanism a rectilinear movement is imparted to the carrier for the following purpose: It will be observed that the width of the carrier is considerably less than the length of a mold, and that its movements take place between two parallel surfaces, X'. The ends of the blocks, when they come from the molds, rest upon these surfaces X', and the rectilinear movement of the carrier alternately lifts them along above such surfaces slightly, and then drops away and permits them to rest. By this means the blocks are moved along intermittently, so that they may be exposed for a greater length of time to a cooler or drier connected with the carrier, and so that all sides of the block may be subjected to the cooling or drying action.

Having thus described my invention, what I claim is—

1. The lever-frame F' F' G, in combination with the toggle-lever O O, connecting-arms J' J', rods E' E', and discharger D', substantially as described, and for the purpose set forth.

2. In combination with the rectilinearly-moving carrier, the supporting-surface on each side of such carrier, substantially as described.

3. The combination of the mold-wheel with a carrier arranged to move up and receive a compressed block on a line, or nearly so, with the mold, substantially as described, and for the purpose set forth.

4. The combination of the rock-shafts and their arms W' W', operated from the driving mechanism, substantially as described.

5. The flanged guide-rollers on the arms of the rock-shafts L' M', in combination with the rib on the under side of the carrier, for the purpose of guiding the latter in its movements, and preventing it from being displaced laterally, substantially as described.

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