

E. M. TURNER.
BRICK-MACHINE.

No. 173,431.

Fig. 1 Patented Feb. 15, 1876.

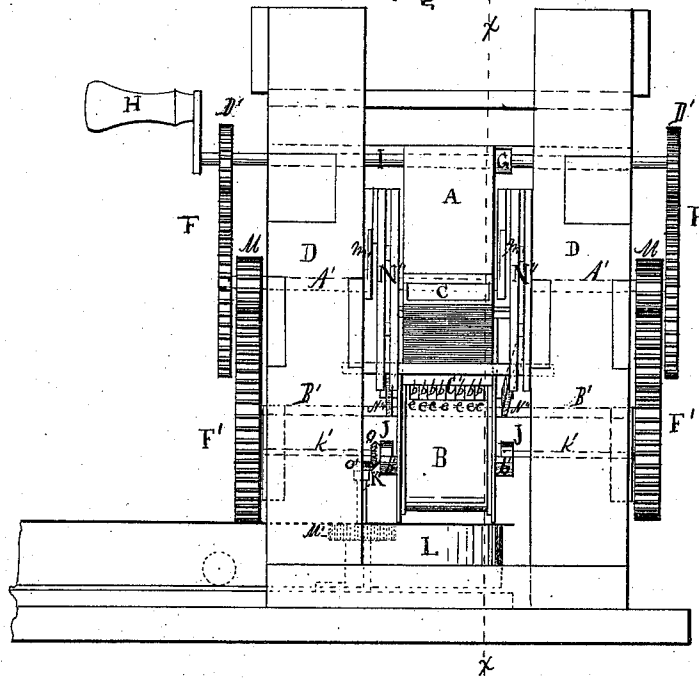
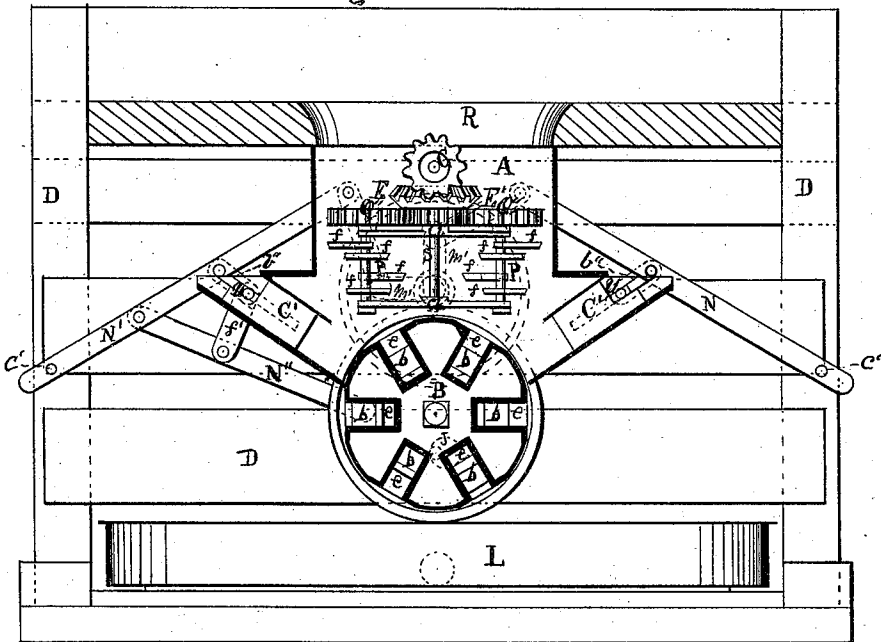


Fig. 2



Witnesses

Chas. A. Hagel.
R. D. Emmons.

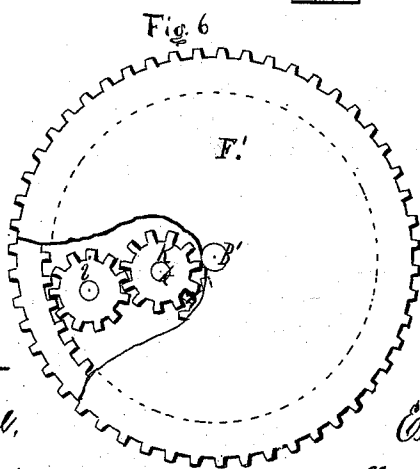
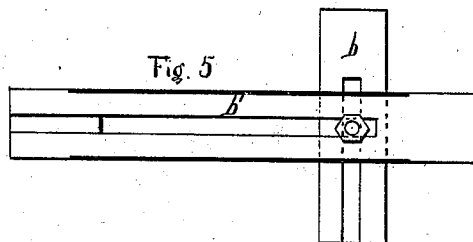
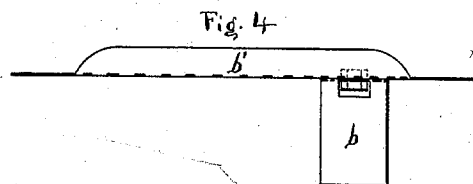
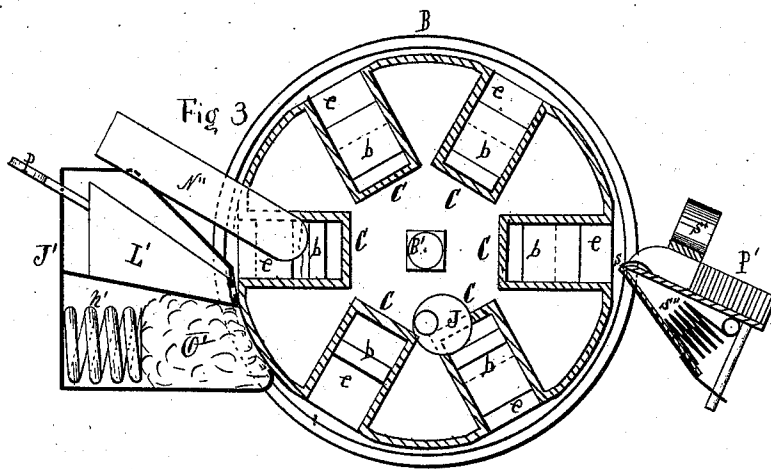
Inventor

Edmund M. Turner.
By Emmons & Emory,
His Attorneys.

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—Witnesses—
Chas. A. Hague,
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UNITED STATES PATENT OFFICE.

EDWARD M. TURNER, OF GREENCASTLE, INDIANA.

IMPROVEMENT IN BRICK-MACHINES.

Specification forming part of Letters Patent No. **173,431**, dated February 15, 1876; application filed June 16, 1875.

To all whom it may concern:

Be it known that I, EDWARD M. TURNER, of Greencastle, in the county of Putnam and State of Indiana, have invented a new and useful Improvement in Brick-Machines; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable others skilled in the art to which my invention relates to make and use the same, reference being had to the accompanying drawings forming part of this specification, in which—

Figure 1 is an end view with oiler attached; Fig. 2, longitudinal section with oiler and scraper detached; Fig. 3, cross-section of cylinder, showing position of oiler and scraper; Fig. 4, side view of follow-bar and end view of plunger; Fig. 5, top view of follow-bar and rear view of plunger; Fig. 6, rear view of external and internal gear with portion broken away, showing position of gears driven by the same.

Various objections exist relating to the means heretofore employed for the purpose of molding bricks, and to remove these objections, and provide means which may be used with greater advantages, is the purpose of my invention, which consists in certain novel features relating to the means employed for that purpose, and hereinafter more particularly set forth.

In the accompanying drawing, D represents a frame of suitable material for supporting the mechanism hereinafter described. A is the pug-mill, to be made of wood or metal, and also capable of supporting certain parts of the mechanism; B, rotary cylinder of suitable material, and provided with flanged heads, the flanges projecting, say, four inches more or less above the lower line of the pug-mill when in position under the same, and secured to the shaft B', which has suitable bearings in the frame D. The periphery of the cylinder is hexagonal, but can be constructed with more or less angles, as desired, each angle containing a section, C, and each section containing one or more molds, *c*, the length of the mold being circularly with the cylinder, and presenting its edge to the plungers. Each mold is provided with a plunger, *b*, the inner

ends secured to the follow-bar *b'* by suitable means.

As an illustration, I have shown, in Figs. 4 and 5, a hollow plunger of suitable material, with a slot in the back side of the same to receive the head of a bolt, and the follow-bar is represented as a flanged bar of wood or metal with a corresponding slot through which the bolt passes, and receives a nut, which, when tightened, secures the plunger and the bar firmly together. The ends of the follow-bar *b'* move in the slots *e* in the cylinder-heads, and receive the pressure when the clay is forced against the plungers, and also when the brick is pressed and ready to be removed from the molds. The eccentric wheels *J* engage the outer ends of the follow-bar *b'* previous to its reaching the lowest point, and gradually forces it downward, ejecting the brick from the molds on the circular off-bearer *L*, which carries the brick to the front, and they are removed to the hacker. I, driving-shaft, to which is attached the crank *H*, but in a working machine the crank would be removed and a suitable driving-pulley attached. To this shaft is also secured the pinions *D'* and the bevel-gear *G*, which engages the corresponding bevel-gear *E* secured to the vertical shaft *S*, the lower end of the said shaft having suitable bearings in the cross-piece *a* near the bottom of the pug-mill, and the upper journal arranged in the cross-piece *a'* near the top of the same.

To the shaft *S* is also secured the pinion *E'*, engaging on each side the gear-wheels *O* on the vertical shafts *P*, to which are secured the circular bevel or radial knives *f*, which mix the clay and depress the same under the pressing-plunger. *C' A'*, double right-angle crank-shafts upon each side of the mill, the inner ends having suitable bearings on the side of the pug-mill, and the opposite journals arranged in the frame *D*. To each crank is attached, by suitable means, the jointed levers *N* and *N'*, and the opposite ends of the levers are pivoted to the frame *D*, at *c'*, by suitable means. To these levers, which can be of wood or metal, are attached the pressing-plungers *O'* by means of the links *b''*, the same engaging the cross-bar on the plunger, and the opposite ends

pivoted to the levers N and N', and to the levers N' are also pivoted the arms N'', and are held in position by the links s', which are also pivoted to the journal on the ends of the pressing-plunger bar. To the driving-shaft I are secured the pinions D', the teeth engaging the teeth of the spur-wheels F, secured to the double right-angle crank-shaft A', and to which are also secured the pinions M, F', external and internal gear-wheels, secured to the shaft B'. The external teeth are engaged by the pinions M and the internal teeth engage the pinions i; k, intermediate shafts provided with suitable bearings in the frame D, and carrying the intermediate wheel K; k', eccentric shafts, provided with suitable bearings in the frame, and to the outer ends are secured the pinions n and on the opposite ends are secured the eccentric wheels J. The shaft upon the front side of the machine also carries the bevel-gear o, that engages the corresponding bevel-gear o', the same secured to the vertical shaft K'. To this shaft is also secured the pinion M', that engages the internal gear on the circular off-bearer L, this being of wood or metal, and mounted upon grooved or flanged wheels that run upon a single track.

In the rear of the cylinder is fitted, in suitable bearings in the frame D, the scraper P', which serves to take the superfluous clay from the periphery of the cylinder, and to smooth and compact the clay at the surface of the molds. This scraper is of peculiar construction, and consists of two pieces hinged at s, the upper pieces provided with sides, and a piece passing diagonally from one side to the back, leaving room at the outer end for the clay that is scraped from the periphery of the cylinder to pass out and fall clear of the off-bearer. A piece is secured across the top, and a spring, s', secured to the same, the ends of the spring bearing against some portion of the frame. Between the two hinged pieces is the spring s''. The upper spring s' serves to hold the edge of the cutter in the right position, while the under spring s'', being the weaker, causes the under plate to conform to the angles of the cylinder, keeping it flat against the periphery at all times. Upon the opposite side of the cylinder is fitted the oiler J', containing two apartments, the lower one containing a sponge, O', behind which is a spring, n', and the upper apartment contains the oil, and is provided with the stopper L', which closes a longitudinal slot in the front of the apartment. To the stopper is secured the handle p, which passes out through the back side of the oiler-apartment, and is fitted with adjustable nuts, so that it can be set with precision in regard to the quantity of oil that is to escape through the slot.

The operation of my invention is as follows: The power is applied to the machine at H, and imparts motion to the different parts of the same through the respective gears.

The clay is passed into the pug-mill A'

through the hopper R, the knives f mixing and tempering the same, and, being circular and beveled upon the under side, when in motion force the clay downward and outward to the cylinder, the levers N and N' being attached to the crank m', the opposite ends pivoted to the frame, and the links b'' are pivoted to the levers, and the opposite ends receive the ends of the pressing-plunger arms u. As the cranks revolve they raise and lower the ends of the levers to which they are respectively attached. When the levers are in the act of rising, the cylinder, revolving all the time, presents the molds successively under the pressing-plungers C'. When in the act of lowering, the levers N'' engage the ends of the follow-bar that presents itself, and force the plungers in the molds to recede, while the pressing-plunger forces the clay into the molds and presses the same. The mold is then presented to the plunger upon the opposite side of the mill, which forces in additional clay and subjects the brick to a repress at the same time the press upon the opposite side is filling another mold. As they are presented under each press at the same time, after passing the repress the outer edge of the brick comes in contact with the scraper P', which removes any irregularity on the same, and also removes any clay that may adhere to the periphery of the cylinder. The ends of the follow-bars b', in the rotation of the cylinder, and when at their lowest position, pass under the eccentric wheels J, which causes the plungers in the molds to move and eject the brick upon the off-bearer L, which presents them at the front, and they are then removed to the hacker. The molds before reaching the press again are brought in contact with the sponge O' in the oiler J', which oils the face of the plungers and causes the brick to pass smoothly from the molds. When the sponge O' requires more oil the stopper L' is moved and the necessary amount of oil allowed to escape into the sponge.

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

1. The combination, as herein described, of the rotating cylinder B, sections C, molds e, plungers b, and follow-bar b', substantially as described, and for the purpose specified.

2. The double right-angle crank-shafts A', jointed levers N and N', links b'', plungers C', links f', and levers N'', all in combination, substantially as and for the purpose specified.

3. The combination, in a brick-machine, of the pinions D', spur-wheels F, pinions M, internal and external gear-wheels F', pinions i and K and n, eccentric wheels J, bevel-gears o and o', pinion M', and the bevel-gears G and E, pinions O'' and E', and their respective shafts, substantially as and for the purpose specified.

4. The horizontal rotating off-bearer L, mounted upon grooved or flanged wheels, and running upon a single track, for the purpose

of receiving the brick from the molds and presenting them at the front of machine, all constructed and arranged to operate substantially as and for the purpose specified and described.

5. The oiler J', provided with two apartments, one above the other, the upper one containing oil, and the lower one containing a sponge and spring, substantially as and for the purpose specified and described.

6. The scraper P', constructed and arranged as specified, and for the purpose described.

The above specification signed by me this 12th day of June, 1875.

EDWARD McGAUGHEY TURNER.

Witnesses:

T. Z. INGERSOLL,
R. D. INGERSOLL.