

Wrightington & Rider,

Brick Machine

No 78,634.

Patented June 2, 1868.

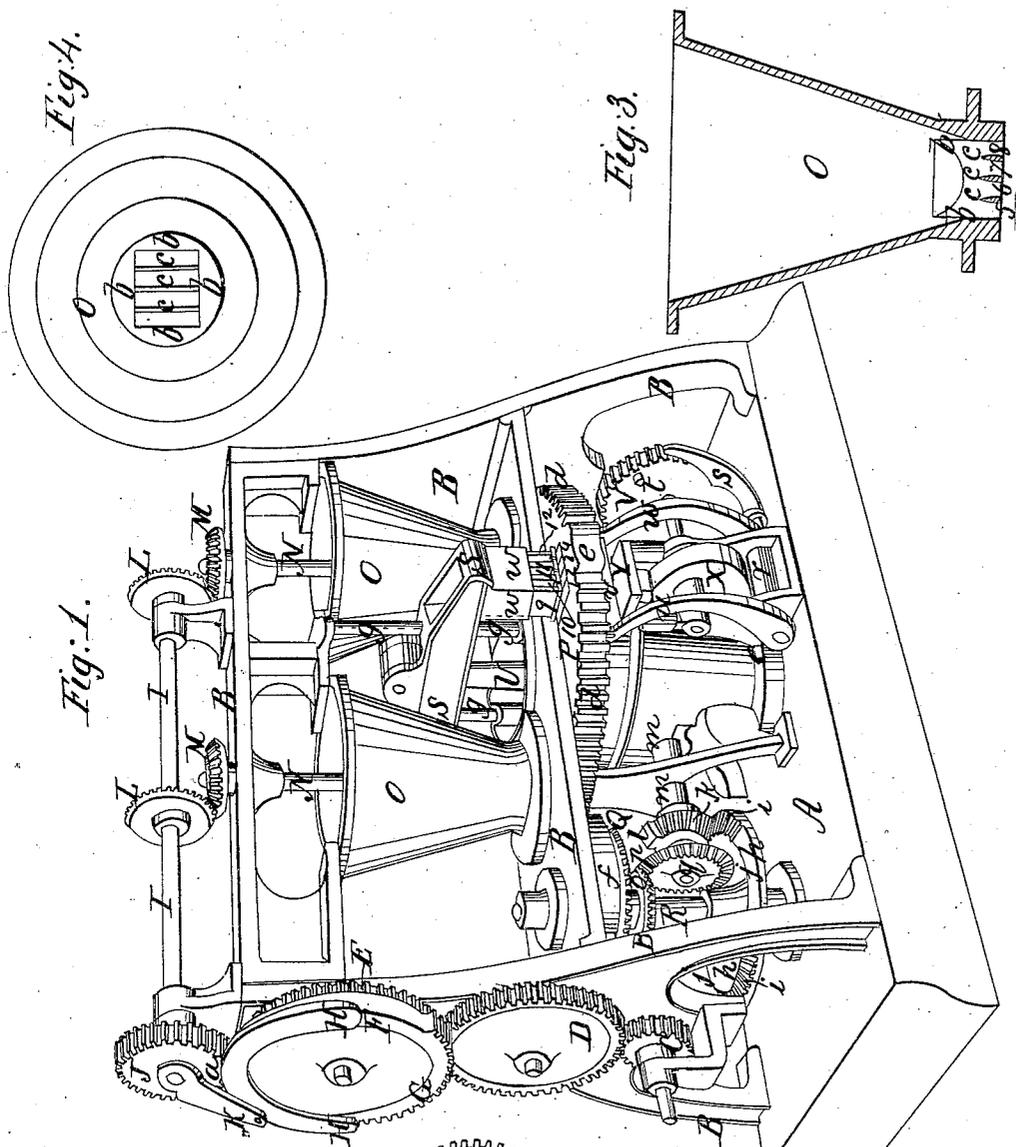


Fig. 1.

Fig. 4.

Fig. 3.

Witnesses;

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# United States Patent Office.

CHARLES D. WRIGHTINGTON, OF FAIR HAVEN, AND BENJAMIN P. RIDER,  
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Letters Patent No. 78,634, dated June 2, 1868.

## IMPROVED BRICK-MACHINE.

The Schedule referred to in these Letters Patent and making part of the same.

### TO ALL WHOM IT MAY CONCERN:

Be it known that we, CHARLES D. WRIGHTINGTON, of Fair Haven, in the county of Bristol, and BENJAMIN P. RIDER, of Chelsea, in the county of Suffolk, and both in the State of Massachusetts, have invented certain new and useful Improvements in Brick-Machines; and we do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a perspective view of the machine, and

Figures 2, 3, and 4 represent detached views of portions of the same, not distinctly seen in fig. 1.

Similar letters of reference, where they occur in the separate figures, denote like parts of the machine, in all of the drawings.

Our invention relates, first, to the manner of operating the screws that feed the clay through the hopper, as will be explained.

And finally, our invention relates to the carrying, pressing, and delivering-mechanism, and their timed motions and periods of rest.

To enable others skilled in the art to make and use our invention, we will proceed to describe the same with reference to the drawings.

A represents the base, and B the frame for supporting the operative parts mounted thereon. C is a spur-gear, driven by a crank, pulley, and belt, in any of the well-known ways. This spur C turns a large gear-wheel, D, and the one, D, turns another gear, E, above it, so as to make a train of gears which have a constant motion. Upon the face of the gear E there is secured a rim, F, that has, upon a portion of its perimeter, cogs G, and upon the other portion of it a cam-ledge, H. Over the rim F, and upon the end of a horizontal shaft, I, on top of the frame B, there is a small gear, J, the main portion of the perimeter of which is furnished with cogs, and a small portion with a blank, *a*, so that said gear J and the shaft I shall have an intermittent motion, remaining in a state of rest, whilst the blank portion of the rim F is moving against the blank *a* of the gear-wheel J, except for a period of time, as will be stated. On the extreme end of the shaft I there is an arm, K, which the cam-ledge H takes against as it comes around, and which, moving said arm and the shaft I, gives a slight rotation to the feeding-screws, and causes them to fill the moulds with clay whilst the mould-wheel is in motion, and gives a smooth surface to the clay in the tube.

On the shaft I are two bevel-gears, L L, which gear into and turn two bevel-gears, M M, one on each of the shafts N N, on which the blades, arms, or screws are placed for working the clay in the hoppers O O, down through the tube *b*, figs. 3 and 4, and into the moulds 1, 2, 3, 4, in the mould-wheel P. The tube *b*, at the bottom of each of the hoppers, is rectangular, and is divided into four spaces, 5, 6, 7, 8, by the vertical knives *c c c*.

The clay is partially made into bricks by this rectangular tube, and its knives *c*, as two of its sides, form the sides of the two outer bricks of the series, and its other sides form the ends of all the bricks of the series. It is a mould, to a very great extent, and does so much towards shaping the bricks that very little pressure afterwards completes the operation.

The feeding-screws, it will be remembered, smooth the top of the clay in the tube, whilst the four sides of the tube each aid in shaping the sides and ends of the bricks, so that, in fact, the clay passes from the hopper into the moulds in the mould-wheel in the shape and form of bricks, and are afterwards pressed into a solid and more complete form if any of them should fail to be perfect and full at the first operation.

The machine, as herein illustrated, is a double one, that is, a series of bricks is made and delivered on opposite sides of the mould-wheel at the same time. We have four divisions of the tubes at the bottoms of the hoppers, and consequently make eight bricks at every half rotation of the mould-wheel.

The mould-wheel P has four series of cogs, *d*, on its perimeter, and four blanks, *e*, between the series of cogs, the object being to give the mould-wheel four stops or states of rest at every full rotation of it, it being done as follows:

On the shaft of the first-moving spur-gear C, and inside of the frame, there is a small bevel-pinion, that gears into the bevel-wheel Q, on the vertical shaft R, giving both a continuous rotation. On the perimeter of the bevel-gear Q there is a segment of cogs, and a blank segment, *f*. The cogs take into and turn the mould-wheel until the blank *f* comes opposite to one of the blanks *e* on the mould-wheel, and so long as these blanks are in contact or opposite each other, though the wheel Q continues to revolve, the mould-wheel is not only in a state of rest, but locked in that condition, and so remains until the cogs on the wheel Q come around and take into those on the mould-wheel, and give it another quarter rotation, when it again stops.

During the periods of rest of the mould-wheel, the followers or plungers 9, 10, 11, 12, are brought down upon the partially-made bricks in the moulds 1, 2, 3, 4, and are further pressed and completed. The operation of the plungers or followers is as follows:

The plungers are fastened on a cross-head, S, which moves up and down on guide-rods *g*, there being a series of plungers, one for each mould, and upon the ends of the cross-head, so that they shall enter the moulds that are diametrically opposite each other on said mould-wheel; the other series of diametrically opposite moulds, when the first named are in proper position for the plungers, being under the hoppers, and receiving their charges.

On the shaft R there is a bevel-gear, *h*, that has upon it two series of cogs, *i*, and two blanks, *j*. These cogs *i* gear into a bevel-wheel, *k*, that has also upon it a blank, *l*, said wheel *k* being upon a hollow shaft, *m*, which carries a cam or eccentric, T, fig. 2, and to this eccentric the rod U is connected by a strap or yoke, *n*.

The cross-head S is secured to the top of the rod U, and by means of the eccentric, yoke, and mechanism just above described, said cross-head and its series of plungers are operated, they being timed in their action to suit the periods of rest and the periods of motion of the other parts of the machine with which they act in concert, so as to harmonize all the movements.

On the shaft R there is also a bevel-wheel, *o*, that gears into and turns another bevel-wheel, *p*, on the end of a shaft, *q*, that passes through the hollow shaft *m*, and which shaft *q* extends to the opposite end of the machine, and has upon it there a cogged gear, Z, that turns two other cogged gears, V, (one only being seen, but both alike,) which gears V bring up the tables under the mould-wheel, against which the bricks are pressed by the plungers or followers, and also operate the delivering-apparatus that moves the finished bricks off on to a belt or other holding or conveying-device, to be taken away.

On the shafts W of the cog-wheels V there is a cam-lifter, X, which, when it comes in contact with the table Y, moves it (the table) up in contact with the mould-wheel, and, by the shape of the lifter, holds it there until the pressure is put on and the bricks left upon said table, after which the table descends, and the shaft *r*, being turned by its arm *s*, which is done by the pin *t* in the wheel V taking against said arm, the rocking motion of said shaft *r* operates the arms *u u*, which carry a sweeping or striking-board, *v*, and move the finished bricks from the table on to whatever is prepared to receive them.

As the mechanism on the opposite side of the machine, for pressing, receiving, and delivering the series of bricks made on that side, is the same as that just above described, we have not deemed it necessary to illustrate that arrangement in duplicate.

Just above the followers or plungers, and between them and the ends of the cross-head S, there is an oil or lubricator-box, *w*, in which cotton-waste, sponge, or other absorbing material is placed, to hold oil or other lubricating-compound, and very small perforations in the bottom of said oil-box allow the lubricating-material to flow or drip down upon the plungers to oil them, and cause them to work smoothly in the moulds of the mould-wheel.

Having thus fully described our invention, what we claim therein as new, and desire to secure by Letters Patent, is—

The secondary motion given to the screws by the cam-ledge H and the arm K, in addition to their primary motion for feeding down the clay into the forming-tube by the gear-wheels, for the purpose of smoothing the clay and finishing out the filling of the tube, substantially as described.

We also claim, in combination with the mould-wheel P and pressing-followers 9, 10, 11, 12, the rising and falling table Y, under the mould-wheel, and the delivering-apparatus *s, t, u, v*, when arranged and timed in their motions and periods of rest, to operate together substantially as described.

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Witnesses:

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