

Peter, V. Westfall's Improvement in
72137 BRICK MACHINES.

PATENTED

Fig 1. DEC 10 1867

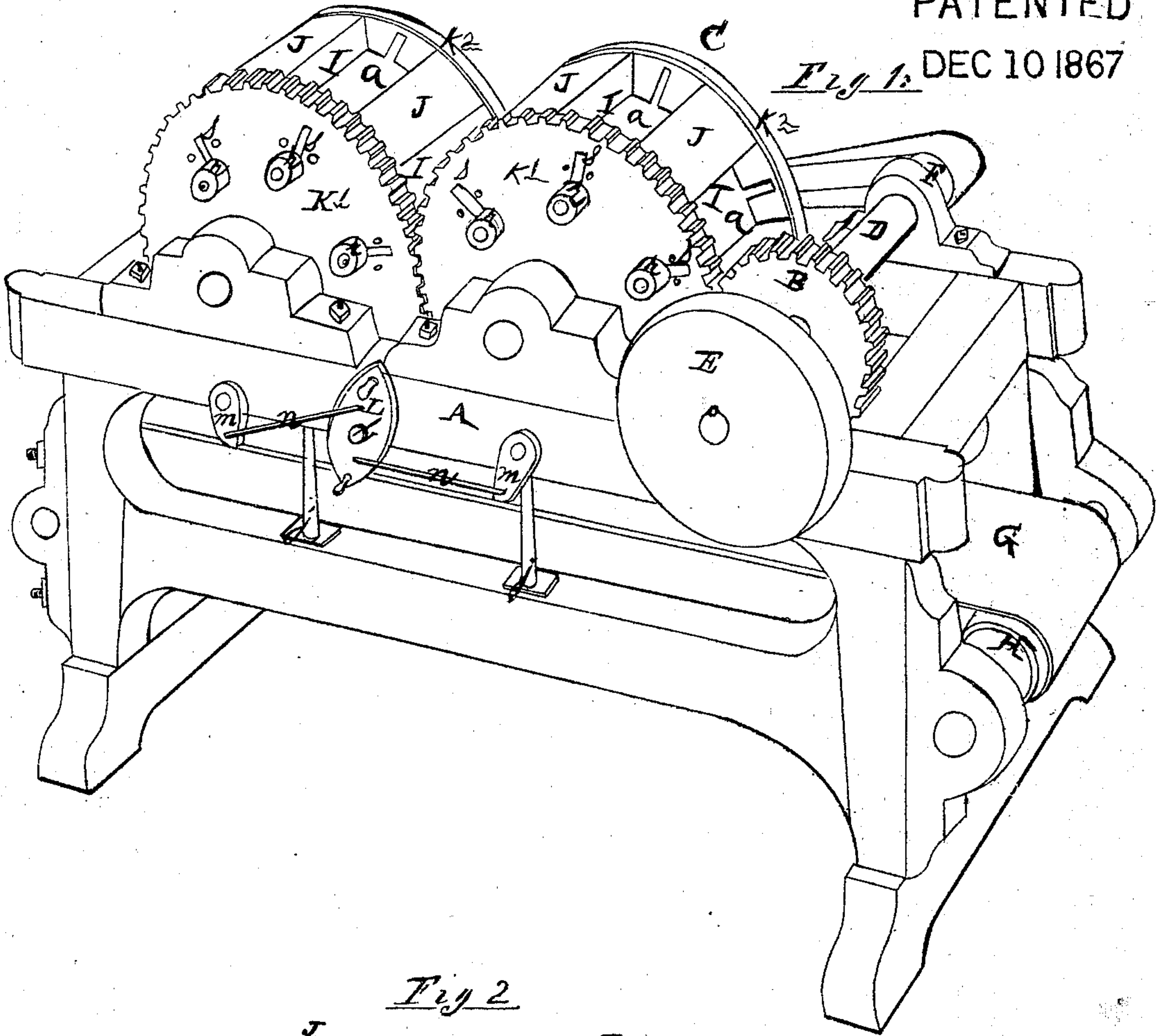
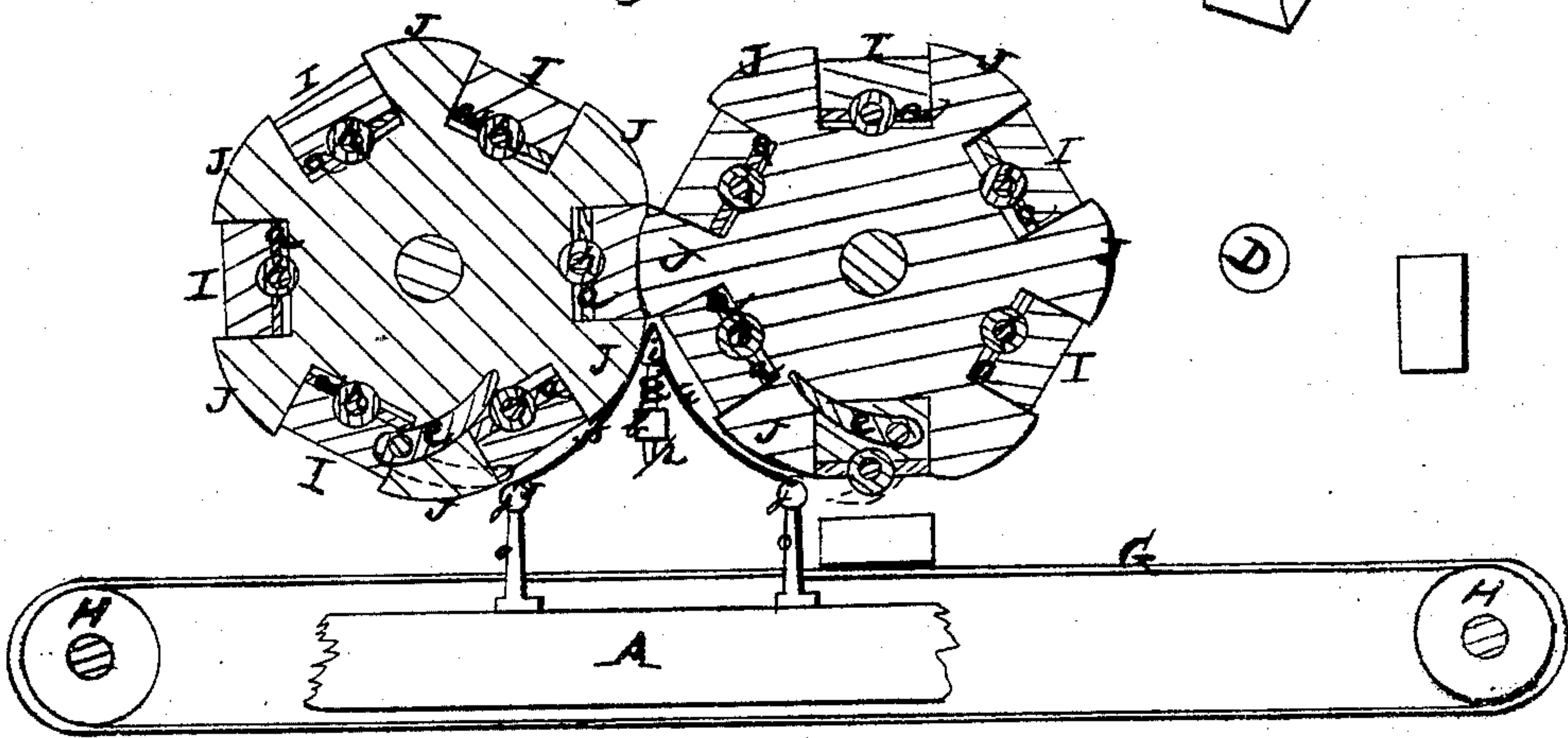


Fig 2



Witnesses.

Asa D. Porter
Otto L. Johnson.

Inventor.

Peter V. Westfall

United States Patent Office.

PETER V. WESTFALL, OF KALAMAZOO, MICHIGAN.

Letters Patent No. 72,137, dated December 10, 1867.

IMPROVEMENT IN BRICK-MACHINES.

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

TO ALL WHOM IT MAY CONCERN:

Be it known that I, PETER V. WESTFALL, of the city and county of Kalamazoo, in the State of Michigan, have invented certain new and useful Improvements in Machines for Moulding Brick; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a perspective view.

Figure 2 is a partial side elevation and longitudinal section.

Similar letters of reference indicate like parts in both figures.

My invention has relation to the combined action of two recessed moulding-cylinders, in connection with suitable modes of cleaning the same and discharging the moulded bricks, at the discretion of the operator.

To enable others skilled in such mechanism to construct properly my invention, I will now proceed to give a clear and sufficient description thereof.

Upon a suitable frame, A, I hang my two moulding-cylinders, C C, which I usually operate by means of a toothed wheel, B, which is keyed on a shaft, D, which shaft carries at one end an overhanging band-wheel, E, to receive the main driving-belt, and, at the other end, a driving-pulley, F, to give motion to an endless apron, G, which passes over drums H H, hung at each end of the frame, so as to properly receive and convey the moulded brick, when they are discharged from the cylinders, as will hereinafter more fully appear.

I usually construct my moulding-cylinders (indicated by C C) of cast metal, in three parts, viz, the central portion, or body, which is equally divided into as many moulding-recesses or grooves, I, and intervening follower-wings, J, as may be desirable, and two disk-heads, K¹ and K². I rabbet the inside corners of the two heads so as to form a shallow groove, when the heads are bolted on, for the purpose of receiving the hopper, (not shown,) and also form teeth around the periphery of the two heads K¹ and K², to gear with each other and with the gear-wheel B.

Before the parts composing the moulding-cylinders are bolted together, they are planed, turned, and finished, with proper draught, in the usual and most approved manner.

The mould-bottoms, seen at *a a*, are fitted to work freely and snugly within the mould-space, being simply metal plates provided at each end with a guide-stem fitted to slide easily in radial slots, *s*, in the heads, each stem carrying an overhanging friction-roller, *r*, the use of which will be explained presently.

The bricks are discharged successively from the moulds, as the cylinders revolve, by means of shifting cams, *e*, attached to short journals hung to the upper rail. The outer ends of said journal-shafts carry each a short crank-arm, *m*, and when the cams on the inner side are set, as seen in the drawing, the friction-rollers impinge on the lower side of the cams, and thrust the connected mould-bottoms outwards, thereby discharging the bricks successively on the endless apron, but when the cams are shifted to the positions exhibited by the dotted lines, the mould-bottoms will be free to return to their former position.

I operate these cams by shifters on each side of the machine, each cam-crank being connected by a rod, *n*, to opposite ends of a hand-lever, L, which is hung at its centre on a shaft, *b*, midway between the said cranks, in such manner that, on whatever side of the machine the hand-lever may be turned, it will shift simultaneously all the four cams.

In this mode of moulding bricks between the recessed peripheries of two geared revolving cylinders, the cylinders must, of course, be arranged relatively with each other with great exactness, so that, as the cylinders revolve, each follower, J, will come opposite its mould; and as the outer face of the brick receives its form from the impact of the curved face of the follower, I so hang and gear the cylinders, that the followers lock or gear into their respective moulding-recesses a distance equal to the versed sine of the arc subtended, as shown in the drawings, when, in accordance with a well-known mathematical law, the face of the brick will be moulded, and pressed by the follower into the form of a true plane.

As it is necessary, in my mode of moulding brick, to keep the cylinder-faces scraped clean, as they pass the endless apron, I employ what I term a vibrating-spring scraper, *i*, which is simply a strip of wood shaped to fit against the two cylinders at the apex of space, where the circumference lines join. A strip of wire cloth, *w*, equal in width to the length of the brick to be moulded, is passed over this scraper, and is hung at each end, on a lateral rod, *j*, supported on standards, *o o*, attached to the lower girt of the frame, or supported by the

frame in any other convenient way, so that it will be in close contact with each cylinder's periphery as far round as may be practicable, the apex-scraper and central part of the cloth being pressed upwards, in close contact, by means of spiral springs, *v*, or any other springs, which will permit a slight longitudinal vibratory motion, produced by the pressing and rubbing action of the followers as they pass over the narrow space left between them and the moulded brick on either side; and to prevent catching, I round or chamfer the upper edge of the strip *z*, so that the edge of the follower will strike against the angle of such round or chamfer, and cause the strip to yield. The springs *v* may be placed around sliding guide-pins *p*, between the pins' bearings and the apex strip, and I find the wire cloth operates best when the wires are woven diagonally with the cylinders' path of rotation.

The cylinders *C C* are shown as open, but, while in use, they are closely encased, excepting over the discharge point.

The tempered clay is conveyed in the usual manner from the pug-mill to the hopper, from whence it descends and is deflected laterally, by means of ordinary knife-like partitions, (set in the hopper at proper angles,) to the moulds *I*, in the two revolving cylinders. After a number of revolutions, the moulds are filled with the clay, which is soon consolidated by the action of the followers *J* against it, aided by the supply of clay from the central section of the hopper, immediately over the line of contact. The operator then shifts the cams *e*, discharging the moulded bricks, as aforesaid, on the endless apron, and immediately turns said cams back to their former position, when the process is repeated.

Having thus fully described my improved brick-moulding machine, what I claim therein as my invention, and desire to secure by Letters Patent, is—

1. The combination of the two moulding-cylinders *C C*, when the moulding-recesses *I I* in said cylinders, and their intermediate followers, *J J*, are so proportioned with each other that the faces of said followers cannot be brought in contact with each other, and when the said follower-pieces have substantially the degree of curvature herein represented and described.

2. In connection with the moulding-cylinders *C C*, I also claim the central shaft *b* and its operating levers *L L*, in combination with the jointed rods *n n* and the crank-arms *m m*, on the respective cam-shafts, for operating all the cams simultaneously, substantially in the manner herein set forth.

3. I also claim the vibrating-spring scraper *z*, in combination with the wire-cloth belt *w*, when arranged with the moulding-cylinders *C C*, and operated substantially in the manner and for the purpose herein set forth.

PETER V. WESTFALL.

Witnesses:

JAS. D. PORTER,
OTTO L. JOHNSON.