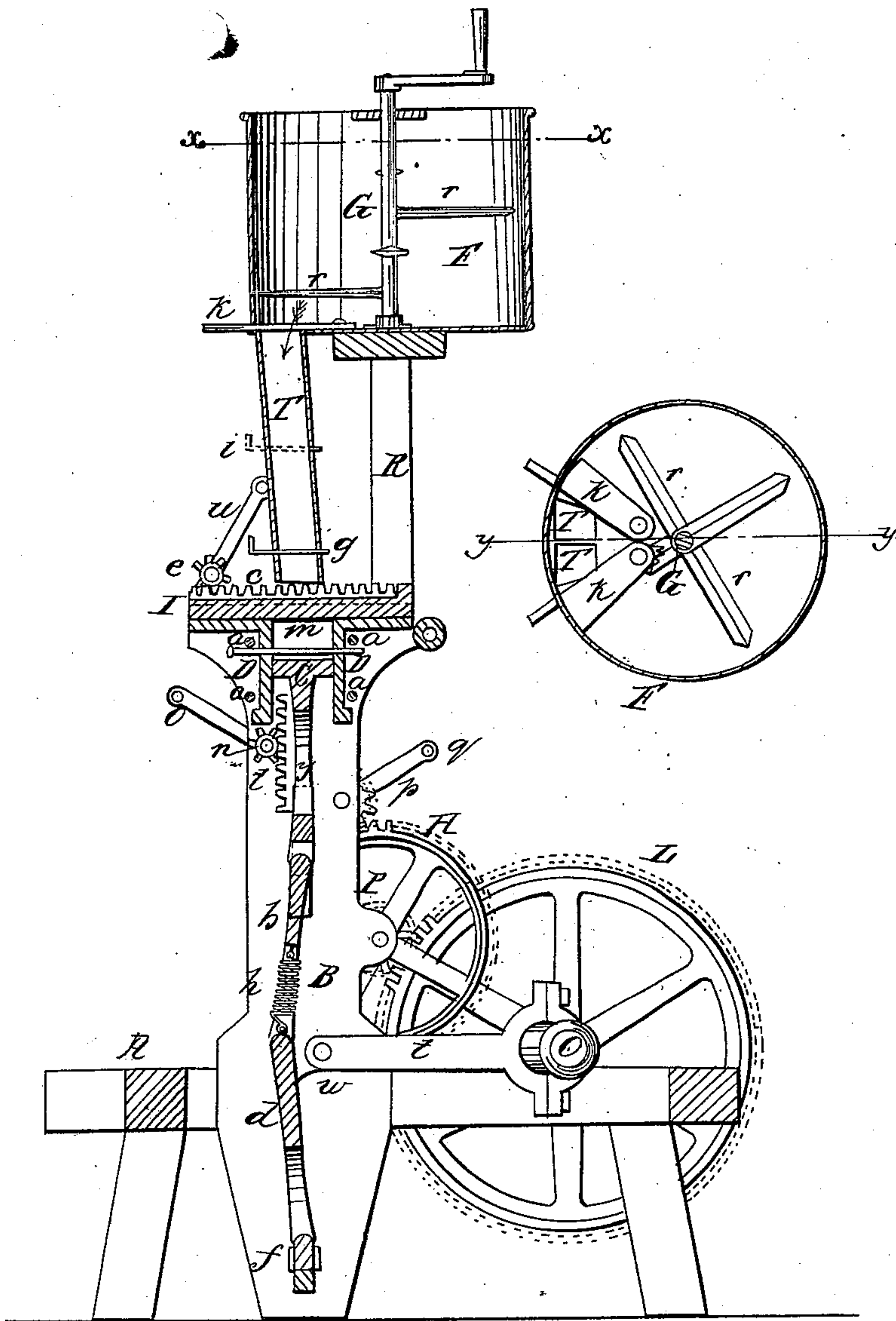


*Dodge & Magnusson,  
Brick Machine.*

*N<sup>o</sup> 85,291.*

*Patented Dec. 29, 1868.*



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# United States Patent Office.

LEWIS DODGE AND LEWIS J. MAGNUSSON, OF CHICAGO, ILLINOIS.

Letters Patent No. 85,291, dated December 29, 1868.

## IMPROVED CONCRETE-BLOCK 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, LEWIS DODGE and LEWIS J. MAGNUSSON, of Chicago, in the county of Cook, and State of Illinois, have invented certain new and useful Improvements in Machines for Manufacturing Concrete Blocks; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, and to the letters of reference marked thereon, like letters indicating like parts wherever they occur.

To enable others skilled in the art to construct and use our invention, we will proceed to describe it.

Our invention consists in certain improvements in the construction of machines for the manufacture of concrete blocks or artificial stone, for building-purposes, as hereinafter explained.

Figure 1 is longitudinal vertical section, taken on the line *y y* of fig. 2.

Figure 2 is a transverse horizontal section, taken on the line *x-x* of fig. 2.

In constructing our improved machine, we provide a strong rectangular frame A, upon which we mount the machine proper.

The press consists of two strong iron side-plates B, one at each side of the frame A, connected at the top by cross-plates D, which are located as represented in fig. 1, the two side-pieces B and the cross-plates D thus forming, at that point, four sides of a box or mould, *m*, which opens at top and bottom, the side-pieces B being firmly united by bolts *o*, which also serve to hold the plates D in place.

This mould *m* is covered by a sliding plate, I, which is held down by a clamping-flange on each side, as is usual in this class of machines, and has a rack, *c*, on its upper face, to enable it to be moved back and forth, by means of a pinion, *e*, operated by a handle, *u*, arranged as shown in fig. 1.

In the mould *m* is fitted a follower, C, which fills the mould transversely, and thus forms a bottom to it.

This follower has a stem, *y*, extending centrally below, its lower end having lugs or ears on each edge, working in slots in the side-plates B.

At the bottom, the side-plates are connected by a strong cross-bar, *f*, which forms a bearing for the lower end of a knuckle-joint or elbow-lever, consisting of the two parts *b* and *d*, the upper end of which supports and moves the follower C, the parts *b* and *d* being held together by a spiral spring, *h*, as shown in fig. 1.

To the front face of the stem *y* of the follower C is secured a rack, *l*, into which gears a pinion, *n*, operated by a crank, O, for elevating the plunger, when a block has been pressed and is to be removed.

In the cross-plates D, holes, *r*, are made, for the twofold purpose of permitting the escape of some of the material, in case there should chance to be an excess, and thus prevent undue strain on the press, and also

to permit rods to be inserted, as represented in blue lines, to form perforations in the blocks, the rods being withdrawn each time before the block is removed.

To operate the press, we mount, on the side-plates B, a shaft, carrying a crank, *q*, and pinion, *p*, which gears into a wheel, H, mounted on another similar shaft, on which is also a pinion, P, which gears into a large spur-wheel, L, all as represented in fig. 1.

This wheel L is mounted on a shaft, having a crank or eccentric, O, operating a pitman, *t*, which has its opposite end connected, at *w*, to one limb of the knuckle-plate, *d*.

This pitman is of such a length that, when the crank or eccentric is turned so as to stand in a vertical plane, the parts *b d* will stand in a straight line, thus having elevated the follower C and compressed the material in the mould *m*, and as the eccentric O is turned over in a horizontal plane, the knuckle-joint is thrown past the centre, as represented in the drawings, thereby drawing the follower C down.

As the wheel L revolves, so as to throw the eccentric to the opposite side, the operation is repeated, and thus the follower C is made to press twice at each revolution of the wheel L.

This arrangement is intended for hand-use; but when the machine is operated on a large scale, a pulley is to be substituted for the crank *q*, and the machine will then be operated by any suitable power.

It is obvious that cams and levers may be arranged to operate the slide I, and also to elevate the follower C, at the proper intervals, and thus render the movements of the parts automatic and continuous.

To mix the material, and feed it to the mould, we provide a cylindrical hopper F, and mount it upon a suitable support, E, above the machine, as represented in fig. 1.

This hopper has a vertical shaft, G, located centrally therein, having radial arms, *r*, and a crank, V, for mixing the concrete or material to be used.

From this hopper F a double spout, T, extends downward, and terminates just above the slide I, and directly over the mould *m*.

The mouths of these spouts T, at their upper ends, are closed by plates, *k*, the inner ends of which are pivoted to the bottom of the hopper, with their outer ends extending through a narrow slit or opening in the side of the hopper, so that they can be swung side-wise, to open or close the mouths of the tubes at pleasure, as represented in fig. 2.

There are also two transverse slides, *g* and *i*, so located as to divide the spouts T into compartments, of proper size to contain the requisite amount of material to fill the mould.

In operation, the plates *k* are kept closed, until the material is thoroughly mixed, when they are opened, and remain so.

The slide *i* being shoved in, the material then fills



the space between it and the slide *g*. The latter being then drawn out, permits that amount of the material to fall into the mould below, the slide *I* having, in the mean time, been drawn back for that purpose.

The slide *g* is then closed, and *i* being opened again, another supply passes down the spout *T* to the slide *g*, and the slide *i* being again closed, another quantity is measured for the next filling of the mould, and so on continuously.

In this way, we measure the quantity of material used for each block, and insure having the same quantity in each, and thereby render them of uniform size and density, and, at the same time, prevent the accidental placing of an excess of the material in the mould, which would endanger the breaking of the press, especially as the material used is compressible only to a limited extent.

It is, of course, obvious that the slides *i* and *g* may also be operated by levers, connected with the mechanism of the machine in such a manner as to cause them to open and close at the proper times, and thus render the whole apparatus automatic in its movements.

The machine, thus constructed, may be used as a press for the manufacture of ordinary brick, but is specially adapted to and is intended for the manufacture of building-blocks, composed of concrete or similar compounds. By the arrangement of its parts, it is

capable of pressing with great power, and is easily managed.

We are aware that a patent was granted to F. Hawkins, May 26, 1868, in which are shown many of the devices used in our machine, but arranged to be operated by hand, by the winding up and unwinding of a chain on a shaft or windlass, while our machine has the devices or operating-parts arranged to be operated by steam or other motive-power, and to operate continuously, without stopping or reversing the motion.

We do not, therefore, claim the mechanical devices separately, nor when arranged to be operated as described in the patent of Hawkins; but, having thus described our invention,

What we claim, is—

1. The combination of the eccentric *O*, pitman *t*, arms *b* and *d*, and the independently-movable follower *C*, operating in connection with the mould *m* and cover *I*, all constructed and arranged to operate as herein described.

2. The mixing-tub or hopper *F*, provided with the gates *k* and spouts *T*, having the slides *i* and *g*, arranged therein, all substantially as set forth.

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