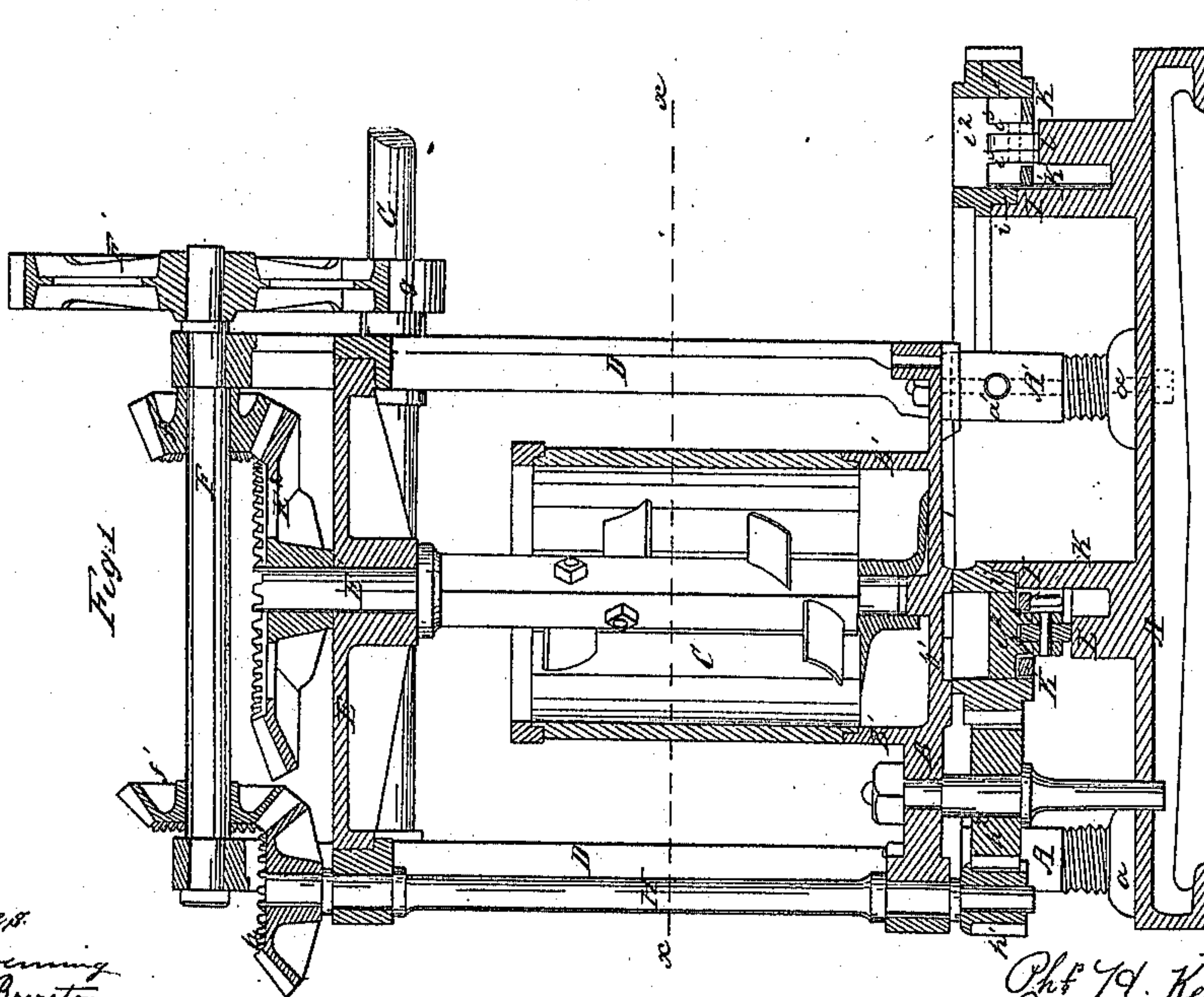
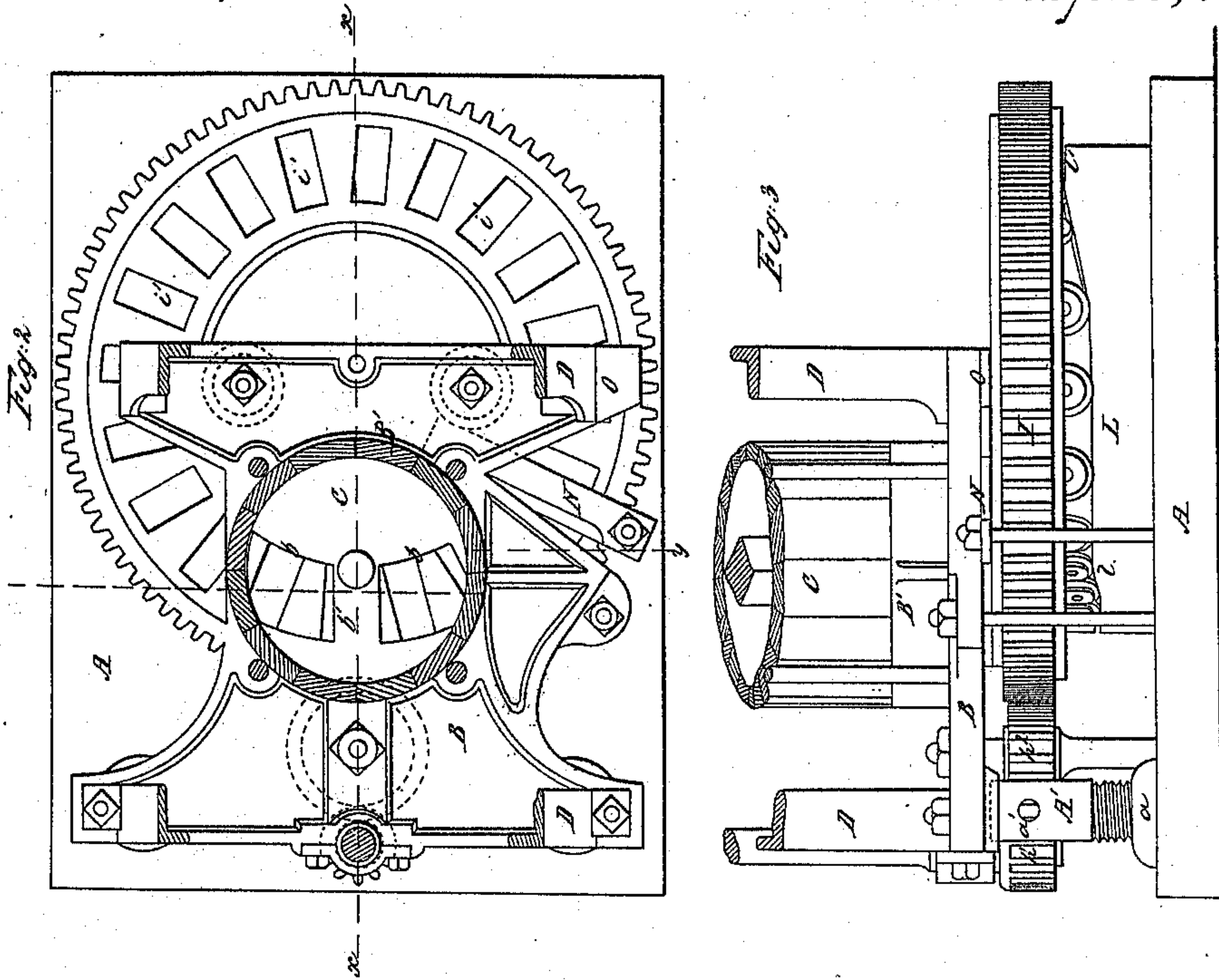


*P. H. Kells,*  
*Brick Machine,*

*Sheet 1-2 Sheets.*

*No 81,511,*

*Patented Aug. 25, 1868.*



*Witnesses*  
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*W. H. Brunton*

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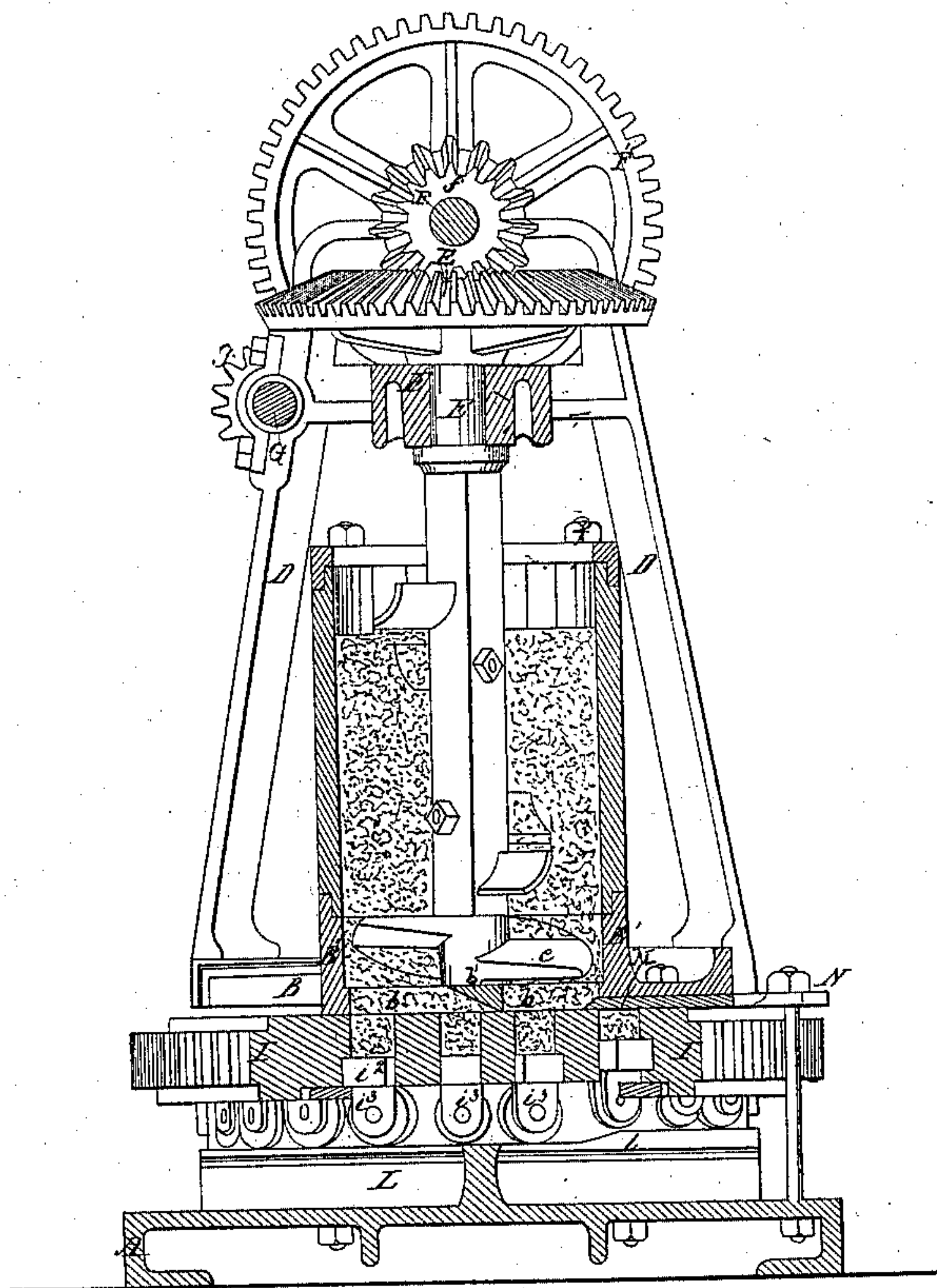
Sheet 2 of 2 Sheets.

*P. H. Kells,*  
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*Fig 4*



*witnesses*  
*W. B. Denning*  
*J. M. Bowen*

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# United States Patent Office.

PHILIP H. KELLS, OF ADRIAN, MICHIGAN.

Letters Patent No. 81,511, dated August 25, 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 I, PHILIP H. KELLS, of Adrian, Lenawee county, State of Michigan, have invented a certain new and useful Improved Brick-Machine; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing, which forms part of this specification.

My invention relates to that class of brick-machines in which the mould-wheel revolves in a horizontal plane, and consists in improvements in the devices employed for supporting the bed-plate of the pug-mills, and the followers of the moulds; and for filling the moulds, and pressing and smoothing the brick.

Figure 1 represents a central vertical section of my improved machine, through the line  $x x$ , fig. 2.

Figure 2 represents a plan view with the pug-mill and gearing removed.

Figure 3 represents a side elevation of the lower portion of the machine, cut off at the line  $x x$ , fig. 1; and

Figure 4 represents a vertical section in the plane indicated by the line  $y y$ , fig. 2.

In the drawings—

A represents the base or foundation, which may be of iron or other proper material.

A' A' represent supporting-columns, upon which the bed-plate rests, which columns are provided at their lower ends with screw-threads, as shown, which fit into corresponding threads in the sockets  $a a$ . The upper ends of these columns are also received into proper sockets in the lower side of the bed-plate, being so arranged as to revolve freely therein.

$a'$  represents a socket, which is intended for the reception of the end of a lever, by which means adjustment of the columns is made up or down, as desired.

B represents the bed-plate, which rests securely upon the columns A' A', and is provided with the ring B', upon which latter the pug-mill rests, as shown in fig. 2.

$b b$ , figs. 2 and 4, represent two openings in the bed-plate, within the pug-mill, which openings are separated by the centre-piece  $b'$ . This centre-piece is made wedge-shape in form, as shown in fig. 4, and is so arranged as to present its inclined face to the mould-wheel as it revolves toward it.

C represents the pug-mill, which is constructed and arranged in the usual manner.

D D represent standards, rising from the bed-plate B, which support the upper platform and gearing.

E represents the upper platform, through which passes the shaft  $E^1$  of the pug-mill, upon which latter are placed the grinding-knives, which disintegrate and force down the clay.

Upon the upper end of the shaft  $E^1$  is placed the bevel-gear wheel  $E^2$ , which engages with the pinion  $f$  of shaft F, which latter is supported in suitable bearings rising from the standards D D, as shown in figs. 1 and 4.

F' represents a gear-wheel upon shaft F, which engages with the pinion  $g$  upon shaft G.

By means of the shaft G, power is applied to the machine.

H represents a vertical shaft, resting in suitable bearings in the bed-plate B and upper platform E, upon the upper end of which is located the bevel-gear wheel  $h$ , engaging with pinion  $f$  upon shaft F. Its lower end is provided with the pinion  $h^1$ , below the bed-plate, which engages with the intermediate gear-wheel  $h^2$ , by means of which latter the mould-wheel is operated.

I represents the mould-wheel. The lower and inner edge rests upon the ring I', and revolves freely thereon, being operated by means of the teeth upon its outer edge.

The mould-wheel is kept securely in place by means of the projecting flange  $i$  upon the ring I', the wheel being provided also with a shoulder, which projects over and rests upon this flange, as clearly shown in fig. 1.

$i^1 i^1$ , fig. 2, represent the moulds, which are arranged in the wheel in the usual manner.

$i^2 i^2$  represent the followers, which in this case consist of a block corresponding in size with the mould, which block is provided with the arms  $i^3 i^3$ , between which the friction-wheel is placed, as shown in fig. 1.

K K' represent annular rings, of wrought iron or analogous material, which are bolted securely to the mould-wheel, upon its under side, the opening between which is just sufficient to allow the arms  $i^3 i^3$  of the followers to pass through.



L represents a ring, of varying height, located directly beneath the friction-wheels of the followers, as shown in fig. 4.

M represents a smoothing-plate, securely attached to the under side of the bed-plate B, directly over the moulds, which is provided with a cutting-edge, as shown in fig. 4.

N, fig. 2, represents a supplementary knife, located in rear of smoothing-plate M, which cuts off any surplus clay which may accidentally adhere after passing the smoothing-plate.

O represents an additional plate, placed in rear of knife N, which gives the surface of the brick a final touch. From this description, the nature and operation of my invention will readily be understood.

The clay having been put into the pug-mill, the machine is set in motion.

It will be observed that by the peculiar arrangement of gearing described and shown, the shaft of the pug-mill and the mould-wheel are made to turn in the same direction, the revolution of the shaft, however, being much more rapid than that of the mould-wheel.

The openings through the bed-plate permit the clay to pass into the moulds, the latter being perfectly filled by the action of the blades *e*, fig. 4, and centre-piece *b'*, for the latter, being wedge-shape, permits an unusual amount of clay to enter between itself and the mould, which surplus is necessarily forced into the mould as the wheel revolves.

The operation thus described could not be thus performed unless the revolution of the shaft and mould-wheel were in the same direction.

The moulds having been filled, pass the cutting-edge of the smoothing-plate M, by which means the surface is rendered level, then under the knife N, and also the plate O, by which latter the final touch is given.

It will be observed that the ring L, by which the followers are operated, increases slightly in height at *l*, directly beneath the smoothing-plate M, by which means additional pressure is given the clay at this point, as is clearly shown in fig. 4.

The bricks are discharged finally from the moulds by the action of the followers, which latter are forced up by the cam or incline *l* on the ring L, as is clearly shown in figs. 1 and 3.

The bed-plate and pug-mill may be adjusted into the precise position desired relative to the mould-wheel, by means of the adjustable column A' A'.

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

1. The annular wrought-iron rings K K', in combination with the mould-wheel I and followers *i*<sup>2</sup>, substantially as and for the purpose described.
2. The provision, in the bed-plate B, of the openings *b b*, and wedge-shaped centre-piece *b'*, substantially as and for the purpose specified.
3. The adjustable columns A' A', constructed and arranged as described, in combination with the bed-plate B and pug-mill C, substantially as and for the purpose set forth.

PHILIP H. KELLS.

Witnesses:

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