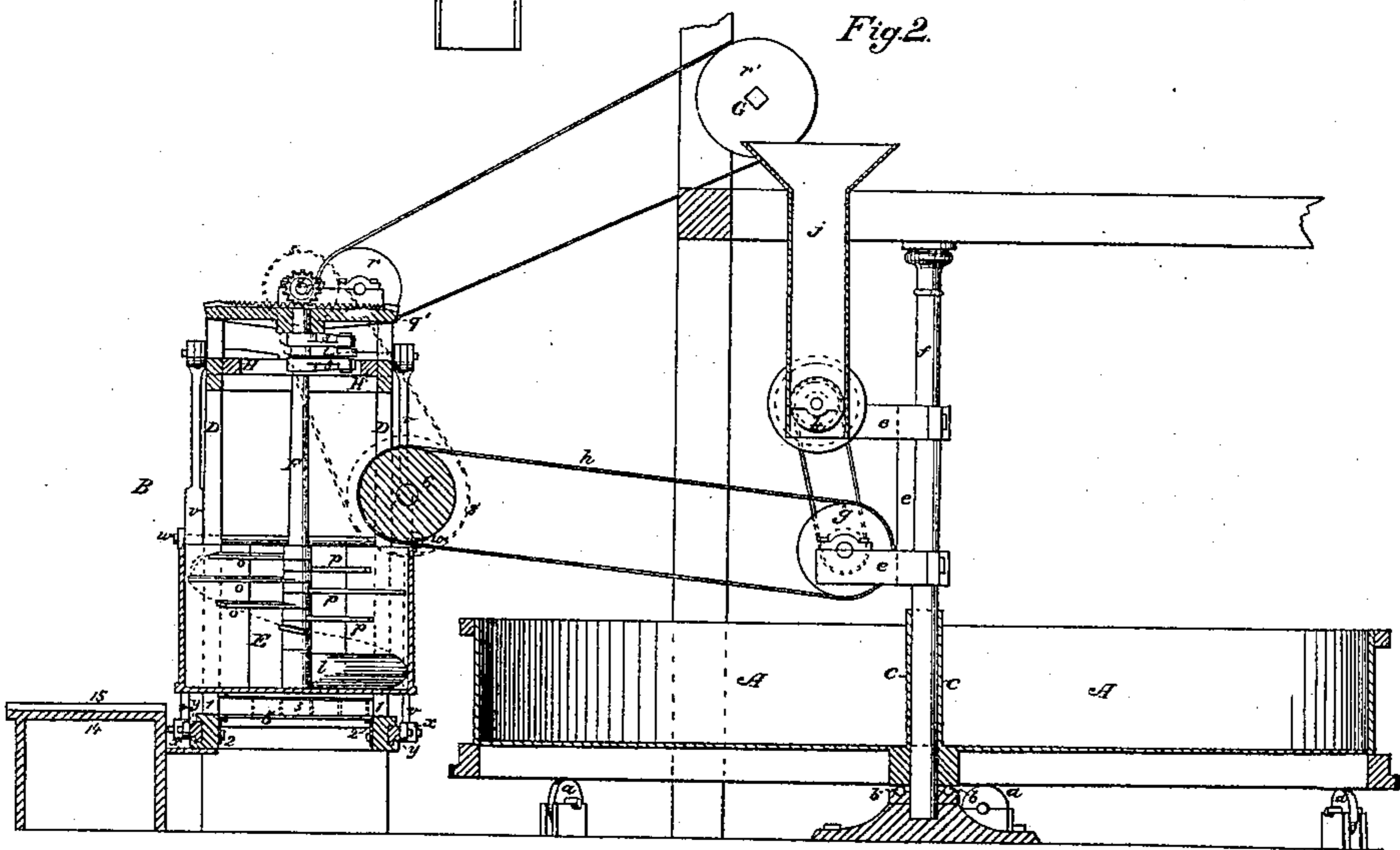
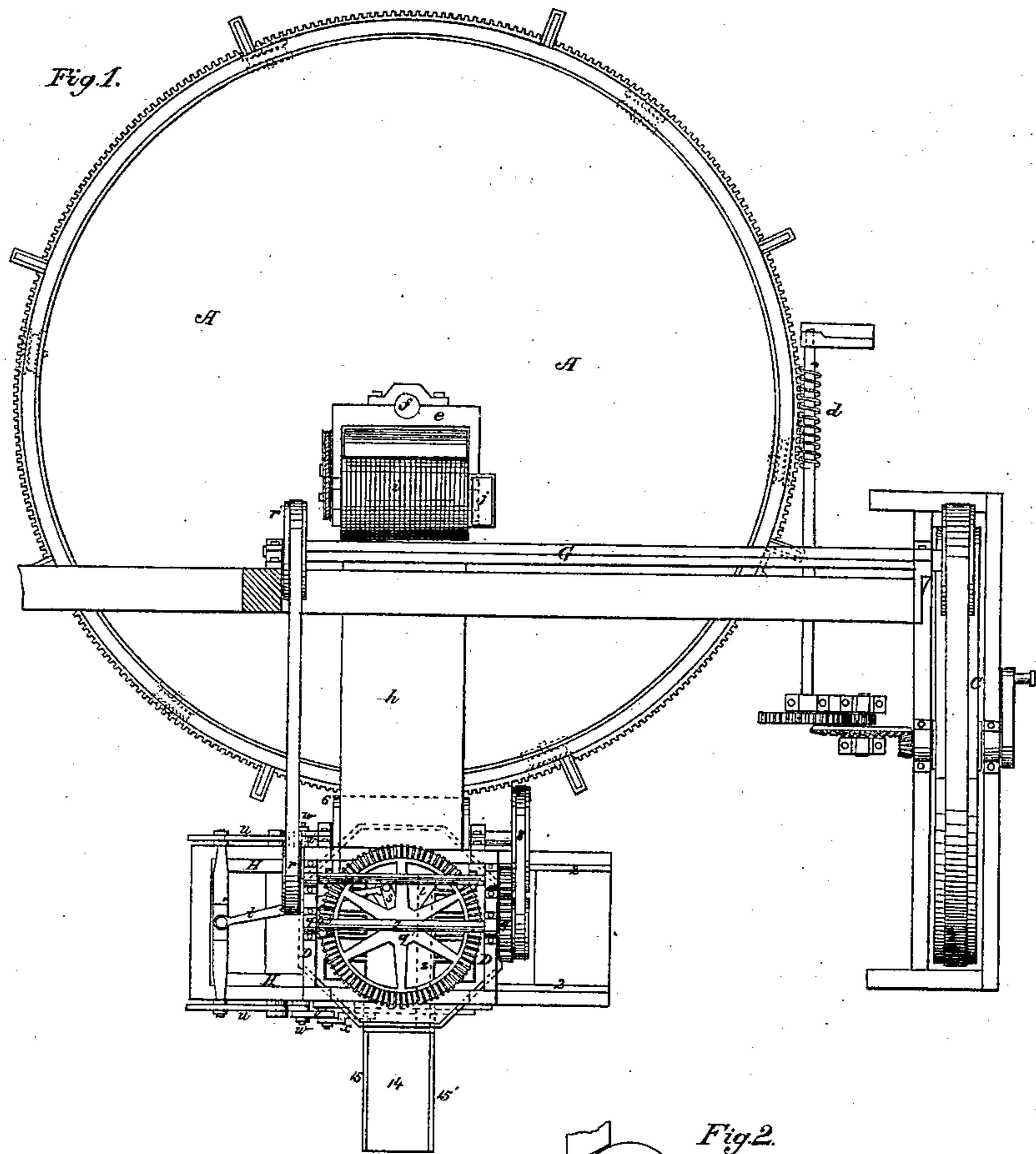


*M. H. Degges,*  
*Brick Machine.*

*2 Sheets-Sheet 1.*

*Nº 12,998.*

*Patented June 5, 1865*

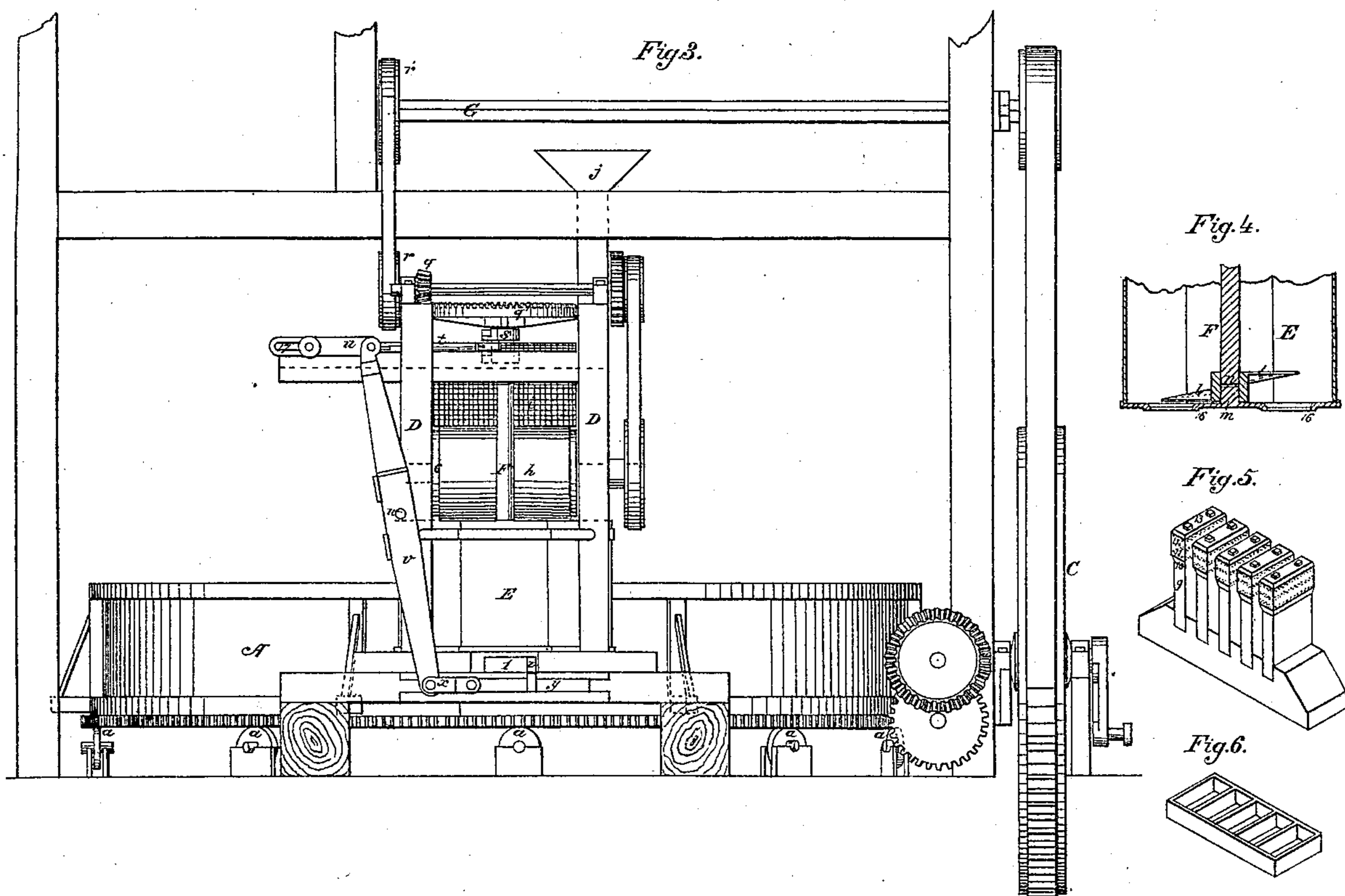


*W. H. Degges,*  
*Brick Machine.*

*2 Sheets-Sheet 2*

*N<sup>o</sup> 12,998.*

*Patented June 5, 1855.*



# UNITED STATES PATENT OFFICE.

W. H. DEGGS, OF WASHINGTON, DISTRICT OF COLUMBIA.

## BRICK-MACHINE.

Specification of Letters Patent No. 12,998, dated June 5, 1855.

*To all whom it may concern:*

Be it known that I, WM. H. DEGGS, of Washington city, in the District of Columbia, have invented certain new and useful  
5 Improvements in Machinery for Making Bricks, and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming part of this  
10 specification, and in which—

Figure 1 is a plan of the entire machine. Fig. 2 is a transverse sectional view on irregular lines, showing most of the operating parts in elevation. Fig. 3 is a front elevation.  
15 Fig. 4 is a central section of the lower part of the tub (E), showing the spiral propeller blade which presses the clay into the mold behind the shaft, also the form of step used for said shafts. Fig. 5 is an  
20 isometrical perspective of the gang of brushes, used to clean and damp the molds. Fig. 6 is a perspective view of a mold frame.

The same letters of reference occurring in the several figures, indicate corresponding  
25 parts.

My improvements consist in the manner of operating the reciprocating feed bar under the pug mill and of dusting the endless apron with a mixture of sand and coal  
30 dust, for purposes hereinafter described; the method of cleaning and damping the mold.

To enable others to make and use my machine, I will describe it by referring to the  
35 accompanying drawing.

(A) represents the revolving soak pit; (B) the pug mill for tempering the clay, and pressing it into the molds; and (C) the band wheel of a steam engine, or other propelling machinery.  
40

The hanger frame (e) furnishes bearings for the drum (g) around which, and the drum (6) on the back of the pug mill, the endless apron (h) passes, which will be  
45 hereinafter more fully described; this frame also affords bearings for the rotary screen (i); this screen is for the purpose of dusting the endless apron (h), to prevent the clay from sticking thereto, it is kept constantly  
50 supplied with a mixture of sand and coal dust, fed into it down the hopper (j), entering through an aperture (k) in the end, and is distributed through the wove wire, evenly onto the apron, and while it prevents the  
55 clay from sticking to the apron, it is taken up and becomes incorporated with the clay,

in uniform quantity throughout, and being thoroughly mixed with it in the pug mill, the coal dust assists in burning the brick to great advantage; while in the manner it  
60 has heretofore been used, it would appear in much larger quantity in some bricks than others, consequently they would not be burned uniformly hard, and on the whole, proved a disadvantage rather than other-  
65 wise.

(D) is a framing which affords journal bearing for all the operating parts of the pug mill; (E) is a tub which may be circular or octagonal, in which the clay is  
70 mixed and tempered, and from which it is pressed into the molds; in the center of this tub is a vertical shaft (F), the bottom of which being square, enters a square hole in the hub of the spiral propeller (l), half way  
75 through it on the upperside, its lower side having a round hole, to fit over the projection (m) on the bottom of the tub, which forms the step with a washer or ball (n) of  
80 horn, inserted between the step and the end of the shaft, they being made of suitable form to receive it; thus the parts in contact are perfectly secure from the entrance of dirt or grit, and there is no possibility of  
85 the antifriction substance, which is inserted between the shaft and step, getting out of place; around this shaft above the spiral propeller (l), are a series of radial blades  
90 (o), whose undersides are diagonal to the vertical position of the shaft, and if connected with each other and the propeller (l), would form a continuous spiral, from bottom to top of the tub, as shown by the  
95 dotted red lines in Fig. 2, for the purpose of pressing the clay gradually down to the bottom of the tub, and on the opposite side of the shaft from each of these spiral blades, somewhat lower down, are horizontal radial blades (p), which serve to cut, mix and distribute the clay evenly in the tub; these  
100 arms or blades, as well as the propeller (l), are caused to rotate by the square shaft (F) passing through them, the upper one is keyed or primed fast on the shaft, to prevent them from rising by their spiral action  
105 on the clay; the motion is communicated to this shaft through the set of gearing (q) above, and band wheels (r, r') from the main shaft (G); beneath the bevel wheel (q'), in the vertical shaft (F), is a crank  
110 (s), which gives a reciprocating motion to the sliding frame (H), the cross head of

which is connected with it, by the pitman (*t*); the ends of this cross head extend on each side of the main frame (D), through slots (17) in the connecting pieces (*u*), which are pointed to the upper ends of two vertical levers (*v*), one on either side, having a fulcrum common to both at (*w*); these levers are of equal length, and are each connected at their lower ends by links (*x*) and slides (*y*), with the cross bar (*z*), under the tub (E), extending from side to side, through the aperture (1). The width of this aperture is equal to twice the thickness of the reciprocating cross bar (*z*) and the width of the mold frame, so that at whichever side the cross bar may be, the mold frames are inserted immediately under the center of the tub and moved thence by said bar exactly under the apertures for filling thus economically all the space possible and reducing the diameter of the pug mill so as to take less power to work it.

(2, 2',) are horizontal flanges or ribs, attached to the inner side of the frame (D), under the tub (E), for the mold frames (3) with their bed plates (5) to slide upon; they are attached to the frame, by screws passing through slots, so that they may be lowered or elevated, to adjust the proximity of the molds to the underside of the pug-mill; a drum (6) is supported in journal boxes on the frame (D), around which the endless apron (*h*) passes, and through which it receives its motion from the horizontal shaft (7), over the center of the pug mill, by means of the band and pulleys (8).

(Fig. 5) represents a series of brushes, corresponding in size and number with the mold frames, which is fixed in any convenient position, near the pug mill; they are constructed with a number of uprights (9); on the top of each is a plate (10), whose length and breadth is a trifle less than those of the mold, and is beveled on its under side toward the upright; on this are layers of bristles crossing each other, or stiff hair cloth (11), and sponge or other similar substance (12), alternately; and above them is a plate (13), similar to the plate (10) inverted; the whole being secured by bolts to the upright (9), form a brush to clean and damp the molds, ready for use; the plates (10) and (13), being beveled, guide them on and off without difficulty.

The general arrangement of the pug mill, resembles somewhat that used by F. H. Smith, and described in his patent granted in Oct., 1854. I will therefore before describing the operation of my machine, briefly allude to the principal features in his, as a means of more clearly showing the advantages in mine; the bottom plate of his mill is one entire grating, each aperture corresponding, or thereabout, with the length and breadth of a brick; the spiral blade or

propeller, which forces the clay through these apertures into the molds, is nearly semi-circular; the molds are inserted at one side of the tub, and forced under by a reciprocating roller, and out at the other side, they being at rest during the backward motion of the roller, and during its forward motion they are sliding under the bottom of the tub, the clay being pressed into them, regardless of their moving or standing, the whole time they are under the bottom of the tub; thus it will be seen that as only one mold frame, or set of molds can be inserted during each revolution of the machine, one only can be discharged, while two or three are undergoing the process of filling; the great objection to this is, that while the molds are in motion, the sand with which they are dusted, to prevent the brick from sticking, is rubbed off, by the clay entering them; consequently they will not slip from the molds, and other means have been resorted to, such as the flanged mold, &c., to start them by the concussion of the mold frame against the ground.

In operating my machine, the clay is first pulverized by any of the well known machines for that purpose, and is shoveled onto the endless apron (*h*), which conveys and delivers it into the pug mill; a Bojardor, or similar mill, is also used above the soak pit, which keeps the rotary screen (*i*) constantly, and regularly supplied, with coal dust and sand, which is distributed on the apron (*h*), in sufficient quantity to prevent the clay from sticking, and is thus mixed with the clay in its passage to the pug mill in regular proportion, the coal dust assists to burn the bricks uniformly; the brushes represented by Fig. 5, being wetted, the mold frame is passed over them, which cleans and damps it; it is then dipped into a sand box or pit, when they become coated with a layer of sand ready for use; this mold is then laid on a bed plate of equal size, on the table (14), against the guide strip (15); when the reciprocating cross-bar (*z*), is in the position shown in Figs. 1, and 3, the mold and bed plate, are pushed through the aperture (1) under the tub, until they strike the frame on the far side of the machine, when they drop within the frame on the near side; the cross head of the sliding frame (H), having reached the end of the slot, as represented in Fig. 3, operates, through the levers (*v*) to move the cross bar (*z*) to the other side of the opening (1), carrying with it the molds and bedplate, and leaving them exactly in position, under the apertures on the left side of the tub; the spiral propeller (*l*) now passes over this set of molds, pressing the clay into them through the apertures, while another set are being inserted on the right side of the cross bar (*z*), and placed by it, under the aper-

ture in the bottom of the tub to the right hand, by its return motion, when the spiral blade passes over and fills this set; meanwhile, a third set is inserted in like manner  
 5 on the left, and carried to its place as before, forcing the filled molds out before it, and so on alternately to the right and left; the bottom of the tub (E) is constructed with flanges (16) around the apertures,  
 10 projecting downward, so as to allow ample space under the center of the tub, to insert the molds, and at the same time to present a sharp edge, for cutting off the clay on top of them, when being forced out by the suc-  
 15 ceeding molds, also to save all unnecessary friction, between the molds and the bottom of the tub; it will now be seen that the bar (z), rests alternately at either side of the opening, while the cross head of the slid-  
 20 ing frame (H), is passing from one end to the other of the slots (17) in the connecting pieces (u) through which it is operated, which is equal to one fourth of the revolution of the vertical shaft (F) each way;  
 25 and from the time the spiral blade (l), comes over the first corner of the molds, until it is clear of them, is half a revolution, so that they (the molds) are not in motion at any period during the time they are be-  
 30 ing filled, by which means the clay in passing through the apertures in the bottom of the tub, (which are somewhat smaller than the molds,) strikes the bed plate, before it touches the sides, and is pressed outward to  
 35 fill them, thus the sand is not disturbed from the sides of the molds and all the difficulty heretofore experienced, in getting the brick out of them, is obviated.

Having thus described my machine I  
 40 wish to be understood that I do not claim

inserting the molds under the pug mills on either side of the center alternately to be moved thence under the apertures to be filled; neither do I claim dusting the parts of a brick machine generally for the single  
 45 purpose of preventing the clay from adhering, nor do I claim mixing coal dust with the clay in any other manner than that herein described; but

What I do claim as new and desire to se-  
 50 cure by Letters Patent is—

1. Causing the reciprocating bar (z) to rest at each end of its travel whereby ample time is afforded for inserting the molds under the bottom of the pug mill and for  
 55 pressing the clay into them while in their rest position substantially as set forth.

2. Inserting the molds immediately under the center of the pug mill when they are moved alternately to the right and left  
 60 previous to being filled, whereby the size of the pug mill and the power required to work it are economized to the fullest extent.

3. Dusting the endless apron or other device for conveying the clay to the pug mill  
 65 with a mixture of coal dust and sand whereby the clay is prevented from adhering thereto and at the same time the coal dust is evenly mixed with the clay during its preparation for purposes herein specified. 70

4. I claim the series of brushes or other device substantially the same, that will hold water, whereby the molds are both cleaned and damped at the same time, as set forth.

In testimony whereof, I have hereunto  
 75 subscribed my name.

W. H. DEGGES.

Witnesses:

A. GREGORY,  
 WM. M. SMITH.