

(No Model.)

2 Sheets—Sheet 1.

G. CARNELL.
BRICK MACHINE.

No. 438,986.

Patented Oct. 21, 1890.

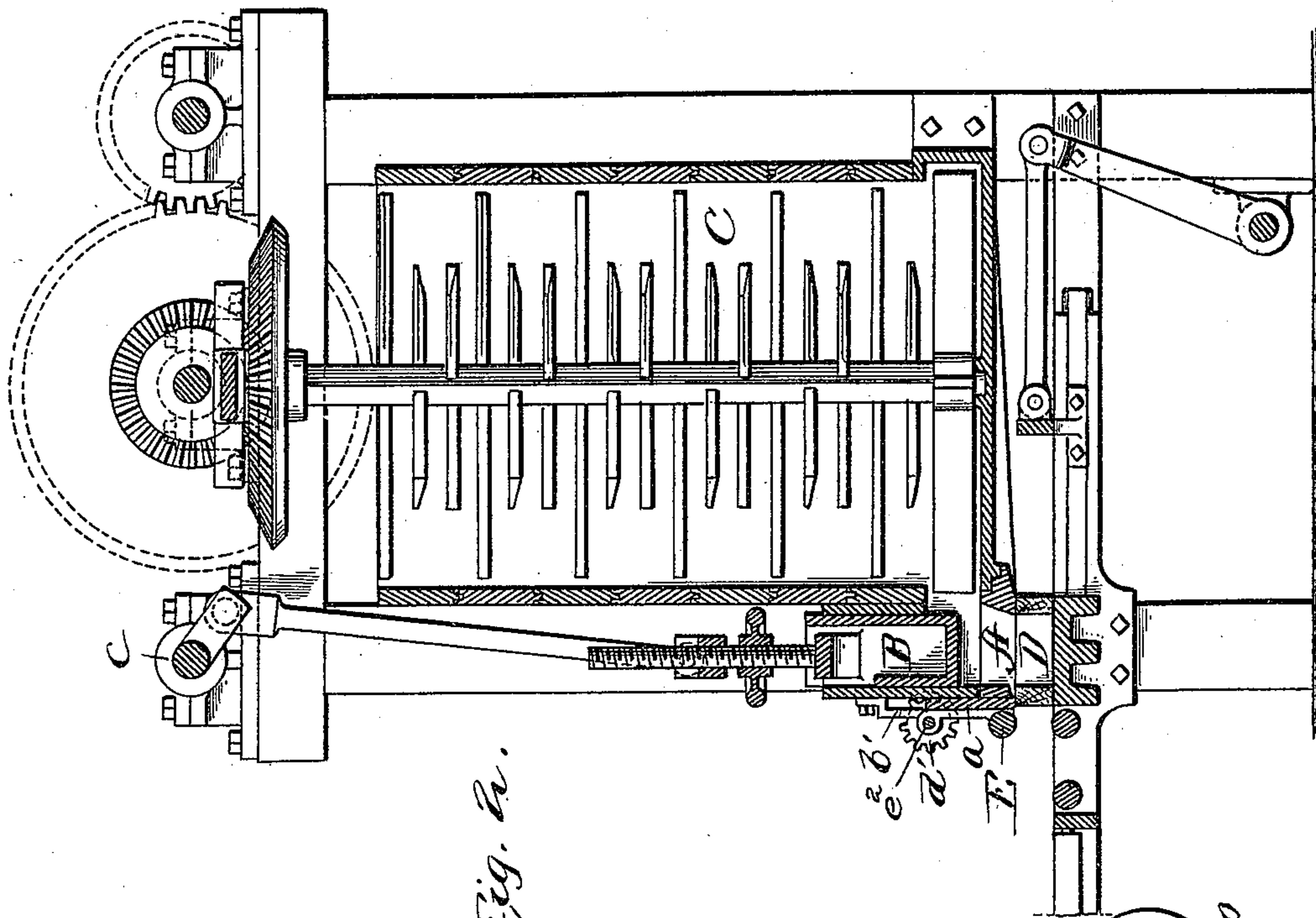


Fig. 2.

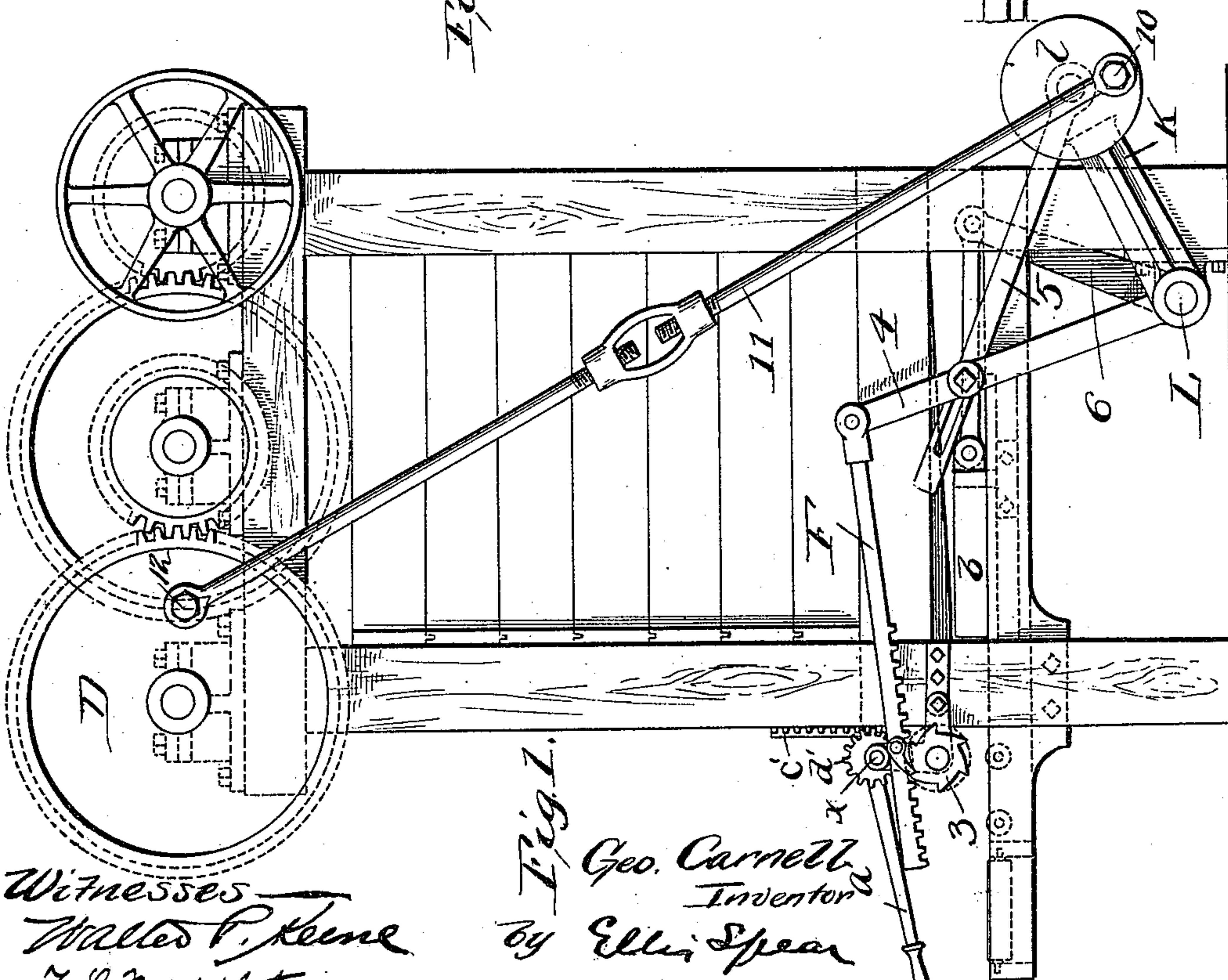


Fig. 1.

Witnesses
Walter P. Keene
J. L. Middleton

Geo. Carnell
Inventor
by Ellis Spear
Atty.

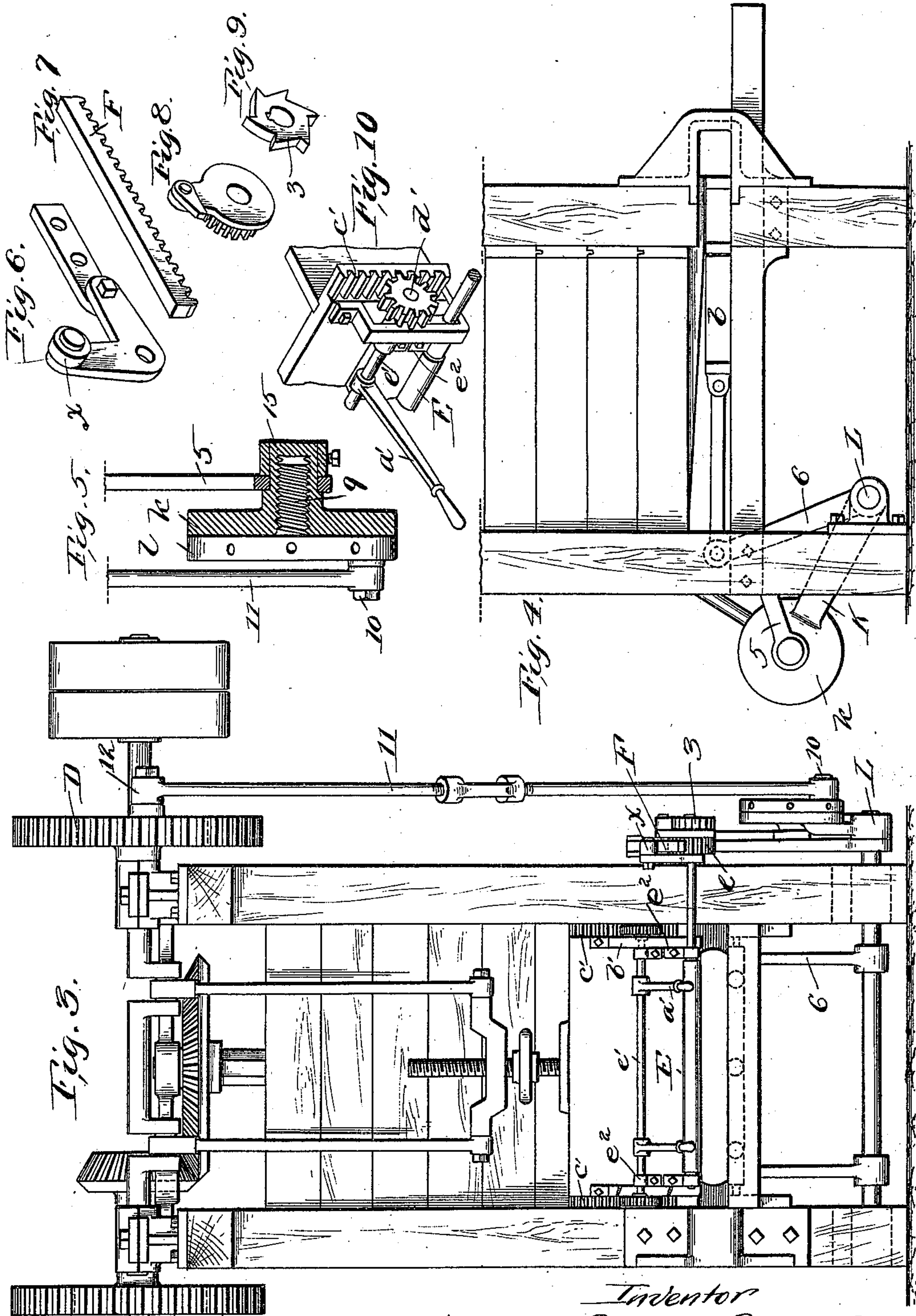
(No Model.)

2 Sheets—Sheet 2.

G. CARNELL.
BRICK MACHINE.

No. 438,986.

Patented Oct. 21, 1890.



Witnesses
Walter P. Keene.
J. L. Middleton

Inventor
George Carnell,
by Eli. Spear
Atty.

UNITED STATES PATENT OFFICE.

GEORGE CARNELL, OF PHILADELPHIA, PENNSYLVANIA.

BRICK-MACHINE.

SPECIFICATION forming part of Letters Patent No. 438,986, dated October 21, 1890.

Application filed January 23, 1890. Serial No. 337,782. (No model.)

To all whom it may concern:

Be it known that I, GEORGE CARNELL, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Brick-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention is an improvement upon brick-machines of that class in which the clay is pressed into molds, which when filled are pushed from their position underneath the plunger-box.

It consists, first, of a peculiar yielding connection between the pusher which forces the molds from under the plunger-boxes and the prime mover of the machine to prevent breaking, and, secondly, of a roller placed in front of the vertically-adjustable scraping-knife to smooth the face of the bricks.

It consists also of improved details of construction.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 shows the machine in side elevation. Fig. 2 shows a partial vertical section in the plane of the side elevation of Fig. 1. Fig. 3 represents a front elevation. Fig. 4 shows on the side opposite to that of Fig. 1, the pusher by means of which the bricks are pushed from the press. Figs. 5, 6, 7, 8, 9, and 10 represent details detached.

In the drawings, A represents the box, in which the plunger B works vertically. There is communication between this box and the chamber C, which is provided with the ordinary stirring apparatus and means for forcing the clay out into the plunger-box. Below the plunger-box is a space fitted to receive the mold D, the molds being pushed successively into this space, which is directly underneath the chamber or box A, registering with the opening in the bottom of the chamber during the descent of the plunger, by means of which the clay is forced into the mold. The mold is shown in Fig. 2 in place. Directly in front of the plunger-box is a knife *a*, which is vertically movable in guides *b'*, so that its lower edge may come down to the plane of the upper edge of the mold, or it may be raised above that

edge. This is raised and lowered by means of rack-bars *c'*, meshing with gears *d'* on a rock-shaft *e'*, operated by the handles *a'*.

The operation of the construction so far described is well understood, and has heretofore been known in its general form. After the molds are filled they are pushed forward by means of the plunger *b* reciprocating in rear of the molds, and as the molds pass under the knife-edge the surplus clay is forced back, leaving a level upper surface. In order to smooth the upper surface of the green brick while in the mold and during its passage under the plunger-box, I provide a roller arranged just in front of the knife. This roller is marked E. It is mounted in bearings and is arranged to press upon the upper face of the brick as the mold passes under the roller, moving toward the front. The roller is intended to bear the same relation to the knife in all its vertical adjustments, and for this purpose it is vertically adjustable with the said knife. Its shaft extends through the guide-brackets *b'*, and is connected with the vertically-adjustable knife-shaft *e'* by the hangers *e²*. This roller is caused to rotate by means of a reciprocating rack-bar F, which engages with a loose pinion *e* on the roller-shaft, being held in engagement by a small roller *x*. The loose pinion carries a pawl, which engages with the ratchet-wheel 3, fixed on the end of the roller-shaft, and by means of this communication the rack-bar slides backward without effect, but engages with the ratchet-wheel only in its forward movement, and thus the roller E is turned in one direction only and with the forward movement of the plunger. The inner end of the rack-bar is supported on a pivot in the upper end of a pivoted lever 4, and is operated by connection with a vibrating arm K, which turns the rock-shaft L. The connection is by a slotted arm 5. The rear end of arm 5 is pivoted to the free end of arm K, and the front end is connected to the lever 4 by a pin in the lever working in a slot in the arm 5, which connection permits some lost motion in the vibrating arm K, but gives all necessary movement to the rack-bar and roller. The surplus clay being removed from the bricks in the mold, the continued

movement of the mold under the roller gives a finished upper face on the bricks, which would otherwise be left rough. It sometimes happens that a hard substance is found in the tempered clay and is passed into the mold. When any such substance happens to be lodged in the molds (as it is very likely to do) and projects above the upper surface of the mold, it strikes the knife as the mold is pushed forward and causes damage to the knife or box or other parts of the machine. For removing liability to such damage I have interposed a yielding connection, the particular form of which is hereinafter explained.

An arm 6 on the rocking shaft L is connected to the pusher *b* and acts to push intermittently the boxes as soon as they are filled. The shaft is moved by the arm K. This arm is flattened at its free end or formed into a disk shape *k*. A disk *l* is held to this in frictional contact by means of a central screw 9, fixed to the disk *l*, and threaded through the disk *k* and into the boss 15. On the disk *l* is a wrist-pin 10, to which is connected an adjustable link 11, the other end being attached to a wrist-pin 12 on the cog-wheel D. The arm K is shown in Fig. 1 as partly raised. The position of the pin 10 is such that when the arm K is down to its lowest limit the said pin is a little to the front of a line drawn from the pin on D and the screw 9 and the pushing-arm is back. The first and heaviest strain in starting the mold-box is therefore thrown nearly in direct line on the central screw and tends to hold one disk to the other. At this point the obstruction, if any existed in the mold, would not take effect, even if it came into contact with the knife at the beginning of the movement and not until the rear wall of the mold-box had advanced to press against the obstruction. This would occur only after the parts had reached the position shown in Fig. 1, where the wrist-pin 10 has passed the line aforesaid and would then tend to turn the screw out of the disk and boss. The lesser strain of the continued movement, if there is no unusual obstruction, is taken up by the friction between the disks. This, though sufficient for ordinary work, will yield and allow the disks to loosen when the unusual strain of an obstruction occurs. The disk *l* turning causes the further movement of the wheel D to be without effect. The attendant can then remove the obstruction and reset the parts. Any other suitable connection may be made between the disks by the screw in such a manner that the movement of the plate shall loosen the parts.

I claim as my invention—

1. In a brick-machine, and in combination, the plunger-box, the mold-box with operating means, a knife-frame and knife, said frame and knife being vertically adjustable, a roller in front of the knife and carried by said movable frame, and mechanism for adjusting the said frame vertically whereby the knife and roller are each adjusted uniformly and simultaneously.

2. In a brick-machine, and in combination, the plunger, the mold-box with operating means therefor, the vertically-adjustable roller for smoothing the green brick, and means for operating the same positively, consisting of the loose pinion with the pawl, the ratchet, and the rack-bar F, said rack-bar being pivoted to its operating connections, substantially as described.

3. In combination, the plunger-box, the mold box, driving connections to the mold-box for moving the same, a positively-operating pressure-roller, and operating-connections extending thereto for rotating the same positively in unison with the forward movement of the mold-box, substantially as described.

4. In a brick-machine, a rock-shaft carrying a pushing-arm for the mold-boxes, an arm K, a disk *l*, connected thereto by frictional contact, a wrist-pin on said disk, and connection between said wrist-pin and a driving-wheel, the parts being arranged to operate, substantially as and for the purpose set forth.

5. In combination, the plunger-box, the mold-box, the pressure-roller, means for communicating movement to the mold-box and pressure-roller, comprising the rock-shaft L, the arms K, 4, and 6 on the rock-shaft L, and the arm 5, connecting the arm K and the arm 4, and connections from the arms 6 and 4 to the mold-box and pressure-roller, respectively, substantially as described.

6. In combination, the plunger-box, the mold-box, and the yielding connections for moving the mold-box, comprising the rock-shaft L, the arm K thereon, having a disk *k*, the disk *l*, held to the disk *k* by a threaded stud, and connections leading from the disk *l* to driving mechanism, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE CARNELL.

Witnesses:

W. H. HOOD,
J. M. HIGGINS.