

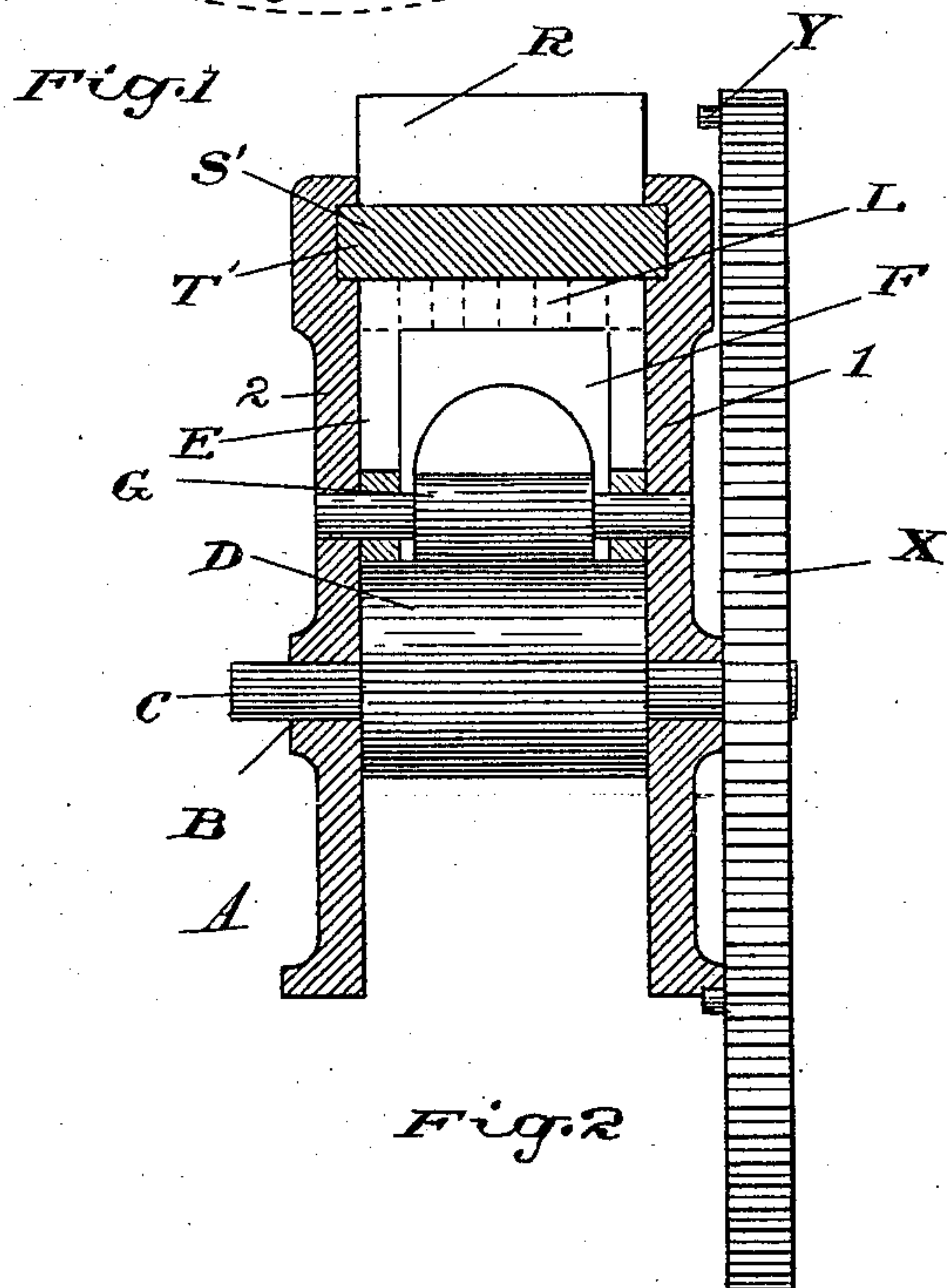
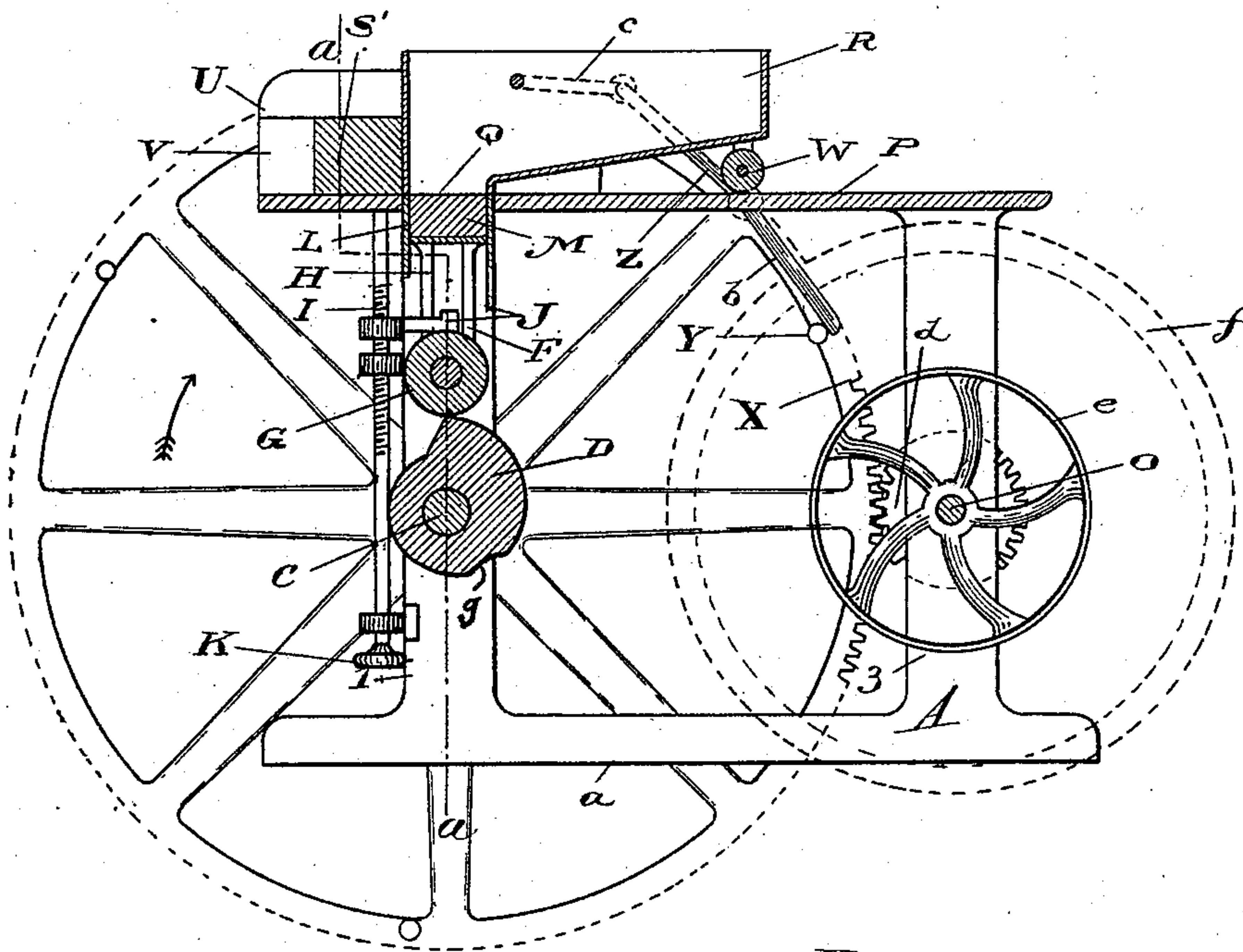
(No Model.)

3 Sheets—Sheet 1.

F. GUTTERIDGE.  
BRICK MAKING MACHINE.

No. 575,603.

Patented Jan. 19, 1897.



Witnesses  
J. E. Barron  
M. A. Westwood

Inventor  
F. Gutteridge  
by C. S. Thies  
his attorney.

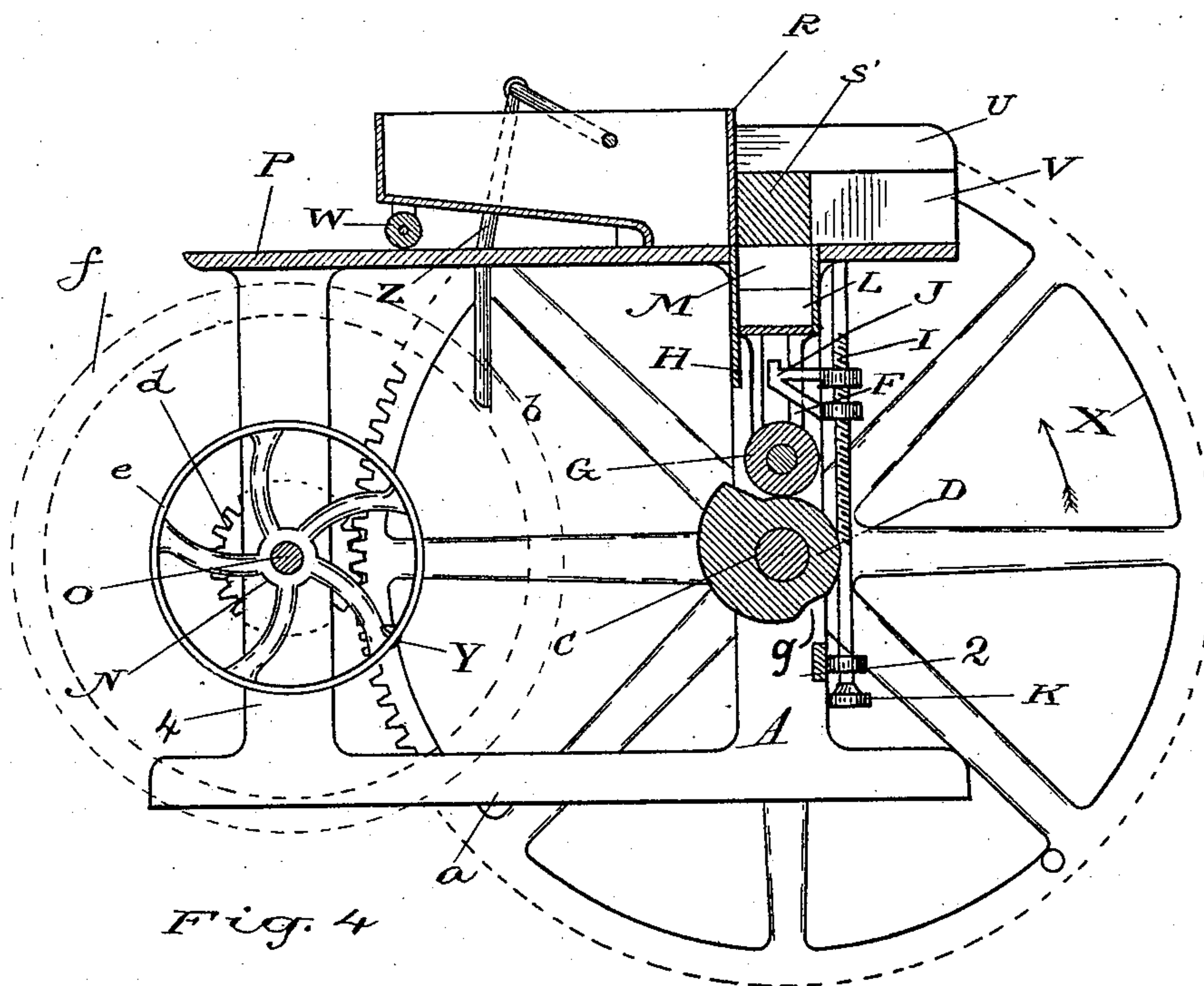
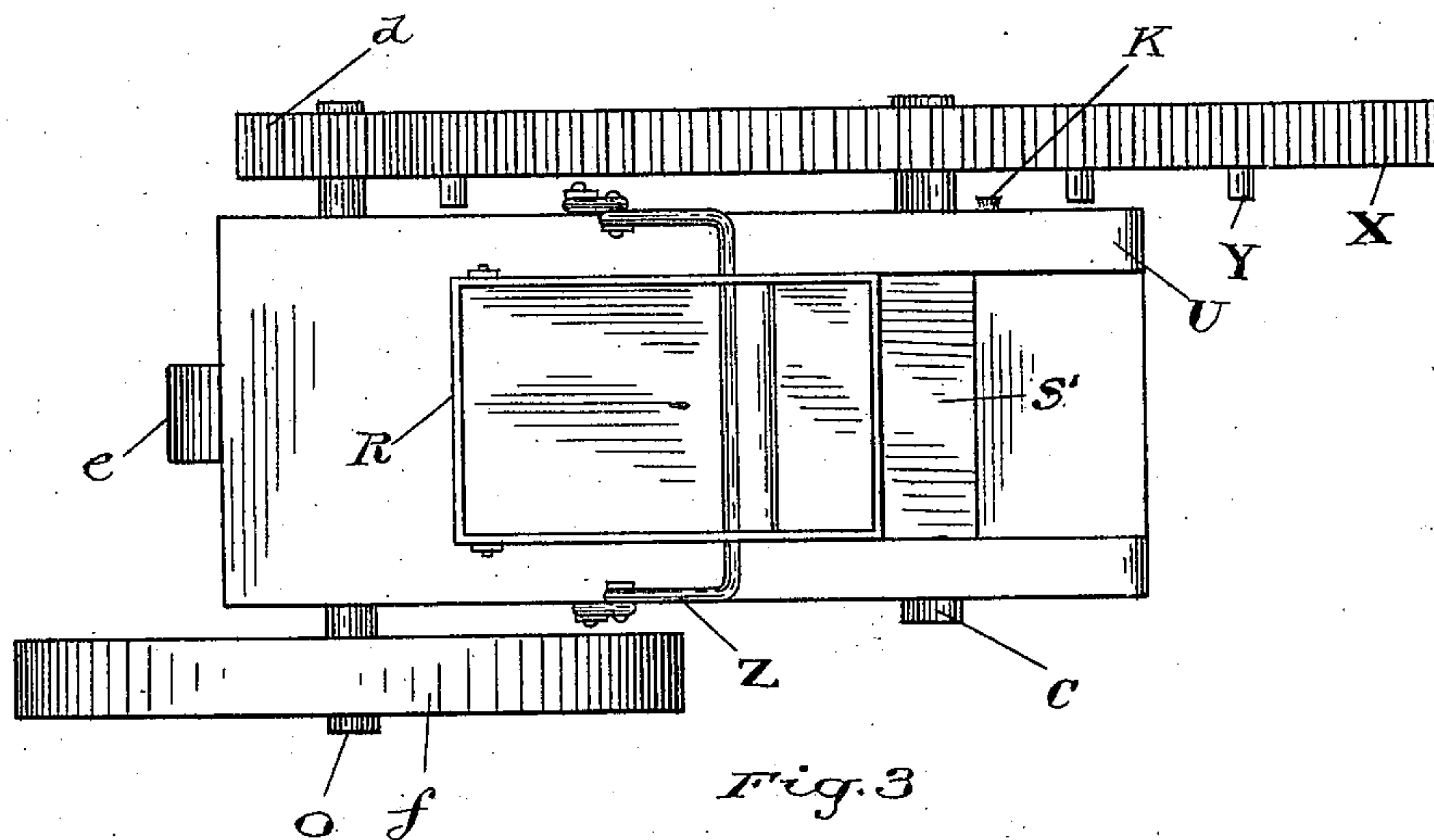
(No Model.)

3 Sheets—Sheet 2.

F. GUTTERIDGE.  
BRICK MAKING MACHINE.

No. 575,603.

Patented Jan. 19, 1897.



*Witnesses*

J. E. Samson  
M. A. Westwood

*Inventor*

Francis Cutleridge  
by C. S. & Charles  
his attorney.

(No Model.)

3 Sheets—Sheet 3.

F. GUTTERIDGE.  
BRICK MAKING MACHINE.

No. 575,603.

Patented Jan. 19, 1897.

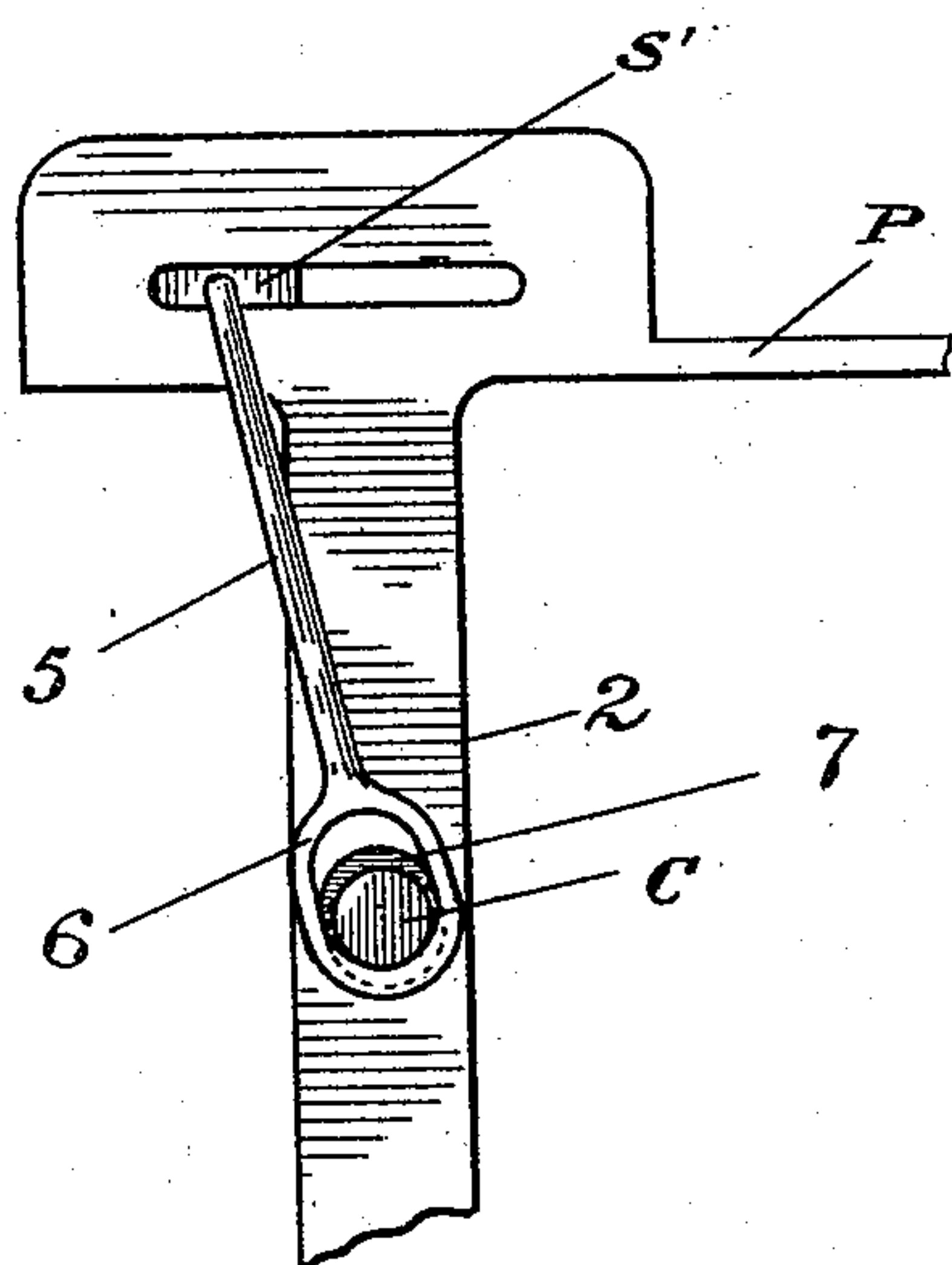


Fig. 5

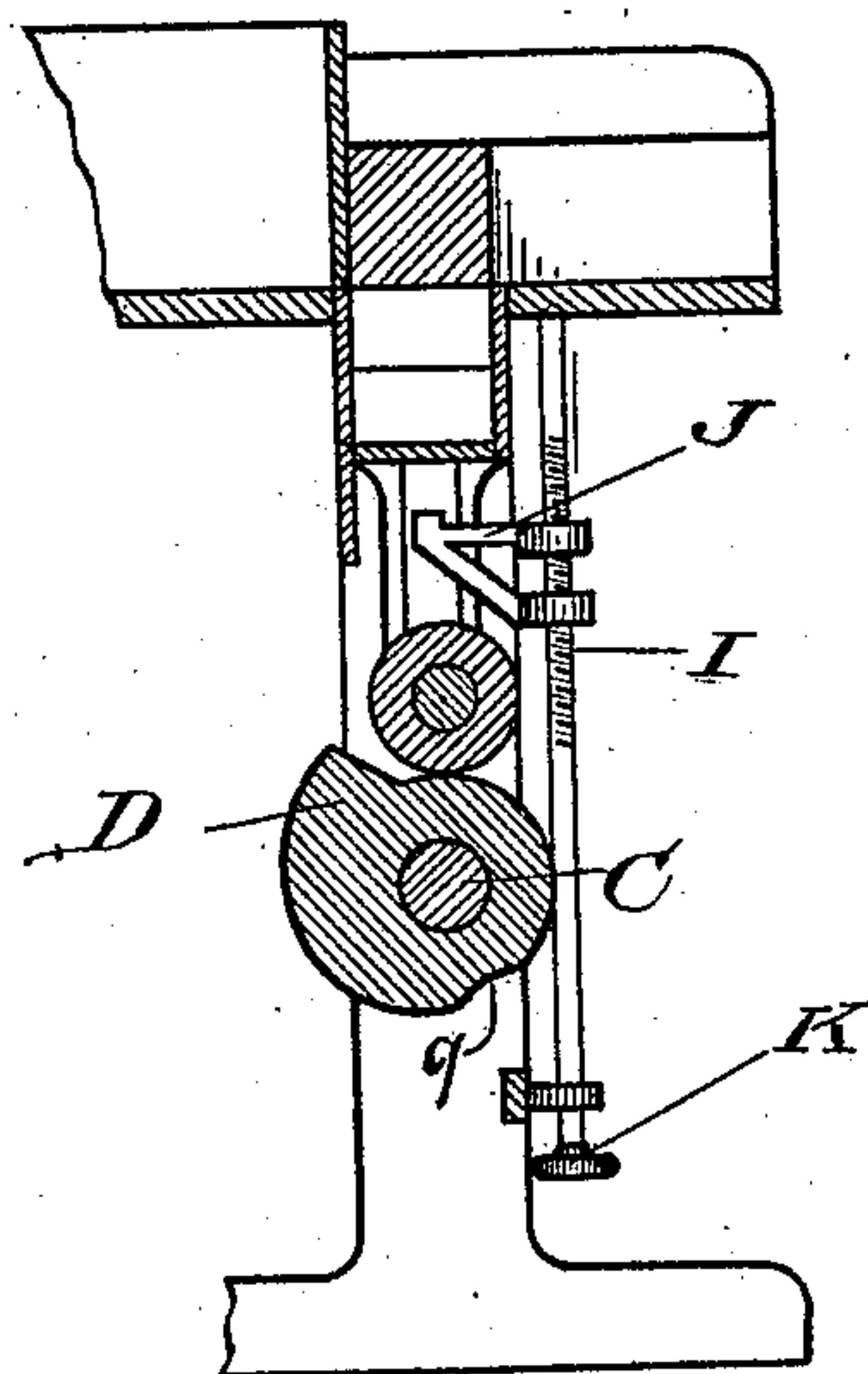


Fig. 6

Witnesses

J. E. Lamm

M. A. Westwood

Inventor

Francis Gutteridge

by C. S. R. R. R.

his attorney.



# UNITED STATES PATENT OFFICE.

FRANK GUTTERIDGE, OF SEAFORTH, CANADA.

## BRICK-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 575,603, dated January 19, 1897.

Application filed July 7, 1896. Serial No. 598,338. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK GUTTERIDGE, of Seaforth, in the county of Huron, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Brick-Making Machines; and I hereby declare that the following is a full, clear, and exact description of the same.

The object of this invention is to construct the brick-making machine so that during the operation the various parts constituting the feeding, pressing, and delivering mechanism will act consecutively in the order above named and develop a high pressure per square inch on the brick in the mold and positively deliver it after its formation.

The brick-making machine consists of a suitable framework, a cross-shaft journaled in the framework, a cam mounted on the said cross-shaft, a plunger or series of plungers sliding in suitable guides in the said framework, a die or dies carried by the said plunger or plungers, an adjustable stop to limit the downward movement of the plunger in order that the feed of the material to the mold can be regulated by the operator during the brick-making process, a table or top for the said framework, having an opening through which the said plunger or plungers are adapted to move when delivering the brick to the top of the table, a cross-bar sliding in suitable guides above the top of the table and adapted to be moved over the said opening during one portion of the revolution of the cam and to be carried entirely across the said opening to allow of the plungers delivering the bricks from the dies when the plunger or plungers have reached the uppermost portion of their stroke, rods connected to the cross-bar and cross-shaft to apply pressure to the cross-bar while it is over the said opening, a feed-box or hopper moving above the said top or table in conjunction with the said cross-bar, the mouth of the hopper arranged to cover the said opening in the top or table during one portion of the revolution of the cam and to be moved entirely away therefrom during the remainder of the revolution of the cam, a spur-wheel mounted on each end of the cross-shaft, a series of pins secured to the inner side face of each of the spur-wheels, a lever pivoted at or about its middle to the said top or table, a

link connected to the upper end of the lever and to the feed-box or hopper, the said lever projecting below the said table, a projection bolted to each side of the hopper adapted to engage the pins on the side faces of the spur-wheels in order that during the revolution of the spur-wheels the pins coming in contact with the said projections will move the feed-box to carry its mouth away from the opening through the top or table, the continued revolution of the pins coming in contact with the lower end of the feed-dies, wheels or rollers connected to the under side of the hopper to facilitate its travel, a driving-shaft journaled in the framework, a pulley mounted on the said shaft by means of which motion is imparted to it, two pinions mounted on the said shaft, each adapted to engage with its respective spur-wheel, a balance or fly wheel mounted on the shaft, a roller mounted on the lower end of the plunger adapted to travel on the cam, the whole device being hereinafter more fully set forth, and more particularly pointed out in the claims.

In the drawings, Figure 1 is a transverse sectional view through the entire machine. Fig. 2 is a cross-sectional view on the lines *a a*, Fig. 1. Fig. 3 is a plan view of the top or table. Fig. 4 is a view similar to Fig. 1, showing the operating parts in the opposite position to that shown in Fig. 1. Fig. 5 is a side view showing the cross-bar, cross-shaft, and connecting-rods. Fig. 6 is a view of the adjustable stop for the plunger.

Like letters and numerals of reference refer to like parts throughout the specification and drawings.

The machine consists of a suitable framework A, composed of a base *a* and a series of uprights or standards (numbered, respectively, 1, 2, 3, and 4) secured to the said base. The standards 1 and 2 are oppositely opposed to each other at what might be termed the "front" of the base A, and each of the standards 1 and 2 is provided with a suitable journal-box B for a cross-shaft. Mounted in the box B is a cross-shaft C. Mounted on the cross-shaft C between the standards 1 and 2 is a cam D. Formed in the inner side face of each of the standards 1 and 2 above the cross-shaft C is a guide E, and working in the guides E is a plunger F. The lower end of the plunger F



is provided with a roller G to roll on the perimeter of the cam D. Formed in the plunger F is a slot H. Journalled in the framework is a vertical screw I, and mounted on the screw I is a vertically-adjustable stop J, which enters the said slot H. The purpose of the stop J and screw I is to limit the fall of the plunger F after the cam-face has cleared the roller G. The top of the plunger F is provided with a series of dies L, which work within corresponding molds M, carried by the top of the standards.

The standards 3 and 4 are oppositely opposed to each other at the opposite end of the base a to the standards 1 and 2. Each of the standards 3 and 4 is provided with a journal-box N, and mounted in the journal-box N is the driving-shaft O. Mounted on the top of the standards 1, 2, 3, and 4 is a table P. Formed through the table P, above the molds M, is an opening Q. Mounted on the top of the table P is a hopper or feed-box R, the mouth of which is so located as to cover the opening Q through the said table at one operation of the revolution of the cam D. Connected to the hopper R is a cross-bar or pressure-bar S', each end of which is provided with a spindle or pin T'. Connected to each side of the table P, contiguous to the standards 1 and 2, is a flange U, and formed in the side face of each of the flanges U is a slot V, which forms the guides for the pins. Connected to the ends of each of the pins T' is a rod 5, fitted with an eye 6, which encircles a cam 7, mounted on the cross-shaft C, so arranged that when the cross-bar is over the opening Q the cam will cause the said rods to draw downwardly on the cross-bar. By means of this construction the cross-bar will rigidly resist the pressure from the plunger when the cross-bar is moved to cover the opening Q.

Connected to the hopper R are a series of wheels W to facilitate the movement of the hopper over the top of the table P. Mounted on each end of the cross-shaft C is a spur-wheel X, and connected to the inner side face of each of the spur-wheels X are a series of pins Y, arranged at equidistant points from each other. Connected to the side face of the hopper R is a projection Z, against which the pins Y are adapted to strike during the revolution of the spur-wheel.

Pivoted to the table P is a lever b, the upper end of which is connected by a link c to the feed-box, while the lower end of the lever b projects below the bottom of the said table. Mounted on the driving-shaft O are two spur-wheels d, each of which meshes with its respective spur-wheel X. Mounted on the driving-shaft O is a pulley e, by means of which motion and power are transmitted to the shaft, and mounted on the said driving-shaft O is a balance-wheel or fly-wheel f to develop a centrifugal force to assist in driving the spur-wheels d.

The operation of the machine is as follows: Power and motion are transmitted by means

of a belt to the pulley e and from the pulley e to the driving-shaft O and spur-wheels d, which in turn impart motion to the spur-wheels X and cause them to revolve in the direction indicated by arrows. The spur-wheels X during their revolution carry the pins Y against the projection Z to move the hopper R into the position shown in Fig. 4. When the hopper is carried into the position shown in Fig. 4, the lever b is in a substantially vertical position, and the pins Y coming in contact with the lever move it into the position shown in Fig. 1, moving the hopper into the position shown in the same figure to bring the mouth of the hopper over the molds M, in order that the material within the hopper may be fed to the said molds. When the mouth of the hopper is feeding the molds, the plunger F is resting on the lowermost part of the perimeter of the cam D, the top of the dies L forming a bottom for the said molds. The brick-making material is rapidly fed to the said molds, and before the roller G of the plunger F commences to travel on the rise of the cam the molds are supposed to have received their full complement of material. One of the pins Y is so arranged that before the roller G commences to travel on the rise of the cam it will strike the projection Z and move the hopper R away from the opening Q and move the pressure or cross bar over it, allowing the hopper and the pressure or cross bar to remain in that position a sufficient length of time to allow of the rise of the plunger sufficiently to press the material into solidified bricks. The rise of the cam is provided with a slight depression g, in order that after the plunger has applied the pressure to form the bricks it will drop into this depression and remove the pressure from the cross-bar to allow of the cross-bar being drawn easily across the opening Q, so that when the elevation of the plunger is continued by the increased rise of the cam the dies L will lift the bricks above the top of the molds. The return of cross-bar to the position shown in Fig. 1 delivers the bricks onto the top of the table to facilitate their removal either by hand or machinery. The fall of the cam is abrupt, in order that the plunger will sharply descend to open the molds to permit of their being refilled from the hopper.

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

1. In a brick-making machine the combination of a suitable framework, a table for the framework, an opening through the table, a hopper mounted on the table, a projection connected to the side face of the hopper, a lever pivoted to the table, the upper end of the lever connected by a link to the hopper, a cross-shaft, a wheel mounted on the cross-shaft, a series of pins connected to the side face of the wheel, adapted to alternately engage with the projection and lever, to respectively move the mouth of the hopper away



from the opening through the table, and to move it back again into position, substantially as specified.

2. In a brick-making machine the combination of a suitable framework, a table for the framework, an opening through the table, a hopper mounted on the table, a projection connected to the side face of the hopper, a lever pivoted to the table, the upper end of the lever connected by a link to the hopper, a cross-shaft, a wheel mounted on the cross-shaft, a series of pins connected to the side face of the wheel, adapted to alternately engage with the projection and lever, to respectively move the mouth of the hopper away from the opening through the table, and to move it back again into position, and a cross-bar connected to the hopper to temporarily close the opening through the table, substantially as specified.

3. In a brick-making machine the combination of a suitable framework, a table for the framework, an opening through the table, a hopper mounted on the table, a projection connected to the side face of the hopper, a lever pivoted to the table, the upper end of the lever connected by a link to the hopper, a cross-shaft, a wheel mounted on the cross-shaft, a series of pins connected to the side face of the wheel, adapted to alternately engage with the projection and lever, to respectively move the mouth of the hopper away from the opening through the table, and to move it back again into position, a cam mounted on the cross-shaft, a plunger sliding in suitable guides formed in the upright part of the framework, a roller carried by the lower end of the plunger, adapted to travel on the said cam, a series of dies carried by the upper end of the plunger, and molds carried by the framework located below the said opening through the table, substantially as specified.

4. In a brick-making machine the combination of a suitable framework, a table for the framework, an opening through the table, a hopper mounted on the table, a projection connected to the side face of the hopper, a lever pivoted to the table, the upper end of the lever connected by a link to the hopper, a cross-shaft, a wheel mounted on the cross-shaft, a series of pins connected to the side face of the wheel, adapted to alternately engage with the projection and lever, to respectively move the mouth of the hopper away from the opening through the table, and to move it back again into position, a cross-bar connected to the hopper to temporarily close the opening through the table, a cam mounted on the cross-shaft, a plunger sliding in suitable guides formed in the upright part of the framework, a roller carried by the lower end of the plunger, adapted to travel on the said cam, a series of dies carried by the upper end of the plunger, and molds carried by the framework located below the said opening through the table, substantially as specified.

5. In a brick-making machine the combination of a suitable framework, a table for the

framework, an opening through the table, a hopper mounted on the table, a projection connected to the side face of the hopper, a lever pivoted to the table, the upper end of the lever connected by a link to the hopper, a cross-shaft, a wheel mounted on the cross-shaft, a series of pins connected to the side face of the wheel, adapted to alternately engage with the projection and lever, to respectively move the mouth of the hopper away from the opening through the table, and to move it back again into position, a cross-bar connected to the hopper to temporarily close the opening through the table, a cam mounted on the cross-shaft, a plunger sliding in suitable guides formed in the upright part of the framework, a roller carried by the lower end of the plunger, adapted to travel on the said cam, a series of dies carried by the upper end of the plunger, molds carried by the framework located below the said opening through the table, and an adjustable stop, to limit the fall of the plunger, substantially as specified.

6. In a brick-making machine the combination of a suitable framework, a table for the framework, an opening through the table, a hopper mounted on the table, a projection connected to the side face of the hopper, a lever pivoted to the table, the upper end of the lever connected by a link to the hopper, a cross-shaft, a spur-wheel mounted on the cross-shaft, a series of pins connected to the side face of the spur-wheel, adapted to alternately engage with the projection and lever, to respectively move the mouth of the hopper away from the opening through the table, and to move it back again into position, a cross-bar connected to the hopper to temporarily close the opening through the table, a cam mounted on the cross-shaft, a plunger sliding in suitable guides formed in the upright part of the framework, a roller carried by the lower end of the plunger, adapted to travel on the said cam, a series of dies carried by the upper end of the plunger, molds carried by the framework located below the said opening through the table, a driving-shaft journaled in the framework, a spur-wheel mounted on the driving-shaft, meshing with the spur-wheel on the cross-shaft, a pulley mounted on the driving-shaft to impart motion and power to the said driving-shaft, and a balance-wheel mounted on the driving-shaft to develop a centrifugal force, substantially as specified.

7. In a brick-making machine the combination of a suitable framework, a table for the framework, an opening through the table, a hopper mounted on the table, a projection connected to the side face of the hopper, a lever pivoted to the table, the upper end of the lever connected by a link to the hopper, a cross-shaft, a wheel mounted on the cross-shaft, a series of pins connected to the side face of the wheel, adapted to alternately engage with the projection and lever, to respectively move the mouth of the hopper away



from the opening through the table, and to  
move it back again into position, a cross-bar  
connected to the hopper to temporarily close  
the opening through the table, a cam mounted  
5 on the cross-shaft, a plunger sliding in suit-  
able guides formed in the upright part of the  
framework, a roller carried by the lower end  
of the plunger, adapted to travel on the said  
cam, a series of dies carried by the upper end  
10 of the plunger, molds carried by the frame-  
work located below the said opening through  
the table, an adjustable stop, to limit the fall  
of the plunger, a driving-shaft journaled in the

framework, a spur-wheel mounted on the driv-  
ing-shaft meshing with the spur-wheel on the 15  
cross-shaft, a pulley mounted on the driving-  
shaft to impart motion and power to the said  
driving-shaft, and a balance-wheel mounted  
on the driving-shaft to develop a centrifugal  
force, substantially as specified.

Seaforth, May 23, A. D. 1896.

F. GUTTERIDGE.

In presence of—

F. HOLMESTED,  
JOHN TURNER.