

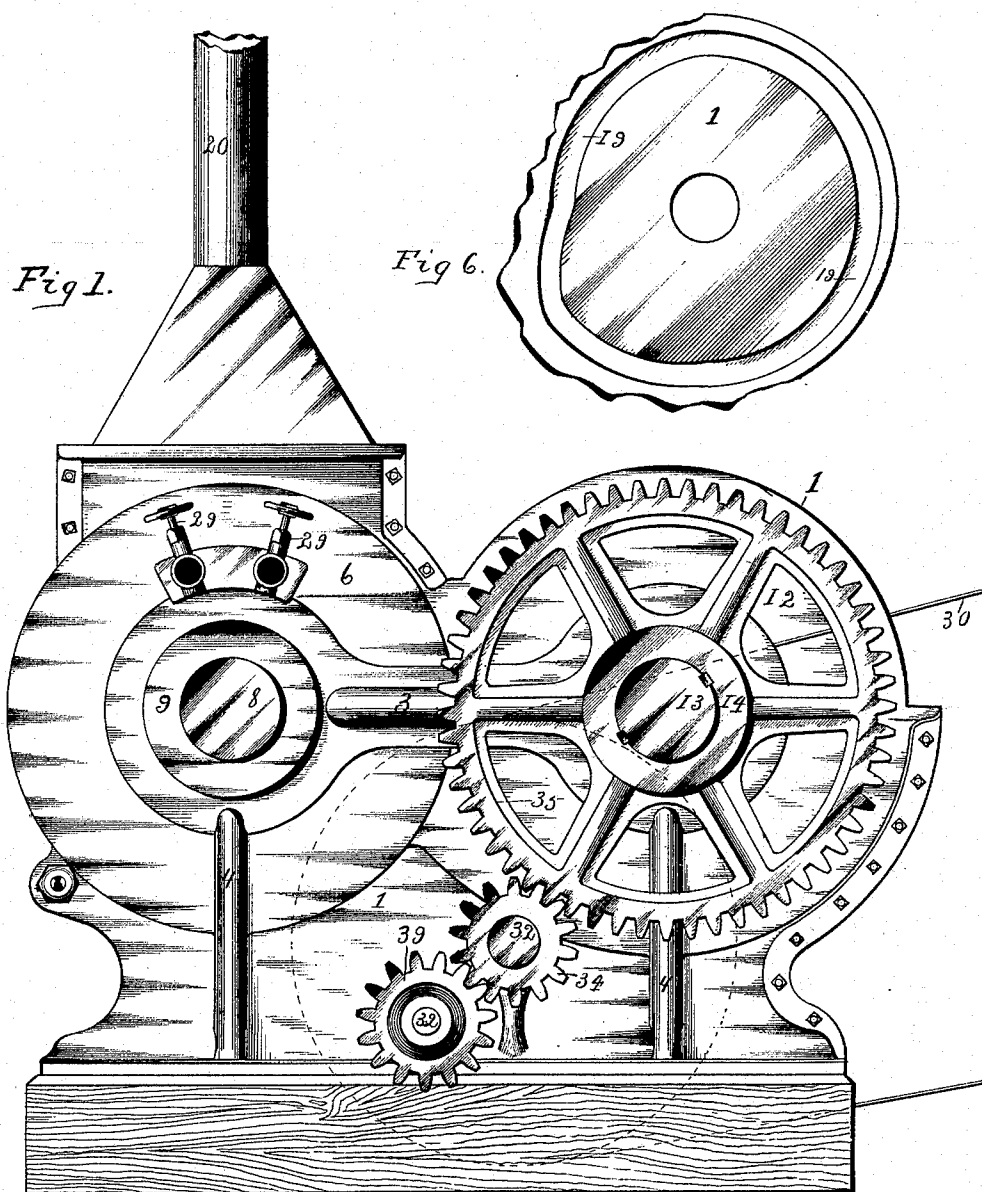
(No Model.)

4 Sheets—Sheet 1.

H. G. GILBERT.
BRICK MACHINE.

No. 518,597.

Patented Apr. 24, 1894.



WITNESSES:

L. C. Leary,
R. C. Douthett,

INVENTOR
Henry G. Gilbert.
BY
Toulmin & M. Carty
ATTORNEYS

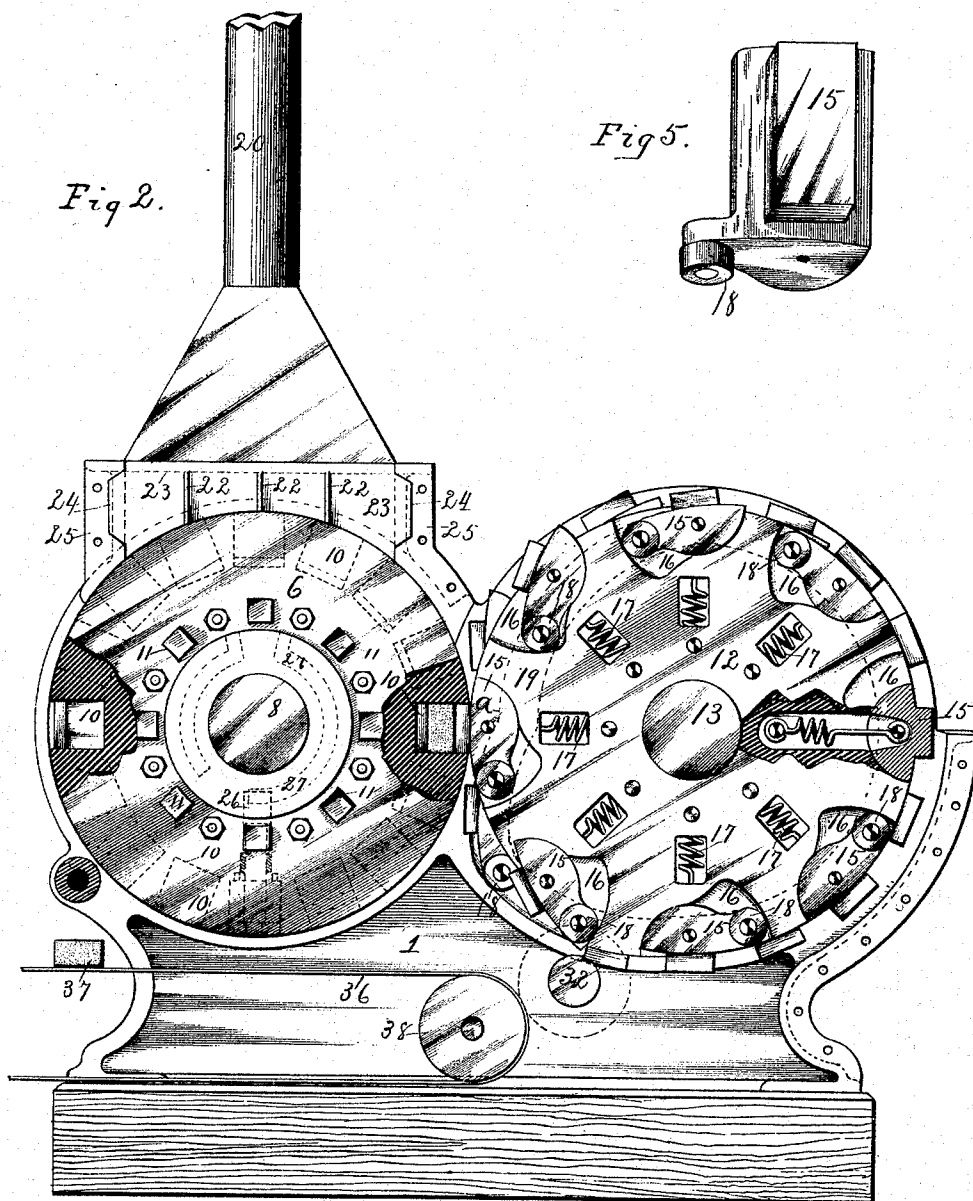
(No Model.)

4 Sheets—Sheet 2.

H. G. GILBERT.
BRICK MACHINE.

No. 518,597.

Patented Apr. 24, 1894.



WITNESSES:

L. C. Leoty
R. C. Douthett

INVENTOR

Henry J. Gilbert
BY
Paulman & McCarty
ATTORNEYS

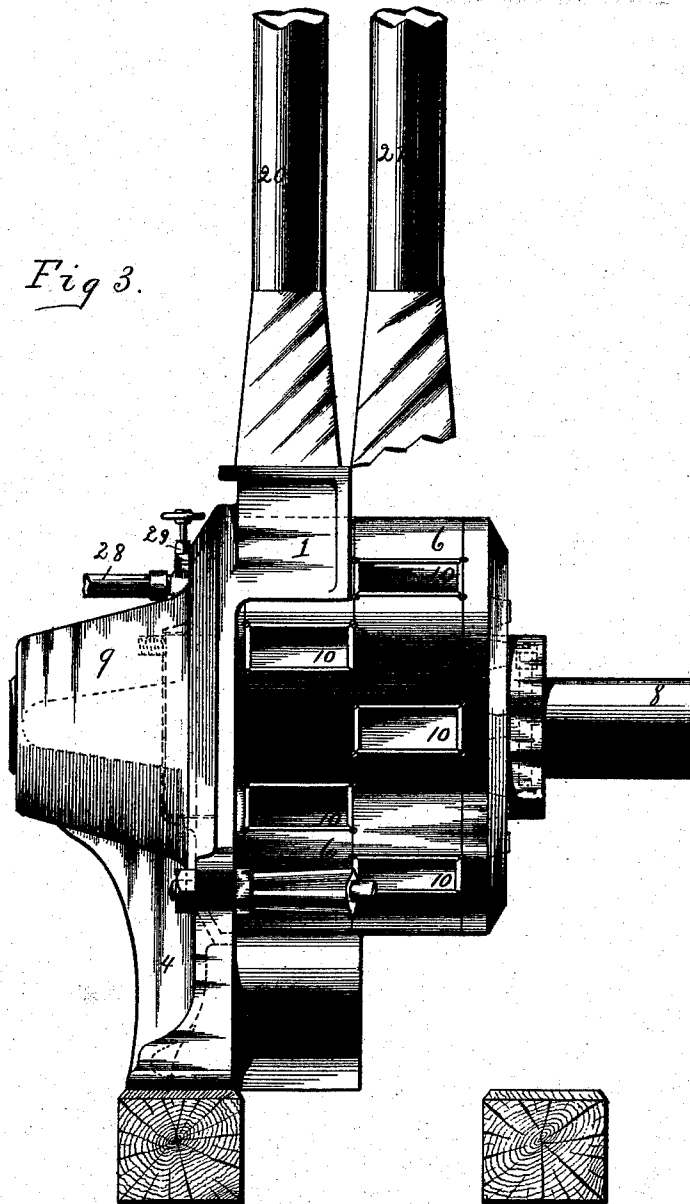
(No Model.)

4 Sheets—Sheet 3.

H. G. GILBERT.
BRICK MACHINE.

No. 518,597.

Patented Apr. 24, 1894.



WITNESSES:

L. C. Leoty,
R. C. Douthett,

INVENTOR

Henry G. Gilbert.

BY

Frederic M. Carty
ATTORNEYS.

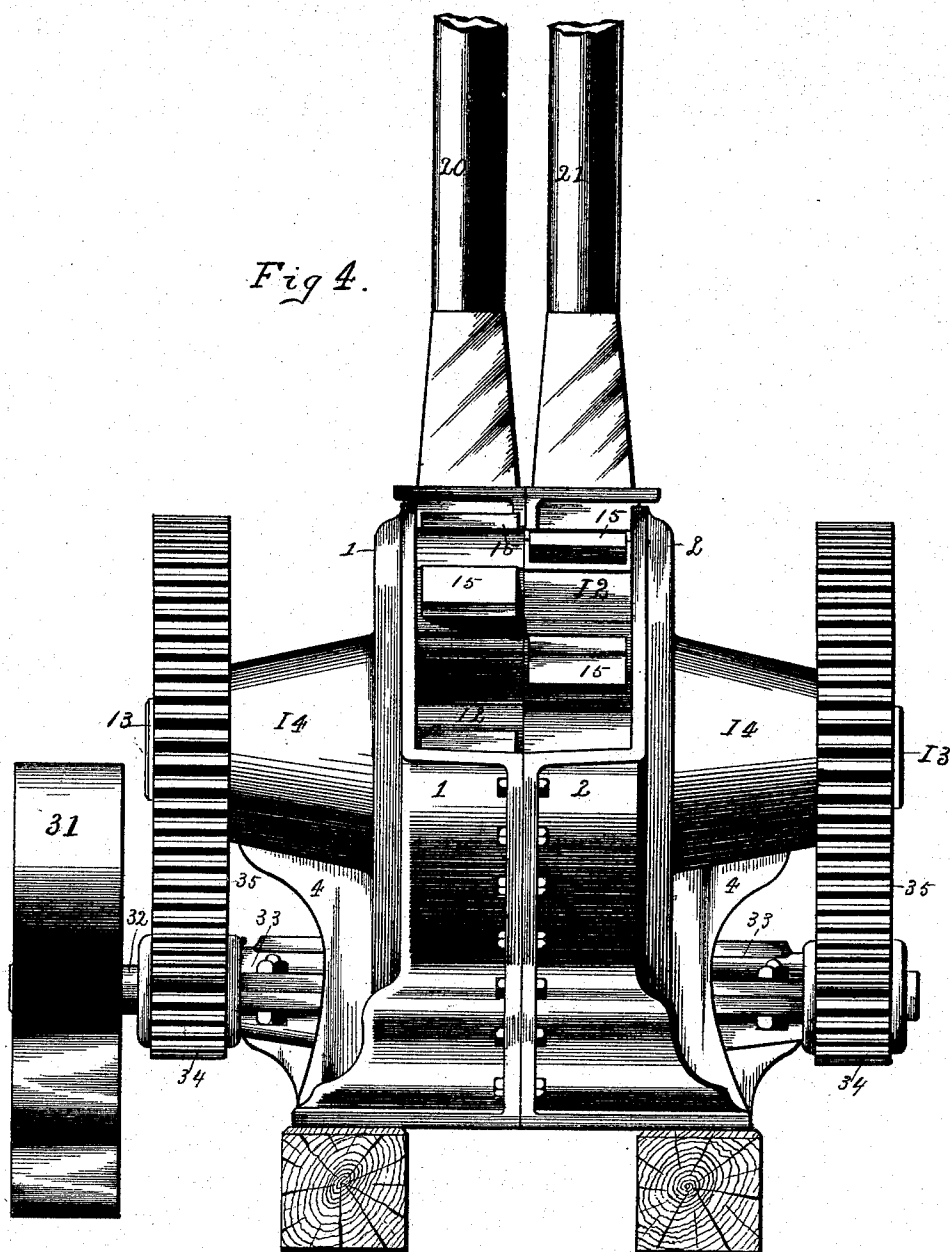
(No Model.)

4 Sheets—Sheet 4.

H. G. GILBERT.
BRICK MACHINE.

No. 518,597.

Patented Apr. 24, 1894.



WITNESSES:

L. C. Leaty
R. C. Douthett

INVENTOR

Henry G. Gilbert
BY
Paulmin M. Carty
ATTORNEYS

UNITED STATES PATENT OFFICE.

HENRY G. GILBERT, OF DAYTON, OHIO.

BRICK-MACHINE.

SPECIFICATION forming part of Letters Patent No. 518,597, dated April 24, 1894.

Application filed June 16, 1893. Serial No. 477,868. (No model.)

To all whom it may concern:

Be it known that I, HENRY G. GILBERT, of Dayton, county of Montgomery, State of Ohio, have invented a new and useful Improvement in Brick-Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to improvements in brick machines, of the class known as dry clay machines.

The object of the invention is to produce an entirely rotary machine that has a greatly increased capacity for making bricks from any of the clays suitable for such purposes; and further, to simplify, and reduce the cost of the mechanism through the agency of which, these and other incidental objects are attained.

To these ends my improvements consist, generally, of two revolving drums, having respectively, a series of dies and a series of oscillating plungers with adjunctive mechanism, so located and arranged that one will combine with the other in executing common functions.

For a detailed description of my invention attention is called to the accompanying drawings forming a part of this specification, on which similar reference characters indicate corresponding parts throughout the several views.

Figure 1, represents a side elevation of my improved dry clay brick machine, the drums being inclosed by the casing; Fig. 2, a side elevation with half of the casing removed, the die and plunger drums are depicted in this view; one of the plungers and two of the dies are shown in cross section, also one of the dies so shown is shown to contain a brick which a plunger is in the act of pressing; Fig. 3, a rear end elevation, with one side of the casing removed; Fig. 4, a front elevation of the machine; Fig. 5, a detached, detail view in perspective of one of the die plungers; Fig. 6, an enlarged inner view of the portion of the casing in which the cam groove is

located, surrounding parts of the casing are broken away in this view.

The inclosing and supporting case is constructed of metal, say cast iron, and is made in two parts, 1 and 2, secured to each other by bolts; this casing is necessarily of a substantial construction, having a horizontal rib 3, on both sides extending over its median portion, and similar vertical ribs 4 extending to the base of the machine.

6 indicates a rotatable drum keyed to shaft 8, provided with bearings in conical shaped trunnions 9, 9, which are integral parts of the casing. This drum is composed of four pieces of casting which are bolted to each other, and said drum has in its peripheral surface two sets of dies, 10, 10, provided with steel linings; in the present instance each set is composed of eight dies, alternately arranged, but the number may be increased with an enlarged circumference of the drum.

11 indicates a series of lugs projecting laterally from the faces of said drum and which serve to keep the drum from any lateral movement while under rotary motion, by the lugs gradually abutting against the inner side of the casing; the effect of this is to keep the drum in a proper position, without any appreciable wear to the sides of the casing.

12 indicates a second rotatable drum composed of two castings, each of which is independently keyed to shaft 13 in a manner to effect a close contact with each other; the shaft 13 is provided with bearings in trunnions 14 14, similar to the bearings of shaft 8, of the die drum, and which are also integral with the casing. This drum 12 supports a series of individual, oscillating plungers 15 15 which are provided with seats or bearing recesses 16 therein substantially as is shown in Fig. 2: each of these plungers is normally maintained within its seat by a tension spring 17, secured thereto and to the drum in holes cored therein, so that the plunger may freely oscillate without the possibility of leaving its seat.

18 represents a series of anti-friction rollers pivoted to the projecting portion of the plungers; these rollers project laterally into a cam groove 19 in the inner side of the casing on both sides adjacent to the drum; the plun-

gers are therefore controlled by the contour of this groove, and are so located and arranged with respect to the dies in the adjacent drum, that the cam groove presents the
5 plunger to its respective die when the latter is in a proper position to receive it, and thereby, the clay in said die is given the necessary pressure to form it into a brick.

It will be noticed by looking at Fig. 2, in
10 which the cam groove 19 appears in dotted lines, that the cam portion of this groove commences on a vertical line with the axis of the drum, at which point the plungers begin to be controlled by said groove; as the cam portion extends, the face of the plunger is thrown
15 outwardly to gear with its respective die; the continued rotation of the drums causes the face of the plungers, and the dies to assume a horizontal line, where the extent of the cam groove is the greatest, thus indicated by (a) Fig. 2. It will thus be observed that the rotary motion is imparted to the die drum by the oscillating plungers engaging with the dies, and releasing them in succession as the
25 said plungers are carried by their revolving drum, the plungers being placed on the drum in such positions as will enable each succeeding plunger to become in gear with its respective die before the one previously in gear with its respective die has become fully disengaged therefrom, so that a continuous rotation of the die drum is maintained while the plunger drum is in operation.

It has been demonstrated, that the capacity
35 of a rotary machine, such as is herein described, for molding bricks is greatly superior to that of a reciprocating or intermittent motion, as there is no cessation of the revolutions of the drums or stoppages of the mechanism while the machine is in operation, on the contrary, the operation of pressing the brick is done by a continuous rotary motion, and is not performed at intervals as is the case with reciprocating or intermittent motion.
45

20 21 indicate feed pipes for the dies, which are suitably attached to the casing above the die drum; these pipes lead to the upper floor or elsewhere, where the machine for grinding
50 and preparing the clay for the molds is located.

22 represents a series of three ribs or scrapers arranged transversely of the die drum slightly above its periphery and maintained in slots in the horizontal plate 23 at right angles thereto, as shown in dotted lines in Fig. 2, and in grooves in the respective sides of the casing; the plate 23 is located longitudinally above the die drum and is maintained in position by means of the ends or tongues
60 24 24 thereof which are secured between the flanges 25 25 of the casing; the objects of these ribs are to provide means for dividing the clay as it falls into the molds, and to scrape off any excess of quantity in order that the
65 charge of clay may be properly presented to the plungers.

Various means for removing the bricks

from the dies may be employed, in the present instance a vertical plunger 26—shown in dotted lines in Fig. 2, is employed, to which
75 hydraulic pressure is applied through channel 27, pipe 28 and valves 29. The power to operate the machine is conveyed thereto through the usual belt 30 and pulley 31, the latter keyed to shaft 32, provided with bearings in
75 trunnions 33 33 projecting from the casing, see Fig. 4, and upon which shaft, gear pinions 34 34 are keyed to mesh with the driving gear wheels 35 35 keyed to shaft 13 to which the plunger drum is also keyed. As the bricks are
80 molded in the manner described in the foregoing specification, they are removed from the dies as before stated, by the plunger 26; when thus removed, the brick drops upon a single, revolving apron or belt 36, having a width substantially the same as the width of the die drum, and is delivered thereby into a suitable receptacle; 37 indicates a brick now being carried away, see Fig. 2; this carrying belt incloses two rollers journaled in the sides of the casing, one of which, 38, has a gear pinion 39
90 on an end that meshes with either of the pinions on shaft 32. Other means may be utilized for conveying the bricks from the machine; for instance, this belt or apron 36 may
95 be substituted by a stationary inclined chute over which the bricks may travel by force of gravity, or a track may be arranged below the die drum and a truck run thereon.

Having described my invention, what I
100 claim, and desire to secure by Letters Patent, is—

1. In a brick machine, the combination of a casing having cam grooves on its inner surface, a continuously revolving drum arranged
105 adjacent to said cam grooves, and having a series of peripheral recesses, a series of individual plungers having bearings in said recesses, and which are maintained in said bearings and allowed to oscillate therein by means
110 of springs attached thereto and to the drum, a series of individual anti-friction rollers pivoted to said plungers, and projecting into the cam grooves in the casing, so that when the drum revolves the plungers are subjected to
115 an oscillatory motion by the anti-friction rollers traveling in the cam groove, substantially as described.

2. In a brick machine, the combination of the die drum with laterally projecting lugs,
120 and mounted on shaft 8, a plunger-carrying drum mounted on shaft 13, and having a series of peripheral recesses, a series of plungers maintained in said recesses and permitted to oscillate therein by spring attachments, so that when shaft 13 rotates the drum carrying said plungers, each plunger is presented to its respective die to form a brick of the clay therein, and to maintain a continuous rotary motion of the die drum by the
130 plungers successively engaging with the dies, and disengaging therefrom as the plunger drum is rotated, substantially as described.

3. In a brick machine, the combination with

the casing having cam grooves 19 on its inner surface of the drums 6 and 12, the former having a series of dies 10—10, and the latter carrying a series of oscillating plungers 15—15
5 having springs 17, and anti-friction rollers 18, that travel in the cam grooves 19 thereby oscillating the plungers to engage with the dies, substantially as described.

4. In a brick machine, the combination of
10 a revolving drum provided with peripheral recesses, a series of plungers movably maintained within said recesses, a series of anti-

friction rollers carried by said plungers, and means for rotating said rollers whereby the plungers are oscillated and made to success- 15
ively register with the dies in drum 6, substantially as herein shown and described.

In testimony whereof I have hereunto set my hand this 5th day of June, 1893.

HENRY G. GILBERT.

Witnesses:

S. A. DICKSON,
R. JAY. MCCARTY.