

No. 625,866.

Patented May 30, 1899.

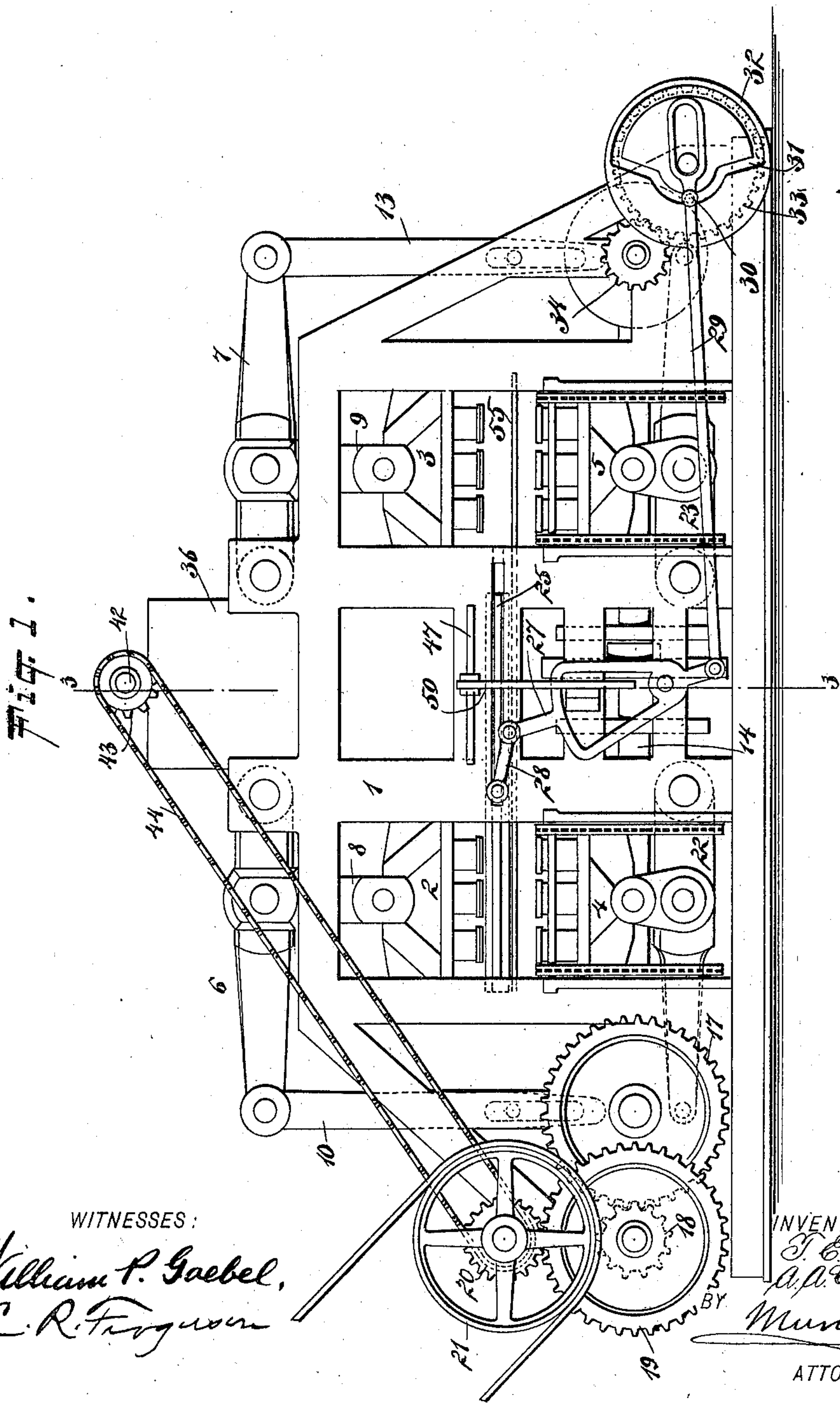
T. E. AYOTTE & A. A. CHARBONNEAU.

BRICK MACHINE.

(Application filed Oct. 9, 1897.)

(No Model.)

3 Sheets—Sheet 1.



No. 625,866.

Patented May 30, 1899..

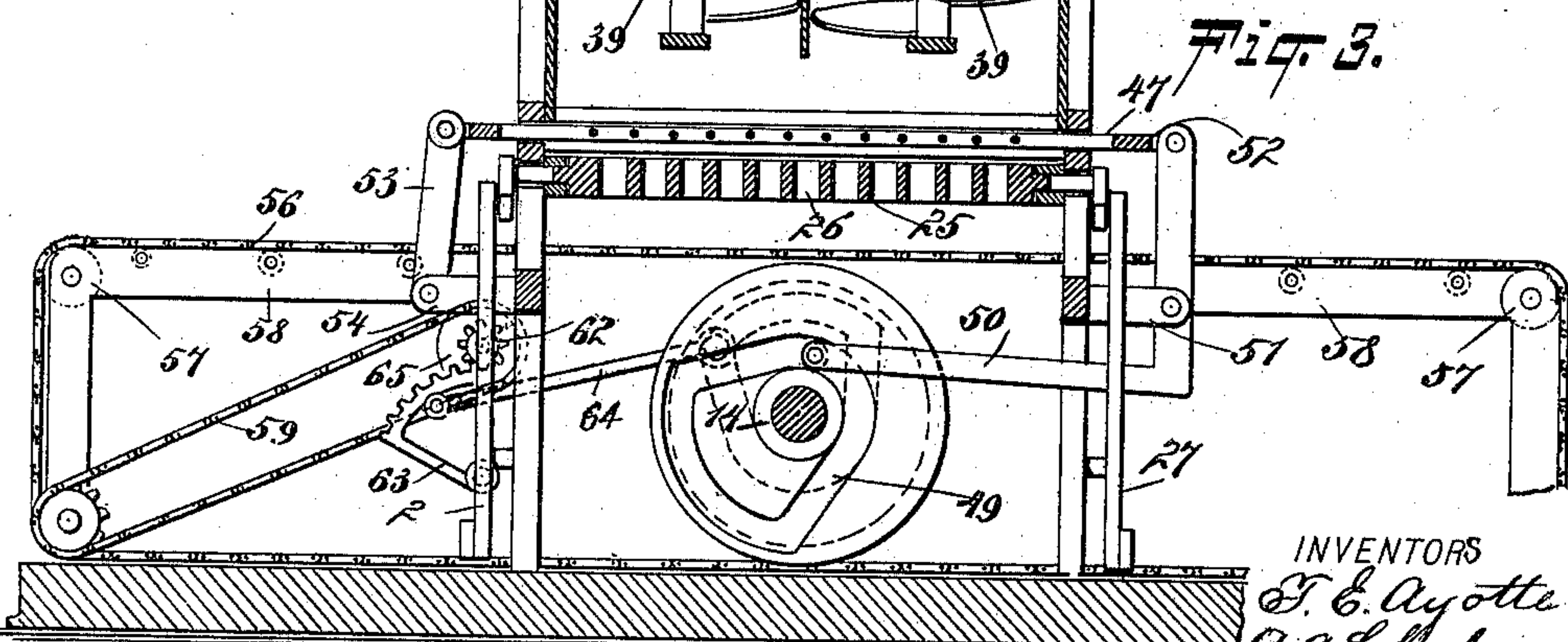
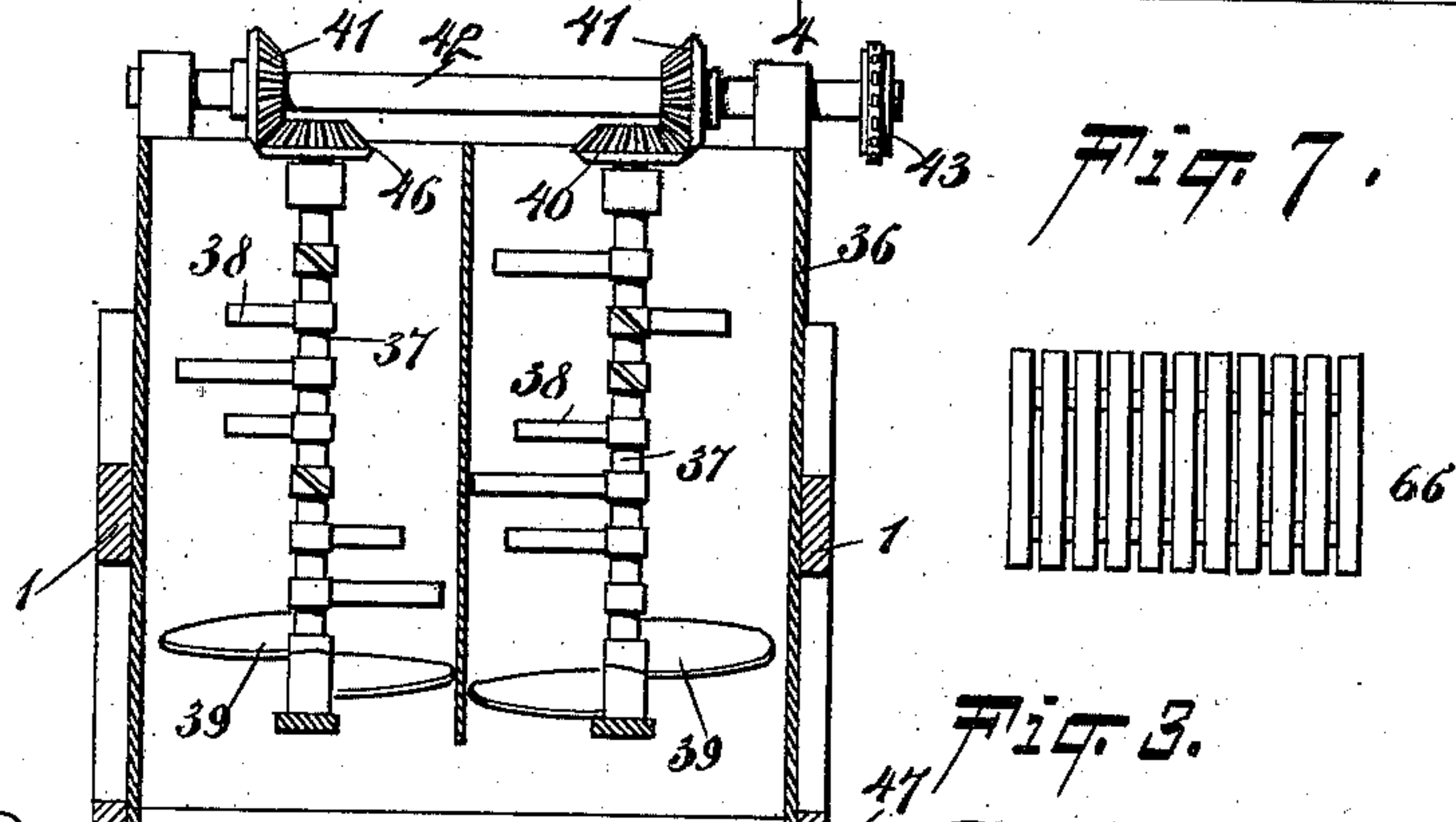
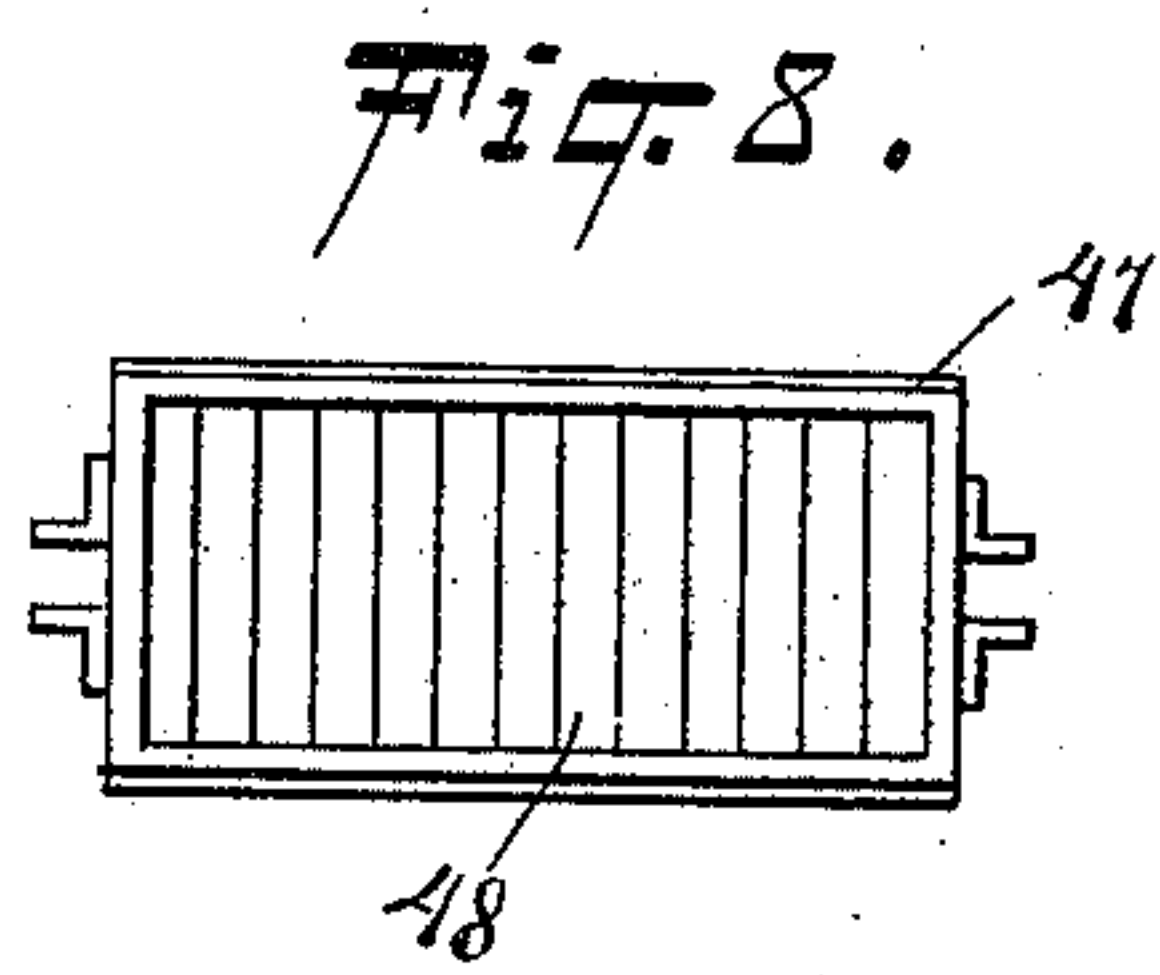
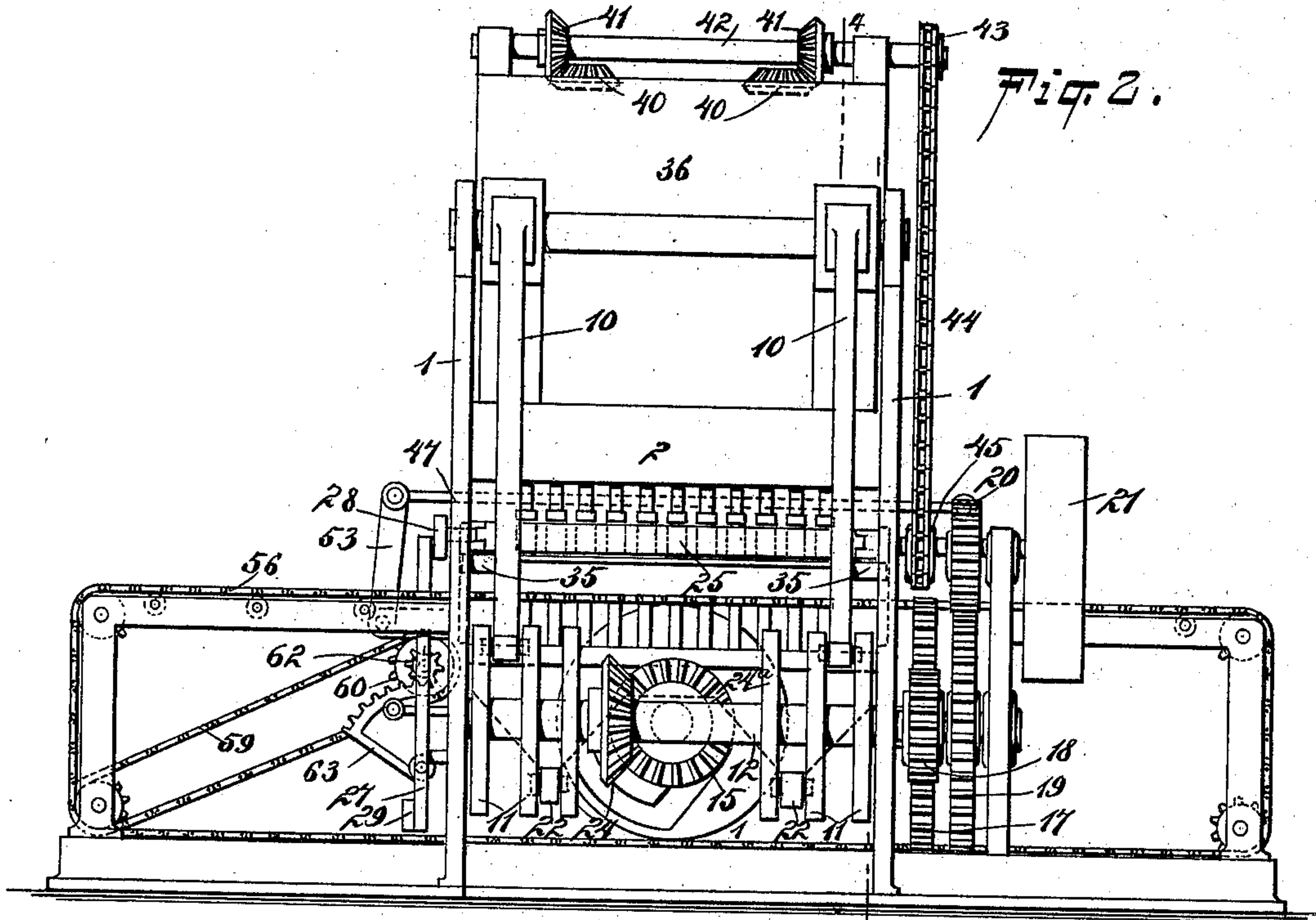
T. E. AYOTTE & A. A. CHARBONNEAU.

BRICK MACHINE.

(Application filed Oct. 9, 1897.)

(No Model.)

3 Sheets—Sheet 2.



WITNESSES:

William P. Goebel.  
C. R. Ferguson

INVENTORS

T. E. Ayotte  
A. A. Charbonneau.

BY

Munn & Co.

ATTORNEYS.



No. 625,866.

Patented May 30, 1899.

T. E. AYOTTE & A. A. CHARBONNEAU.

BRICK MACHINE.

(Application filed Oct. 9, 1897.)

(No Model.)

3 Sheets—Sheet 3.

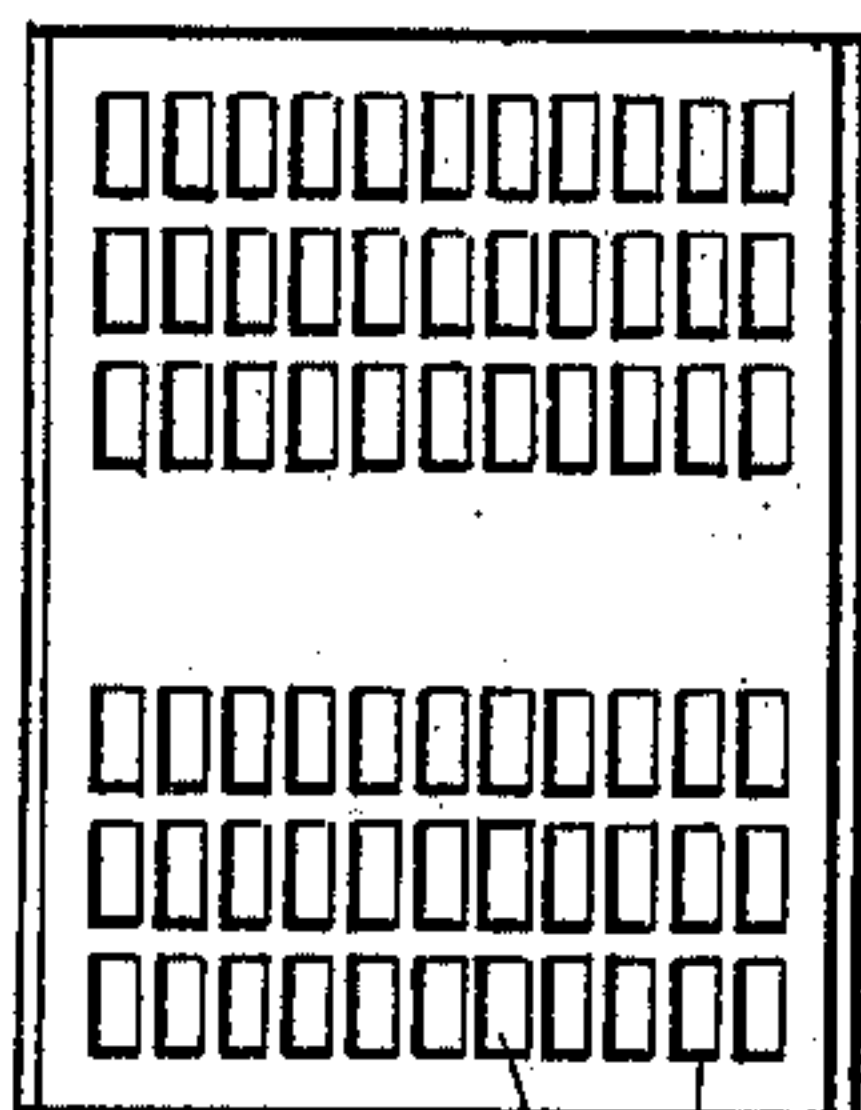
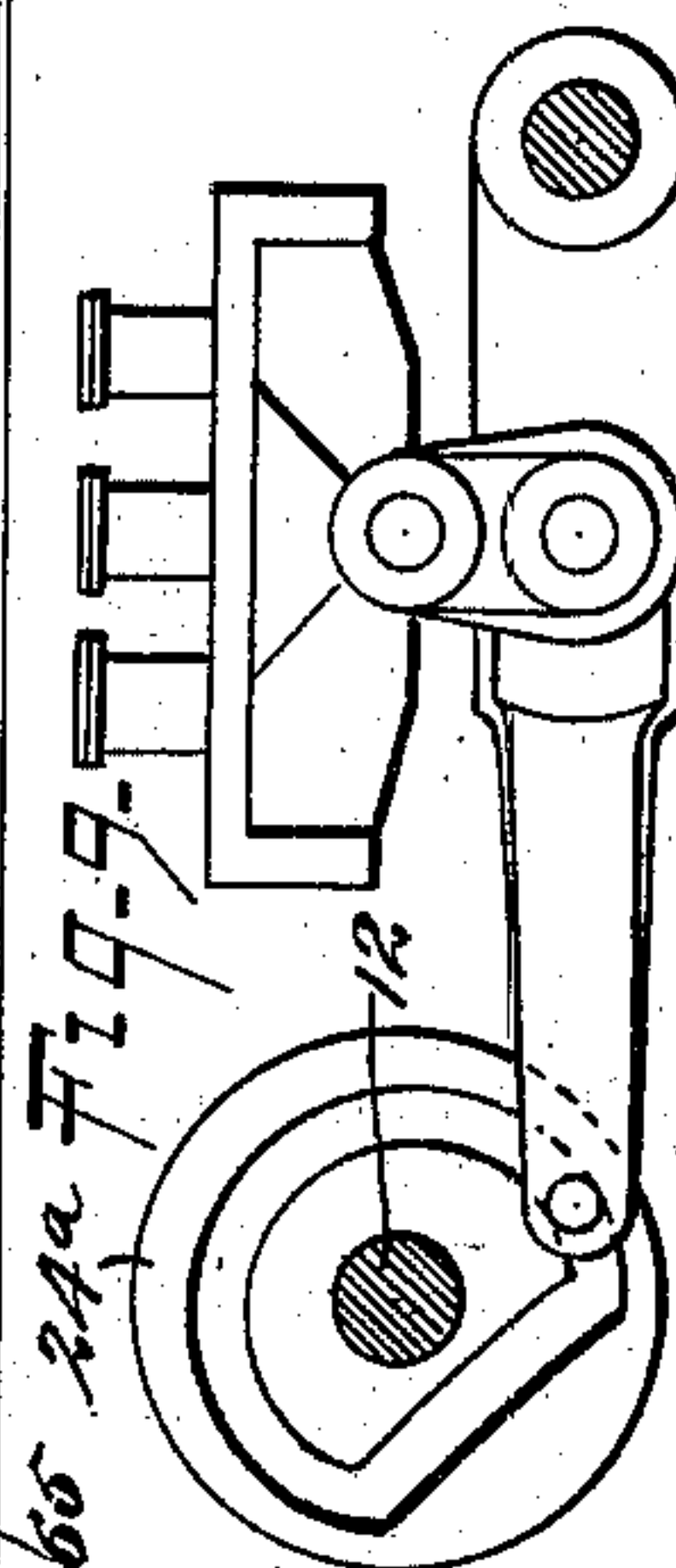
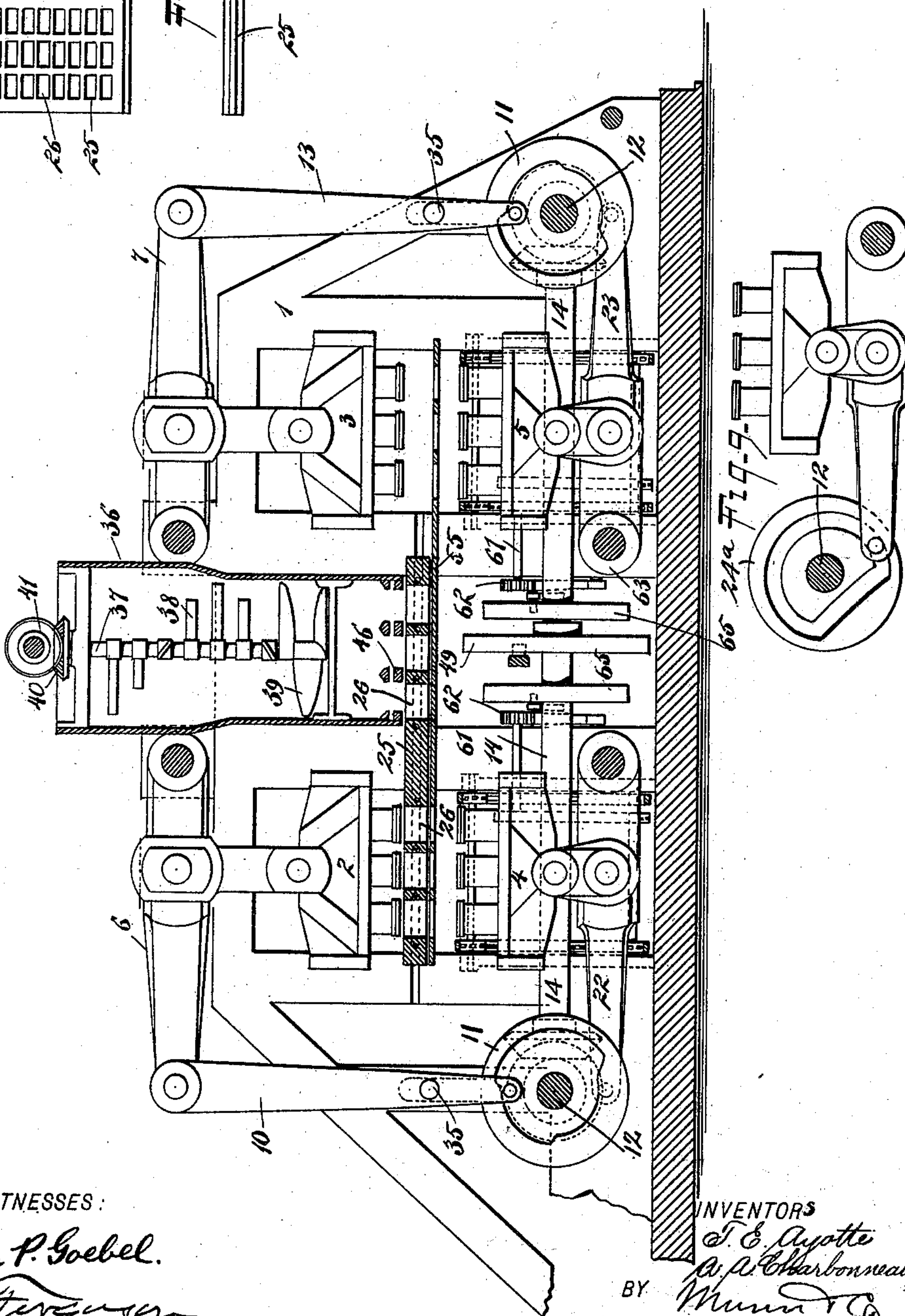


Fig. 5.

Fig. 6.



Fig. 4.



WITNESSES:

William P. Goebel.  
C. R. Ferguson

INVENTORS

T. E. Ayotte  
A. A. Charbonneau

BY

Munn & Co.

ATTORNEYS.



# UNITED STATES PATENT OFFICE.

THEOPHILE EDOUARD AYOTTE AND ARTHUR ALBERT CHARBONNEAU, OF  
MONTREAL, CANADA.

## BRICK-MACHINE.

SPECIFICATION forming part of Letters Patent No. 625,866, dated May 30, 1899.

Application filed October 9, 1897. Serial No. 654,662. (No model.)

*To all whom it may concern:*

Be it known that we, THEOPHILE EDOUARD AYOTTE and ARTHUR ALBERT CHARBONNEAU, of Montreal, in the Province of Quebec and Dominion of Canada, have invented a new and Improved Brick-Machine, of which the following is a full, clear, and exact description.

This invention relates to machines for the manufacture of brick, artificial stone, and ornamental brick; and the object is to provide a machine of this character that may be operated with dry or semidry clay and with which a comparatively large number of brick may be formed with the help of one or two operators.

We will describe a brick-machine embodying our invention and then point out the novel features in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of a brick-machine embodying our invention. Fig. 2 is an end view thereof. Fig. 3 is a section on the line 3 3 of Fig. 1. Fig. 4 is a section on the line 4 4 of Fig. 2. Fig. 5 is a plan view of a mold employed. Fig. 6 is an edge view thereof. Fig. 7 is a plan view of a carrier-rack employed. Fig. 8 is a plan view of a clay-cutter employed, and Fig. 9 is a detail showing a plunger-operating mechanism.

This machine is double-acting—that is, it is provided with two sets of pressing devices operating alternately and in conjunction with a reciprocating mold.

Referring to the drawings, 1 designates a frame, which must be strongly constructed, so that it will resist the vibration caused by the working of the machine. Mounted to move vertically in suitable guideways at the ends of the frame 1 are the upper plungers 2 and 3 and the coacting lower plungers 4 and 5. The upper plungers 2 and 3 are operated, respectively, by levers 6 and 7, which are fulcrumed at one end to the machine-frame and have links 8 and 9, extended to the plungers. The levers 6 and 7 are horizontally disposed, and from the outer end of the levers 6 arms

10 extend downward and have roller engagement at their lower ends in cam-grooves formed in cam-disks 11, mounted on the driving-shaft 12. The levers 7 have arms 13, similar to the arms 10 and engaging with cams at the opposite end of the machine similarly to the cam-disks 11. The cams for the arms 10 and 13 are operated by a longitudinally-disposed shaft 14, having bevel-gears 15, engaging with bevel-gears 24 on the shafts 12. One shaft 12 has a gear-wheel 17 secured to it, and this bevel-gear 17 engages with a pinion 18 on the shaft of a gear-wheel 19, meshing with a pinion 20, secured to the shaft of a driving-pulley 21, from which power may be transmitted by any suitable motor.

The lower plungers 4 and 5 have link connections with levers 22 and 23. The outer ends of the levers 22 engage in grooves in cam-disks 24<sup>a</sup>, mounted on the shaft 12, and the levers 23 engage with similar cams on the shaft operated by the shaft 14. The several plungers have head portions each of a surface area equal to that of a brick or similar article to be manufactured, and there may be any desired number of these heads on the plungers, equaling, of course, the number of openings in the mold.

The mold, as shown in Fig. 5, comprises a frame 25, having two sets of mold-cavities 26, one set designed to be operated in connection with the plungers 2 and 4 and the other set in connection with the plungers 3 and 5. The moldboard or frame 25 is movable longitudinally of the frame 1. As here shown, it is provided at its opposite sides with tongues engaging in slideways in the sides of the frame. Reciprocating motion is imparted to the moldboard or frame 25 by means of levers 27, fulcrumed on the frame 1 and having link connections 28 with pins extended from the tongue portions of the moldboard through longitudinal slots in the frame. The lower ends of the levers 27 are connected to rods 29, having pins 30 extended into cam-grooves of cam-disks 32, mounted on a shaft driven by means of a gear-wheel 33, mounted on said shaft and engaging with a pinion 34 on the shaft operating the arms 13. It may be here stated that the arms 10 and 13 are held sub-



stantially in vertical alinement by means of pins 35, extended into slots formed vertically in the side frames 1.

Mounted in the frame 1, between the sets 5 of plungers, is a clay mixing and flushing casing 36, which may be divided by means of a central partition into two chambers, and in each chamber a shaft 37 is mounted to rotate. On the shaft 37 are outwardly-extending fin- 10 gers 38, and at the lower ends of the shafts are spirally-disposed feeding-blades 39. The upper ends of the shafts 37 are provided with bevel-gears 40, engaging with bevel-gears 41 on a shaft 42, mounted in bearings on the top 15 of the casing 36, and the outer end of this shaft 42 is provided with a sprocket-wheel 43, from which a sprocket-chain 44 extends to a connection with a sprocket-wheel 45 on the shaft of the driving-pulley 21.

In the lower portion of the casing 36 is a 20 grating 46, having a number of openings equal to the number of openings in each section of the moldboard and designed to register at a certain time with the openings in the mold- 25 board. This grating 46 consists of upper and lower sections, and between the upper and lower sections a clay-cutting device is movable. This clay-cutting device consists of a frame 47, designed to be reciprocated across 30 the grating and having a number of cutting-wires 48. Reciprocating motion is imparted to the cutting device by means of a cam 49, mounted on the shaft 14 and in the cam-groove of which a roller on an angle-lever 50 35 engages. The vertically-disposed member of the angle-lever 50 is fulcrumed to a bracket 51, extended outward from the frame, and the upper end of this vertically-disposed portion of the lever is pivoted to lugs 52, extended 40 from the frame 47. The opposite end of the frame 47 has pivotal connection with a link 53, the lower end of which is pivoted to a bracket 54, extended from the frame 1.

Secured within the frame 1, below the re- 45 ciprocating moldboard 25, is a table 55, having a series of openings at each end designed to register with openings through the moldboard. At the central portion this table 55 will form a bottom for the mold-openings 50 when the clay is pressed therein by means of the spiral blades 39.

Movable at the sides of each plunger 4 and 5 are carrier-chains 56. These carrier-chains are reciprocated transversely of the machine- 55 frame, and, as here shown, the chains are extended around rollers 57, mounted on the corners of laterally-disposed frames 58. Reciprocating motion is imparted to the chains 56 by means of sprocket-chains 59, engaging 60 with sprocket-wheels on shafts of the chain-driving wheels and engaging with sprocket-wheels 60, on the shaft 61 of which are mounted pinions 62, engaged by segment-racks 63, pivoted to the machine-frame, and from which 65 rods 64 extend to engagement with cam-wheels 65 on the shaft 14.

In operation the clay or other material to be formed will be placed in the receptacle 36, where it will be pulverized by the fingers 38 and forced through the grating 46 into the 70 mold-openings at one end of the moldboard. Then the cutting device will be reciprocated to sever the clay in the molds from that in the receptacle 36, after which the moldboard will be moved to bring its filled molds under- 75 neath one of the upper plungers, here shown as the plunger 2. When in this position, the upper and lower plungers 2 and 4 will be moved to press the material in the mold-openings. Then the lower plunger 4 will be moved 80 downward to bring its plunger-heads below or substantially on the plane of the upper stretches of the chains 56, and then a carrier or receiving-rack 66 is to be placed on the chains below the moldboard. The upper 85 plunger 2 will then move downward, so that the plunger-heads thereof will force the formed brick out of the mold onto the carrier or rack 66. Then the chains 56 will be 90 operated to move said carrier or rack outward to the side of the machine, where it is to be received by a transporting device hereinafter to be described. While this operation is taking place, clay will of course be fed 95 into the openings in the opposite end of the moldboard, to be moved between the plungers 3 and 5 and operated in the manner as before described.

It may be here stated that to prevent the sticking of clay to the plungers the said plungers and plunger-heads should be suitably 100 heated. They may therefore be made hollow in the usual manner and supplied with steam.

Having thus described our invention, we claim as new and desire to secure by Letters 105 Patent—

1. A brick-press, comprising two pairs of upper and lower plungers, a moldboard, means for moving the moldboard to the pairs of plungers alternately, a feeder for feeding 110 clay into said moldboard, a cutter operating between the feeder and moldboard, and means for moving the moldboard to and from the pressing-plungers, substantially as specified.

2. A brick-machine, comprising two pairs 115 of pressing-plungers, means for operating the same alternately, a moldboard, means for moving said moldboard alternately to the opposite pairs of plungers, a feeder for the moldboard, a frame movable in the lower 120 portion of the feeder-casing, cutting-wires carried by said frame for severing clay, and means for reciprocating said frame, substantially as specified.

3. A brick-machine, comprising a frame, 125 upper and lower pressing-plungers operating vertically in said frame, means for causing the movements of said plungers, a table secured to the frame and having openings in line with heads on the plungers, a mold- 130 board movable above said table, means for moving said moldboard to cause its openings



to register with the openings through the table, a casing mounted in the frame, feeding devices in said casing, a rack in the lower portion of said casing, a clay-cutting device movable in said rack, and means for reciprocating said clay-cutting device, substantially as specified.

4. A brick-press, comprising a frame, two pairs of upper and lower pressing-plungers movable in said frame, levers to which said plungers are connected, a clay-receptacle mounted in the frame between the pairs of plungers, a rotary shaft in said receptacle having feeding devices, a moldboard provided with openings for the brick material and movable into operative position with the pairs of plungers alternately, the openings in one portion of said moldboard being fed with clay while the clay in the openings in the other portions of the board is being pressed, and means for reciprocating said moldboard, substantially as specified.

5. A brick-press, comprising a frame, upper and lower plungers operating therein, conveyer-chains operating at the sides of the lower plunger, and above the plane of the lowest position of said plunger, a rack or receiver for brick adapted to be placed on said chains, a moldboard, means for moving said moldboard to the press-plungers, and a feeder for the moldboard, substantially as specified.

6. In a brick-machine, the combination with a moldboard, a feeding device and pressing-plungers, of carriers movable along the sides of the lower plunger and above the plane of the lowest position of said plunger, a segment-gear, a pinion engaging with the segment-gear and having operative connection with the carriers, a rod extended from said segment-gear,

a cam with which the rod connects, and a shaft on which the cam is mounted.

7. In a brick-machine, the combination with a feeder and a moldboard, of a clay-cutter comprising a frame movable between the feeder and the moldboard and having cutting-wires, an angle-lever to which said cutter-frame is pivoted, a rotary cam for rocking said angle-lever, and means for moving the moldboard horizontally under the cutter, substantially as specified.

8. In a brick-press, the combination with a feeder and a moldboard, of a clay-cutter movable between the feeder and moldboard and comprising a frame and wires attached thereto, an angle-lever pivoted to one end of said frame and fulcrumed on a bracket extended from the brick-press frame, a cam with which the horizontally-disposed member of the angle-lever engages, and a link connection between the opposite end of the cutter-frame and a bracket on the brick-press frame, substantially as specified.

9. In a brick-machine, the combination with a moldboard having a series of openings for receiving clay, of upper and lower plungers, and means for operating said plungers whereby the two plungers will be moved toward each other to press the clay in the mold, then moving the lower plunger downward, and then moving the upper plunger downward through the mold to discharge the pressed brick, substantially as specified.

THEOPHILE EDOUARD AYOTTE.

ARTHUR ALBERT CHARBONNEAU.

Witnesses:

FRIDOLIN ROBERGE,

L. ALPHONSE CHARBONNEAU.