

(Model.)

2 Sheets—Sheet 1.

W. L. GREGG.
Brick Machine.

No. 229,247.

Patented June 29, 1880.

FIG. 1.

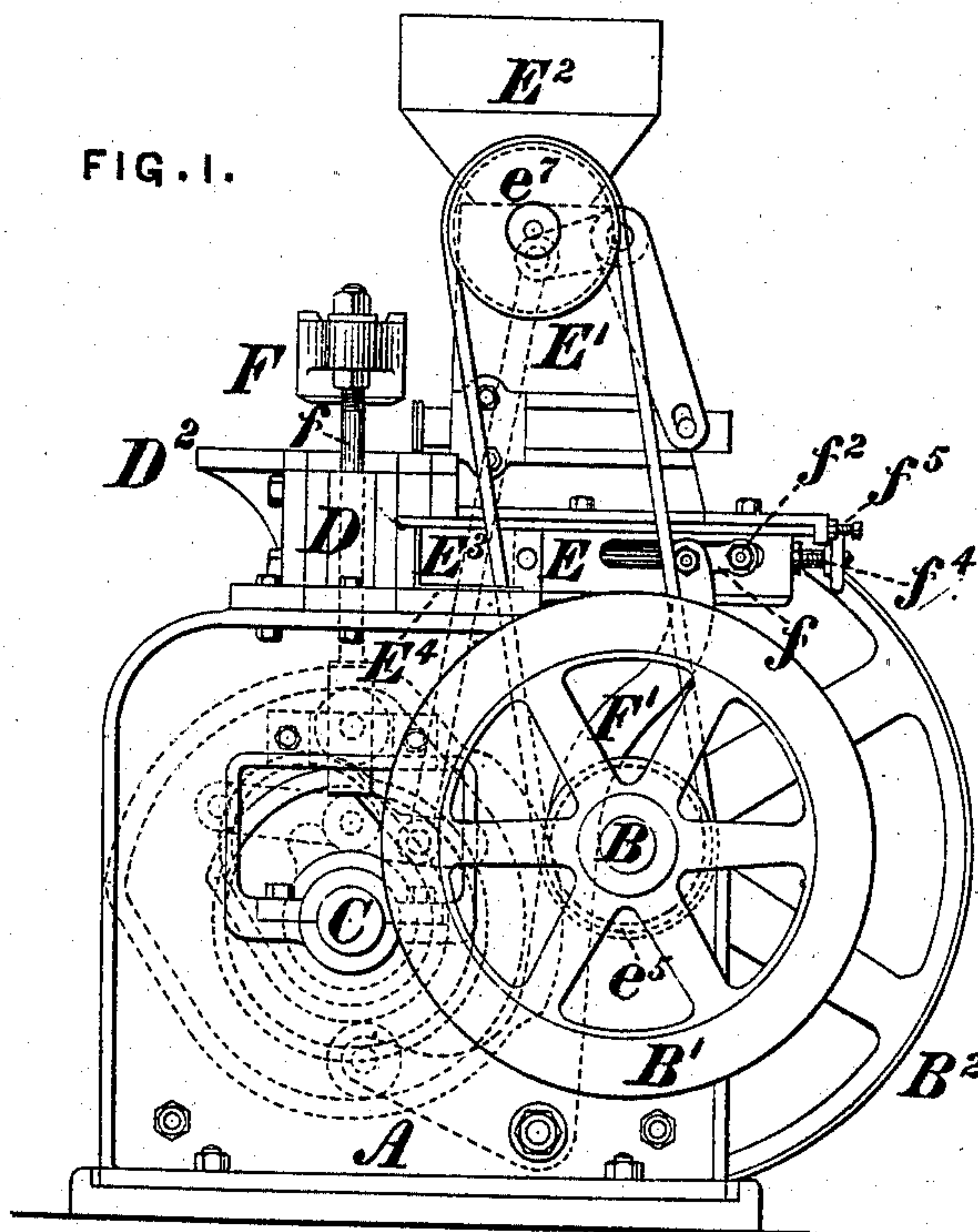
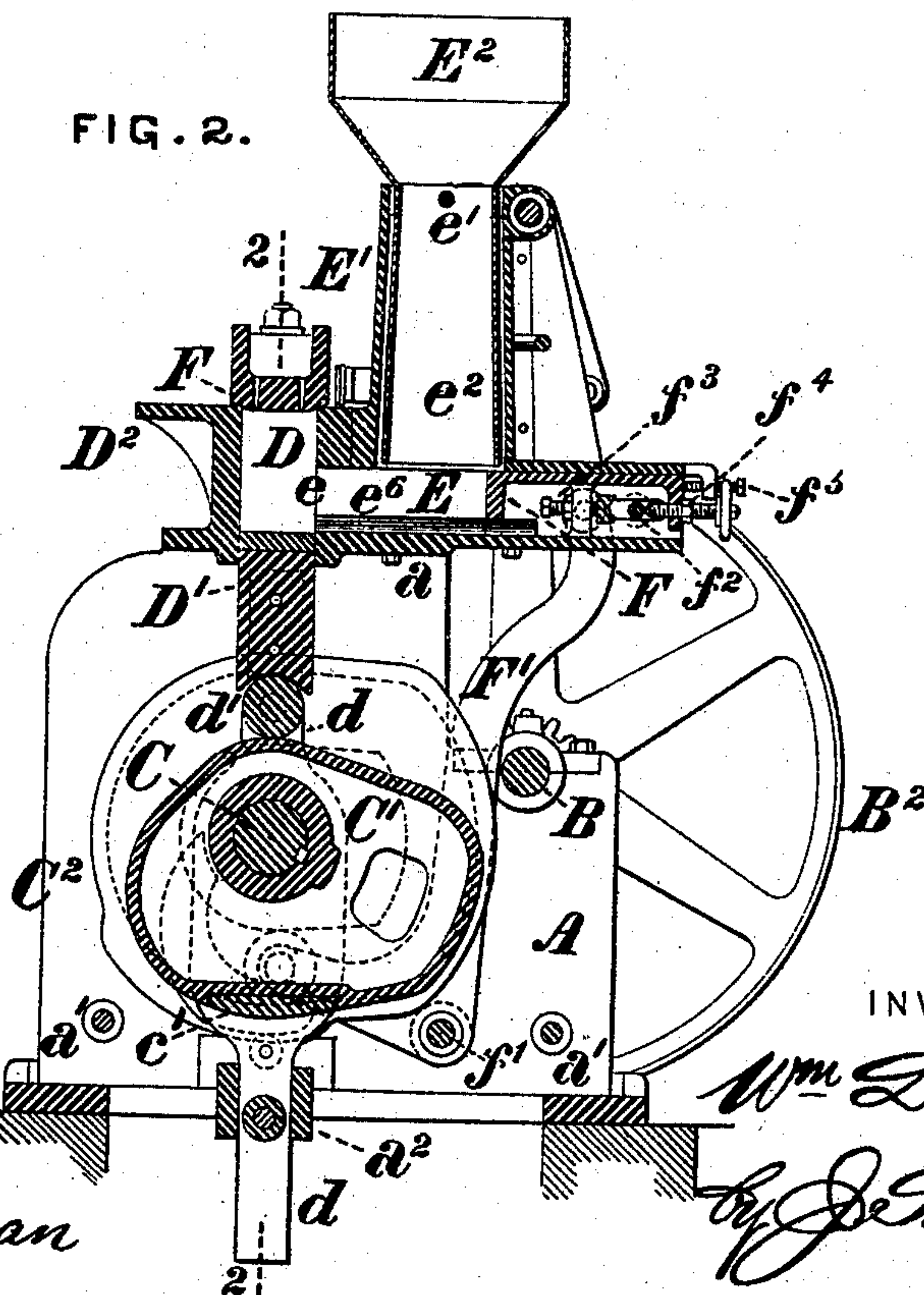


FIG. 2.



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(Model.)

2 Sheets—Sheet 2.

W. L. GREGG.
Brick Machine.

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FIG. 3.

*E*² Patented June 29, 1880.

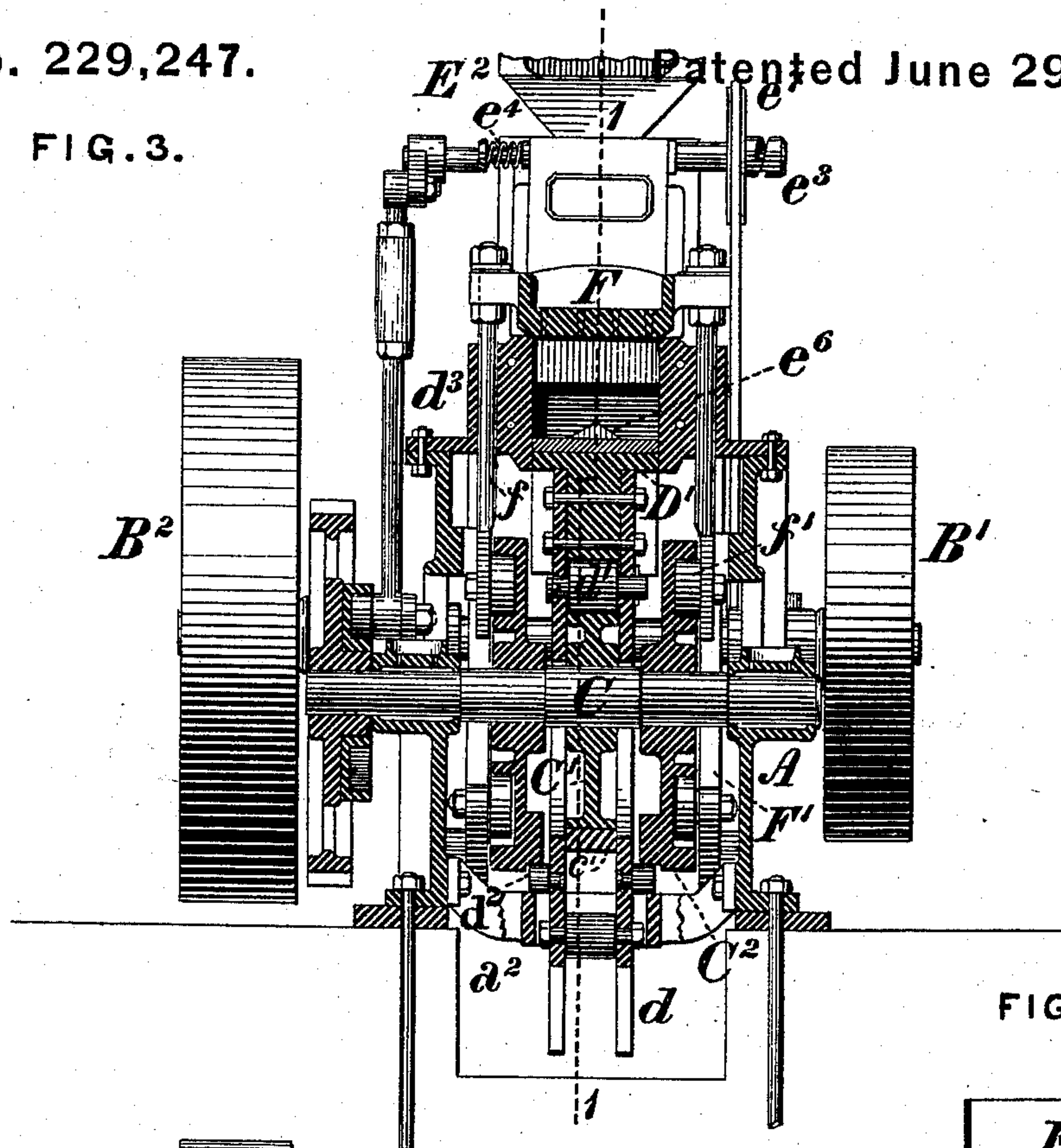
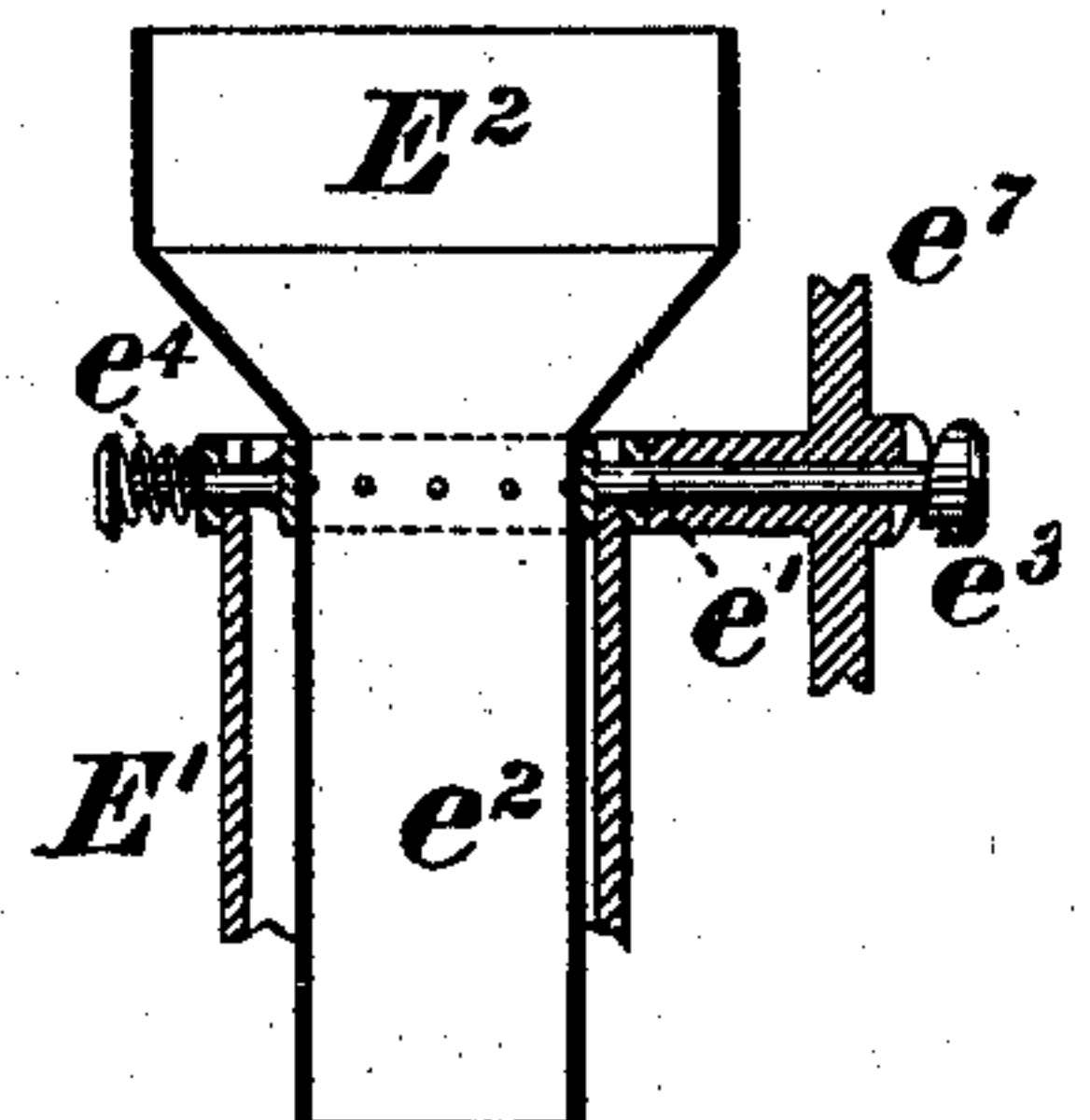
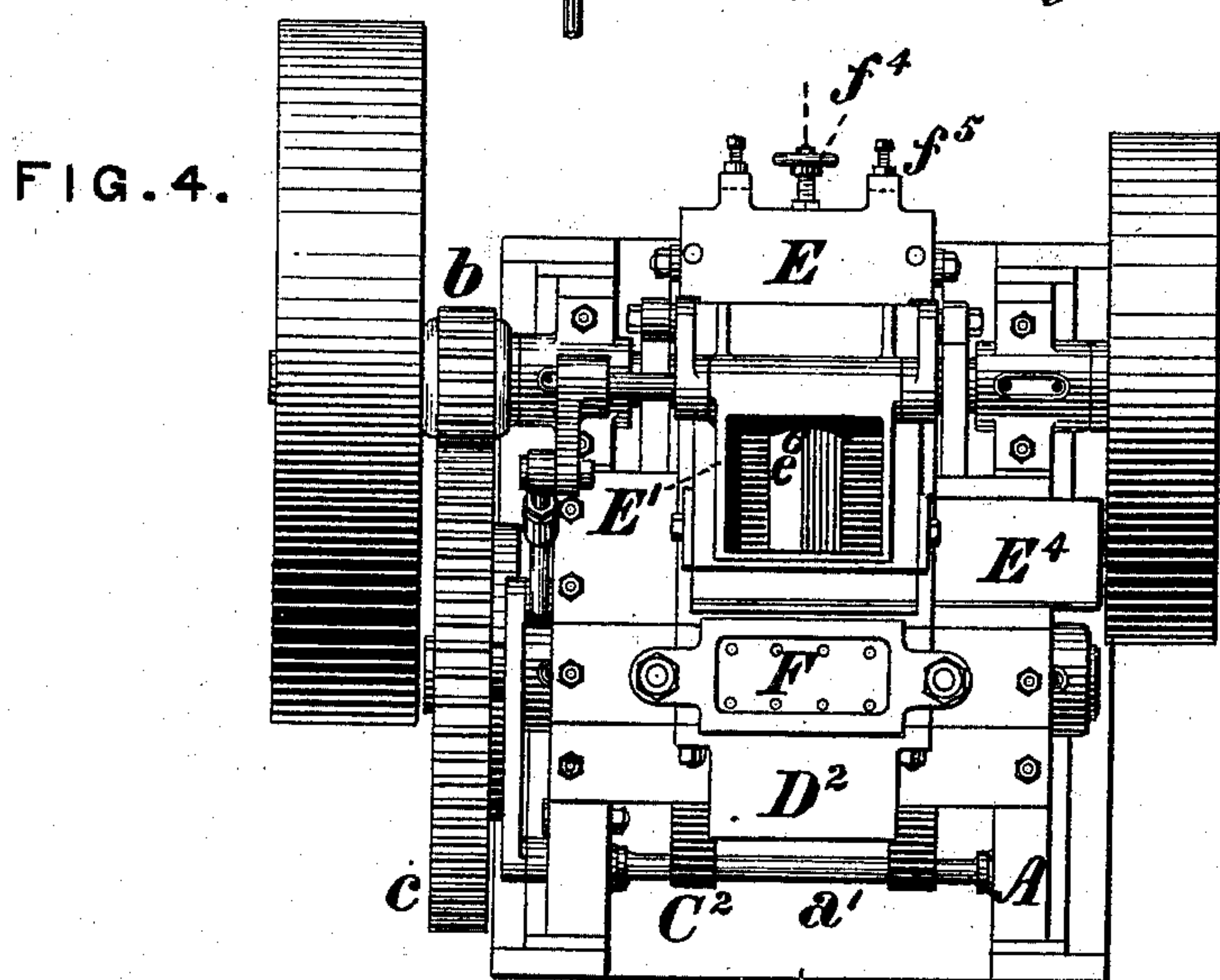


FIG. 5.



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UNITED STATES PATENT OFFICE.

WILLIAM L. GREGG, OF PHILADELPHIA, PENNSYLVANIA.

BRICK-MACHINE.

SPECIFICATION forming part of Letters Patent No. 229,247, dated June 29, 1880.

Application filed March 5, 1880. (Model.)

To all whom it may concern:

Be it known that I, WILLIAM L. GREGG, of the city and county of Philadelphia, in the State of Pennsylvania, have invented certain
5 new and useful Improvements in Brick-Machines, of which improvements the following is a specification.

My present invention relates to improvements upon the brick-machine for which Letters Patent of the United States No. 192,431 were granted and issued to me under date of June 26, 1877; and the improvements herein claimed consist, first, in the combination, with a mold-box and pressing mechanism, of a feed-spout, an agitated feed-hopper, a horizontal
15 feed-box, and an intermittently-reciprocating feed slide or plunger; second, in the combination, with a mold-box and pressing mechanism, of a feed-box having a longitudinal tenon or filling-piece, by which its transverse
20 section is reduced at and adjacent to its center; third, in the combination, with a mold-box and pressing mechanism, of a feed-box and an adjustable feed-slide for varying the quantity of clay fed to the mold-box; fourth,
25 in the combination, with a mold-box and pressing mechanism, of a feed-box having a side opening, removable door, and guide for the insertion of bricks to be re-pressed; and, fifth,
30 in the combination of a feed-box and a feed-slide reciprocating therein, a removable door fitting a side opening in the feed-box, and an outer guide secured to the feed-box adjacent to the side opening, perpendicular to the line
35 of movement of the feed-slide, all as hereinafter more fully set forth.

In the accompanying drawings, Figure 1 is a side view, in elevation, of a brick-machine embodying my improvements; Fig. 2, a vertical longitudinal section at the line 1 1 of
40 Fig. 3; Fig. 3, a vertical transverse section at the line 2 2 of Fig. 2; Fig. 4, a plan or top view, and Fig. 5 a vertical transverse section through the feed-hopper.

45 In Fig. 1 the pressure-plate is shown as elevated to admit of the discharge of a finished brick, and in Figs. 2 and 3 the pressure-plate and plunger are depressed and in the position they occupy when the mold-box is receiving a
50 charge of clay.

The frame of the machine is substantially similar to that described and shown in my here-
inbefore-recited Letters Patent No. 192,431, consisting of two vertical housings, A, united
55 by a cap-plate, *a*, and lower brace-rods, *a'*. A horizontal driving-shaft, B, mounted in bearings in the housings, carries upon one end a driving-pulley, B', to which power is communicated from a prime mover, and upon the
60 other a spur-pinion, *b*, meshing with a gear, *c*, upon one end of a cam-shaft, C. A balance-wheel, B², is secured upon the driving-shaft B, to impart greater steadiness and regularity to the working of the machine.

An open-topped mold-box, D, is formed upon
65 or secured to the cap-plate *a* above and in line with the cam-shaft C, and a piston or plunger, D', is fitted accurately within the mold-box, its upper surface being preferably faced with
70 steel.

A downwardly-projecting bar, *d*, is secured
to each side of the plunger D' at the lower portion thereof, which is recessed or reduced
75 in width to admit of the free passage of the arms in the mold-box on the upward movement of the plunger, and long slots are formed in the arms, through which the cam-shaft C passes.

The plunger is elevated for the purpose of pressing and discharging the brick by a cam, C',
80 secured upon the shaft C, on which cam a roller, *d'*, journaled in the bars *d*, rests, and the downward movement of the plunger is effected by cams C², secured on the shaft C and bearing on lower rollers, *d*², on the bars *d*.
85 The bars *d* are prolonged below the rollers *d*², and their true rectilinear movement is insured by a transverse lower guide, *a*², secured to the housings A, within which guide their lower
90 ends slide freely as the bars are raised and lowered by the cams C and C', respectively.

The mold-box D communicates, through a feed-opening, *e*, in one of its sides, with a horizontal feed or forming box, E, formed upon or
95 secured to the cap-plate *a* of the machine, and having a vertical trunk or feed-spout, E', upon its upper side. A feed-hopper, E², having a flaring or funnel-shaped mouth, is suspended between collars or shoulders or in a square
100 frame upon a horizontal shaft, *e'*, mounted

with the capacity of end motion in bearings in the feed-spout E' , near its top, and is provided with a discharge-spout, e^2 , which extends downward within the feed-spout E' to or near the opening through which the latter communicates with the feed-box E , the spout e^2 being tapered outward from its upper to its lower end, so as to insure the unobstructed discharge into the feed-box of the clay supplied to the hopper. Lateral vibration is imparted to the feed-hopper E^2 by the rotation of a pulley, e^7 , mounted loosely on the shaft e' , on which the hopper is hung, and having a series of ratchet-teeth formed upon one of its sides, working against corresponding teeth on a collar, e^3 , secured upon the shaft, and thereby moving the shaft endwise in its bearings for a distance equivalent to the depth of a ratchet during the passage of each ratchet of the pulley over a ratchet of the collar, the shaft being correspondingly moved in the opposite direction by a spring, e^4 , bearing against a collar on its opposite end. The pulley e^7 is rotated by a belt from a pulley, e^5 , upon the driving-shaft.

The feed or forming box E is of substantially rectangular form, except in the particular that in order to cause the clay to be fed and distributed from the center toward the ends of the mold-box its cross-section is contracted at and on each side of its center by a longitudinal V-shaped tenon or filling piece, e^6 , extending along its bottom from the feed-opening e to a point on the opposite side of the feed-spout E' . As a result of this construction greater perfection in the corners, edges, and angles of the bricks is attained by reason of the pressure being exerted from the ends toward the center of the brick, instead of from the center to the ends, as has heretofore been the case.

The clay supplied to the feed-box E is pressed into the mold-box D through the opening e by a reciprocating feed-slide or plunger, F , fitting neatly within the feed-box and having its bottom recessed conformably with the tenon e^6 , over which it passes in its traverse. Movement is imparted to the feed-slide by the upper arms of two bell-crank levers, F' , secured upon a shaft, f' , mounted in bearings in the lower part of the housings A , said levers carrying rollers on the ends of their lower arms, which work in grooves in the cams C^2 on the shaft C . The upper arms of the levers F' are journaled to short links f , by which they are connected to a shaft, f^2 , passing through slots in the sides of the feed-box and through the feed-slide F , and the feed-slide may be adjusted relatively to the shaft f^2 , and pause or lost motion admitted, so as to vary the amount of clay fed to the pressing-plunger, by set-screws $f^3 f^4$, each of which engages a nut in the feed-slide in line with the shaft f^2 . The traverse of the feed-slide in the direction opposite to the mold-box is limited by set-screws f^5 , engaging nuts in the top of the feed-box.

For the purpose of admitting of the intro-

duction of bricks to be re-pressed, I provide an opening in the side of the feed-box E , adjacent to the mold-box, closed by a door, E^3 , which is removed during re-pressing, and secured in position during the operation of the machine in making bricks; and a guide, E^4 , is secured to the feed-box to insure the insertion of the bricks in a direction parallel to the face of the feed-slide, by which they are pushed into the mold-box.

The traverse of the pressing-plunger may be varied, so as to form bricks of different thickness, or to impart different degrees of pressure to the clay, by the insertion of steel shoes or segments e' , of different thicknesses, respectively, in a recess formed in that portion of the periphery of the pressing-cam C' which bears upon the roller d' of the pressing-plunger during the application of pressure to the clay in the mold-box, the thickness of the segment employed in each particular instance being regulated by the nature of the clay, the pressure required, and the thickness desired for the finished brick.

The pressure imparted to the clay by the plunger D' in the formation of the brick is applied against a pressure-plate, F , resting upon the top of the mold-box, and connected by vertical rods f , passing through guides d^3 on the sides of the mold-box, with rollers f' , fitted to grooves formed in the cams C^2 on the shaft C . The curvature and throw of these cam-grooves and their position relative to that of the pressing-cam C' are such that during the operation of pressing the brick the plate F is held firmly in position against the top of the mold-box, and immediately thereafter the grooves of the cams C^2 , acting on the rollers f' , impart an upward motion to the plate F , coincident with that of the plunger D' , and elevate the plate into the position shown in Fig. 1, to admit of the removal of the finished brick, after which they return it to its former position against the top of the mold-box, in readiness for the next operation.

The throw of the pressure-cam C' is sufficient to elevate the top of the plunger upon which the compacted brick rests to the level of the top of the mold-box, and the brick is pushed off the plunger to a table, D^2 , or to a conveyer-belt, by the discharging mechanism, (shown in the drawings,) which, being in its general structure and mode of operation substantially similar to that described and shown in my aforesaid Letters Patent No. 192,431, need not be here at length set forth.

I claim as my invention and desire to secure by Letters Patent—

1. The combination, in a brick-machine, of an open-topped mold-box, a reciprocating plunger working therein, a pressure-plate closing the top of the mold-box, a feed-spout, a vibrating feed-hopper, a horizontal feed-box, and an intermittently-reciprocating feed-slide or plunger, substantially as set forth.

2. The combination, in a brick-machine, of a mold-box and pressing mechanism, a feed-box

communicating with the mold-box through an opening in its side, and a longitudinal tenon or filling piece by which the transverse section of the feed-box is contracted or reduced at and
5 near its center, substantially as and for the purpose set forth.

3. The combination, in a brick-machine, of a mold-box and pressing mechanism, a feed-box communicating with the mold-box through an
10 opening in its side, and an adjustable feed-slide or plunger by which the quantity of clay supplied from the feed-box to the mold-box may be varied as required, substantially as set forth.

15 4. The combination, in a brick-machine, of a mold-box and pressing mechanism, a feed-box communicating with said mold-box through an

opening in its side, a feed-slide or plunger reciprocating in the feed-box, and a removable door fitting into a side opening in the feed- 20 box for the insertion of bricks to be re-pressed, substantially as set forth.

5. The combination, in a brick-machine, of a feed-box and a feed-slide reciprocating therein, a removable door fitting a side opening in 25 the feed-box, and an outer guide secured to the feed-box adjacent to the side opening thereof, perpendicular to the line of movement of the feed-slide, substantially as and for the purpose set forth.

WM. L. GREGG.

Witnesses:

W. W. DOUGHERTY,
JAMES J. KEATING.