(No Model.) 3 Sheets—Sheet 1.

S. G. LEYSON & H. THOMAS.

BRICK MACHINE.

No. 409,988. Patented Aug. 27, 1889.

Fig. 1.

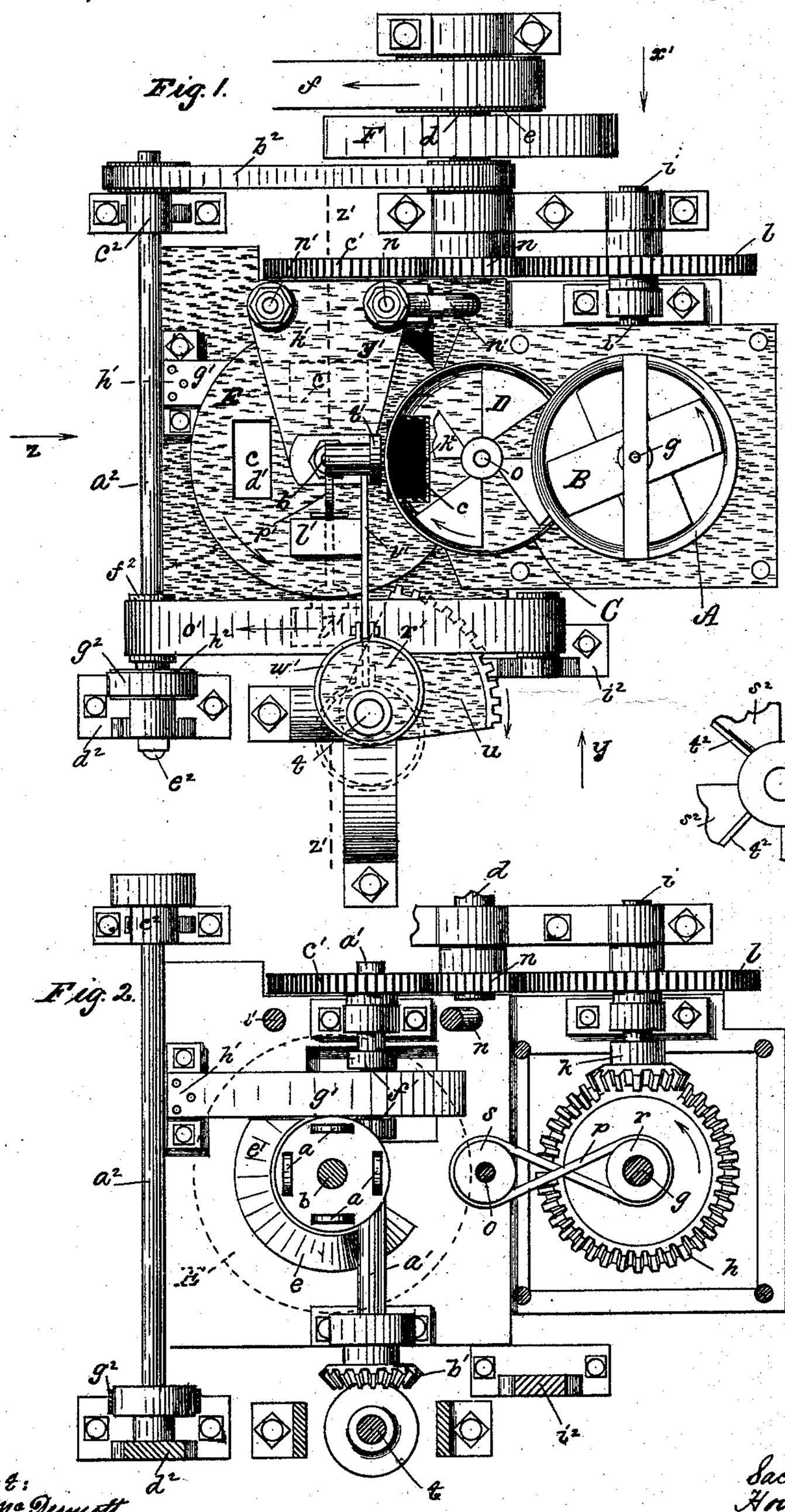

Fig. 2.

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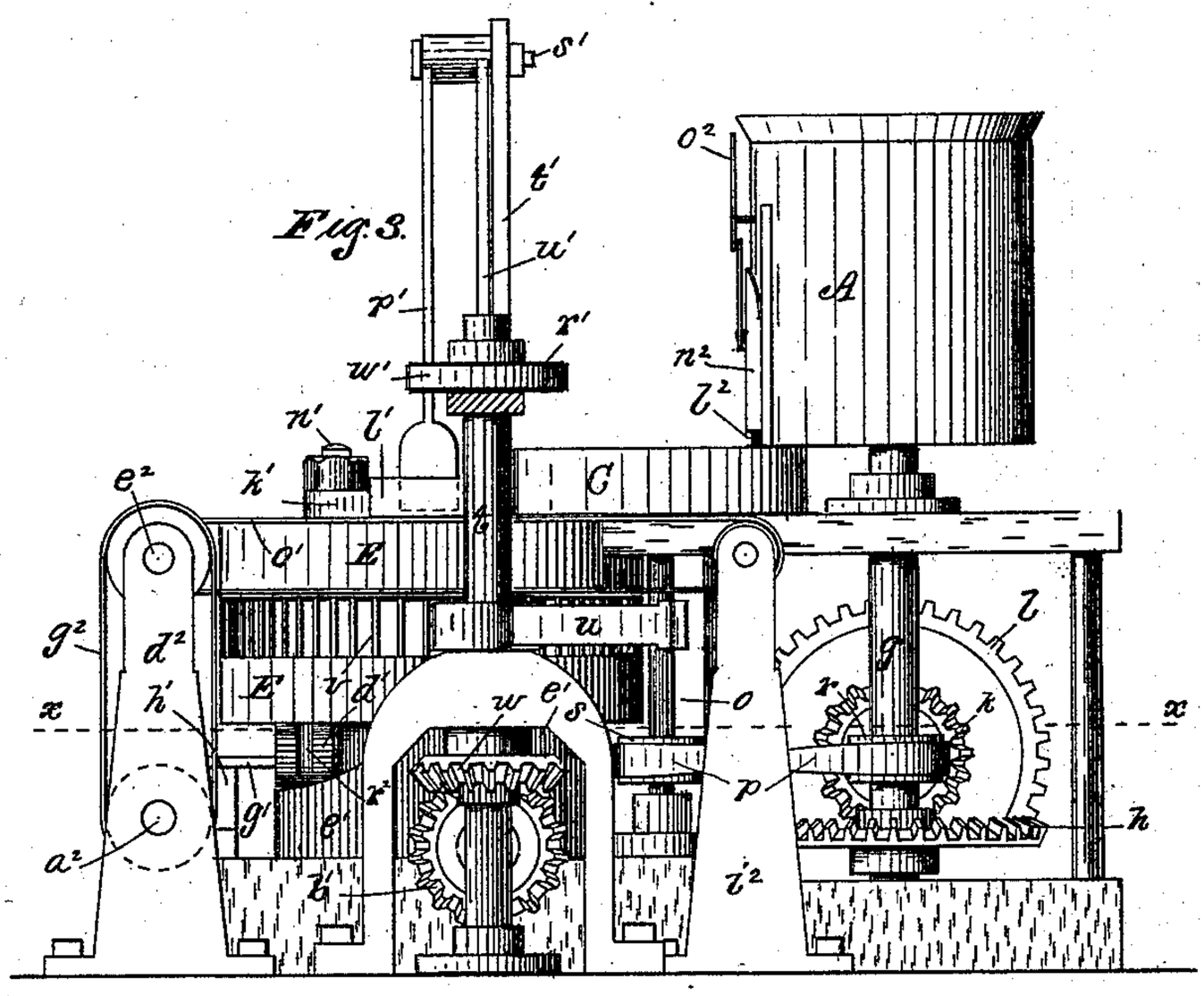

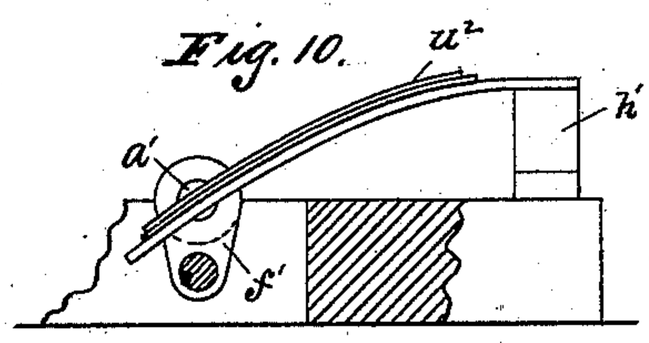

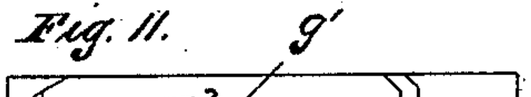

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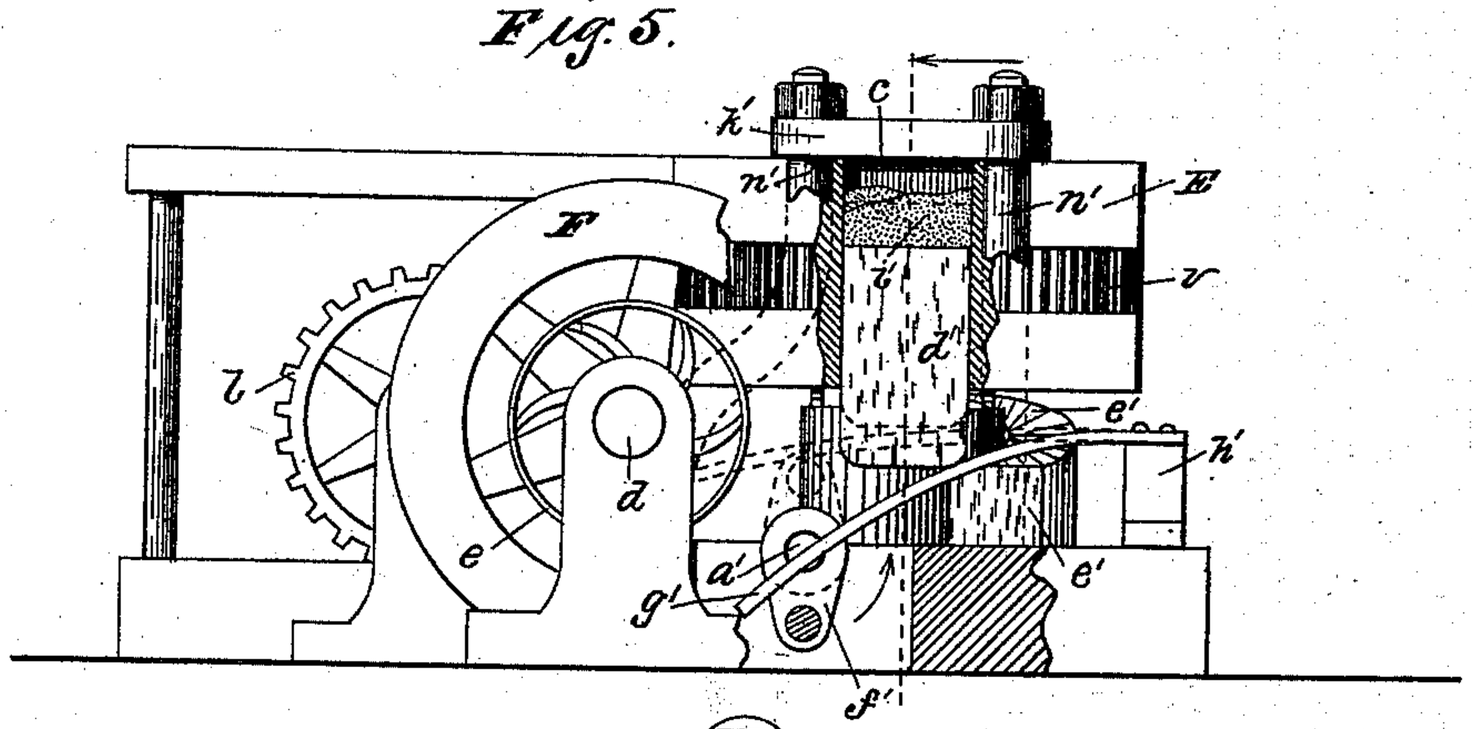
Fig. 5.



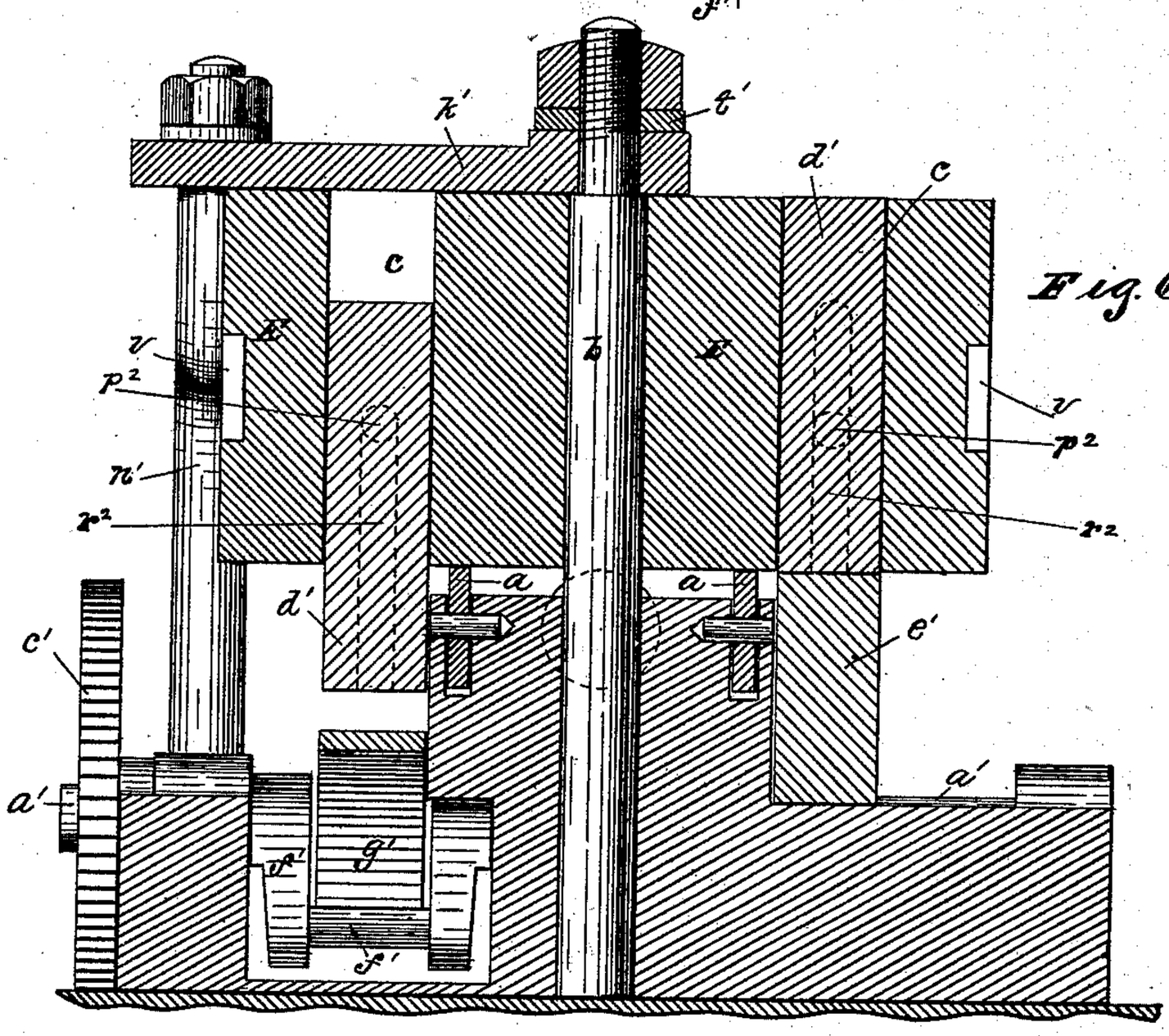


Fig. 6.

Fig. 7.

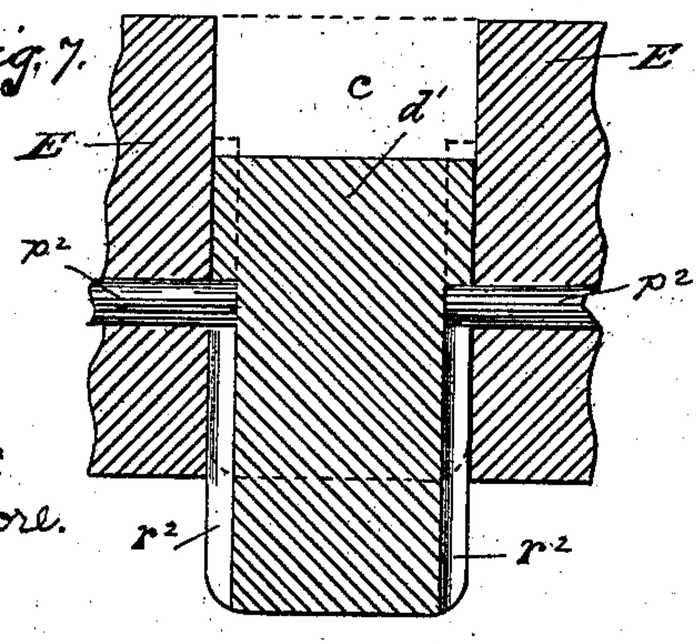
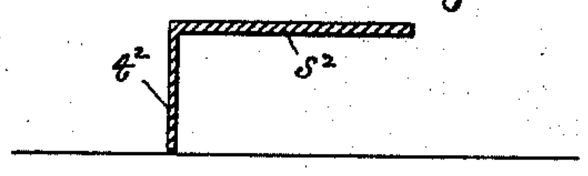


Fig. 9.



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W. H. Whitmore.

Inventors:
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Howell Thomas,
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UNITED STATES PATENT OFFICE.

SACKVILLE G. LEYSON AND HOWELL THOMAS, OF ROME, ASSIGNORS OF FIFTY-ONE ONE-HUNDREDTHS TO LEON H. LEMPERT, OF ROCHESTER, NEW YORK.

BRICK-MACHINE.

SPECIFICATION forming part of Letters Patent No. 409,988, dated August 27, 1889.

Application filed April 24, 1889. Serial No. 308,462. (No model.)

To all whom it may concern:

Be it known that we, SACKVILLE G. LEYSON and HOWELL THOMAS, of Rome, in the county of Oneida and State of New York, have invented a new and useful Improvement in Machines for Manufacturing Brick, which improvement is fully set forth in the following specification and shown in the accompanying drawings.

The object of our invention is to produce a rapid-working brick-machine, the machine being intended to make bricks of true prismatic form having sharp and well-defined corners and edges, like the "pressed brick" used in the better class of brick buildings.

Referring to the drawings, Figure 1 is a plan of our improved brick-machine, parts being shown in two positions by full and dotted lines; Fig. 2, a similar view of the machine sectioned horizontally, as on the dotted line $x\,x$ in Fig. 3, parts being broken away and omitted; Fig. 3, a side elevation of the machine, seen as indicated by arrow y in Fig. 1; Fig. 4, an elevation of the device, seen as indicated by arrow z in Fig. 1; Fig. 5, a side elevation, seen as indicated by arrow x' in Fig. 1, parts being broken away and omitted, parts of the base-block and mold-cylinder being vertically sectioned, as on the dotted line y' in Fig. 1; Fig. 6, a vertical section through the axis of the mold-cylinder, taken as on the dotted line $z'\,z'$ in Fig. 1, the view being in the direction in which Fig. 4 is seen; Fig. 7, a vertical central section through one of the plungers to show the stops therefor; Fig. 8, Sheet 1, a view of the under side of a part of the feeder; Fig. 9, Sheet 3, a cross-section of one of the blades of the feeders, taken on the dotted line x^2 in Fig. 8; and Figs. 10 and 11, Sheet 2, show, respectively, a side elevation and plan of the lifting-bar for the rams provided with stiffening-springs. Figs. 6 to 9, inclusive, are drawn to a scale twice the size of that of the other figures.

Referring to the parts shown in the drawings, A is a circular hopper for receiving the brick-clay, containing rotary mixing knives or grinders B for the clay.

C is a receiving-pan containing a rotary feeder D for the molds.

E is a mold-cylinder containing mold-cavities or molds, resting upon friction-rolls a, and fitted to turn upon a central spindle b.

d is a main driving-shaft for the machine, with drive-pulleys e, drive-belt f, and inertia-wheel F.

g is a vertical shaft carrying the grinders or knives B, provided with a bevel-gear h.

i is a shaft for driving g, provided with a bevel-pinion k for the wheel h, and geared to the main driving-shaft by spur-gears l and n.

o is a vertical shaft carrying the feeder D, driven by means of a cross belt or chain p on pulleys r and s, secured to the respective shafts g and o.

t is a vertical shaft carrying a segmental gear u for driving the mold-cylinder, the latter being provided with gear-teeth v, with which the segmental gear engages.

w is a miter-gear rigid with t.

a' is a horizontal shaft to drive t, being provided with a miter-gear b' to engage w. a' is driven by the main shaft d by means of the spur-gears n and c'.

As shown, the mold-cylinder E is provided with four equally-spaced vertical rectangular mold-cavities or molds c, extending through from the upper to the lower face of the cylinder, these cavities each having a length and breadth (measured horizontally) equal to the length and breadth of the brick to be formed. Each cavity or mold is occupied by a closely-fitting plunger or ram d'.

e' is a circular inclined track constituting an elevator for the rams, it being concentric with the spindle b, up along which the rams move as the mold-cylinder carries them around. The segmental gear u, as shown, has just one-fourth as many teeth as the cylinder E, so that each action of the gear upon the cylinder turns the latter through just one-fourth of a complete revolution.

The shaft a' is provided with a crank f', and g' is a bar or lever held at h' to move vertically and to be operated by the crank. This lever is in such position that when the cylinder stops after each movement one of the rams will stand directly over it, as appears in Figs. 4, 5, and 6. The lever may be provided with springs u^2, as shown in Figs. 10 and 11, if found necessary, and it, with the crank, constitutes a driver for the rams as the latter are presented to it by the successive movements of the mold-cylinder. The shaft a' turns constantly while the machine is running, and while a ram is over the lever the crank turns up against the latter, driving the ram with great force upward, pressing the measure of clay i' against the rigid plate k', immediately above the cylinder. This gives the brick its form. As the crank moves on and turns downward it allows the ram, with the formed brick, to drop slightly away from the plate. As the cylinder is turned through its next one-fourth revolution the ram glides off the lever onto the elevator e', and, arriving at the top of the latter, the brick l' is raised out of the mold. (See Figs. 1, 3, and 4.)

The pressing-plate k' is held by the central spindle b, Fig. 6, and by stout posts n'. The brick being raised out of the mold is delivered upon a carrier, as a belt o', by an automatic discharger. This discharger, as shown, consists of a push-finger p' to push the brick off the cylinder, operated by means of an eccentric r', secured to the shaft t. The push-finger turns upon a bearing s' over the cylinder, held by a standard t', secured to the spindle b. An arm w' extends downward and is connected with the eccentric by a connecting-bar v' and eccentric-strap w'. The throw of the eccentric, as indicated in Fig. 1, causes the brick to be delivered to the carrier o', which may be of any length wished and may lead to any desired point.

The carrier o' for the brick is driven by means of a horizontal shaft a^2, turned by a belt b^2, running from the main driving-shaft d, Figs. 1 and 4. The shaft a^2 is held in standards c^2 and d^2, the latter having a rigid stud e^2, upon which the pulley f^2 for the carrier o' turns. A vertical belt g^2, driven by the shaft a^2, turns the pulleys h^2 and f^2 on the stud e^2. At the other end the carrier o' is supported by a simple standard i^2.

The feed-pan C has an opening k^2 formed through the bottom, under which a mold-cavity c stands when the wheel stops after each motion given it by the segmental gear u.

The elevator-incline e' drops rapidly away after reaching its highest point, as shown in Fig. 2, so that when a mold-cavity has reached the opening k^2 the ram will have dropped downward from gravity, leaving a large space above its upper end, as shown in Figs. 5, 6, and 7. Into this space the clay in the feed-pan is swept by the feeders D. The clay, which is in a semi-fluid state, flows from the hopper into the pan through an opening l^2, the size of the opening being regulated by a vertical sliding door n^2, operated by a hand-lever o^2.

To prevent the rams dropping out of their places, I provide each with simple stops p^2, Figs. 6 and 7, rigid in the mold-cylinder E. The rams are each formed with longitudinal grooves r^5 in their opposite edges, in which to receive the ends of the stops. The grooves terminate at such points that the rams are prevented from descending too far or dropping out of their respective cavities.

The form of the feeder D is not essential, its only function being to sweep the fluid clay down into the respective molds as they are presented to the opening in the feed-pan. As shown, it is formed with sectoral parts or wings s^2, reaching out from a hub, the sectoral parts having downturned edges or scrapers t^2, extending to the bottom of the pan.

The clay may be supplied to the hopper by any convenient means, as by a spout or chute.

The operation of the machine is briefly as follows: The clay being supplied to the hopper is therein thoroughly cut and mixed by the revolving parts B and flows into the feed-pan C. The mold-cylinder always stops with a mold directly under the opening in the pan, and while stationary the revolving feeder D scrapes the clay down into the mold in a quantity sufficient to form a brick. At the next quarter-turn of the mold-cylinder another mold is brought beneath the opening in the feed-pan, and the mold just filled is simultaneously carried to a point over the driver for the ram. While the mold-cylinder is again motionless the driving-crank turns upward and drives the ram toward the rigid pressing-plate k', giving to the mass of clay in the mold a true prismatic form with sharp corners and edges. Two more movements of the mold-cylinder cause the ram to raise the brick out of the mold and present it to the discharger, by which it is discharged onto the carrier o', as before described. Each complete revolution of the mold-cylinder, when constructed as shown, turns out four bricks. Of course the size of the cylinder and number of molds formed therein may be changed as may be desired, or the parts may be duplicated in the machine, so as to increase the rate at which it will form the bricks, without departing from the spirit of our invention.

This machine is also adapted to make tile or hollow work by changing the form of the molds and rams. It is also adapted to press blocks of papier-maché or similar substances.

What we claim as our invention is—

1. In a brick-machine, in combination with a rotatory mold-cylinder formed with mold-cavities and rams therefor, a pressing-plate, a lifting-bar to act against the rams, a rotatory shaft, and a crank on said shaft to bear against the lifting-bar, the latter being a

spring-bar, substantially as shown and described.

2. In a brick-machine, a rotary mold-cylinder formed with gear-teeth, in combination with a horizontal shaft, a vertical shaft at the side of the mold-cylinder geared to the horizontal shaft, a segmental gear on the vertical shaft to turn the mold-cylinder, a pivotal discharging-arm, and an eccentric on the vertical shaft to operate the discharging-arm, substantially as shown and described.

In witness whereof we have hereunto set our hands this 28th day of March, 1889.

SACKVILLE G. LEYSON.

his
HOWELL × THOMAS.
mark

In presence of—
S. M. STEVENS,
LEON H. LEMPERT.