(No Model.) 4 Sheets—Sheet 1.

W. H. JUDSON.

BRICK MACHINE.

No. 260,101. Patented June 27, 1882.

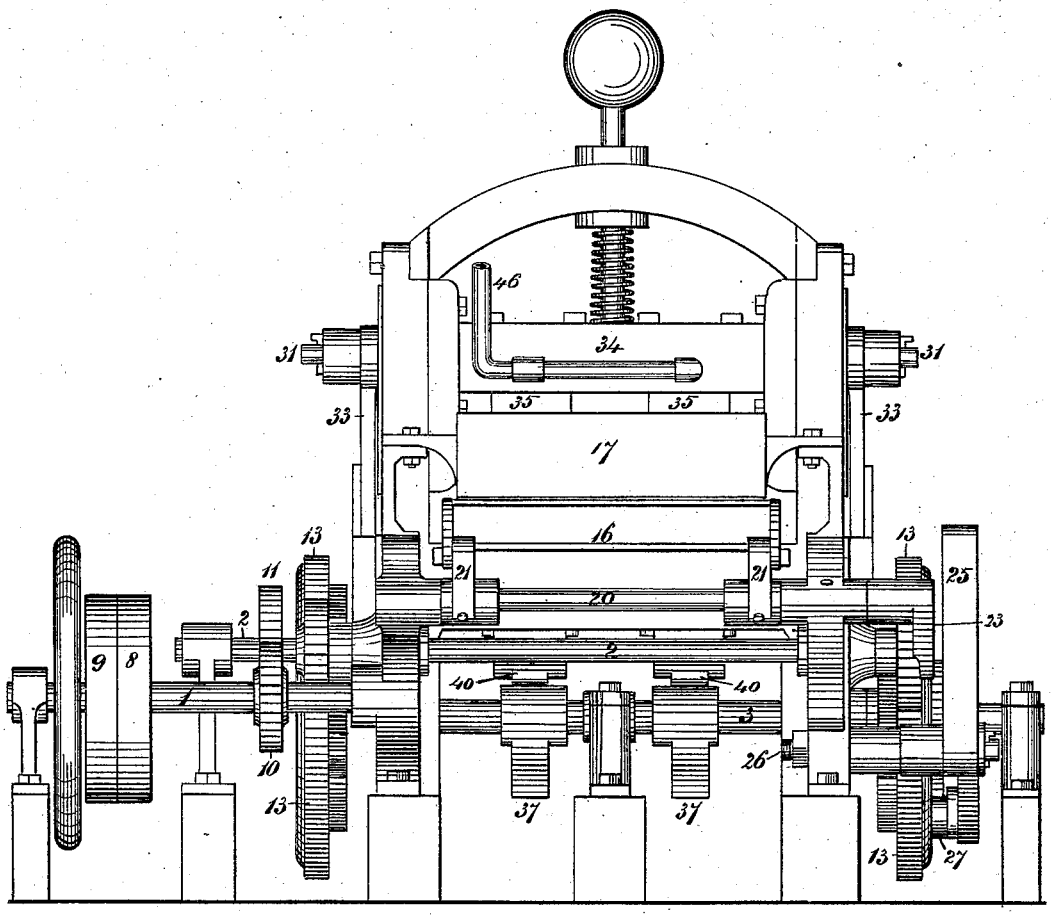

Fig. 1.

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By Henry Grist
Att'y.

(No Model.) 4 Sheets—Sheet 2.

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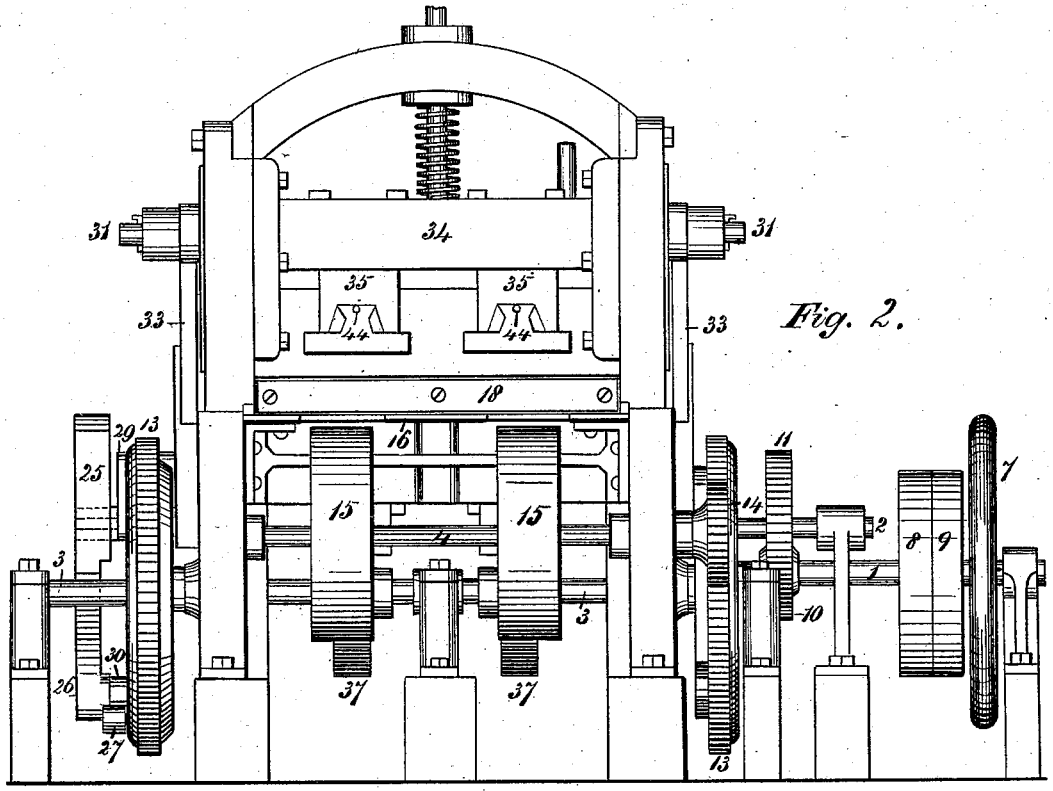
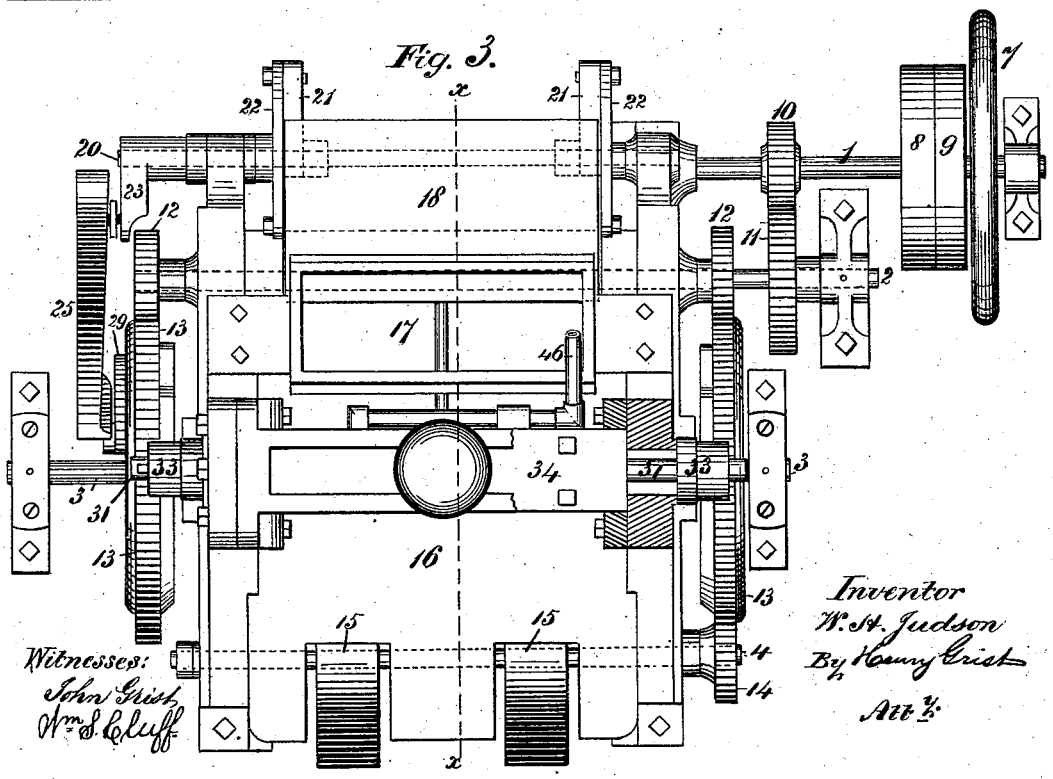


Fig. 2.

Fig. 3.



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N. PETERS, Photo-Lithographer, Washington, D. C.

(No Model.) 4 Sheets—Sheet 3.

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BRICK MACHINE.

No. 260,101. Patented June 27, 1882.

Fig. 4.

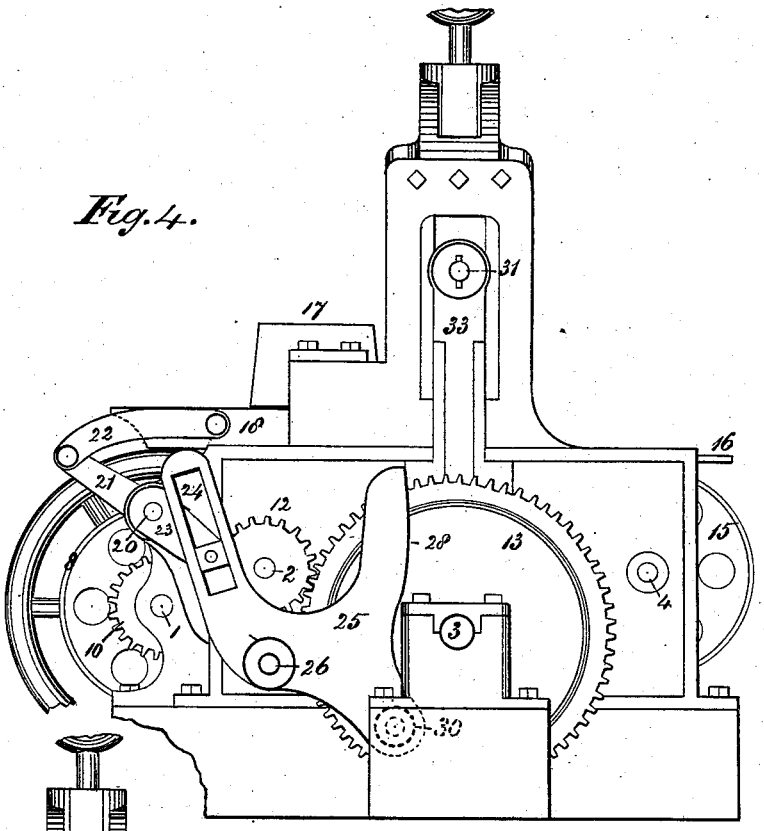
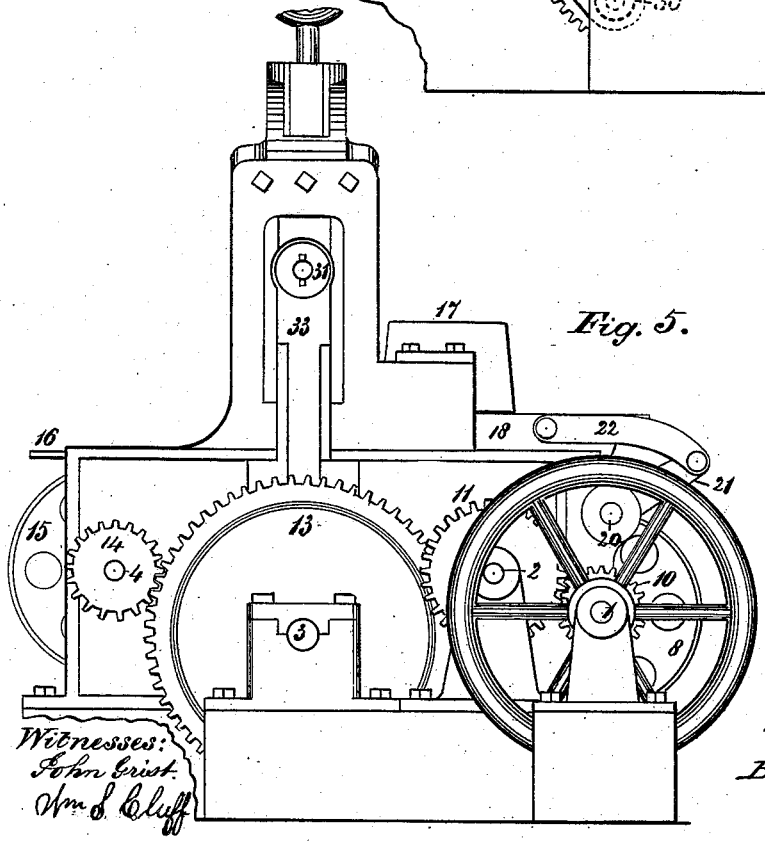


Fig. 5.



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(No Model.) 4 Sheets—Sheet 4.

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BRICK MACHINE.

No. 260,101. Patented June 27, 1882.

Fig. 6.

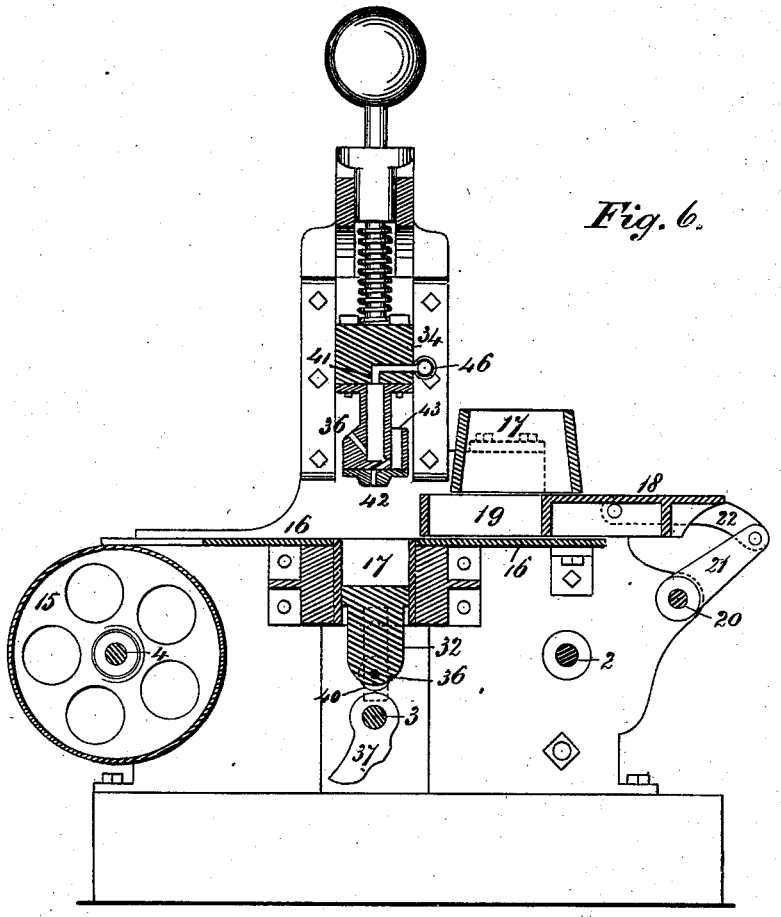


Fig. 8.

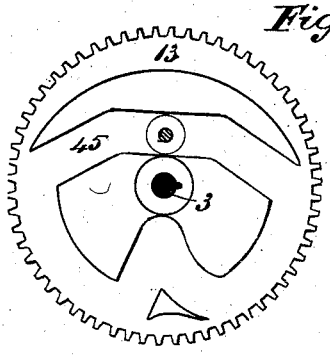
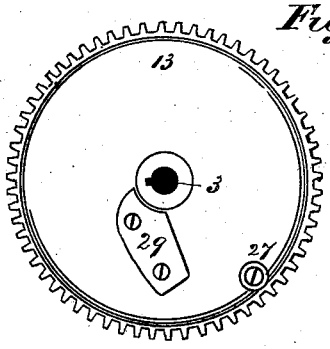


Fig. 7.



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UNITED STATES PATENT OFFICE.

WILLIAM H. JUDSON, OF BROCKVILLE, ONTARIO, CANADA, ASSIGNOR OF ONE-HALF TO JOSEPH MARTIN WEST, OF SAME PLACE.

BRICK-MACHINE.

SPECIFICATION forming part of Letters Patent No. 260,101, dated June 27, 1882.

Application filed September 1, 1881. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM HENRY JUDSON, of Brockville, in the county of Leeds, in the Province of Ontario, in the Dominion of Canada, have invented certain new and useful Improvements in Brick-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same.

This invention has for its object to manufacture bricks from clay as taken from the pit without being tempered, and ready for burning in the kiln without previous drying or manipulation; also, to construct the machine whereby steam can be used as a lubricant for the molds, and to moisten the clay therein previous to pressing; and, also, to combine the operating parts whereby the clay is fed to the molds and pressed therein, and the molded bricks delivered to be put into the kiln by automatic action of the machine.

My invention consists in certain improvements in the construction of parts, as will be hereinafter described and claimed.

Figures 1 and 2 are front and rear elevations of my improved brick-machine. Fig. 3 is a top view of the same. Figs. 4 and 5 are side views of the same. Fig. 6 is a section on the line *x x* of Fig. 3, and Figs. 7 and 8 are details of cam-wheels. Figs. 4 and 5 show both sides of the machine fixed solidly on a suitable base, said sides carrying the operating parts.

1 is the main driving-shaft; 2, the intermediate gear-shaft; 3, the main shaft of the machine, and 4 the shaft carrying the pulleys of the delivery apron or belts. 7 is a fly-wheel on shaft 1, which also carries fast and loose pulleys 8 9 and gear-wheel 10, which meshes with wheel 11 on shaft 2, which carries wheels 12 12, meshing with cam-wheels 13 13 on both ends of shaft 3. One of said cam-wheels gears with cog-wheel 14 on shaft 4, which carries belt-pulleys 15 15, driving the delivery-apron which carries the bricks from the machine.

16 is a table fixedly secured between the sides of the machine, said table perforated for the molds.

17 is a bottomless trough to hold the clay, mounted over the table 16, and interveningly slides a frame, 18, which has a partial flooring to form at intervals a bottom for the trough 17 when not feeding the molds. The clay is fed by the partial movement of frame 18, whereby the clay will fall through the bottomless trough 17 into the receptacle 19, which is bottomless and slides on table 16, and simultaneously the frame 18 moves until the receptacle is over the molds, thereby feeding the molds with clay. The plungers then descend, and the frame recedes to be again supplied with clay from trough 17.

The frame 18 is reciprocated by a rocking shaft, 20, having arms 21, which are pintled to arms 22, fixed to the side of frame 18. The shaft is rocked by crank-arm 23, having a sliding engagement in a slot, 24, in cam 25, which is journaled on stud 26, fixed to the side of the machine. The frame 18 is moved to feed the clay to the molds by contact of the friction-roller 27 on wheel 13 with the edge face 28 of cam 25, and receded by contact of cam 29 on wheel 13 with a friction-roller, 30, on a stub-axle projecting from the inside face of cam 25. The inside face of wheels 13 are cam-grooved, as shown in Fig. 8, and give a vertical sliding motion to side bars, 33, provided with a friction-roller at the lower end to run in the groove, and a journal-bearing, 31, to sustain the cross-head 34, to which the plungers 35 are secured, so that by one revolution of the cam-wheels 13 the side bars, 33, are reciprocated, and thereby rise and depress the cross-head and plungers. The molds have movable bottoms 32, which are carried by a horizontal bar, 36, the ends sliding in a vertical groove at the sides of the machine. The bar 36 is raised by cam-levers 37 on shaft 3, having contact with friction-rollers 40 on said bar 36, so that when the cams are revolved by shaft 3 they lift the bottoms of the molds and throw out the bricks. The motion of the machine is such that between the upward and downward movements of the plungers the bottoms of the molds rise and fall and the frame 18 advances and recedes, the former motion pushing from the molds the newly-pressed bricks onto the table, and supplying the molds with clay, and remains stationary during the depression of the plungers when pressing the clay.

The cross-head 34 is provided with steam-passages 41 to the plungers, which have a

small perforation, 42, at the bottom to pass steam into the molds from a boiler connected to the cross-head by pipe 46, which has a flexible connection. The steam lubricates the molds and gives plasticity to the clay, which is fed to the machine as dug from the pit, whereby when pressed in the molds the brick of clay is ready to be burned in a kiln without previous drying. When the plungers descend, any surplus clay in the molds will pass out through passages 43 in the side of the plungers. The surplus steam will escape through a hole, 44, in the side of the plungers.

The molds have removable steel linings, whereby when worn they can be readily replaced. The cams are formed so as to time the machine to work automatically. The cam 37 has a curved portion, 45, to allow sufficient time for the surplus clay in the molds to escape before giving the final pressure. The cam-lifts on wheels 13 are so timed as to allow the molds to be filled and the sliding frame 18 return to be also filled, so as to allow the bricks to have the final pressure before the slide again advances to remove the bricks and fill the molds with clay.

The cam-groove 45 on inside of wheels 13 is for pressing the bricks and retaining the plunger down until cam 37 forces out the compressed air in the mold and presses the brick with but one revolution of the wheels.

I am aware that it is not new to lubricate the molds within which clay is pressed by means of steam admitted thereto, and I am also aware that it is not new to feed clay to the molds by means of a sliding frame operated by cams and friction-rollers, and such I do not claim.

What I claim as my invention is—

1. In a brick-machine, the combination of the sliding frame 18, having arms 22, rocking shaft 20, having arms 21, crank-arm 23, cam 25, having slot 24, stud 26, wheel 13, having friction-rollers 27 and 30, and cam 29, substantially as and for the purpose set forth.

2. The cross-head 34, connected by a pipe, 46, with a steam-generator, and having steam-passages 41 jointly with the plungers 35, having steam-passages 42 at bottom to conduct steam to the molds, and steam-exits 44 on the sides for the purpose of lubricating the molds and giving plasticity to the clay while in said molds, substantially as set forth.

3. The combination of shaft 3, movable mold-bottoms 32, horizontal bar 36, sliding at each end in vertical grooves at the sides of the machine, movable mold-bottoms 32, mounted connectedly by said bar 36, friction-rollers 40, the cam-levers 37, carried by shaft 3, and having curved portion 45, cam-wheels 13, having cam-grooves 46 on their inner faces, and slides 33, having friction-roller at the lower end, and a journal-bearing, 31, jointly with cross-head 34, carrying plungers 35, and molds 17, substantially as and for the purpose set forth.

4. The combination of the belt-pulleys 15, mounted on shaft 4 carrying gear-wheel 14, and cog cam-wheel 13 for carrying the bricks off table 16, as set forth.

W. H. JUDSON. [L. S.]

Witnesses:
J. WOODWARD,
G. ARMORD.