

(No Model.)

3 Sheets—Sheet 1.

J. B. MOWRY.
BRICK MACHINE.

No. 468,396.

Patented Feb. 9, 1892.

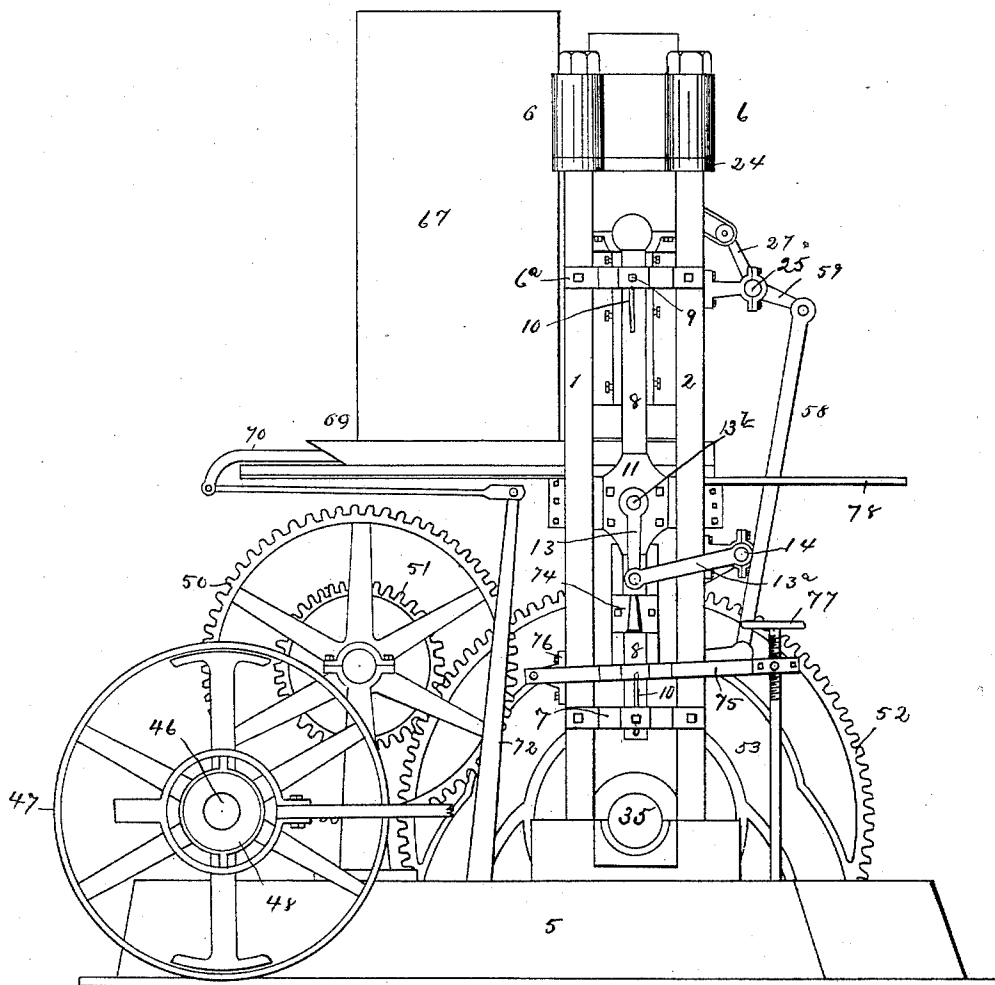


Fig. 1.

WITNESSES

E. S. Smith
U. Rudy

INVENTOR

Joseph B. Mowry.
by E. B. Stocking
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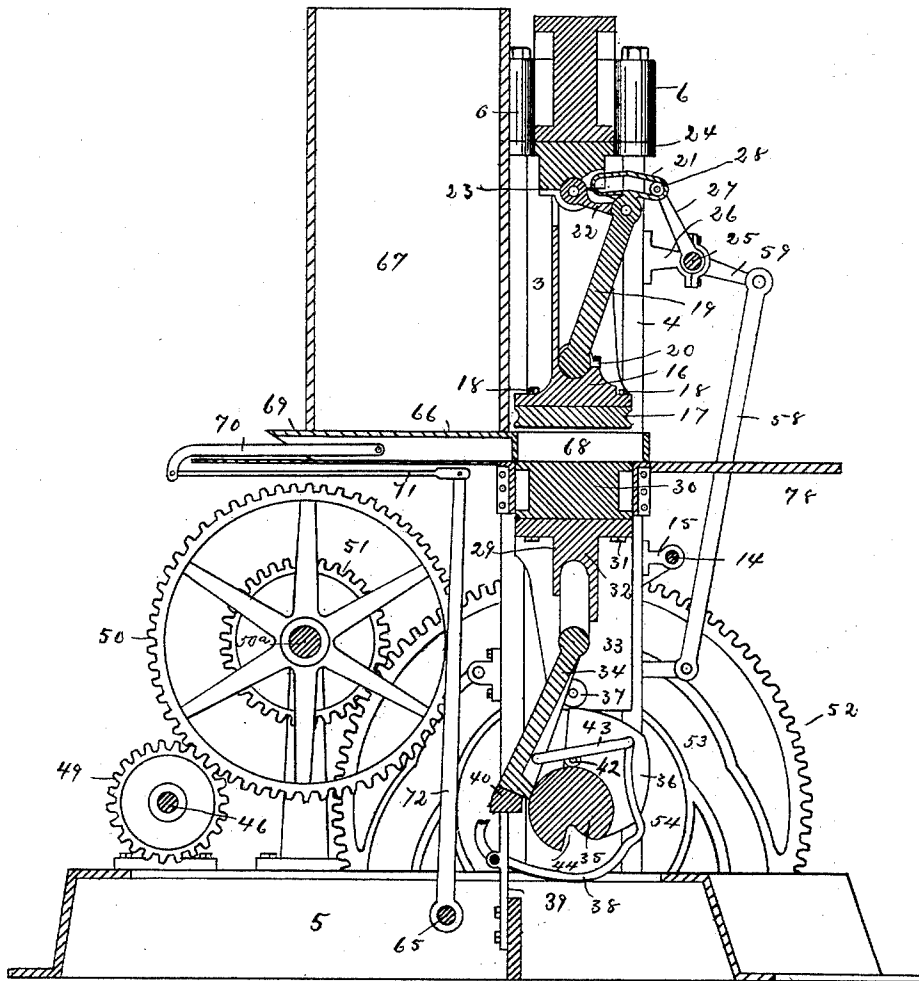


Fig 2.

WITNESSES

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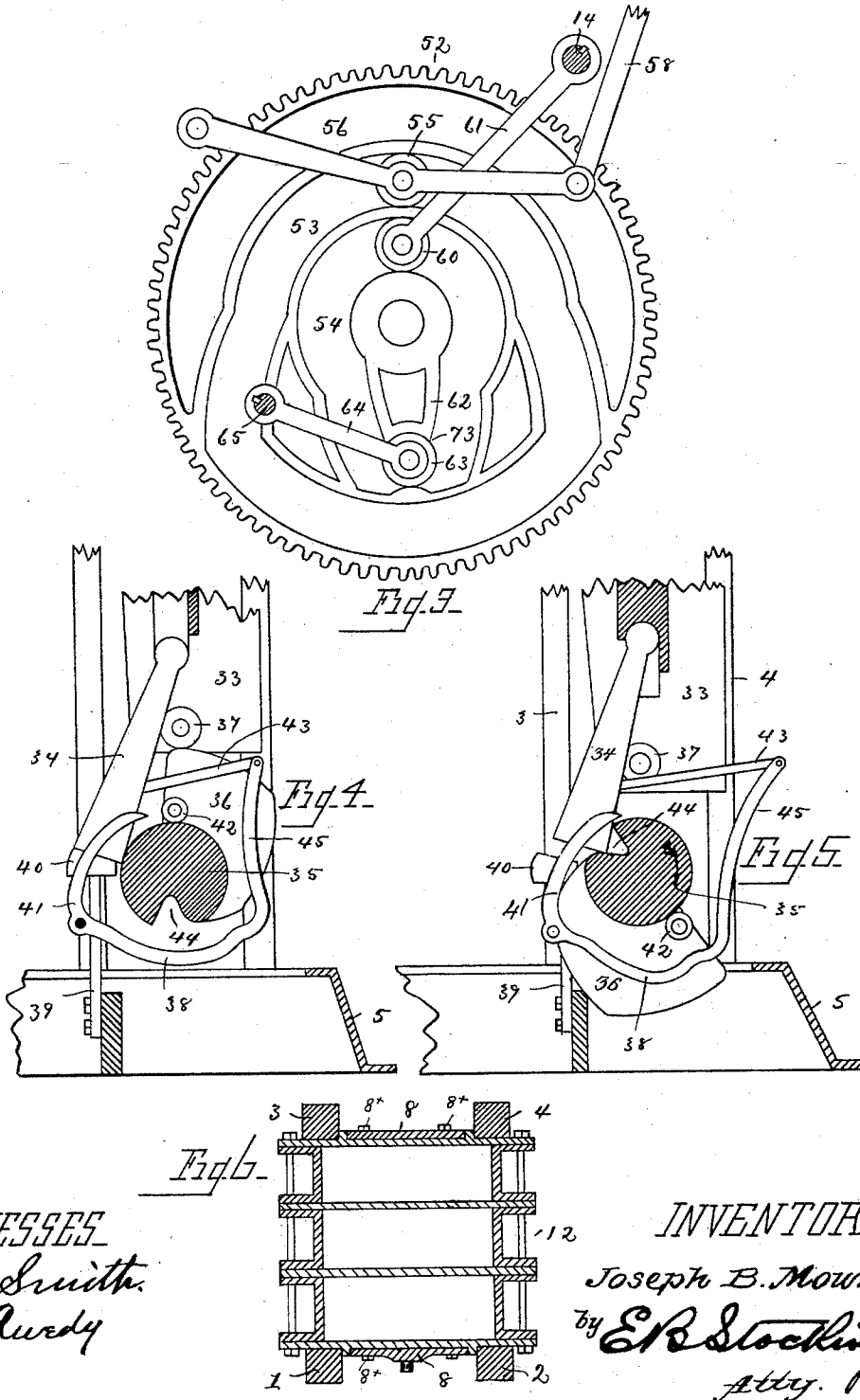
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UNITED STATES PATENT OFFICE.

JOSEPH B. MOWRY, OF MANSFIELD, OHIO.

BRICK-MACHINE.

SPECIFICATION forming part of Letters Patent No. 468,396, dated February 9, 1892.

Application filed December 1, 1890. Serial No. 373,126. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH B. MOWRY, a citizen of the United States, residing at Orange street, Mansfield, in the county of Richland, State of Ohio, have invented certain new and useful Improvements in Brick-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

10 My invention relates to brick-machines, and has for its object to construct a compact, operative, and inexpensive machine in which the operative parts shall derive motion directly from the main power-shaft.

15 A further object is to provide an automatic feed of material to the molds.

A further object is to provide an automatic movement whereby the brick when molded shall be expelled from the mold.

20 A further object is to provide a mechanism whereby a smooth-pressed brick shall be produced and delivered from the molding-box by a movement of the box, withdrawing the same from the formed and pressed brick while still under compression, and thereby avoiding roughening of the sides of the brick.

25 Other objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the claims.

30 Heretofore in the art of making brick there has been provided a power-machine of such complex parts as to render the same not only expensive, but to require the use of skilled labor to operate and keep the same in condition to perform the work. I have endeavored to overcome these objections by providing a light portable machine that shall be capable of the same amount of work as that done by 40 the present ponderous machines without the expenditure of power or labor heretofore required.

45 In the drawings, Figure 1 is a side elevation of the machine. Fig. 2 is a vertical sectional view taken through the center of the machine to illustrate the construction of the molding-box, platen, and plunger and means for actuating the plunger from the main shaft. Fig. 3 is a sectional view taken in front of the main eccentric-wheel, Fig. 1 illustrating the eccentrics and levers operated by 50 the same. Fig. 4 is a detail sectional view of

the plunger and means for operating the same, the plunger-pitman being shown out of engagement with the power-shaft. Fig. 5 is a like view showing the pitman in engagement with the power-shaft, and Fig. 6 is a sectional view of the molding-box.

Like numerals of reference refer to like parts throughout all the figures of the drawings.

1, 2, 3, and 4 respectively designate standards rigidly secured upon a base or pedestal 5, and at the upper ends of the standards they are secured to a cap or caps 6 of sufficient weight and strength to withstand the necessary pressure in forming the brick. 6^a and 7 are upper and lower transverse bars secured to the standards, and to which are movably secured guides 8 by means of bolts 9, which pass through slots 10 in the guides, thereby allowing a vertical reciprocatory movement of the guides. At 11 the guides are enlarged to allow securing the molding-box 12 thereto by the bolts 8^x. (See Fig. 6.) On one side of the machine opposite to that occupied by the main power-wheel 52 the enlargement or boss 11 has a projecting pin 13^b, upon which is secured a lever 13, said lever being connected to an arm 13^a, fixedly keyed to a shaft 14, bearing in the hangers 15, secured to the standards 2 and 4, the object of this construction being that when the shaft 14 is rocked, as will be hereinafter described, the molding-box 12, and consequently the guides 8, are raised and lowered, as the case may be. Guided by the guides 8 is the platen-holder 16, to which the platen 17 is secured by means of bolts 18.

19 is an arm secured at the lower end to the platen-holder by means of a suitable swivel-joint 20, the opposite end carrying a link 21, which is connected by a toggle-joint with a lever 22, the upper end of which is movably secured in a box 23 integral with a plate 24, carried by the standards.

25 is a shaft mounted in hangers 26, secured to the standards and carrying a lever 27, keyed thereto; said lever at the opposite end carrying an anti-friction roller 28, which bears in the link 21, the operation of which will be hereinafter explained.

29 designates the plunger, also guided by the guides 8, to which is secured the die 30

by bolts 31, said plunger being constructed of a main portion 32 and depending flanges 33, the upward movement of said plunger being designed to give a primary pressure to form the brick, the movement of the plunger being controlled by the pitman or plunger-arm 34, actuated by the shaft 35, and a secondary pressure to expel the brick after being formed being given by the lug 36, which contacts with the anti-friction roller 37, secured to the flange 33 of the plunger.

38 is a collar mounted on an upright 39, secured to the base, said upright carrying a buffer 40, preferably formed of rubber. Said collar is formed of two substantially vertical portions or parts, one part 41 contacting with an anti-friction roller 42 on the flange or lug 36 to raise the same, and through the medium of the link 43 throwing the plunger-arm or pitman 34 out of contact with the V-shaped notch 44, formed in the main power-shaft 35, the other part 45 contacting with the anti-friction-roller to throw the plunger-arm into engagement with the notch 44 as it comes opposite the notch, as will be seen in Figs. 4 and 5, the link 43 acting in both cases to throw the plunger-rod out of and into engagement.

I will now proceed to describe the main power-wheel, which constitutes one of the most important novel elements of my machine.

46 designates the shaft, to which power is given by the pulley 47, carrying a belt. (Not shown.) This pulley is actuated by a clutch 48; but as this clutch may be of any character without departing from the spirit of my invention, and as its operation will be readily understood, a detailed description thereof is deemed unnecessary. On this shaft 46 is mounted a geared pinion 49, meshing with a like pinion 50, carried by and actuating a shaft 50^a, carrying a geared pinion 51, which in turn actuates the main power-wheel 52. The main power-wheel 52 has formed integral therewith an outer and inner track 53 and 54, respectively, which track 53 forms a cam-groove, having a substantially semicircular contour at the upper and lower portions, respectively, of different radii and an intervening straight or substantially straight portion upon either side connecting the semicircular portions, with which an anti-friction roller 55 travels, the roller being journaled upon a rod 56, one end of which is pivotally secured to a vertical standard 3, the opposite end being pivotally connected with a rod 58, having a jointed connection with a lever 59, secured to shaft 25, whereby when the wheel 52 is revolved the lever 59 will have an up-and-down movement, and through the levers 58, 59, and 27 will cause the toggle arm 19 to exert a downward pressure.

60 designates an anti-friction roller secured in the upper side of the way or track 54, said roller being pivoted to an arm 61, keyed to the shaft 14, whereby when the raised portion 62 causes the roller, and consequently the arm, to rise it will rock the shaft 14, and through

the medium of the levers 13^a and 13 raise or lower the guides, and consequently the molding-box.

63 designates another like anti-friction roller running in the way or track 54, and is connected by a lever 64 to a shaft 65, journaled in the base 5 of the machine, as shown in Fig. 2.

66 designates the clay-box, which receives the material from the hopper 67, and is formed with a receptacle 68, which carries the clay to the molding-box, and a table 69 at the rear end, which closes the hopper when the clay-box is moved forward, as shown in Fig. 2. To the rear end of the clay-box is pivotally connected a lever 70, which in turn is pivoted to another lever 71, pivoted to an arm 72, the lower end of which is keyed to the shaft 65, hereinbefore described.

It will be seen that by means of the projections 73 on the face of the way or track the anti-friction roller 63 is given a quick up-and-down movement, which transmits a quick back-and-forth movement to the clay-box, the object being, if the clay in box 68 is plastic and tends to stick to the sides, to cause it to leave the sides and drop into the molding-dies.

To regulate the amount of material to be molded, I have provided a stop for the plunger 29, which consists in securing to the side of the plunger a plate 74, having a projection which, when the plunger drops, will rest upon a rod 75, hinged at the rear end to a hanger 76, the point end being adjustably supported by the hand-screw 77, the turning of which will raise or lower the rod 75, and consequently regulate the drop of the plunger.

78 is a platform upon which the brick is pushed by the clay-box after being pressed.

Having described the different parts of my invention, I will proceed to describe the manner of its operation.

The hopper being filled with clay, power is applied to the machine by operating the clutch, when, as shown in Fig. 2, the clay-box 68 is filled. The partial rotation of the main power-shaft 35, and consequently lug 36, will allow anti-friction roller 37 to travel down the inclined face of the lug, thereby lowering the plunger and dies, when the quick vibratory movement is given the clay-box, allowing the clay to fall. The anti-friction roller 63 then passes down the eccentric way or track 54, and the roller 55 slides up the incline surface of the way or track 53, causing shaft 25 to rock, and consequently lever 27 and the toggle-arms 22 and 19, to lower the platen 17. At this point the roller 42 will cause the plunger-arm 34 to engage with the V-shaped notch 44 in shaft 35, causing the arm, and consequently plunger and dies 29 and 30, to raise and compress the brick until the roller 42 strikes the arm 41 of the collar 38, throwing out the plunger-arm from engagement, when the same will fall into the rubber buffer 40. At this point the wheel 55 will cause the

platen to rise and the lug 36 will ride under the roller 37, raising the plunger and expelling the brick. The operation of bringing the clay-box forward pushes the brick onto the platform 78. It will be seen that by means of the vibrating molding-box the same will be caused to rise into position when the plunger rises and falls, while the brick is depressed, thereby doing away with rough sides, as would be the result if the brick had a long distance to travel in the molding-box while being expelled. It will be seen that I may form the machine in pairs by extending the shaft 35, the ways or eccentric grooves being duplicated on the opposite side of wheel 52. In such construction I have the eccentricity of the grooves opposite, so that when one machine is forming brick the other is expelling, thereby requiring but one operation to both machines.

It will be seen that the device is simple, durable, and of light weight.

Various modifications in detail may be resorted to without departing from the spirit of the invention or sacrificing any of its advantages.

What I claim is—

1. The combination, with the power-shaft and clay-box, of the anti-friction roller 63, the projections 73, and intermediate mechanism between said roller and the clay-box whereby said clay-box is given a quick vibratory movement at predetermined intervals, substantially as specified.

2. In a brick-machine, the combination, with the plunger, friction-roller 42, link 43, plunger-arm, dies, and the collar, of the power-shaft 35, having a notch 44 arranged relatively to the free end of the plunger-arm, substantially as specified.

3. The combination, with the dies, plunger, and plunger-arm, of the shaft having a notch, the anti-friction roller 42, the lug 36, eccentrically arranged upon said shaft, the collar, and the link 43, substantially as specified.

4. The combination, with the dies, plunger, plunger-arm, the two-part collar, and the anti-friction roller 42, of the shaft 35, having a notch 44 for giving the plunger an initial

movement, and a lug 36, having an inclined face for giving a secondary pressure to expel the brick after being formed, substantially as specified.

5. The combination, with the dies, plunger, and plunger-arm, of the shaft 35, having notch 44, the lug on said shaft, the roller 42 on the lug, and the collar connected with the plunger-arm and having one end free, as set forth.

6. The combination, with the dies, plunger, and plunger-arm, of the notched shaft, the lug thereon, the buffer 40, the two-part cam-collar, the link connecting one end thereof with the plunger-arm, the anti-friction roller on the lug, and the anti-friction roller on the plunger, substantially as specified.

7. The combination, with the platen-holder and the arm connected therewith by a swivel-joint, of the link at the upper end of the arm, the toggle-lever connecting said link with a suitable support, and the lever carrying an anti-friction roller working in said link and actuated from the power-wheel, substantially as specified.

8. The combination, with the platen-holder and its arm connected therewith by a swivel-joint and the lever 22, of the main power-wheel having cam-track, the shaft 25, the lever thereon engaging the upper end of said arm, the lever 59, secured to said shaft, the anti-friction roller moving in the cam-track of the power-wheel, and the lever 58, pivotally connected with the arm 59 and with said anti-friction roller, substantially as specified.

9. The combination, with a horizontal clay-box, of the lever pivotally connected to the rear end thereof, the lever 71, pivotally connected with the first-named lever and arranged substantially parallel with the first-mentioned lever, and the arm 72, pivotally connecting the lever 71 with a shaft 65, actuated from the main power-wheel, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPH B. MOWRY.

Witnesses:

HATTIE AULD,
LYMAN S. SMITH.