

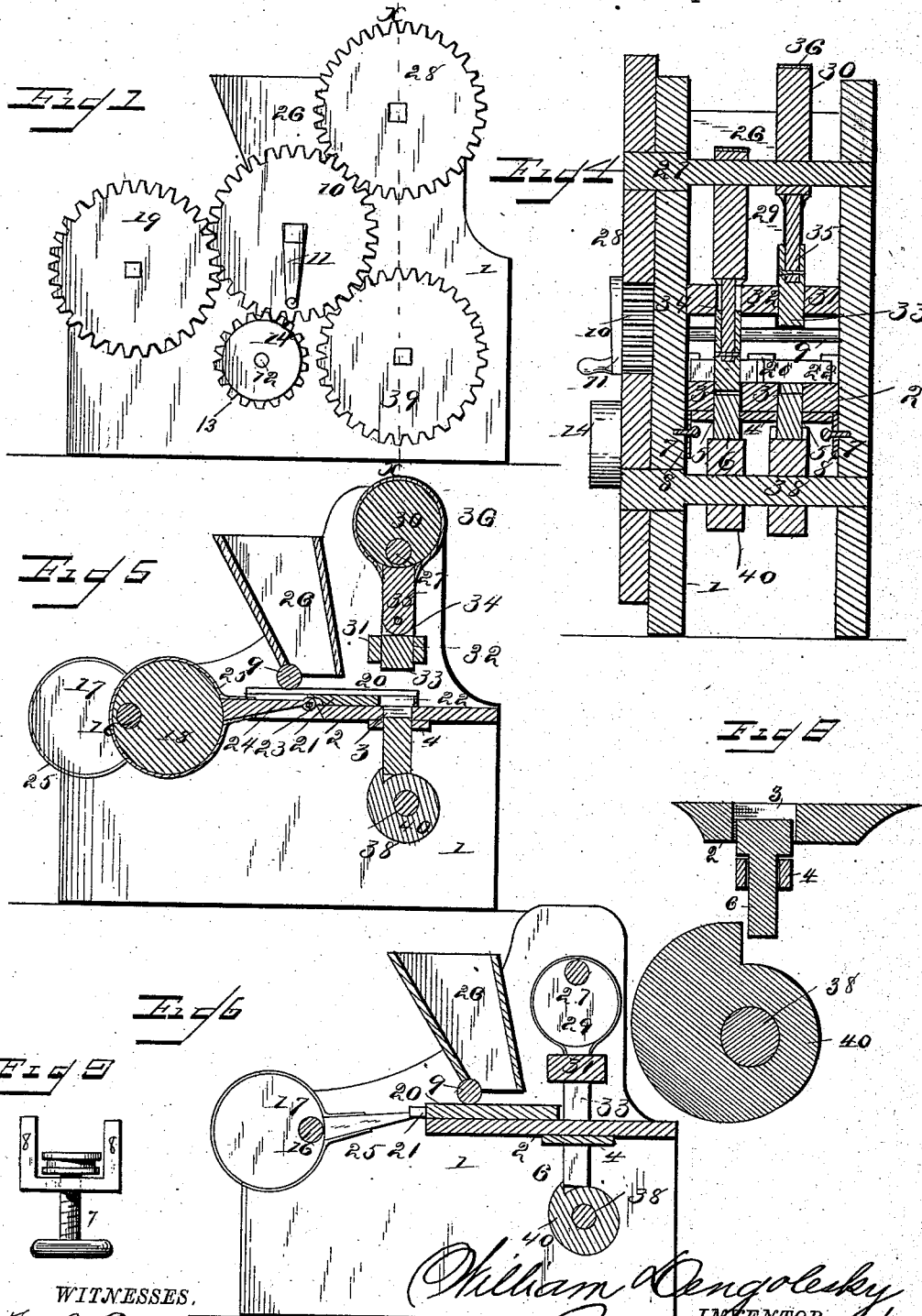
(No Model.)

W. DENGOLSKY.
BRICK MACHINE.

2 Sheets—Sheet 1.

No. 381,345.

Patented Apr. 17, 1888.



WITNESSES.

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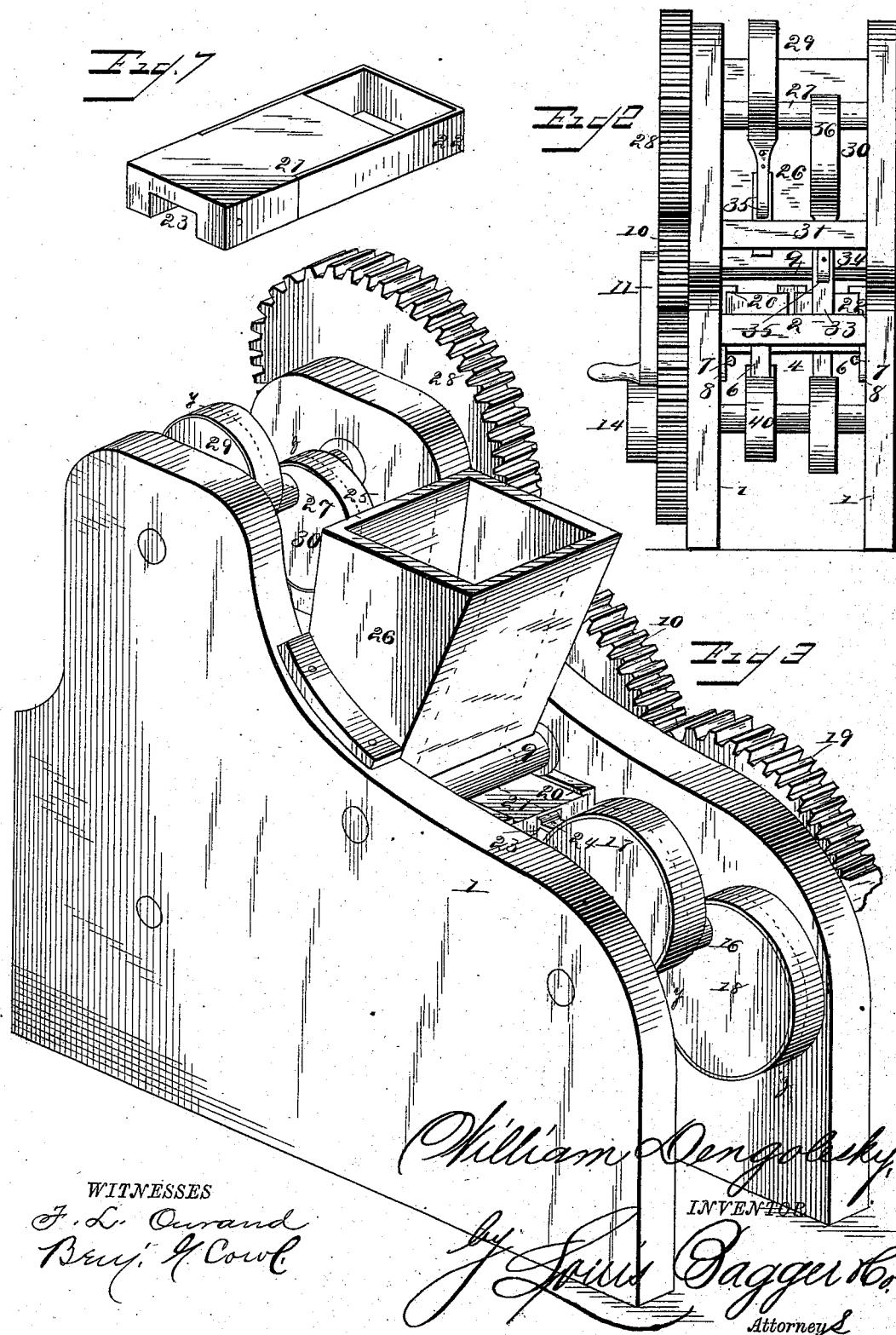
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UNITED STATES PATENT OFFICE.

WILLIAM DENGOLSKY, OF BOONEVILLE, MISSOURI.

BRICK-MACHINE.

SPECIFICATION forming part of Letters Patent No. 381,345, dated April 17, 1888.

Application filed August 11, 1887. Serial No. 246,651. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM DENGOLSKY, a citizen of the United States, and a resident of Booneville, in the county of Cooper and State of Missouri, 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 invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a side elevation of my new and improved brick-machine. Fig. 2 is an end view of the same. Fig. 3 is a perspective view taken from the opposite end to that shown in Fig. 2. Fig. 4 is a transverse vertical sectional view taken on line *x x* of Fig. 1. Fig. 5 is a longitudinal vertical sectional view taken on line *y y* of Fig. 3. Fig. 6 is a longitudinal vertical sectional view taken on line *z z* of Fig. 3. Fig. 7 is a detail view of one of the combined feed and discharge slides or frames. Fig. 8 is an enlarged vertical sectional view taken through the lower plunger, showing the manner of regulating the depth of the mold; and Fig. 9 is a detail view of one of the means of raising and lowering the adjustable guide-board.

The same numerals of reference indicate corresponding parts in all the figures.

My invention consists in a new and improved brick-machine, which will be herein after fully described and claimed.

Referring to the several parts by their designating-numerals, 1 1 indicate the side pieces of the frame of my new and improved brick-machine, and 2 a horizontal platform, which is secured in the frame at what may be called the "front end portion" of the same. This platform 2 has formed in it the molds 3 3, formed side by side, as shown, while below these molds is secured the adjustable mold-board or guide-board 4, which is formed with the two openings 5 5, through which work the lower compressor-blocks, 6 6, hereinafter described. This guide-board 4 is adjustably secured at its ends by the set-screws 7 7, which pass through the slotted end irons, 8 8, as shown, by means of which arrangement the said board

can be adjusted vertically to increase the size of the mold when a larger quantity of clay has to be used for each brick, owing to the clay being damp, the size of the two molds, or rather their capacity, being thus adjusted to suit the condition of the clay by permitting the lower compressor-blocks to fall a greater or less distance, as shown in Fig. 8.

Near the center of the upper part of the machine is journaled transversely the drive-shaft 9, having mounted upon one of its ends the gear-wheel 10, and having the operating crank or handle 11, by means of which it is revolved when the machine is to be driven by hand, while below this gear-wheel 10 is journaled on a stub-axle, 12, on that side of the machine-frame a pinion, 13, of about one-eighth the size of the gear-wheel and meshing therewith, while outside of this pinion is mounted upon the stub-axle a band-wheel, 14, for the reception of the drive band or belt from the source of power, by which arrangement the machine can be driven by steam or other power when desired.

In the rear end of the machine-frame is journaled transversely in bearings a shaft, 16, upon which are secured the two eccentrics 17 18, and upon one end of this shaft is secured a large gear-wheel, 19, which meshes with the large gear-wheel 10 upon the drive-shaft 9.

Upon the rear half of the platform 2 are guideways 20, between which slide and reciprocate the combined feed-slides and discharge-frames, each of which consists of a block, 21, to the forward end of which is secured the metal square frame 22, while the rear end of the block has a recess, 23, in which is pivoted one end of a pitman, 24. Each of the said two pitmen 24 has secured to its rear end the circular band 25, the said metal rigid bands passing around the eccentrics 17 18, as shown. These eccentrics 17 18 are secured upon the shaft 16 so that they extend out from the same opposite to each other, by which arrangement it will be seen that as the shaft 16 revolves one eccentric will, through its pitman 24, force its slide 21 forward, while the other eccentric draws its slide 22 back, so that the said feed and discharge slides or frames will operate alternately one after the other. Upon the central upper part of the machine-frame is se-

cured the feed-hopper 26, through which the blocks of clay are fed down into the feed-frames 21 22.

In the upper forward part of the machine-frame is journaled a transverse shaft, 27, having on one of its ends a large gear-wheel, 28, which meshes with the gear-wheel 10 of the drive-shaft 9, while upon the middle portion of this upper shaft are secured two eccentrics, 29 30, placed so as to extend out opposite to each other in a similar manner to the eccentrics 17 and 18 on shaft 16. Below this upper shaft, 27, is secured in the machine-frame a cross-bar, 31, this bar being arranged above the platform in which are the molds 3 3, and this cross-bar has formed in it the two guide-openings 32 32 in vertical line with the said molds. Through these guide-openings slide and reciprocate the plungers or upper compressors, 33 33, the lower ends or heads of which are formed of the exact size of the molds 3 3, while the upper ends of these plungers are recessed vertically to form the wide parallel side pieces or jaws, 34 34. Between these jaws are pivoted the lower flat ends of the short pitman-arms 35 35, to the upper ends of which are secured the rigid metal circular bands 36 36, which fit around the eccentrics 29 30 on the upper shaft, 27, as shown.

Beneath the platform 2 is journaled transversely the shaft 38, on the outer projecting end of which is secured a gear-wheel, 39, which meshes with the large gear-wheel on the drive-shaft, being of the same size; and upon the middle portion of this lower shaft, which is journaled in line below the mold-openings of the platform 2, are secured the two cams 40, which are secured upon the shaft with their projecting ends opposite to one another, so as to work alternately. Above these cams are secured in the openings 5 5 of the adjustable guide-board 4 the lower compressor-blocks, 6 6, which are operated by the said cams, being pressed up by the same, and fall down by their own weight when the projections of the cams pass from under them.

It will be seen from the foregoing that the two feed-slides, the two plungers, and the two lower compressors operated by the cams work alternately, one feed-frame, plunger, and lower compressor operating together. Now, in operation, the blocks of clay are placed in the hopper and the several shafts are revolved by the drive-shaft by hand or steam or other power. As the feed slides or frames 21 22 are reciprocated alternately, each end frame, 22, as it comes beneath the bottom of the feed-hopper, will receive a block of clay, and as the slide moves forward it will carry this clay block forward with it until it comes over and falls into the mold 3 at that side, the plunger 33 on that side being raised as the feed-frame moves forward to permit the said frame to pass beneath it, and the lower compressor-block, 6, at that side being also lowered by its cam 40 to leave the mold entirely open for the

reception of the clay block. The block being thus dropped in the mold, as the shaft 16 continues its revolution this feed-frame above referred to is drawn back, while the other feed-frame slides forward, having received a clay block in it from the feed-hopper. Now, as the first-mentioned feed-frame is thus drawn back, the cam 40 on its side raises the lower plunger or compressor block, 6, while the eccentric of the upper shaft on that side forces that plunger 33 down, so that the brick is thus tightly and thoroughly compressed in the mold, the guide-board 4 having previously been adjusted vertically according to the condition of the clay, whether damp or dry, as previously described, as a greater quantity of damp clay is required to make a brick of a stated size than when the clay is dry. While the brick in the right-hand mold is thus being compressed, the left-hand feed-frame has been slid forward, so as to deposit the clay block which it received from the feed-hopper into the left-hand mold, the left-hand plunger 33 and compressor block 6 being drawn back to open and leave clear the left-hand mold. Now, as the revolutions of the shafts continue, the left-hand plungers will be forced into the mold to compress the brick contained therein, while the empty left-hand feed-frame is drawn back to receive another block of clay from the hopper, and at the same time the right-hand feed-frame, which has received a clay block from the hopper when the left-hand brick was being compressed, is slid forward, and as it moves forward the front end of its frame will push forward out of the way the finished brick which was just before compressed in the right-hand mold, and which is held up flush with the top of the table or platform 2 by the lower compression block, 6, which is held in its elevated position by the continued raised end of its cam 40, the said cams being constructed in the form shown, so that after pressing the brick from below as the upper plunger, 33, presses it from above they will retain the lower presser-block up in its elevated position, while the upper plunger is raised and the feed-frame slides forward, holding it up thus until the square frame 22 of the feed-slide has passed over it and pushed the finished brick forward clear of the mold, when the cam-point passes from beneath the lower end of the lower block, 6, and lets the said block fall by its own weight to open the mold and enable the clay block in the feed-frame to enter the mold ready to be compressed as the plungers are again forced in.

It will be seen that the feed-frame acts not only as a feed, but also as an automatic discharge frame or slide, conveying the clay blocks from the hopper to the molds and moving the finished brick out of the way. The left-hand feed and discharge frame and plungers operate in precisely the same manner as the right-hand ones.

From the foregoing description, taken in connection with the accompanying drawings,

the construction and manner of operation of my invention will be readily understood. It will be seen that it is simple and strong in construction and exceedingly rapid, accurate, 5 and efficient in its operation, possessing many decided advantages, which will be readily seen and appreciated. It will be seen that by the several parts on each side working alternately not only will the machine perform its work 10 with rapidity, but that only one-half the power will be required to run it that would be required if the two sets of plungers operated at the same instant to press the two bricks at the same moment. This advantage will be readily 15 seen, as only sufficient power is required to press one brick at a time. The alternating parts also counterbalance each other to a great extent and assist in causing the machine to run lightly and easily. The speed can be in- 20 creased or lessened, as desired, as all the parts will move so as to be at the correct points at the proper time.

Instead of the straight shafts 16 and 27, having the eccentrics on each, I may employ 25 a double-cranked shaft in place of each of the said shafts; but I prefer to use the straight shafts with the eccentrics, most especially in the case of the upper shaft, 27, which operates the plungers 33 33. If a double-cranked shaft 30 were used to operate these plungers, the recessed upper ends of the plungers 33 33 would be pivotally connected to the pins of the said double cranks by means of straight pitmen, and it will be readily seen that as the cranked 35 shaft revolved and the plungers were forced down to press the bricks the said pitmen would stand from the beginning of the downward stroke at a considerable inclination from the vertical, (forty-five degrees or more,) and 40 that instead of the pressure on the plungers being straight down, when it is most needed in pressing the brick in the molds, the pressure would be at a great inclination on the upper ends of the plungers, which would thus not 45 be pushed squarely down and would be likely to stick or bind in the guide-openings through which they pass, and would not enter the molds

squarely, if at all, and the motive force could not be fairly utilized to press the bricks in the molds. Now, by using the eccentrics and the 50 rigid circular bands on the upper ends of the pitmen passing around these eccentrics, it will be seen that the said short pitmen are swung but very little out of a vertical line and press the plungers down fairly and squarely upon the 55 clay in the molds, the power being all exerted in a vertical or nearly vertical line. Oil-cups may be arranged above the eccentrics, on the circular bands or otherwise, to keep the parts well lubricated and reduce friction. 60

It will be seen that instead of a two-brick machine the capacity of the machine may be increased to a four-brick machine, or, in fact, up to any number, by increasing the width of the machine and the number of the sets of 65 feed-frames, eccentrics, plungers, molds, &c.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a brick-machine, the combination, with 70 a frame, of three shafts journaled therein, each of which is provided with a cog-wheel upon one end, said wheels being of the same size, an operating-wheel upon the side of the frame engaging with the wheels and adapted 75 to rotate them in unison, a pair of eccentrics upon each of the shafts, said eccentrics being arranged diametrically opposite each other, two feed-slides, two sets of compressor-blocks, and a hopper above the slides. 80

2. In a brick-machine, the combination of a frame, a movable feed-slide, an adjustable guide-board, and two vertically-movable compressor-blocks, the lower one of which passes through the guide-board and is regulated 85 thereby, and eccentrics.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

WILLIAM DENGOLSKY.

Witnesses:

AUGUST PETERSON,
CHAS. ZIMMERMAN.