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G. E. NOYES.

Brick-Machines.

Patented March 24, 1874.

No. 148,971.

Fig. 1

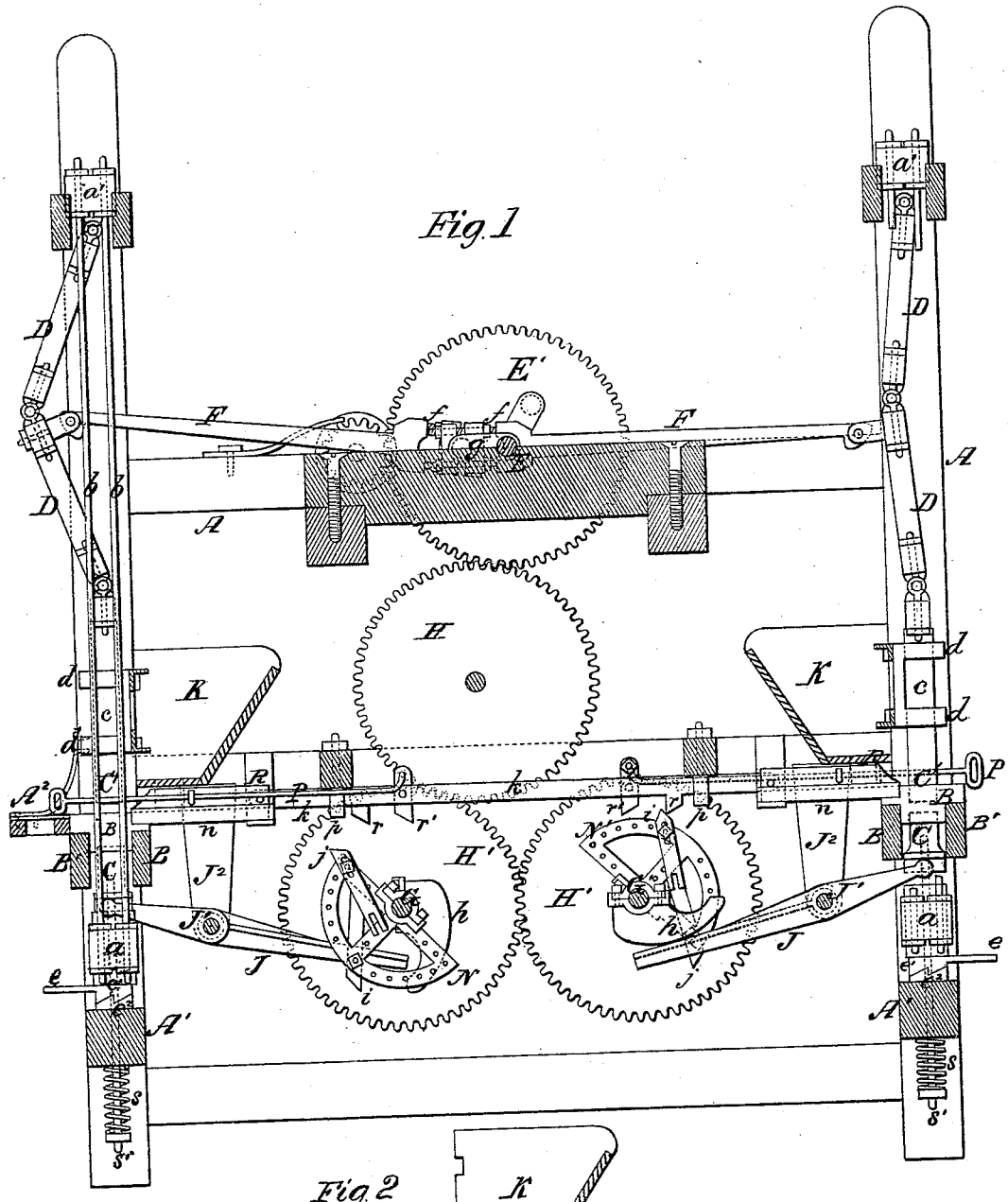
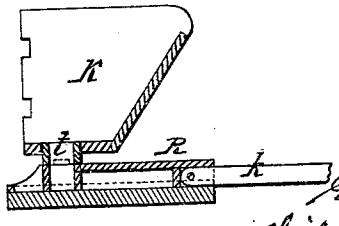


Fig. 2



WITNESSES

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2 Sheets--Sheet 2.

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Fig. 3

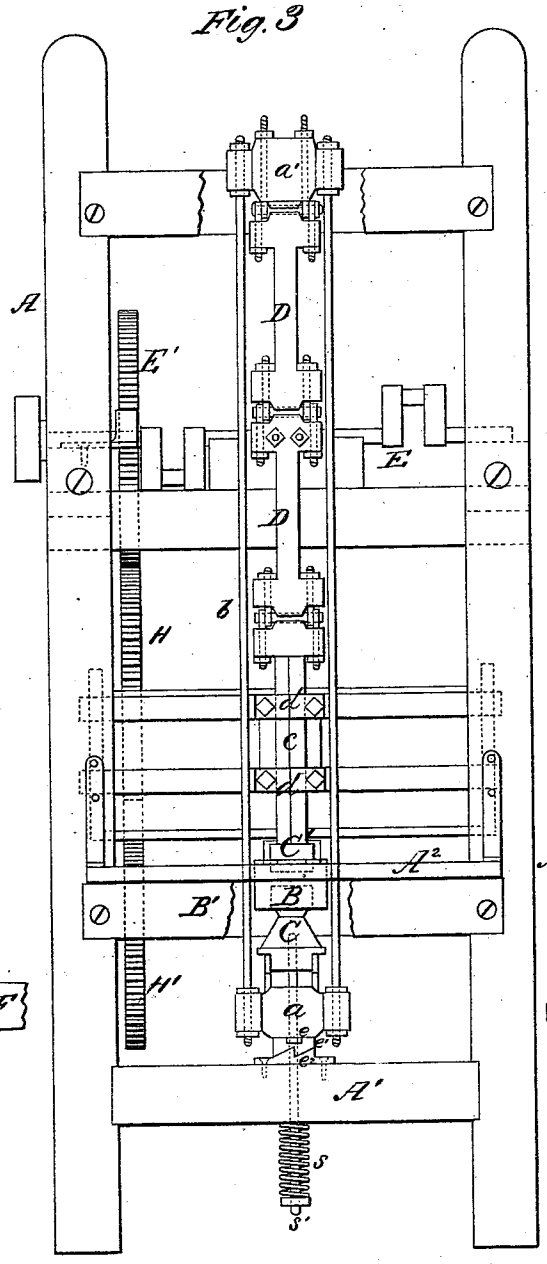


Fig. 4

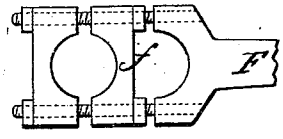
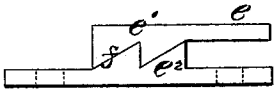


Fig. 5



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UNITED STATES PATENT OFFICE.

GEORGE E. NOYES, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR OF ONE-HALF HIS RIGHT TO E. N. GRAY, OF SAME PLACE.

IMPROVEMENT IN BRICK-MACHINES.

Specification forming part of Letters Patent No. **148,971**, dated March 24, 1874; application filed February 7, 1874.

To all whom it may concern:

Be it known that I, GEORGE E. NOYES, of Washington, in the county of Washington and District of Columbia, have invented a new and valuable Improvement in Brick-Machines; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a representation of a sectional view of my brick-machine. Fig. 2 is a detail view of the same. Fig. 3 is an end view; and Figs. 4 and 5, detail views of the same.

This invention relates to certain improvements on machinery which is designed especially for making what are denominated dry-clay bricks. In the manufacture of this kind of bricks it frequently happens that they crack, or even burst, owing to the sudden expansion of the air which is compressed into them during the act of pressing them while in the molds. This is obviated by allowing the air which is compressed into the bricks to escape while they are in the mold, and then to apply a subsequent pressure to them by giving two pressing-strokes to the plunger for each brick made. Another object of my invention is to locate an adjusting device, by means of which a varying pressure can be given to the bricks below the mold bottom, where it will be in a convenient position to the attendant stationed in front of the mold. Another object I have in view is to simplify the mechanism for actuating the plunger and the mold-charger, and to provide for adjusting the several parts, so that they will work in harmony with each other for feeding the clay to the molds and pressing the bricks. The following is a description of my improvements:

In the annexed drawings, A designates the frame of the machine, at each end of which I apply one or a number of the molding and pressing devices, and as these devices are duplicates of each other at both ends of the machine, I shall describe those which are applied at one end only. B designates the mold-box, which is sustained by means of cross-bars B′ of the main frame, and C designates the movable bottom of the mold-box, which is vertically adjustable therein, and which is held down upon the solid cross-head *a* of four lifting-rods, *b*, by means of a spring, *s*, which is applied on a vertical rod, *s′*. The rod *s′* passes up through a cross-beam, A^1, of frame A, through an adjusting device on which the cross-head *a* rests, through this cross-head, and is centrally secured to the bottom C of the mold-box. The spring *s* will thus insure the descent of the bottom C after discharging each brick. The cross-head *a* is connected to another one, *a′*, by means of the rods *b*, to which latter cross-head the plunger-rod *c* is connected by means of toggle-levers D D, as shown in Fig. 1. The plunger-rod *c*, which carries the plunger or pressing-head C′, moves up and down in fixed guides *d d*, and receives its motion from a crank, *g*, on a horizontal crank-shaft, E, through the medium of a pitman-rod, F, and will be hereinafter more fully explained. It is found necessary to increase or diminish the capacity of the mold-box according to the varying conditions of the clay, and for this purpose I employ an adjusting device, on which the cross-head *a* rests. This device consists of a lever, *e*, having a circular head, e^1, formed on one end, through the center of which head the rod *s′* passes freely. The bottom surface *f* of the head e^1 presents inclined planes, which lie on corresponding inclined planes, formed on a fixed bed or plate, e^2. By adjusting lever *e* the mold bottom C and the follower C′ can be raised or depressed, the mold-box remaining stationary. By raising the mold-box bottom and plunger the capacity of the mold-box will be diminished and less clay will be required to fill it, and by depressing these parts the capacity of the mold-box will be increased and more clay will be required to fill it. I am thus enabled to adjust for more or less clay. The pitman F is connected by an adjustable head, *f*, to its crank, *g*, by means of which this pitman can be lengthened or short-

ened, and the throw of the toggles D D increased or diminished. For the purpose of getting the air out of the bricks while they are in the mold, two downward strokes are given to the plunger for each brick. This is accomplished by so adjusting the pitman-rod F that after the plunger is fully depressed, and the toggles D are straightened out, these levers will be caused to assume the position shown on the right-hand side of Fig. 1, thus lifting the plunger a short distance and allowing any air which may be in the brick to escape. After this the plunger is again depressed, as the toggle-levers are moved past a vertical plane intersecting their joints, to assume the position indicated on the left-hand side of Fig. 1. I thus give two pressing-strokes to the plunger for each brick made, and during every revolution of the crank-shaft E. By means of the adjustable head *f* on pitman-rod F, the toggle-levers can be adjusted so that they will give but one pressing stroke to the plunger for each brick. The crank-shaft E carries on one end a spur-wheel, E^1, which communicates rotary motion in opposite directions to two horizontal shafts, G G′, through the medium of spur-wheels H H′ H′. On the shafts G G′ are keyed lifting-cams or toes *h h*, and also tappets *i j*. The cams or toes act on the longest arms of levers J, which lift the mold-box bottoms C and discharge the bricks from these boxes. Levers J are applied loosely on shafts J^1, which are adjustably secured in hangers J^2, depending from frame A. The tappets *i j* project from the peripheries of segments N N′, which are keyed on shafts G G′, and which are adjustably secured to the sides of these segments for a purpose hereinafter explained. K K designate the hoppers in which the clay is put to be fed to the molds. Beneath each hopper is a reciprocating feeder, R, for delivering the proper charges of clay to the mold-box, and also for pushing the finished bricks out of the way. Each discharger works in a horizontal guide or slideway, *n*, and has secured to it a rod, P, that plays through guides *p p*, on the lower side of which rod *k* are two teeth, *r r′*. The tooth *r* is rigidly secured to its bar, and is struck by the tappet *i* on segment *j*, which moves the feeder R back to receive a charge of clay from the hopper. The tooth *j* is intended for moving a feeder, R, forward to deliver a charge of clay into a mold-box. This pivoted tooth has a rod, P, attached to it, and extended out over the table A^2, on which the bricks are discharged. By means of this rod P the tooth *r′* can be held up and out of the way of its tappet when it is not desired to feed the mold-box. I insert a metal box, *t*, through the opening in the bottom of the hopper, through which box the clay is delivered into the charging-cell in feeder R. This box *t* is loosely applied, and rests upon the feeder for the purpose of preventing the escape of clay over the sides of this feeder.

What I claim as new, and desire to secure by Letters Patent, is—

1. The endwise-adjustable pitman-rod F on crank *g*, in combination with toggle-levers D D, a guided bar, *c*, and a brick-pressing plunger, C′, substantially as described.

2. The mold bottom C and plunger C′, connected substantially as described, in combination with the adjusting device, which is arranged below the mold-box for increasing or dimishing the capacity of the mold-box, as specified.

3. The cam *h* and tappets *i j* applied on the shaft G or G′, in combination with lifting-lever J, teeth *r r′*, and clay-feeders R, substantially as and for the purposes described.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

G. E. NOYES.

Witnesses:
D. D. KANE,
PHIL. C. MASI.