

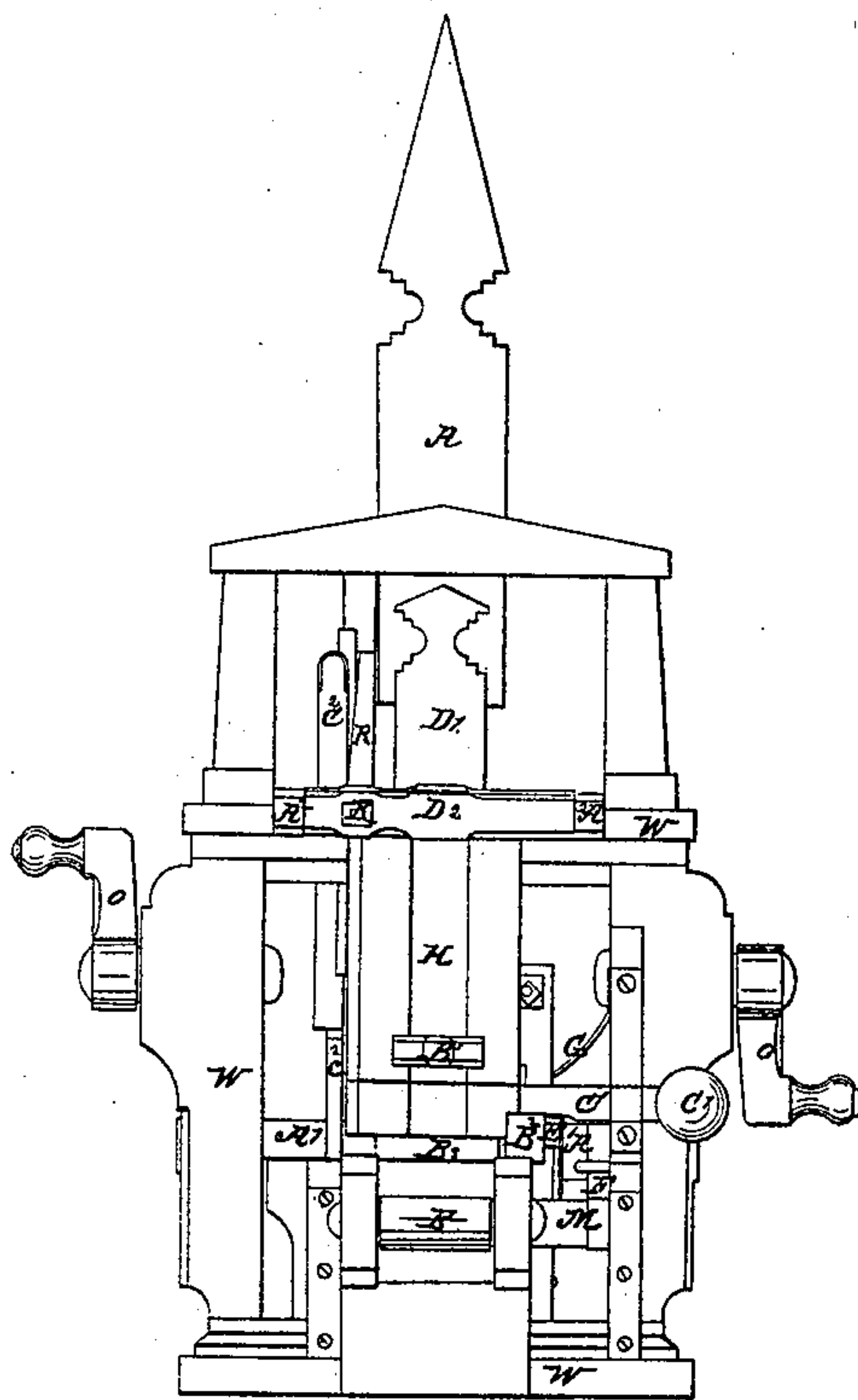
Sheet 1-3 Sheets.

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Brick Machine,

Nº 5,605,

Patented May 30, 1848.



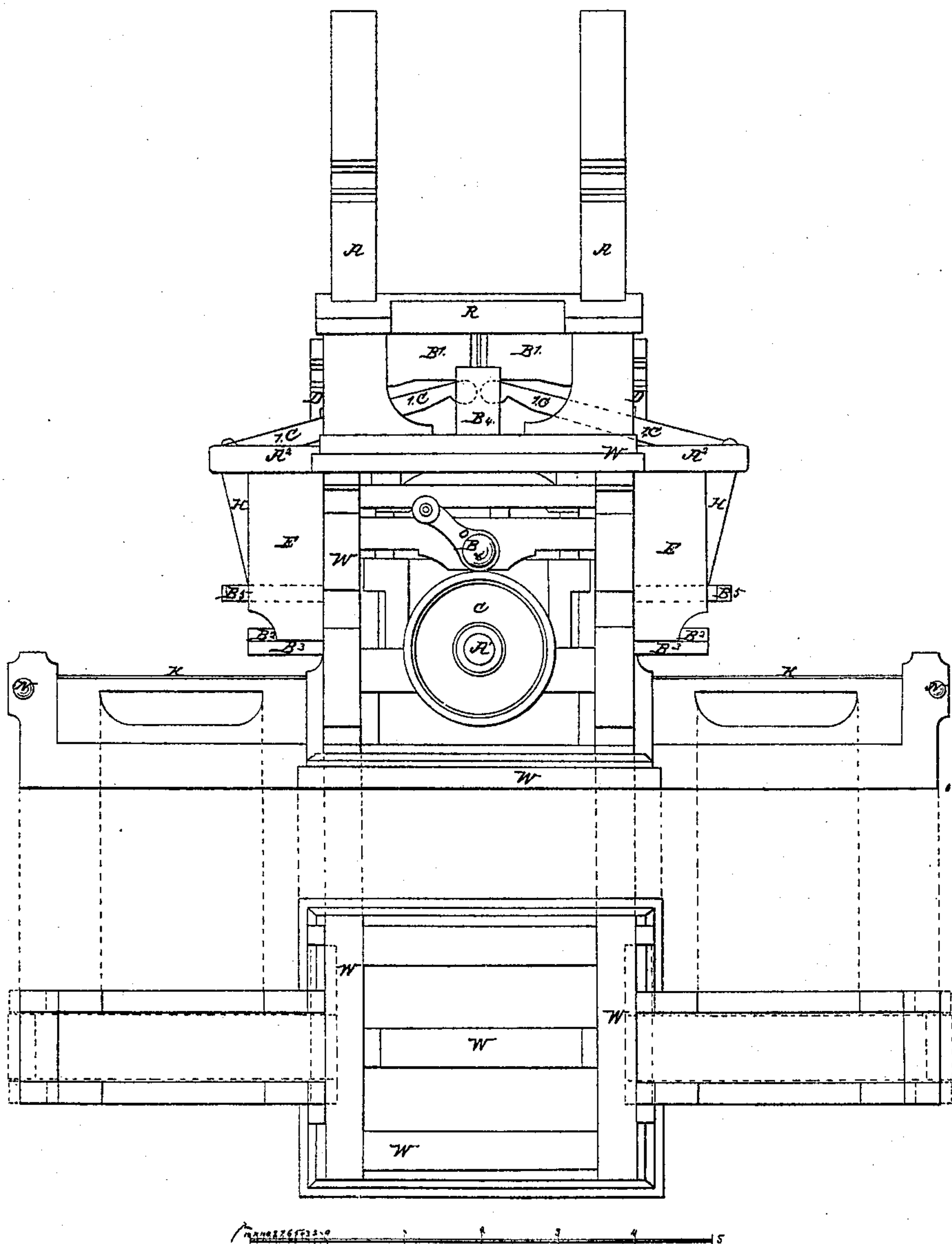
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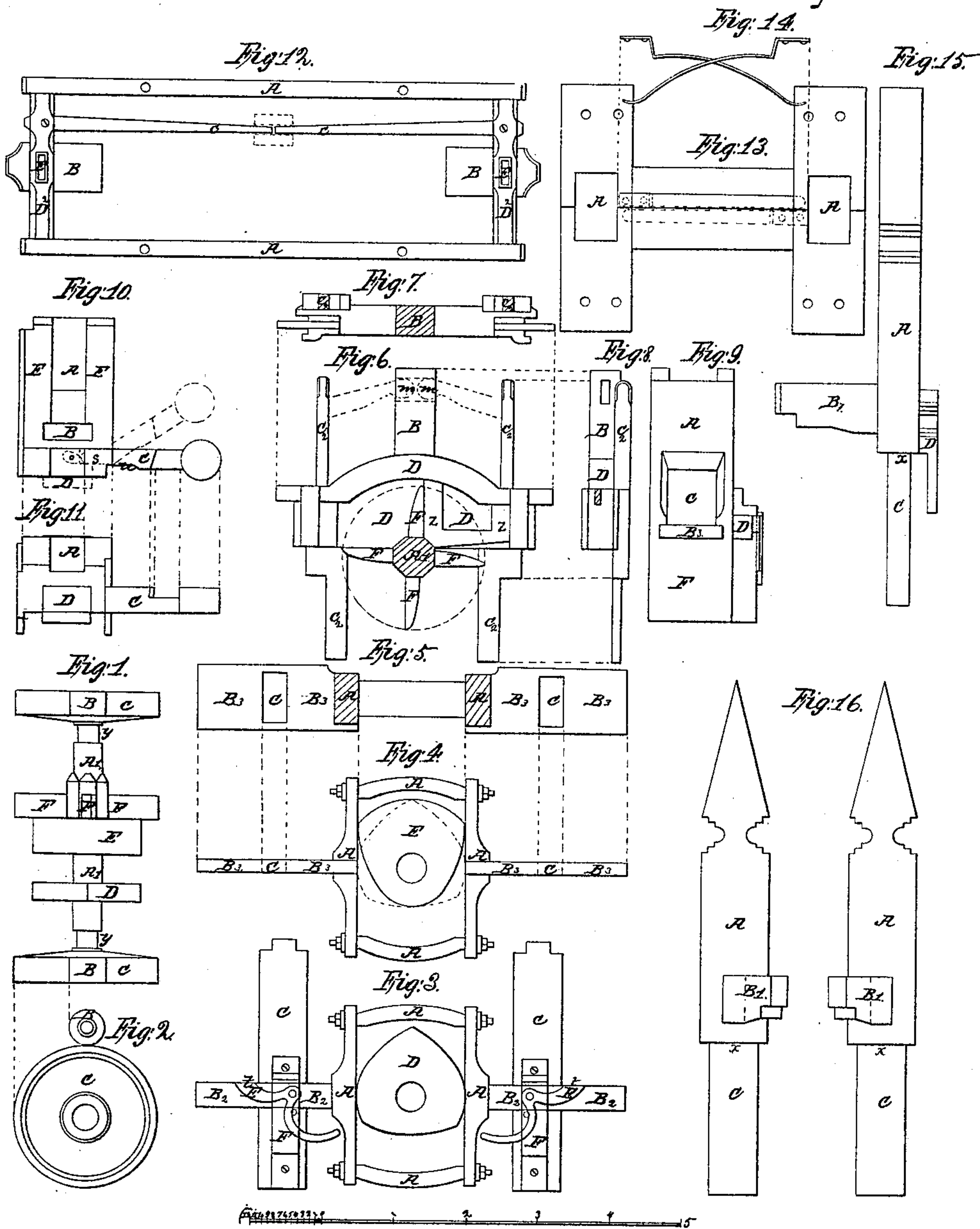


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# UNITED STATES PATENT OFFICE.

ROBERT WILSON, OF HOUSTON, TEXAS, ASSIGNOR TO JAS. T. D. WILSON.

## BRICK-MACHINE.

Specification of Letters Patent No. 5,605, dated May 30, 1848.

*To all whom it may concern:*

Be it known that I, ROBERT WILSON, of the city of Houston, in the county of Harris and State of Texas, have invented a new and useful Machine for Making Bricks, entitled, "The Concussion Brick-Machine;" 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, these being a set of three sheets or plates numbered one, two, and three, as thus: I, II, and III.

Plate I, represents an end view of the machine, and such of its parts as can be so shown.

A, represents one of the pounders. D<sup>1</sup> represents one of the perpendicular feeding gages. D<sup>2</sup> represents one rock shaft, D<sup>2</sup>, see Plate III and Fig. 12. C<sup>1</sup>, C<sup>1</sup>, represents one lever. There are two of these. G, represents a spring. A<sup>1</sup>, A<sup>1</sup>, represents the main shaft. See Plate III and Fig. 1. B<sup>3</sup> represents the end of one of the mold plates. See Plate III and Figs. 4 and 5. B<sup>2</sup> represents the end of a slide. See Plate III and Fig. 3. E represents the end of a lever. See Plate III and Fig. 3. M shows a band roller. F shows a band. C<sup>2</sup>, C<sup>2</sup>, represents a slide to steady lifting gate. See Plate III and Fig. 6 and 8. O, O, are cranks. A<sup>2</sup>, A<sup>2</sup>, show the ends of the frame in which the rock shaft works. R, shows an end of lever which works in the head B of lifting gate. See Plate III and Figs. 6 and 12 dotted lines. H represents arm from rock shaft. B, represents end of horizontal feeding gage.

Plate II, represents a side view of the same machine and such of its parts as can be so shown, together with the ground plan. A A represents the two pounders. R, represents a guide frame to pounders. B<sup>1</sup>, B<sup>1</sup>, represents arms to pounders. See Plate III and Figs. 15 and 16. D, D, are the perpendicular feeding gages. B<sup>4</sup>, represents the head of lifting gate. C<sup>1</sup>, C<sup>1</sup>, C<sup>1</sup>, C<sup>1</sup>, show levers to work rock shafts, and arms H, H. H, H, arms from rock shafts to work horizontal feeding gages B, B. B<sup>5</sup>, B<sup>5</sup>, show the ends of horizontal feeding gages. E E represent one side of each hopper for holding material. A<sup>2</sup>, A<sup>2</sup>, show one side of the frame in which the rock shafts work. B<sup>2</sup>, B<sup>2</sup>, show the ends of

slides. See Plate III and Fig. 3. B<sup>3</sup>, B<sup>3</sup>, show the ends of the mold plates. See Plate III and Figs. 4, 5. B and C represent friction wheels, but not intended to be used in full sized machines. O shows a crank. K K, represent the two off bearing bands. N N, represent band rollers.

Plate III represents the separate important parts of the machine.

Fig. 1.—A<sup>1</sup>, A<sup>1</sup>, represents the main shaft. B B, represents small friction wheels. C, C, large friction wheels. D, a cut off cam. See Fig. 3. E represents a full stroke cam. See Fig. 4. F F F, are revolving levers. See Fig. 1.

Fig. 2.—B and C, represent friction wheels.

Fig. 3.—A, A, A, A, represents a cam frame holding slides B<sup>2</sup>, B<sup>2</sup>, B<sup>2</sup>, B<sup>2</sup>. D shows a cut off cam. B<sup>2</sup>, B<sup>2</sup>, B<sup>2</sup>, B<sup>2</sup>, slides to cam frame. E E levers. F F, are guides for slides B<sup>2</sup>, B<sup>2</sup>, B<sup>2</sup>, B<sup>2</sup>. C C, receivers for the clay. See Fig. 9.

Fig. 4.—A A A A, representing a frame holding mold plates B<sup>3</sup>, B<sup>3</sup>, B<sup>3</sup>, B<sup>3</sup>. E shows a full stroke cam. B<sup>3</sup>, B<sup>3</sup>, B<sup>3</sup>, B<sup>3</sup>, represents the mold plates a side view. C C, shows the molds corresponding to C C in Fig. 5.

Fig. 5.—B<sup>3</sup>, B<sup>3</sup>, B<sup>3</sup>, B<sup>3</sup>, represents the face of the mold plates. C C show the molds. A A show a top view of cam frame. See dotted lines.

Fig. 6 shows a full view of lifting gate. A shows end of the main shaft. F F F F show revolving levers. B head of lifting gate. D D D shows portions of the lifting gate. C<sup>2</sup> C<sup>2</sup> C<sup>2</sup> C<sup>2</sup> are guides to the lifting gate.

Fig. 7 shows a top view of the lifting gate. B is the head of the gate. C<sup>2</sup> C<sup>2</sup> the head of gate guides.

Fig. 8 shows an end view of the lifting gate. B is the head of the gate. D the part of the gate where head B is secured. C<sup>2</sup> C<sup>2</sup> the sliding guides to the lifting gate.

Fig. 9—Top view for the receiver for the clay. A is the front view of the receiver for the clay. C space exhibited when a hopper is off and a pounder out. B<sup>3</sup> shows the end of mold plate. D shows the end of a slide B<sup>2</sup> B<sup>2</sup> (see Fig. 3). E shows the end of lever E (see Fig. 3). F shows the front view of the foundation to sustain the power of a pounder. This forms the bottom of the molds when being filled.



Fig. 10—E E represents the front view of a hopper with lever C. A is a recess for and H connected with horizontal feeding gage B (see side, view plate 2). B shows space for horizontal feeding gage. C is a lever in rest; the dotted lines show its position at the time the brick leaves the mold. D with dotted lines show side view of a plunger when down in the mold; it is connected with lever C in a socket and is under the hopper.

Fig. 11—This represents the parts in Fig. 10 as seen from below; that is, lever C, plunger D and hopper A.

Fig. 12—A A represents a frame which hold rock shafts. C C show levers to work rock shafts; these correspond to levers C<sup>1</sup>, C<sup>1</sup>, C<sup>1</sup>, C<sup>1</sup>, on Plate II (see side view, which are shown elevated). D<sup>2</sup> D<sup>2</sup> are the rock shafts. B B represent horizontal feeding gages. E E show the ends of arms H (see side view, Plate II) connected to horizontal feeding gages B<sup>5</sup> B<sup>5</sup>.

Fig. 13 is a view of the under side of the guide frame of the pounders. A A showing the openings through which the pounders work.

Fig. 14 shows a side elevation of springs to give impetus to the pounders; they are attached to the lower side of the guide frame.

Fig. 15—A represents a side view of a pounder showing between A and C a shoulder  $\alpha$ , the design of which is to catch the pounder at the proper position, to protect the mold plate from injury as it would when the supply ceases act injuriously on the mold plate. B<sup>1</sup> shows an arm to pounder A. D shows a perpendicular feeding gage attached to the pounder A and works in the hopper.

Fig. 16—A A is a front view of the two pounders showing between A and C the same shoulder  $\alpha$  as seen in Fig. 15. B<sup>1</sup> B<sup>1</sup> shows arms to the pounders.

To enable others skilled in the art to make and use my machine I will proceed to describe its construction and operation. I construct my machine of cast and wrought iron (though the frame could be of wood). The frame W W W I make strong and substantial, according to the scale of the drawings, which is one inch to the foot. I have a main shaft (Plate III, Fig. 1, A<sup>1</sup> A<sup>1</sup>) across the machine with two journals  $y$   $y$  snugly fitted to boxes and well secured; on this shaft I firmly secure two cams; one E a full stroke, the other D a cut off cam; also the revolving levers F F F very strong, and of the length that I wish to raise the lifting gate (seen in Fig. 6) and I also supply cog wheels or cranks to attach horse or steam power.

I construct a frame A A A A Fig. 4 for the full stroke cam E to which is firmly secured the mold plates B<sup>3</sup> B<sup>3</sup> B<sup>3</sup> B<sup>3</sup> Fig. 4

which in this figure represents the thickness of the brick I wish to make; the molds which are made true and smooth and a little larger at the bottom, being within these plates. At the same time the plates serve as slides to steady the cam frame. On each side of the cam frames and directly under each pounder I construct a solid foundation of wood or iron the upper surface of which constitutes the bottom of the mold and rests on the sills of the frame. View of said foundation detached seen at F in Fig. 9. The pounder comes down upon mold plate B<sup>3</sup> which rests upon foundation. I construct above each of the molds what I call a receiver for the clap which enters it horizontally from the hopper, by the force of the horizontal feeding gages seen at B<sup>5</sup> Pl. II, and B<sup>1</sup> Pl. I, forced horizontally in under the pounders. The square space C, Pl. III Fig. 9 in these receivers are of the same size as the molds below them, and the inside of the receivers are flush with the inside of the molds; I make the inside of the hoppers a little longer than the receivers in their horizontal diameter having their bottoms on the same level and five inches above the mold plates.

Immediately under the hoppers in a recess, I construct what I call a plunger.

The plunger D Fig. 10 is intended to force the brick when molded, out of the mold upon the carrying band K, K, which is beneath it. It is worked by means of lever C which in turn is moved by lever E represented in Fig. 3 and this is moved by the cam frame A, A, represented in the same figure.

The lower end of the hoppers as well as the back part of the receivers fits snugly down to the mold plates, so as not to bind them, as they have to slide out and in to receive their charge. In the front of the hopper I make an opening the whole width of the hopper inside and level with the bottom; in this opening slides in and out what I call the horizontal feeding gage, which will give any quantity of material desired, by making the gage thicker or thinner.

I make the opening between the hoppers and the receivers, through which the horizontal feeding gages force the clay, a little larger than the gages, in order that a sufficient quantity of clay may be forced in at each movement of the gage.

In Fig. 3 the structure C, F, represents, in the upper part a view of one side of the covering of the receiver while the lower portion represents what has been described as the foundation. The first is hollow while the second is of solid material. Said structure supports the slides B<sup>2</sup> B<sup>2</sup> of the cam frame A, A, which frame is moved backward and forward by the cutoff cam D the object of which is to work the levers E, E, by which the levers at the ends  $t$  strike against levers C C (one of which is seen



detached in Fig. 10) at the part *w* and raises it into the position represented by the dotted lines, which movement depresses the plunger D down into the mold and forces the brick ready molded through onto the carrying or offbearing band.

The lifting gate see Fig. 6 Plate III, is intended to work the pounders, the horizontal, and perpendicular feeding gages, I make it with slides and jaws, or slides only to guide and steady it, having a projection *z z* on one side of the gate of the thickness equal to the width of the blades of revolving levers, F, against which projection the revolving levers catch and carry up the gate. The gate has a head B with openings *m, m*, in it, for levers C C which extend to each end of the machine frame, where I have rock shafts D<sup>2</sup> D<sup>2</sup> Fig. 12 with arms H, H, Pl. II, extending at right angles, with levers C' C' and connected to and working horizontal feeding gages B<sup>5</sup> B<sup>5</sup>, as seen in Plate II. The vertical feeding gages are attached to and move with the pounders and are described. The pounders I make with a shoulder *x* Pl. III, Figs. 15 and 16 to protect the mold plates. Above this shoulder the pounder is hollow, so that weight can be added or diminished, to suit the material operated upon. To the pounders are attached arms B' B' Pl. II, extending to the head of the lifting gate, but not attached to it except that the gate rises to them and carries them up; also attached to these pounders are what I call perpendicular feeding gages D, D, coming down inside of the hoppers. I also attach springs (Fig. 14 underneath) the guide frame which give additional impetus to the pounders. The bands K, K, Pl. II that run over the table, the rollers N, N, that carry them, I connect to main shaft A' A' with bands or cogs.

Operation.—In making bricks with my machine I prepare the clay in the ordinary way that clay is usually prepared by grinding it, or otherwise making it in a proper state for molding, with this difference—that I only make it damp—sufficient to adhere. The clay is then thrown into the hoppers,

when the horizontal feeding gages furnish a constant and regular supply to the molds, and receive at the same time aid from the perpendicular ones. The horizontal gages at regular periods or when pushed in form the bottom of the hoppers, and when drawn out expose or leave a cavity which the perpendicular ones immediately fill and so on with great harmony of action, during the operation of the machine.

The object of cam E as represented in Fig. 4 is to move the mold plates B<sup>3</sup> &c. in Figs. 4 and 5 so as to receive and deliver the brick. And by the alternate reciprocating motion of the mold plates moved by the cam E at each time an end of a mold plate is protruded a brick is delivered upon the offbearing band at the same end of the machine. The motions are so arranged that while the mold at one end is delivering a brick, that at the other end is being filled. When the molds are filled solid by the concussion from the blows of the pounders, the mold plates are moved by the action of the full stroke cam E, Fig. 4, so that the brick comes directly under the face of the plunger, the motion of which has been described and in direct contact with the face of the brick, while the action of the cut off cam D, which works the levers connected with the plungers, forces the brick through the mold on to the off bearing band K, K, which carry the brick to any distance required without stopping the machine.

What I claim is—

1. The combination of the perpendicular feeding gage with the pounder in the manner described; and in combination therewith the horizontal gage working in the bottom of the hopper.

2. I also claim the arrangement of the cam and lever, operating the plunger as described; and in combination therewith the arrangement of the cam which operates the mold plate.

RO. WILSON.

Witnesses:

THO. I. RUSK,

JAMES H. BENNETT.