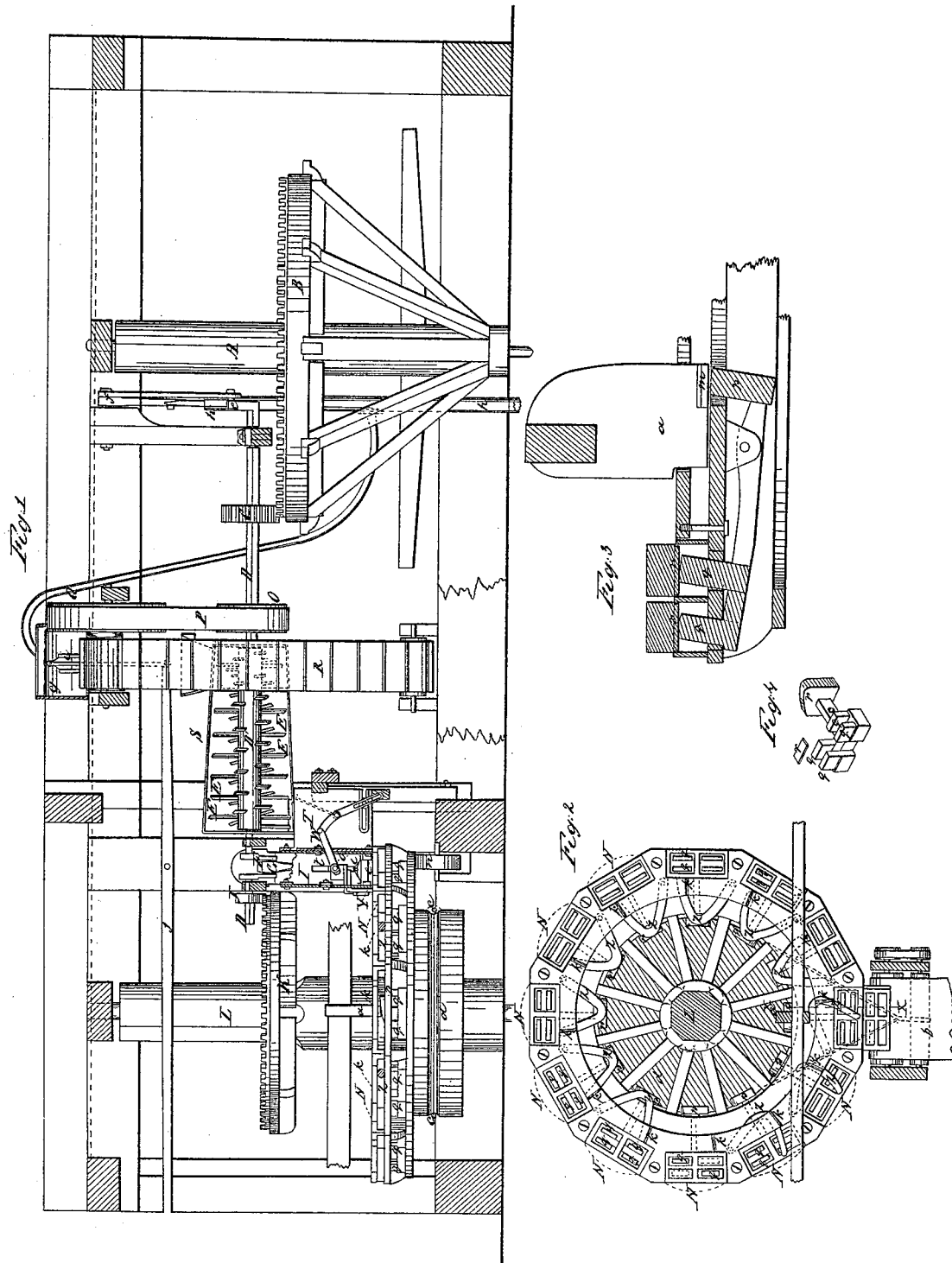


*Waldron & Hargitt,
Brick Machine.*

2 Sheets, Sheet 1.

N^o 6,582.

Patented July 10, 1849.

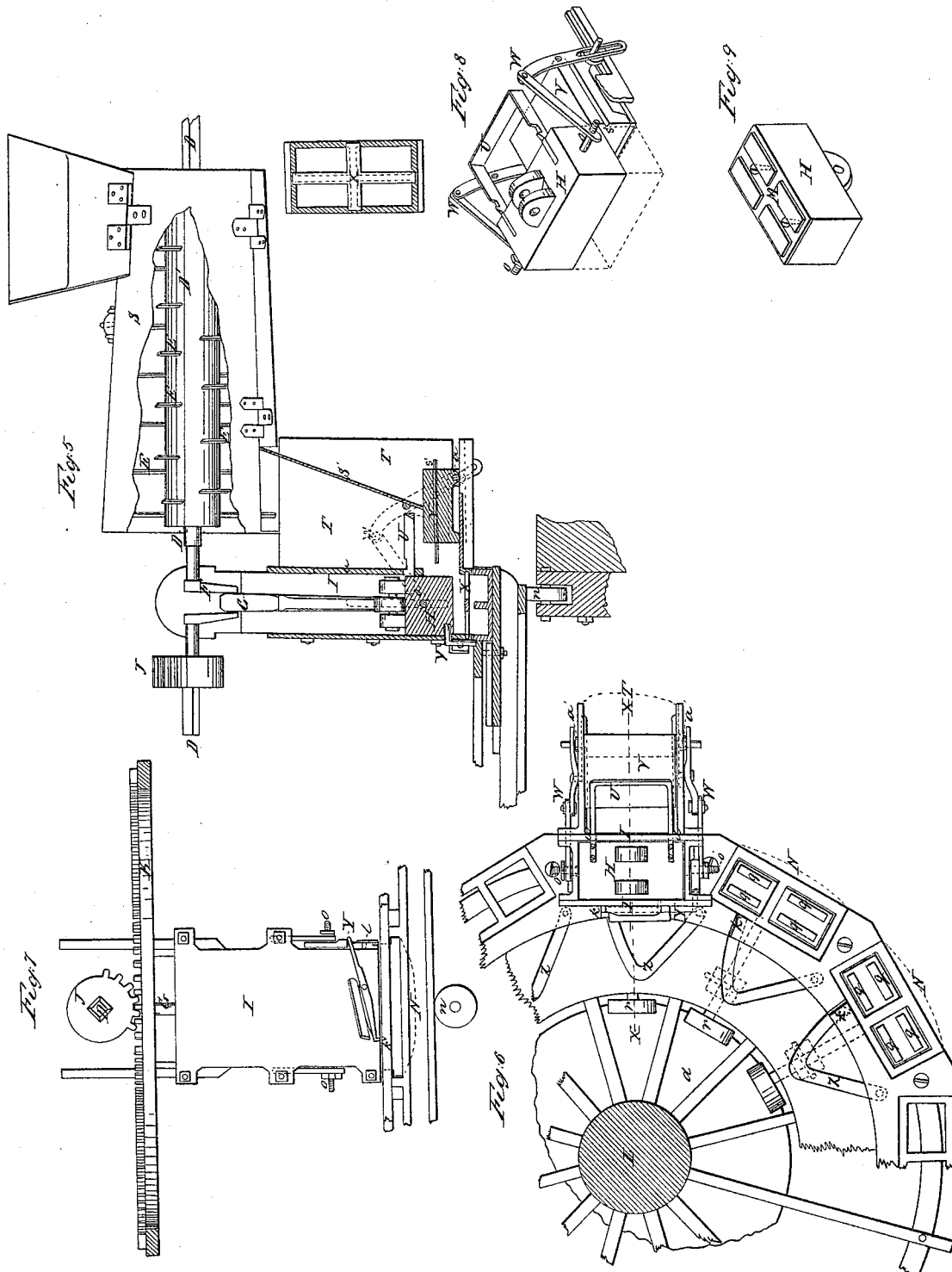


*Waldron & Hargitt,
Brick Machine.*

2 Sheets, Sheet 2.

No. 582

Patented July 10, 1849.



UNITED STATES PATENT OFFICE.

WILLIAM B. WALDRAN AND GODFREY HARGITT, OF SHELBY COUNTY, TENNESSEE.

BRICK-PRESS.

Specification of Letters Patent No. 6,582, dated July 10, 1849.

To all whom it may concern:

Be it known that we, WILLIAM B. WALDRAN and GODFREY HARGITT, both of the county of Shelby and State of Tennessee, have jointly invented a new and useful Rotary Brick-Making and Brick-Compressing Machine, and we 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, in which—

Figure 1 is a longitudinal section, and showing the side view of machine complete in all its parts. Fig. 2 is a top view of circular table complete. Fig. 3 is a section through *w, w*, of Fig. 2, showing the manner in which press brick lever operates to be hereinafter described. Fig. 4 is a perspective view of press brick lever. Fig. 5 is an irregular section, representing pressing box &c. Fig. 6 is a top view of part of circular table and pressing box, &c. Fig. 7 is a front view of pressing box, &c. Fig. 8 is a detached (perspective) view of pestle-feeder &c. Fig. 9 is a perspective view of bottom of pestle with press plate III upon it.

The letters are the same in all figures.

u represents two grooves in side of pestle box E.

t represents two grooves in box E in which pivots *v, v*, work.

Having now fully described the different sections of the drawings and referred to all the parts by letters, we will proceed to describe the construction and operation of our rotary brick-making and brick compressing machine.

It may be constructed of wood or metal, but both combined is preferable. It may be worked by steam, water, or horse power. The frame which surrounds and supports the machinery may be constructed to suit the power applied. When horse power is used 40 feet by 30 and 8 feet high is a good proportion for the frame.

A, represents main upright shaft which supports main driving cogwheel B. This cogwheel works into and turns full trunnell-head C which fits on to horizontal shaft D. All the balance of the machinery is put in motion by the working of shaft D. It is necessary here to notice the importance of this shaft. On it is fitted cylinder D'. Crank F is formed in it; crank *e*, on the end of it. Half trunnell-head J is fitted on

it, as is also pulley O. On pulley O works band P, which drives pulley Q and it moves the endless band R, on which the clay is taken up and deposited in the hopper of mud box S. In cylinder D' is fitted spiral paddles E, E, &c. in screw form. The mud box S is of circular form, made to fit around the paddles E, E, &c. It is composed of two parts, one of which forms a hopper for the reception of clay and water. The other forms a circular box and the piece *s'* forms the back part of reception box T. The crank *e*, by means of a joint lever *f* works the pump *h* and supplies a cistern *g* with water. The water is thence let on to the clay in the hopper by raising a gate *i* with the tempering lever *j*. The mortar is mixed in the mud box S, by the spiral paddles E E &c. and by them forced out at the opposite end when it falls into a reception box T.

A crank F is formed in the shaft D and a pitman Q is attached to it. To the lower end of pitman Q is attached a plunger H, which works up and down by the revolution of shaft D and fits a perpendicular box E closely. The reception box T is formed against box E. A square cutter U is connected with plunger H and projects through grooves *u, u*, in the side of the box E, into the reception box T, when it is moved up and down through the mortar by the motion of the plunger H. Cutter U thus loosens the mortar and causes it to fall in front of feeder V. The feeder V moves horizontal on bottom of reception box T and it is attached to plunger H at *o, o*, (by means of joint levers W, W,) from which it receives its motion. By changing the length of the levers W, W, the feeder V forces more or less mortar through an aperture in the side of box E, under plunger H, and over the movable cross bar X, which is situated in and across the mouth of the box E. The half trunnell-head J, is fitted tight on the shaft D, near a crank F, and works into a cogwheel K, which is supported on an upright shaft L. A circular table as shown in Fig. 2 is also supported on shaft L, immediately under cog wheel K. The half trunnell-head J, cogwheel K, and circular table (Fig. 2,) are made bearing such proportion to each other that the motion of the table is governed by the half trunnell-head J. In this drawing we have shown a machine to make 12 sets of molds full for each revolution of K, with four bricks to each set. We do not

however confine ourselves to these or any particular number of brick or sets of molds, for by enlarging or decreasing we can mold any quantity that would be requisite. The half trunnelhead J is of a proper diameter for 14 cogs, but we have put in it only 6, and these all on one side. These turn the cogwheel K 7 cogs. We put in K 84 cogs. Therefore it takes 12 revolutions of J to turn K around one time, and leaves K and table stationary half the time. Consequently 12 sets of molds on the table is requisite. These are placed at regular intervals (in vacancies N N, &c.), so that one set shall be under the movable cross bar X at each revolution of shaft D, so when the plunger H descends it forces the mortar past movable cross bar X into the empty molds. The box E, in which the plunger H works, is less than the surface of the set of brick molds, and the cross bar X covers the partitions. Therefore the mortar is forced to the bottom of the molds without rubbing off the sand on the molds.

The table is held stationary while the bricks are being molded, by means of a drop lever V, which is confined to the front of box E and holds in notches *k, k, &c.*, on top of table, until plunger H descends to its lowest point, when it operates on drop lever V, and raises it clear of the table, at the time J commences to operate on K, and move the table 7 cogs farther, which places the next empty mold under movable cross bar X.

The force and motion of the table brings the top of the full mold in contact with a cutting spring *l*, which scrapes over the top of the mold and removes all surplus mud from the top of the molds and holds it until the empty mold takes its place under cross bar X, when the surplus mud falls in to it. After the full mold passes from under the cutting held down by a spring *l* it comes in contact with the arms Z Z, &c., which by the action of an upright beam *a* passes or slides the full molds off on to a band *b*. Band *b* is put in motion by band *c*, which passes around drum *d* on bottom of shaft L. By band *b*, the full molds are conveyed out into the yard. When they are removed, emptied and sanded by hand, they are then placed on the under side of band *b* and by it conveyed back to the man who places them on the table.

The place of band *b* could be supplied with an endless chain as also might the place of band R. The man who places the empty molds on the table can notice the brick and having tempering lever *j* at his hand can regulate the quantity of water and thereby have the mortar any consistency necessary. The circular table as shown in Fig. 2 is of a peculiar form, and we will here mention particular advantages, it is formed of 3 plates, the bottom circle is fastened to the

bottom of the arms, and rests on friction roller *n*. This prevents the table from giving, while the brick are being molded or compressed. The middle circle is placed on top of the arms and has in it 12 sets of grates, one for each set of molds. These grates prevent the accumulation of trash under the molds. The top circle has in it 12 vacancies (N N &c.) one vacancy for each grate of middle circle. The surface is of sufficient height to be level with the surface of the mold when it is placed on the grate. The form of this top circle is such as to fill all the vacancies between the different sets of molds, and has a smooth surface behind the molds, in which are notches *k, k, &c.* By this peculiar construction, molds may be placed on, stationary or movable.

It is also necessary to show the particular form and offices of piston H. Its sides and ends are square and fit box E close, which prevents the mortar from passing above it. It not only passes the mud into the molds, but it works cutter U, which loosens the mud, and by pivots *o, o*, it works feeder V by means of joint levers W, W, and also operates on drop lever Y, and raises it clear of the table, at the time —J— causes the table to move.

Having fully described the machinery and manner of mixing mortar, and molding brick, we will now describe the manner of compressing brick by the same machinery.

Bricks are compressed after they are partly dry by placing on the table a set of metal molds made for the purpose and these fit vacancies N N &c., tight and remain stationary. The bottoms slide up and down, and when down rest on projecting flanges formed at the bottom. Each vacancy has a press brick lever as shown in Fig. 4.

Movable cross bar X is removed. Remove also levers, W, W, and *f*, bands P, R, and *c*, arms *z, z, &c.* Place press plate M (see Fig. 9) on the plunger H, and form a dovetail *m* on the bottom of upright beam *a*. When the machine is put in motion the full molds are with the same certainty and regularity brought under press plate M as the empty ones were brought under the movable cross bar X in molding. The plunger H descends and compresses the brick in the same manner it does in molding them. The half trunnelhead J and drop lever Y perform regular and certain offices the same as they do in molding. As the compressed bricks pass from under the press plate M, they are brought to the point when projection P of press brick lever is operated upon by the dovetail *m*. This causes points *q, q, &c.*, to bear on the sliding bottoms *r, r, &c.*, which raises the bottoms (see Fig. 3,) level with the surface of the molds. The compressed bricks are then removed and bricks to be compressed are put in the molds. It

will be observed that while the pressed bricks are being removed, the table remains stationary, half trunnel-head J not acting on K during its semirevolution.

5 With this machine we can place any amount of pressure required upon the bricks, and are sure to have them all the same size, and can compress four bricks in less time than any other machine can compress one.

10 By changing the form of box E and the shape of the plunger H bricks of different shapes and forms may be made.

The particular form of mud box *s* is worthy of consideration. By its being 15 formed of pieces confined together by hinges it is easily opened and closed and gives free access to paddles E, E, &c. One piece forming a hopper makes it very convenient as also does one piece *s'* forming the back part 20 of reception box T, by the elevation of this piece, the quantity of mortar passing into the reception box T can be regulated.

We have ascertained by experiment that mortar can be tempered much stiffer with 25 this machine and fill all parts of the molds complete than it can by hand. The great advantage of this is the brick may be put

into the kiln much sooner than those made of soft mortar.

Having fully described the character, construction and operation of our rotary brick 30 making and brick compressing machine, we wish it understood that we do not claim the invention of shafts A and L, cogwheels B and K, trunnelhead C, pulleys O and Q, 35 bands P, R, *b* and *c*, separately, but,

What we do claim, and desire to secure by Letters Patent is—

1. The combination of the mud box and molding apparatus as herein described consisting of a plunger H to which a cutter U 40 is affixed and connecting therewith the horizontal feeder V as above fully set forth.

2. We also claim in combination with the above parts the compressing apparatus 45 adapted to this machine for compressing bricks and consisting of the press plate M and press brick lever *q*, *q*, *p*, constructed and operating as above set forth.

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GODFREY HARGITT.

Witnesses:

WILLIAM S. WILLIAMS,
HARLAN L. LEAF.