2 Sheets—Sheet 1.

F. ZISEMANN.

MACHINE FOR PRESSING AND MOLDING BRICK.

No. 6,876. Patented Nov. 13, 1849.

Fig. 1.

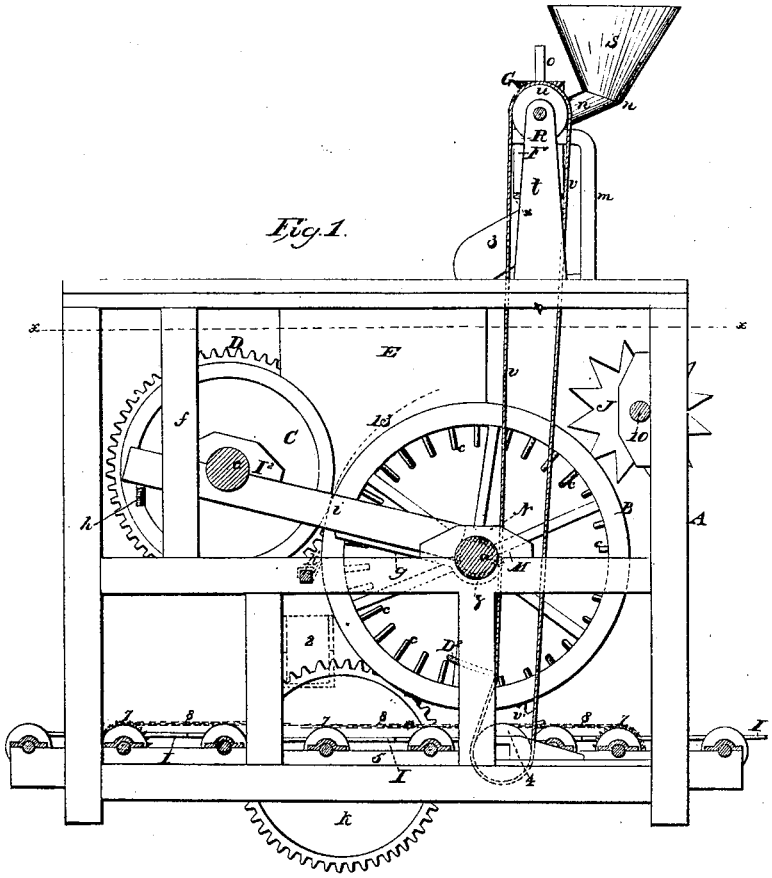

Fig. 3.

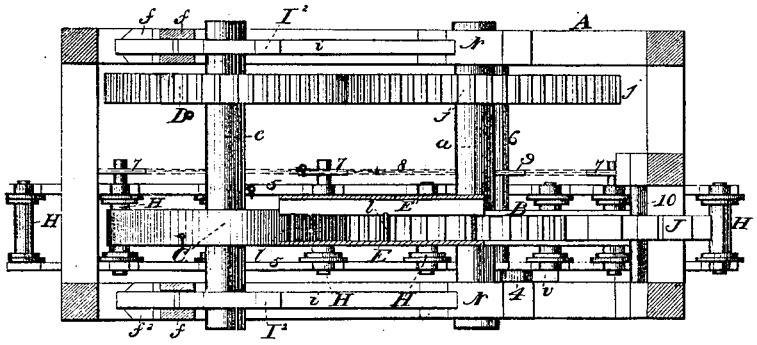

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Fig. 2.

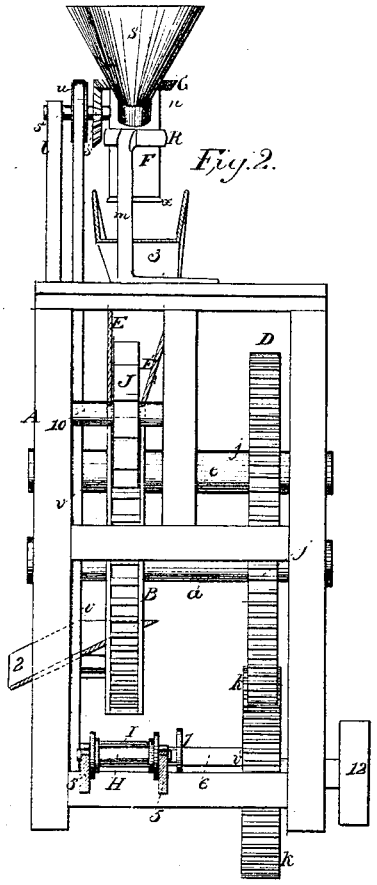


Fig. 7.

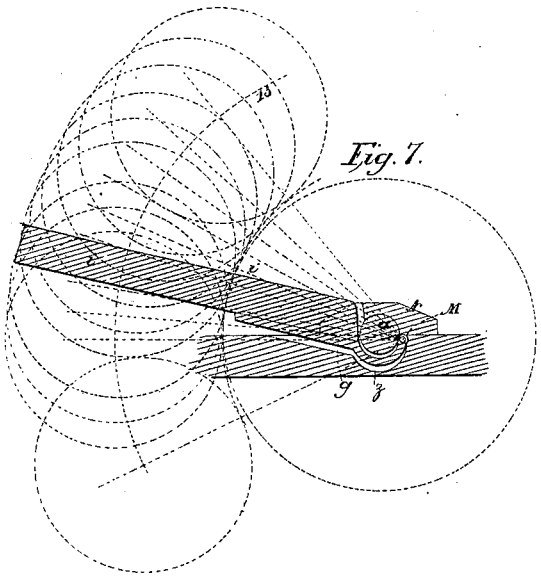


Fig. 6.

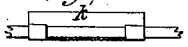


Fig. 5.

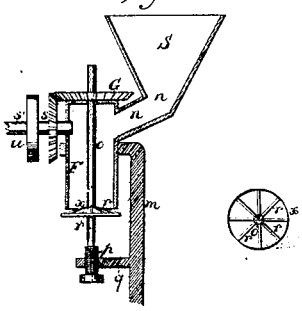
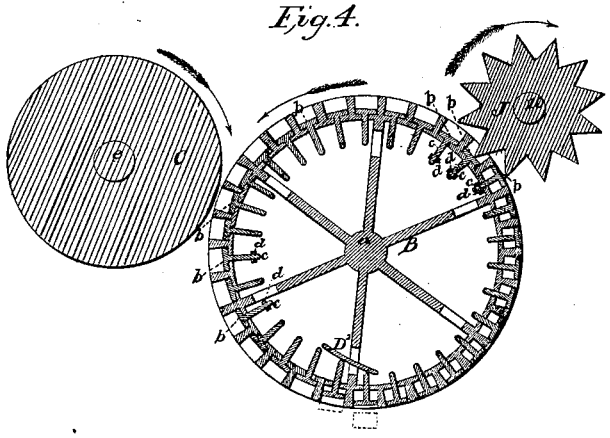


Fig. 4.



UNITED STATES PATENT OFFICE.

FERDINAND ZISEMANN, OF ST. LOUIS, MISSOURI.

BRICK-PRESS.

Specification of Letters Patent No. 6,876, dated November 13, 1849.

To all whom it may concern:

Be it known that I, FERDINAND ZISEMANN, of the city of St. Louis and State of Missouri, have invented a certain new and useful Improvement in Machines for Molding and Pressing Bricks, which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

Figure 1 is a side elevation of the machine. Fig. 2 is an end elevation of ditto. Fig. 3 is a horizontal section of ditto at the line *x x* of Fig. 1. Fig. 4 is a section of the molding and pressing wheels, and notched wheel, for forcing the pistons into the molds. Fig. 5 is a vertical section of the duster. Fig. 6 is a section of knife and bar. Fig. 7 is a section of one of the beams, and curved bars (*i*) at the end thereof.

Similar letters in the figures refer to corresponding parts.

The nature of my invention consists in the manner of increasing the pressure on the clay while in the molds (formed in the periphery of the molding wheel) as the pressing wheel descends by diminishing the distance between the peripheries of the molding and pressing wheels, by causing the pressing wheel to descend in the arc of a circle of a radius greater than the semi diameter of the molding wheel and scribed from a different center as will be more fully described hereafter. Also in a peculiar construction of an apparatus for distributing fine sand or dust over the molds, before receiving the clay, to prevent the bricks adhering to their surfaces, so as to allow af their being discharged without breakage at the corners, or any parts of their surfaces. Likewise in a novel mode of returning the pistons (which also serve as the bottoms of the molds while molding) to the bottoms of the molds by means of a rotary toothed wheel combined with the molding wheel by which it is turned without the aid of any connecting cogged or band gearing.

To enable others skilled in the art to make and use my invention I proceed to describe its construction and operation.

A is the frame made of a rectangular form, of suitable size strength and material to contain and support the several parts of the machine.

B is the molding wheel secured on a horizontal transverse shaft (*a*) turning in suitable boxes in the frame and having a series of molds formed on its periphery, corresponding with the shape of the bricks to be made, and situated at equal distances apart. In each of these molds is inserted a piston (*b*) exactly fitting in the same and provided with a shank or rod (*c*), passing through an opening in the inner portion of the rim of the wheels; on the end of which is screwed a nut or tap (*d*) for preventing the piston from being forced entirely out of the mold in discharging the bricks.

C is the pressing wheel, made of cast iron, of sufficient weight to give the required degree of pressure to the bricks, with the assistance of the parts attached to it. Secured to a horizontal transverse shaft (*e*), turning in suitable boxes I^2, fastened to the ends of inclined adjustive beams (*i*) passing through slots, formed in upright side timbers (*f*) of the frame, and shod with bars of iron (*g*) at their opposite ends, secured to their lower surfaces, and bent partially around the horizontal shaft (*a*) in the form of a semi-circle, for the purpose of holding these ends firmly, and to allow of the ends passing through the slots in the upright timbers (*f*), being raised and lowered in the arc of a circle scribed from the point M by means of vertical set screws (*h*), passing through female screws formed in blocks or castings (f^2) secured to the timbers (*f*,) by flanges and screws, on the upper ends of which set screws, the ends of said beams (*i*) rest. The curved ends of the bars of iron (*g*), secured to the beams (*i*), rest against the lower surfaces of the caps N, of the boxes of the horizontal shaft (*a*) of the mold wheel, and being confined in the upper part of spaces (*z*), formed in the horizontal timbers of the frame, corresponding with the form of the bars, by strong pins (M), passing through the curved ends of the bars (*g*), and forming the center points on which the beams move, said center points being different from the center of the shaft (*a*,) and situated farther from the center of the pressing wheel, cause said wheel to recede from the periphery of the mold wheel, when raised by the screws (*h*), and to be drawn toward the same when lowered, to lessen or increase the pressure given to the bricks, as may be desired. The spaces (*z*), in the frame are made sufficiently

large to admit of the curved bars (*g*), being raised and lowered in the same, as represented in Fig. 7.

(*k'*) is an inclined oblong knife, secured to a horizontal transverse bar arranged in front of the mold wheel. The sharpened edge of the knife rests against the periphery of the mold wheel, in such a manner as to cut the outer surfaces of the brick smooth as they pass by the same,—the clay cut off falling in an inclined spout (2), and being conveyed outside the frame of the machines.

D is a cog wheel, secured on the horizontal transverse shaft (*e*), and meshing in gear with a cog wheel (*j*) on the horizontal shaft (*a*) of the mold wheel, which meshes in gear with a cog wheel (*k*), secured on a horizontal transverse shaft, to which shaft the power for operating the machine is applied.

D^2 is an inclined cam for forcing the pistons out to the periphery of the mold wheel to discharge the bricks, consisting of a curved plate, secured to the inner side of an upright timber of the frame, at an angle of about 25 degrees with a horizontal plane—the upper end being sufficiently elevated, to allow of the ends of the piston rods, when the pistons are at the bottom of the mold wheel, passing under the same and striking the under surface of the cam which forces the pistons outward and thus discharges the bricks.

E is the hopper in which the clay is received, and through which it is introduced to the molds. It consists of two plates E, E', placed on edge immediately above and between the molding and pressing wheels, being formed at their lower edges to correspond with the peripheries of said molding and pressing wheels, against which they rest, and connected together at their lower parts, where they are situated the same distance apart as the thickness of the molding wheel B, by horizontal bolts (*l*). One of these plates E', is vertical and the other inclined, and both are secured to the top of the frame of the machine.

F is a metallic cylinder, secured in an upright position on top of the frame, immediately above the molding wheel, by a bar (*m*) fastened to the top of the frame by bolts, and having a horizontal ring R at its upper end, which entirely surrounds the cylinder. This cylinder is designed to contain fine sand or dust, for distribution over the molds, as they pass under the same and is provided with a hopper S, and inclined tube or spout (*n*), through which it is supplied ,and contains a vertical shaft (*o*), turning in a step at its lower end, formed in a vertical screw (*p*), passing through a female screw formed in an arm (*q*), projecting from the upright bar (*m*), and passing through an opening in the head or upper end of the cylinder, and projecting some distance above the same, said vertical shaft having a furrowed convexed disk or cone (*x*) secured to near its lower end, immediately below the upright cylinder, a sufficient space only being left between the lower end of the cylinder and said disk or cone to allow the required quantity of sand or dust to pass through. The size of which space can be lessened or increased at will, by turning the screw (*p*) to either raise or lower the vertical shaft (*o*) and the disk attached, as desired. Grooves or channels (*r*) are formed in the upper surface of the disk or cone for the purpose of presenting abrupt edges which shall take hold of the sand or dust during the revolution of the disk or cone and tend to agitate and force the same through the space between the cylinder and disk or cone on to an inclined spout or trough (3) arranged below, and secured to the top of the frame and the upright bar (*m*), which directs it to the mold wheel.

G is a bevel cog wheel, having a square opening in its center through which the corresponding square end of the vertical shaft (*o*) passes loosely, in order to allow of said shaft being raised and lowered through the same to regulate the quantity of sand distributed, resting on the head or upper end of the cylinder, and meshing in gear with another bevel cog wheel (*s*) secured on a horizontal shaft (*s'*) turning in boxes in an upright post (*t*), rising from the frame, and in the side of the cylinder, and having a band wheel or pulley (*u*) secured near its center, around which is passed a band (*v*) extending to the lower part of the machine, and passed around another band wheel or pulley (4) secured on a horizontal transverse shaft (6), near one end of the same, turning in boxes secured to the lower side timbers of the frame, and having a cog wheel (*v'*) near its opposite end which meshes in gear with the cog wheel (*j*) on the shaft of the molding wheel.

H is a series of rollers, arranged one in advance of the other, on a horizontal line at the lower part of the machine, having small wheels at their extremities, after the form of a spool, and turning on horizontal axles in suitable boxes secured to longitudinal timbers (5) secured parallel to each other in the frame. The axles of three of these rollers are provided with notched wheels (7) at their extremities around which is passed an endless chain (8), which likewise passes under and over, and engages with a similar notched wheel (9) secured on the horizontal shaft (6) from which it communicates motion to the rollers, having the notched wheel (7) on their axles.

I are oblong boards placed on the rollers to receive the bricks from the mold wheel—J is a notched wheel for forcing the pistons

into the molds, secured on a horizontal shaft (10), turning in boxes in upright timbers at one end of the frame. The notches in this wheel are of the form of a triangle, and form similar shaped cogs between them, and the wheel is suspended on its shaft in such relation to the molding wheel, as to cause the apex or point of each cog to strike one of the pistons (*b*) and force the same into the molds, and to mesh into the moulds somewhat after the manner of cogged gearing.

The operation of this machine is as follows: The clay prepared to a proper state, being introduced between the molding and pressing wheels B, C, through the hopper E, and the duster F supplied with fine sand or dust, motion is communicated to the several parts of the machine by the application of power to the band wheel (12), on the shaft of the cog wheel (*k*) causing the molding and pressing wheels to move toward each other, and the clay to be pressed into the molds, whose surfaces are previously covered with dust or fine sand, in their passage under the spout (3), with a power commensurate with the height of the pressing wheel, which is regulated by the set screws (*h*), and to be carried around in said molds until they arrive nearly under the horizontal shaft of the wheel B, in which they are formed, when the ends of the rods (*c*) successively strike the lower surface of the cam D^2 which forces the pistons outward, and discharges the clay in the form of bricks on to the oblong bands I, on the rollers H below, a portion of said rollers being geared together by the endless chain (8) and being moved by the notched wheel (*g*) on the horizontal shaft (6), also engaging with the same, in such a manner and with such proportionate speed in relation to the motion of the mold wheel, as to cause the oblong boards I, which are placed on the rollers at one end of the machine in close succession, to be moved immediately under the mold wheel, so as to receive the bricks after their discharge one after the other, and convey them to the end of the machine, where they are borne off on the boards to any required place. After the pistons (*b*) have been forced out to the periphery of the mold wheel, and before they again reach the hopper E they are forced into the bottom of the molds by the notched wheel J, which being caused to revolve with the mold wheel, by the sides of the molds striking the tangential surfaces of the cogs, will strike the centers of the pistons successively with the points of the cogs and force them into the molds. In this manner the operation is continued, and the machine, with the required attendance, is enabled to make as many bricks at each revolution of the mold wheel as there are molds.

What I claim as my invention and desire to secure by Letters Patent is—

1. The combination of the revolving conical duster (*x*), with the rotating molding and pressing wheels (B, C,) constructed, arranged, and operated in the manner, and for the purpose herein set forth.

2. I also claim the combination of the rotary toothed wheel (J), with the molding wheel B, for driving the pistons to the bottom of the molds, after the bricks are discharged therefrom, constructed, arranged, and operated in the manner, and for the purpose herein described; said wheel being turned by the action of the molding wheel in contact therewith, without the aid of any connecting cogged or band gearing.

3. I also claim the manner of increasing the pressure on the clay while in the molds, to form the brick, by diminishing the distance between the peripheries of the molding and pressing wheels, by causing the pressing wheel to descend in the arc of a circle (13), of a radius greater than the semi-diameter of the molding wheel, the bearings or boxes of the axle of the pressing wheel, being secured to the parallel beams (*i*) whose outer ends are made to rise in the arc of a circle, concentric to the arc (13), by means of vertical screws (*h*), arranged to bear against the under sides of said beams, to raise or lower the pressing wheel C, in order to increase or diminish the pressure on the bricks in the molds as aforesaid.

In testimony whereof I have hereunto signed my name before two subscribing witnesses this 8th day of June, 1849.

FERDINAND ZISEMANN.

Witnesses:
WM. P. ELLIOTT,
A. E. H. JOHNSON.