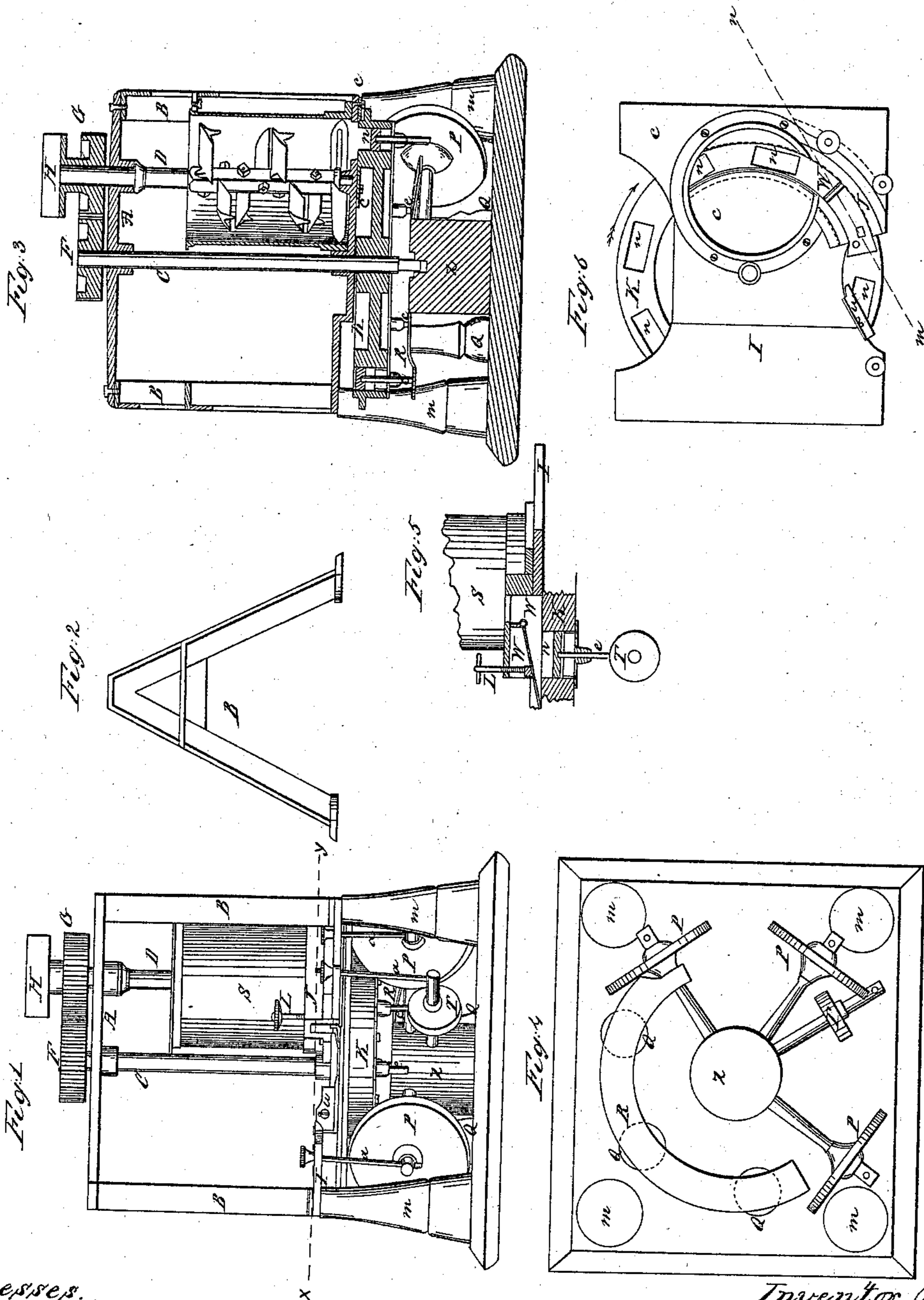


Sword & Tiffany, Brick Machine.

N^o 43,162.

Patented June 14, 1864.



Witnesses.

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UNITED STATES PATENT OFFICE.

PORTER L. SWORD AND GEORGE S. TIFFANY, OF ADRIAN, MICHIGAN, ASSIGNORS TO PORTER L. SWORD.

BRICK-MACHINE.

Specification forming part of Letters Patent No. 43,162, dated June 14, 1864.

To all whom it may concern:

Be it known that we, PORTER L. SWORD, of Adrian, in the county of Lenawee and State of Michigan, and GEORGE S. TIFFANY, of the same county, have invented a new and Improved Brick-Machine; and we do hereby declare that the following is a full and exact description, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The object of this invention is to produce a machine that will work much stiffer clay than is generally used in brick-machines, and make brick that may be put in the "hake" directly from the machine.

To enable those skilled in the art to make and use our invention, we will proceed to describe its construction and operation.

Figure 1 is a side elevation of our invention. Fig. 2 is a detached view of a part of the frame. Fig. 3 is a central vertical section of our invention, excepting the shafts and the beaters of the grinding-mill, which are shown in elevation in full. Fig. 4 is a plan of the parts below the mold-wheel. Fig. 5 is a part of vertical section taken through the line *m n*, Fig. 6. Fig. 6 is a horizontal section taken through the line *x y*, Fig. 1.

Like letters indicate like parts in all the figures. The parts colored blue are those which may be made of iron, that are cut by the plane.

The machine may rest upon four pedestals, *m m m m*.

The A-shaped castings B B, bridge-tree A, and bed-plate I constitute the frame of the machine.

The grinding-mill consists of cylinder S, bolted to the bed-plate, and shaft D, having beaters spirally arranged thereon. Motion may be given to the shaft D by means of a sweep in the box H, when the machine is driven by horses, or, if steam is used, by suitable gearing attached to said shaft. The mold-wheel K is attached to the lower end of the shaft C, to which motion is communicated from the shaft D through the cog-wheels F G. The bottoms of the molds have pins E E, &c., attached thereto, which, as the mold-wheel rotates, traverse the circular inclined plane R, by means of which the bottoms of the molds are raised to the surface of the wheel, forcing

the molded brick from the mold. The mold-wheel K has a flange from its face or periphery, and is supported by this flange resting upon three wheels, P P P, and by a step in the pedestal Z for the shaft C. The shafts of the wheels P P P radiate from points below the center, and have bearings in the pedestal Z. Their outer extremities are supported by rods *a a a* from the bed-plate, and may be raised or lowered by means of nuts on the rods above the bed-plate. The object of these wheels is to support the mold-wheel under the pressure brought upon it in filling the molds and to keep the wheel near to the bed-plate. Two segments, *c c*, are bolted to the underside of the bed-plate in such a position as to cover the space between the mold-wheel and the bed-plate and prevent the exuding of clay therefrom. Their position and plan are shown by the broken lines in Fig. 6. There is an elevated portion of the bed-plate J, which forms a recess from the under side of the bed-plate that communicates with the grinding-mill. Within this recess W an inclined plane, *o*, having curved sides, is pivoted, the lower end of which rests upon the side of the wheel and is fixed in that position by means of the screw L, which works in a thread in the elevated portion of the bed-plate J. The sides of this recess W form continuous curves with sides of an opening in the bed-plate extending across that part which forms the bottom of the cylinder S, described from the center of the shaft C. This opening is over the space traversed by the molds. Below the mold-wheel, and directly beneath the inclined plane, is a wheel, T, so placed that when the mold-wheel is in motion the pins in the bottoms of the molds pass over it and are raised a very little, thus producing a pressure upon the clay in the mold from below at the same time that it is subjected to a pressure from above by the inclined plane *o*. This insures the filling of the lower corners of the mold and accomplishes it with much less power than it would require simply with the beaters and inclined plane *o*. The shaft of the wheel T has a bearing in the pedestal Z, and its other extremity is supported and adjusted vertically by means of a rod from the bed-plate and a nut.

The operation of this machine is as follows:

Motion is given to the grinding-mill shaft from left to right, causing the mold-wheel K to revolve in the direction indicated. Moistened clay is thrown into the cylinder S, where it is thoroughly ground and forced through the opening in the bed-plate into the molds and into the recess W by the beaters. The pin E in the bottom of the mold leaves the circular inclined plane as the mold passes beneath the grinding-mill S. From the time the mold first comes beneath the grinding-mill until it passes under the inclined plane *o* it is being filled by the pressure produced by the beaters on the grinding-mill shaft D. Then passing under the inclined plane *o* the clay in the mold is subjected to a pressure from below, as before stated, by means of the wheel T and pins E. After passing the wheel T, the bottom of the mold descends and the filling is completed by the inclined plane *o*. The mold then passes under the scraper *u*, which removes all surplus clay, after which the pin E strikes the circular inclined plane R, by means of which the bottom of the mold is gradually raised to the surface of the wheel, forcing the brick from the mold, when it is removed by hand. The bottom of the mold then descends as the pin E descends the inclined plane R, and the mold is refilled in the same manner.

It will be seen that the mold is being filled from the time it passes beneath the grinding-mill until it leaves the inclined plane *o*—about one-third of its revolution—and is powerfully compressed by the inclined plane *o* and wheel T; consequently very stiff clay may be used, and the brick are put in the hake directly from the machine.

We claim nothing new in the mold-wheel K nor in the arrangement of the mold-wheel inclined plane R and grinding-mill.

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

1. Constructing the bed-plate I with the recess W, and curvilinear opening in that part which forms the bottom of the cylinder S, over the space traversed by the molds, in combination with the inclined plane *o* and wheel T, when they are arranged to operate substantially as and for the purpose herein set forth.

2. Supporting and adjusting in proximity to the bed-plate the mold-wheel K by means of the wheels P P P and rods *a a a*, as set forth.

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Witnesses:

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