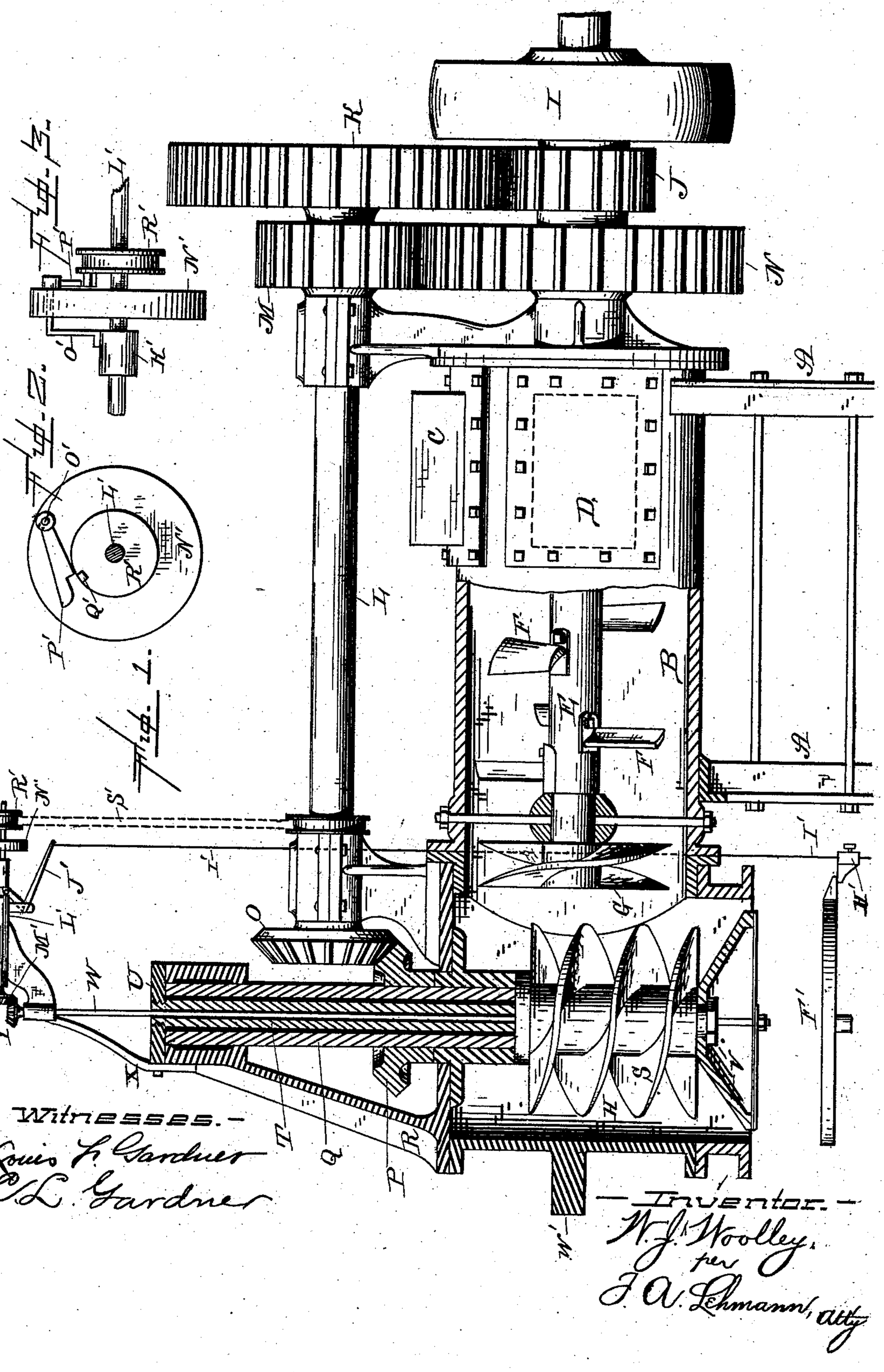
(No Model.)

3 Sheets—Sheet 1.

W. J. WOOLLEY.

TILE MACHINE.

No. 294,342. Patented Feb. 26, 1884.



Witnesses.—
Louis H. Gardner
C. L. Gardner

Inventor.—
W. J. Woolley,
per
J. A. Lehmann, Atty

(No Model.)

3 Sheets—Sheet 2.

W. J. WOOLLEY.

TILE MACHINE.

No. 294,342. Patented Feb. 26, 1884.

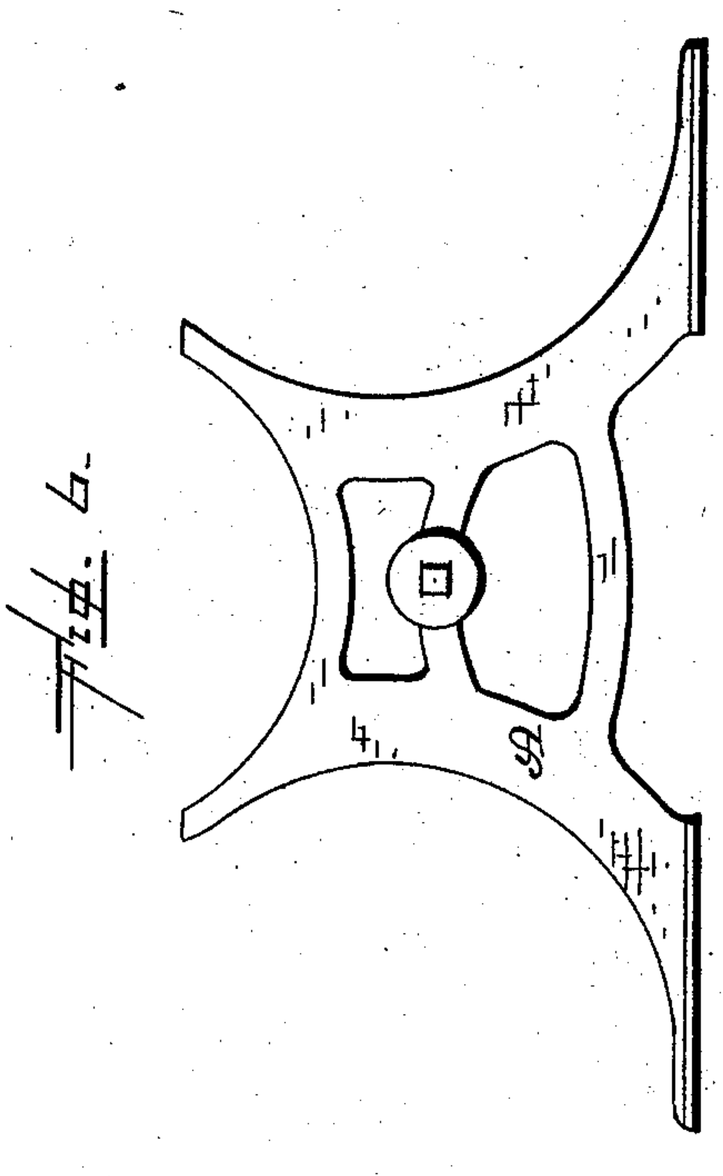


Fig. 4.

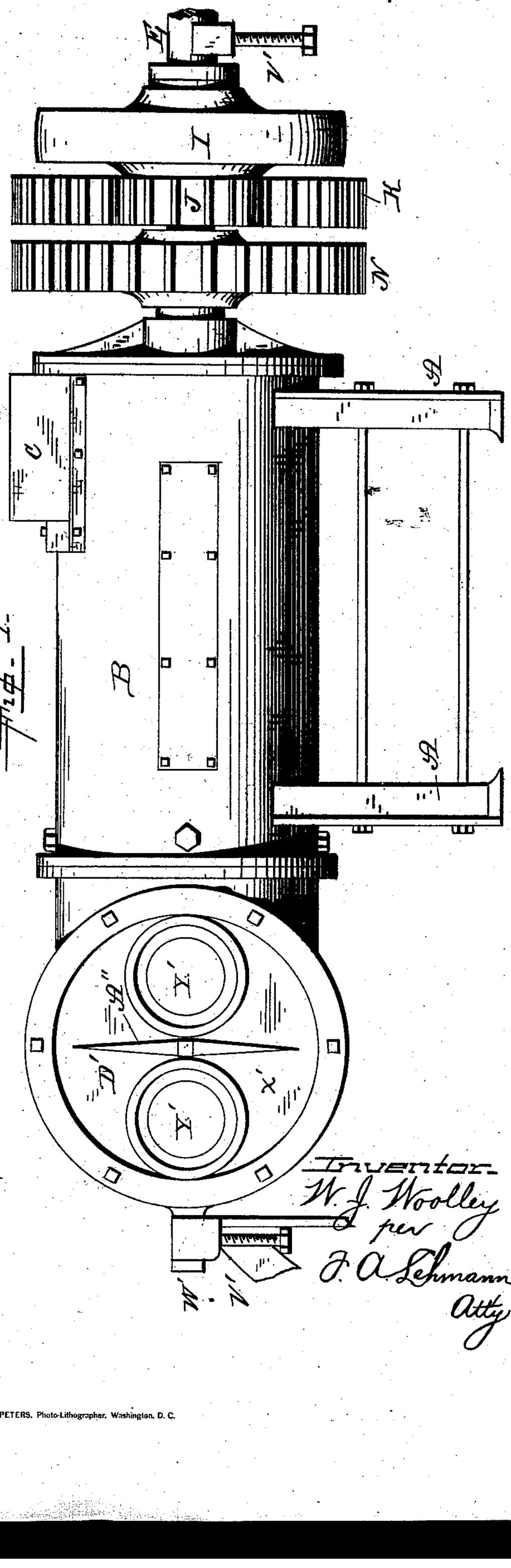


Fig. 1.

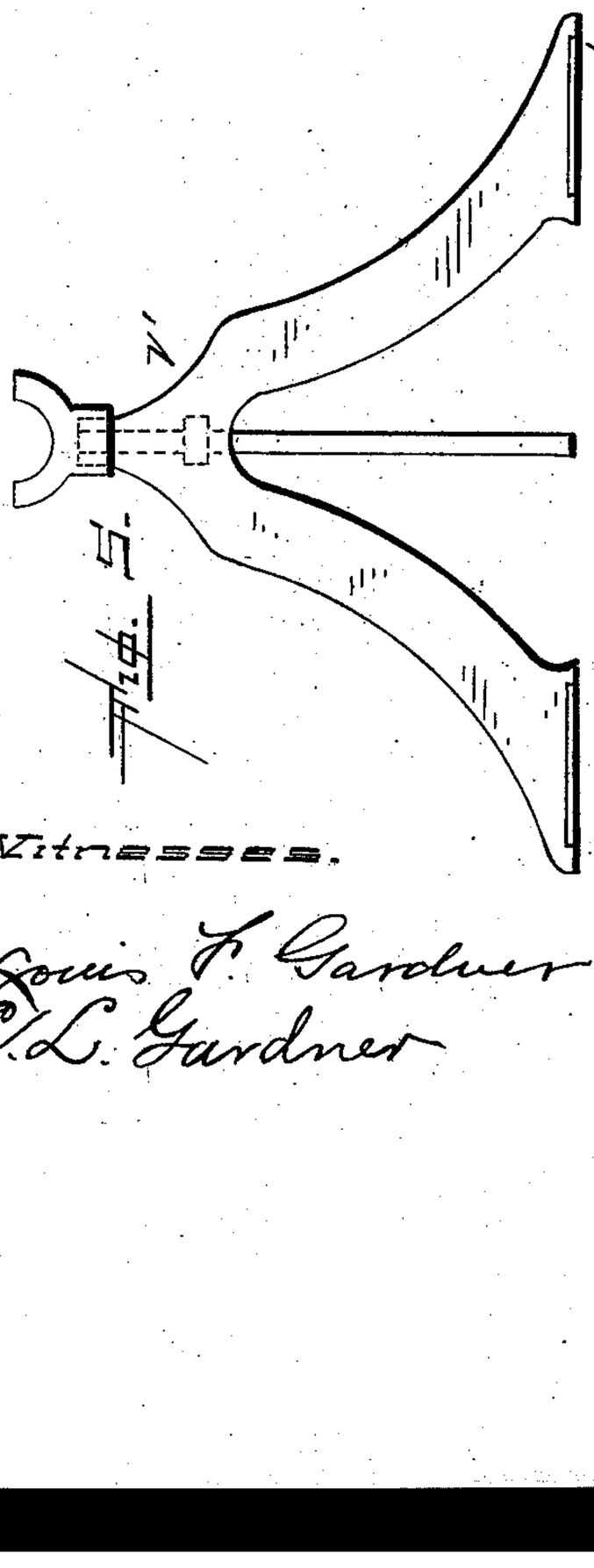


Fig. 5.

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(No Model.)

3 Sheets—Sheet 3.

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TILE MACHINE.

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Fig. 4.

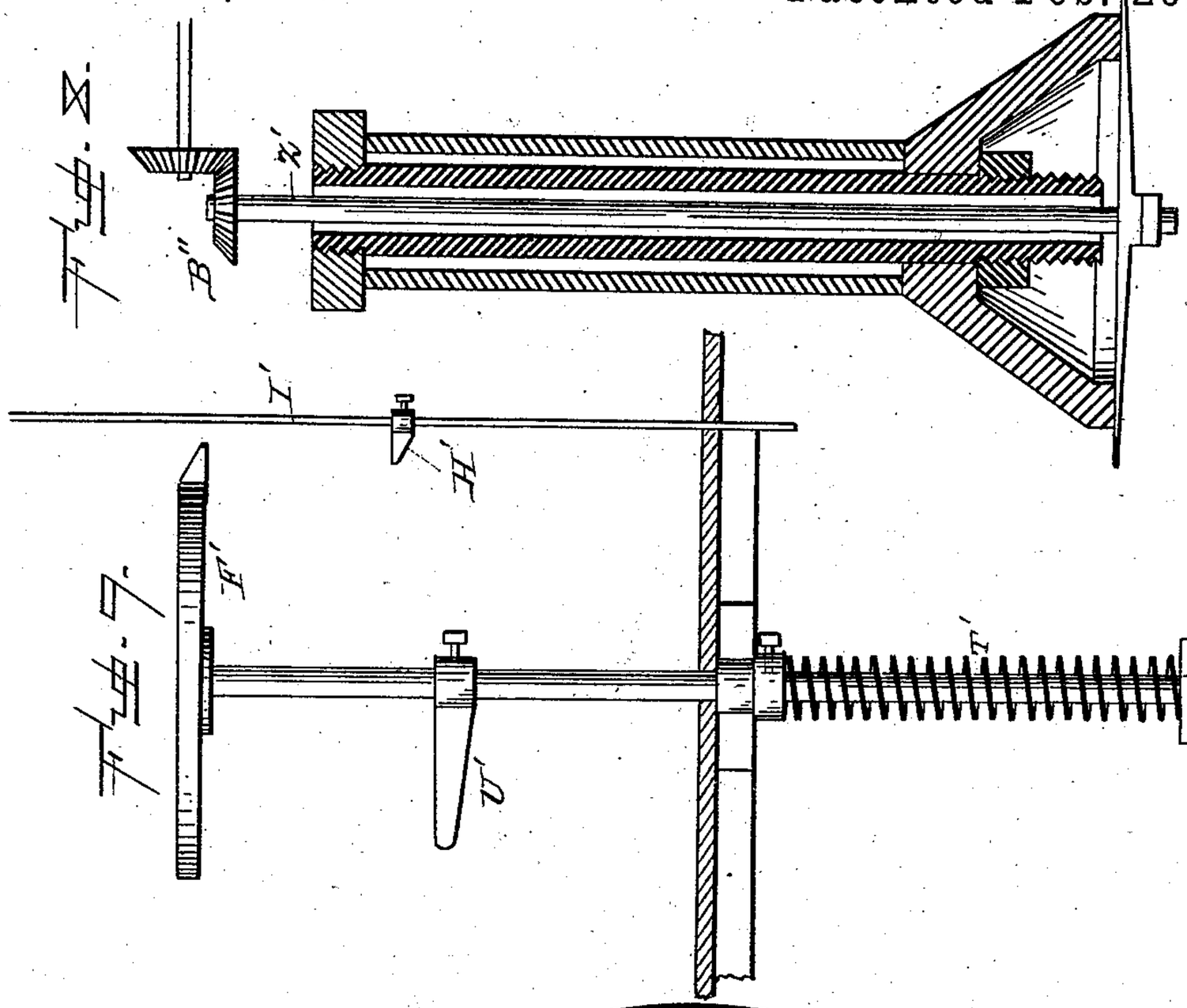

Fig. 5.

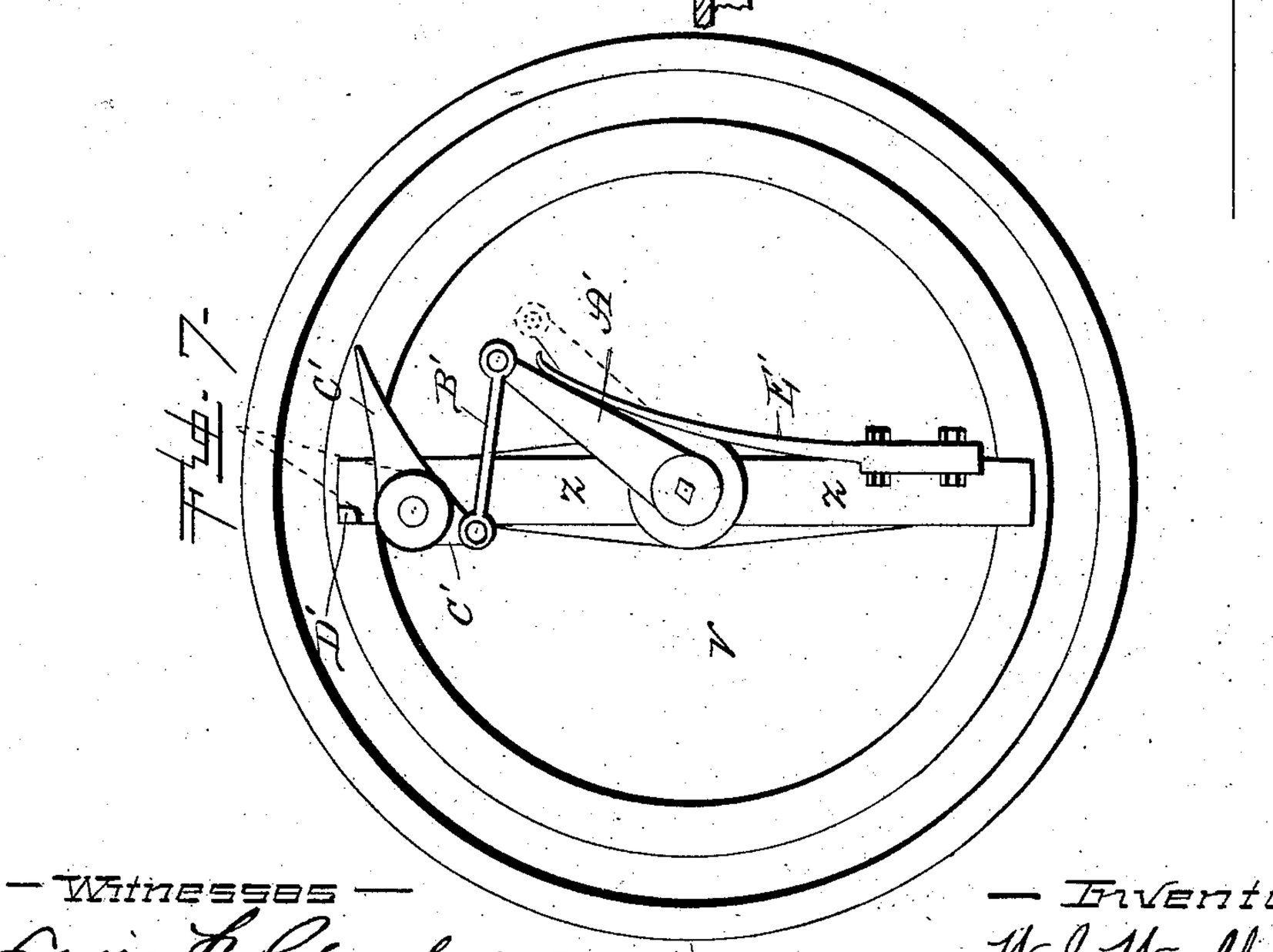

Fig. 7.

Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM J. WOOLLEY, OF HILLIARD, OHIO.

TILE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 294,342, dated February 26, 1884.

Application filed December 8, 1883. (No model.)

To all whom it may concern:

Be it known that I, W. J. WOOLLEY, of Hilliard, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Tile-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in tile-machines; and it consists, first, in a tile-machine, in the combination of two cylinders, placed at right angles to each other, one of which has a shaft provided with blades for working the clay and a screw for forcing it out into the vertical one, and the other a screw for forcing the clay out over a core, a spring-actuated table which operates a clutch, which sets in motion a cutting mechanism for cutting off the tiles at any desired length; second, in the combination of two cylinders, each of which is provided with its own operating mechanism, one of which cylinders is provided with an interchangeable plate and hopper, so as to adapt the cylinders to be used in two positions; third, in the combination of an operating-shaft provided with an arm, the core, a friction-plate which is clamped against its under side, and a pivoted cutter; fourth, in the arrangement and combination of parts, which will be more fully described hereinafter.

Figure 1 is a side elevation of a machine embodying my invention, partly in section, and in position to run the tile out in a vertical position. Figs. 2 and 3 are detail views of the mechanism for throwing the cutter in and out of gear. Fig. 4 is a side elevation of the machine, showing it in position for ejecting the tiles in a horizontal position. Fig. 5 is an end view of the jack used in raising the cylinder up when it is to be turned over in the position shown in Fig. 4. Fig. 6 is an end elevation of the support for the cylinder. Fig. 7 is a detail view of the device for cutting off the tiles. Fig. 8 is a detail view of the cutting mechanism used when the machine is in the position shown in Fig. 4. Fig. 9 is a detail view of the spring-table.

A represents the stand or support upon which the cylinder B is placed, and to which the cylinder is bolted, so as to prevent the cylinder from moving while the machine is in operation. Two sets of bolt-holes are made through the cylinder, so that the cylinder can be bolted to the support either in the position shown in Fig. 1 or 4. This cylinder B has two openings made through it, to one of which the removable hopper C is applied when the machine is used as shown in Fig. 1, while the other is closed by the removable plate D. When the cylinder is turned on its side, as shown in Fig. 4, the plate and hopper are both detached from the cylinder, and the hopper is then applied to the hole or opening, which is shown as closed by the plate D in Fig. 1, and the plate is used to close the opening to which the hopper was applied. Passing through this cylinder is the shaft E, which has the blades F secured thereto, for the purpose of both grinding the clay and forcing it forward toward the screw G, by means of which the clay is forced out of the cylinder A into the vertical cylinder H. The bearing for the inner end of this cylinder is applied in the manner shown in Fig. 1.

Upon the outer end of the shaft E are placed the loose driving-pulley I and pinion J, which are secured together, and through which the driving power is applied to the large gear-wheel K, which is secured to the shaft L; also, secured to the shaft L is the pinion M, which meshes with the large gear-wheel N on the shaft E. By this arrangement of gears a slow movement is given to the shaft E, and a corresponding slow one to the shaft L.

To the inner end of the shaft L, which extends parallel with the cylinder, is secured the gear-wheel O, which meshes with a second gear-wheel, P, which is secured to the hollow shaft Q, which has its upper end supported in position by the frame-work R, and which has its lower end to pass down through the top of the vertical cylinder H, and to which lower end is secured the screw by means of which the clay is forced from the cylinder H in the form of tiles. Inside of this hollow shaft Q is placed a hollow stationary rod or sleeve, T, which has its upper end screwed into the nut

U, and which has the core V clamped to its lower end by means of a nut or other suitable device. Passing down through this sleeve T is the shaft W, which is journaled at its upper end in the bracket X. To the upper end of this shaft is secured the bevel-wheel Y, and to its lower end the mechanism for cutting off the tile at any regular length. This cutting mechanism, which is especially shown in Fig. 7, consists of the friction-plate Z, through which the lower end of the shaft W passes, and which plate is clamped against the under side of the core V by means of a nut with sufficient force to prevent it from readily turning.

Secured to the lower end of the shaft W is an arm, A′, to the outer end of which is loosely attached the connecting-rod B′. The cutter C′ is pivoted upon the friction-plate Z, and has the rod B′ loosely connected to its inner end. When the shaft W is turned it first swings the arm A′ partly around, as shown in dotted lines, and then turns the cutter C′ upon its pivot until its outer edge strikes against the stop D′ on the plate Z, and extends across the space between the lower edge of the cylinder H and the core V, when the whole power of the shaft is then exerted in turning the friction-plate Z around against the lower side of the core, so as to sweep the cutter around and sever the tile. As soon as the shaft W ceases to rotate, the spring E′ forces the arm back into place, and thereby draws the cutter back out of the way of the next tile. When the shaft W first begins to turn it moves the cutter before it does the friction-plate Z, because the pressure of the spring is more easily overcome than the friction of the plate. As the tile passes down between the ends of the cylinder and core, its lower end bears upon the table F′ and forces the table downward until the point G′ on the table catches upon the top of the adjustable block H′ on the rod I′. This block H′ is made adjustable on the rod, so as to regulate the point at which the table shall operate the clutch, and thereby regulate the length of the tile. The upper end of the rod I′ is fastened to the lever J′, which moves the clutch K′ on the shaft L′, for the purpose of operating the cutting mechanism to cut off the tile. This shaft L′ has a bevel-gear, M′, on its inner end, to mesh with the gear Y, and has secured rigidly to it the wheel N′. Through this wheel N′, which always turns with the shaft L′, is passed the partially-rotating rod O′, which engages at one end with the clutch K′, when the clutch is moved toward the wheel N′, by the lever J′, when the table sinks down under the weight of a tile. To the outer end of this bent rod is rigidly secured the dog P′, which is shouldered at its lower end, so as to engage with a stud or projection, Q′, on the side of the loose pulley R′, which is driven by the belt S′ from the shaft L. This pulley R′ revolves freely on the shaft L′ without engaging with the dog P′ as long as the bent rod O′, to which it is secured, is not locked rigidly in position by the clutch K′. As soon, however, as the downward motion of the table causes the rod I′ to move the clutch K′, so that it engages with the rod R′, the pulley becomes locked to the shaft L′, and then revolves with the wheel N′. After the cutter has cut the tile off, the table remains pressed down until the tile is removed, when the spring T′ instantly raises the table into position again. Secured to the standard of the table is a step, U′, by means of which the table can be depressed, so as to slip the tile out from under the cylinder, or to part the tile after it has been cut off. As soon as the table slips down past the block H′, the clutch is thrown out of gear and the cutter ceases to move.

When it is desired to use the cylinder H in a horizontal position and eject the tiles horizontally, suitable jacks, V′, as shown in Figs. 4 and 5, are placed under one end of the shaft E and under the pivot W′, which is secured to the outer side of the cylinder H. The cylinder B is detached from the stand or support A, the screws of the jacks are turned so as to lift the two cylinders B H upward, when the two are turned over upon their sides, as shown in Fig. 4. The plate D and hopper C are exchanged and the cylinders then lowered, and the one, B, again bolted to the stand A. When the machine is being used on its side, shaft W, frame-work X, and core V are removed. The core V is replaced by the one X′, which has the two small openings through it, in each of which is placed a core, Y′.

In place of the shaft W the shaft Z′ is substituted, and which has the cutting device A″ secured to one end, and a bevel-wheel, B″, to the other. When the shaft L′ is made to revolve, the cutter A″ cuts off both tiles at once. As the two tiles are forced out horizontally, they are received upon suitable tables placed to receive them.

Having thus described my invention, I claim—

1. The combination of the core, the cross-bar Z, operating-shaft, arm A′, rod B′, cutter C′, and spring, substantially as shown.

2. The combination of the two cylinders B H and their operating mechanisms with the stand A, the cylinder B, having two openings through its sides, and provided with the interchangeable hopper C, and plate D, whereby the cylinders may be used in different positions, substantially as described.

3. The combination of the cylinder B, having the operating-shaft E projecting beyond one end to form a pivot, with the cylinder H, secured to the cylinder B at right angles, and provided with the pivot W′, the stand A, upon which the cylinder B rests, and suitable devices for raising the cylinders up so as to turn them on their sides, substantially as set forth.

4. The combination of the core, the frictional cross-bar which is clamped against the

under side of the core, and provided with the stop D′, the operating-shaft W, arm A′, rod B′, cutter C′, and spring E′, substantially as specified.

5. In a tile-machine, the combination of the lever J′, shaft L′, bent rod O′, provided with the dog P′, and loose pulley R′, provided with the projections Q′, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM J. WOOLLEY.

Witnesses;
JOHN KOEHLER,
JOHN SCOTT.