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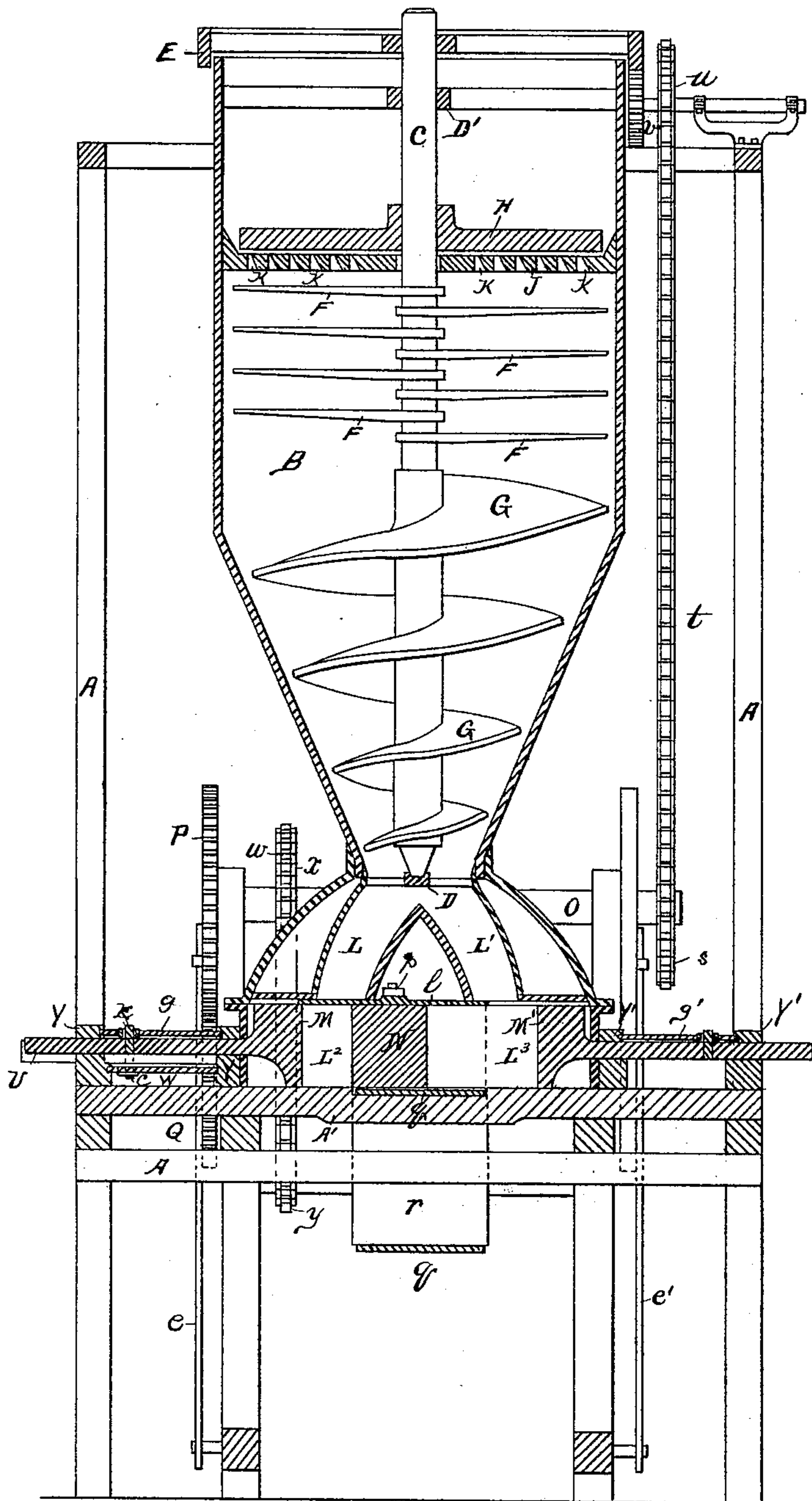
4 Sheets—Sheet 1.

N. KIRCHNER.

BRICK MACHINE.

No. 368,341.

Patented Aug. 16, 1887.



WITNESSES:

Henry M. Wechert
Charles F. Mahony

Fig. 1.

INVENTOR

Nicholas Kirchner
by his attorney
Chas A. Rutter.

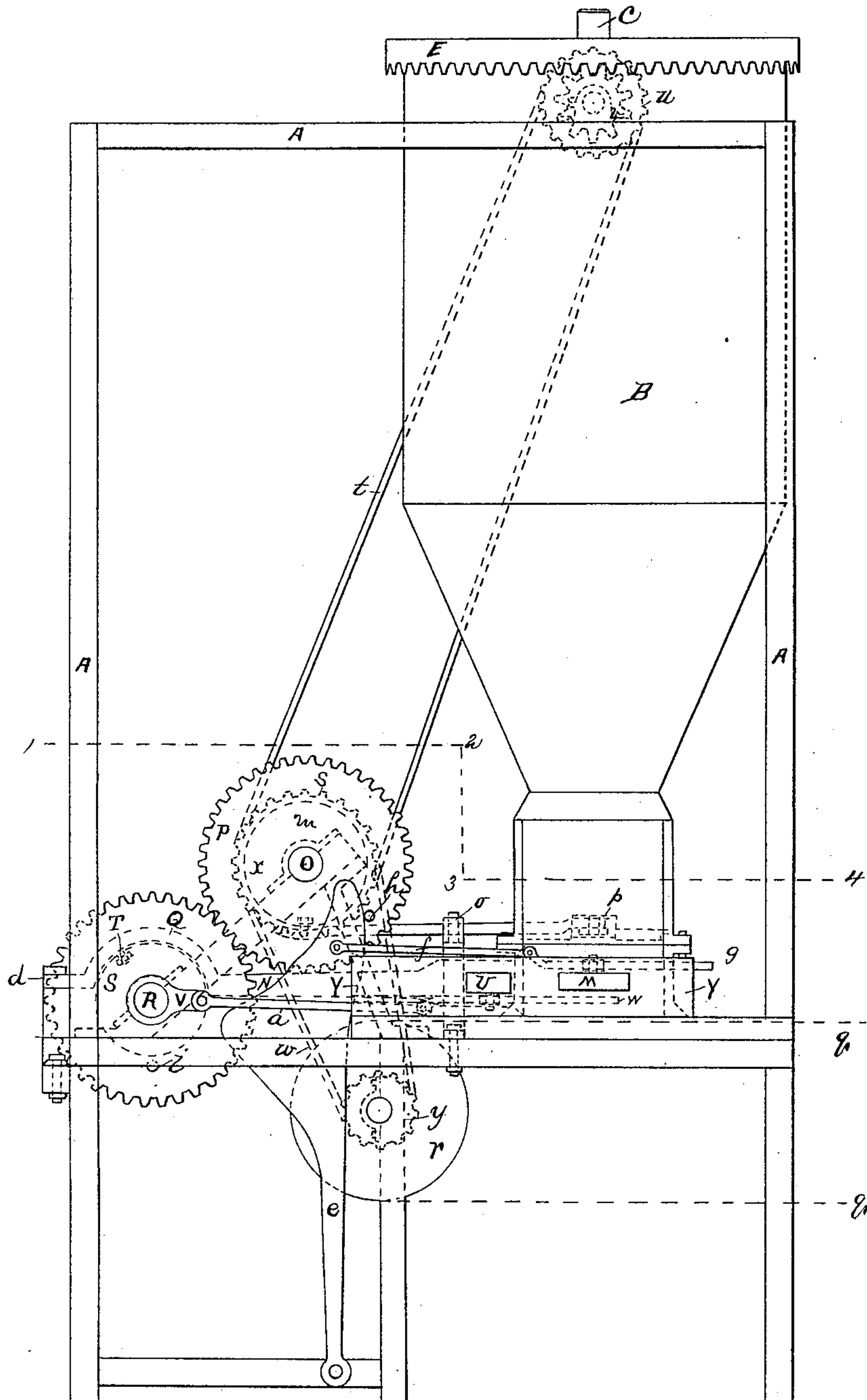
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Fig. 2.

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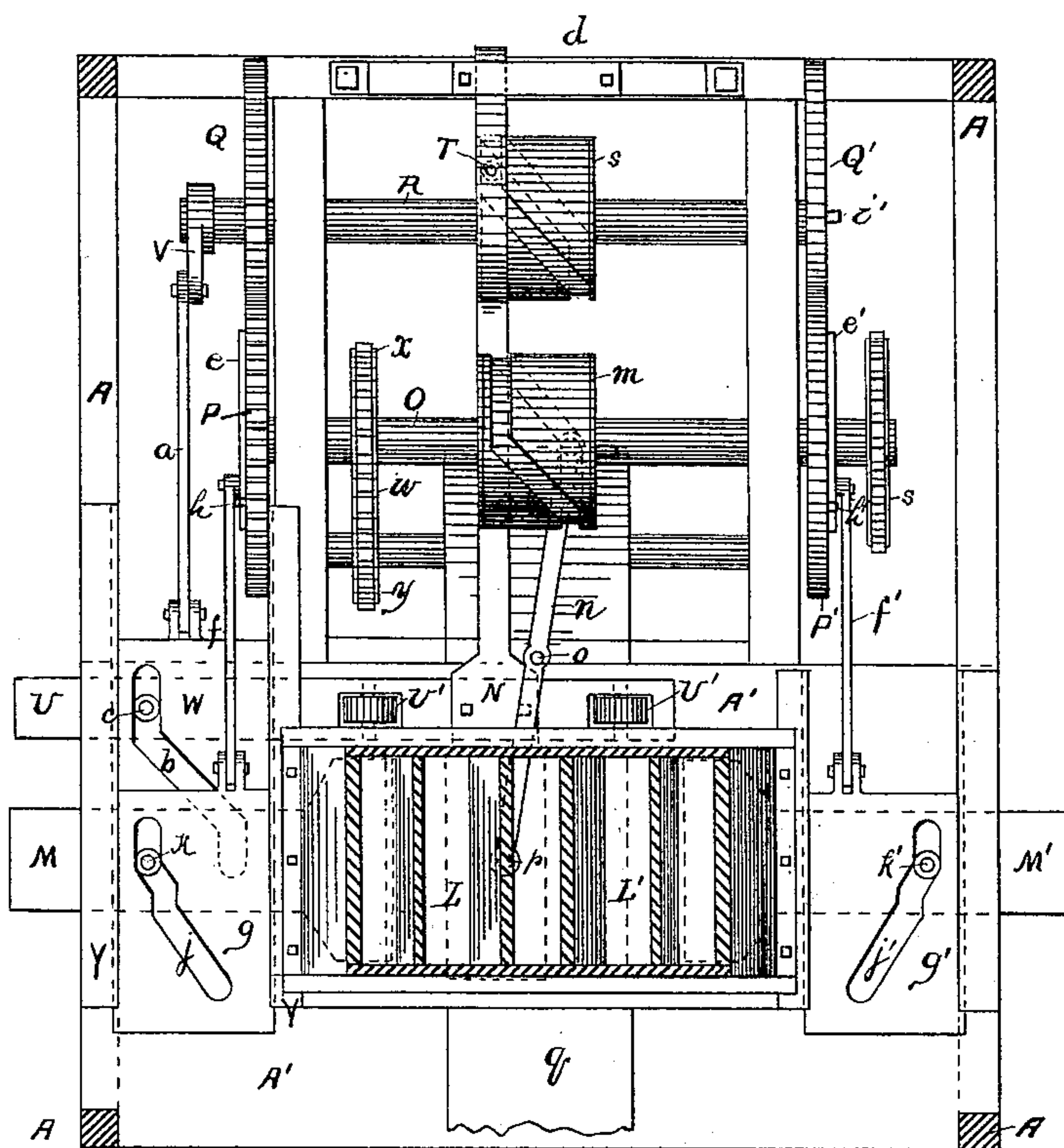


Fig. 3.

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INVENTOR

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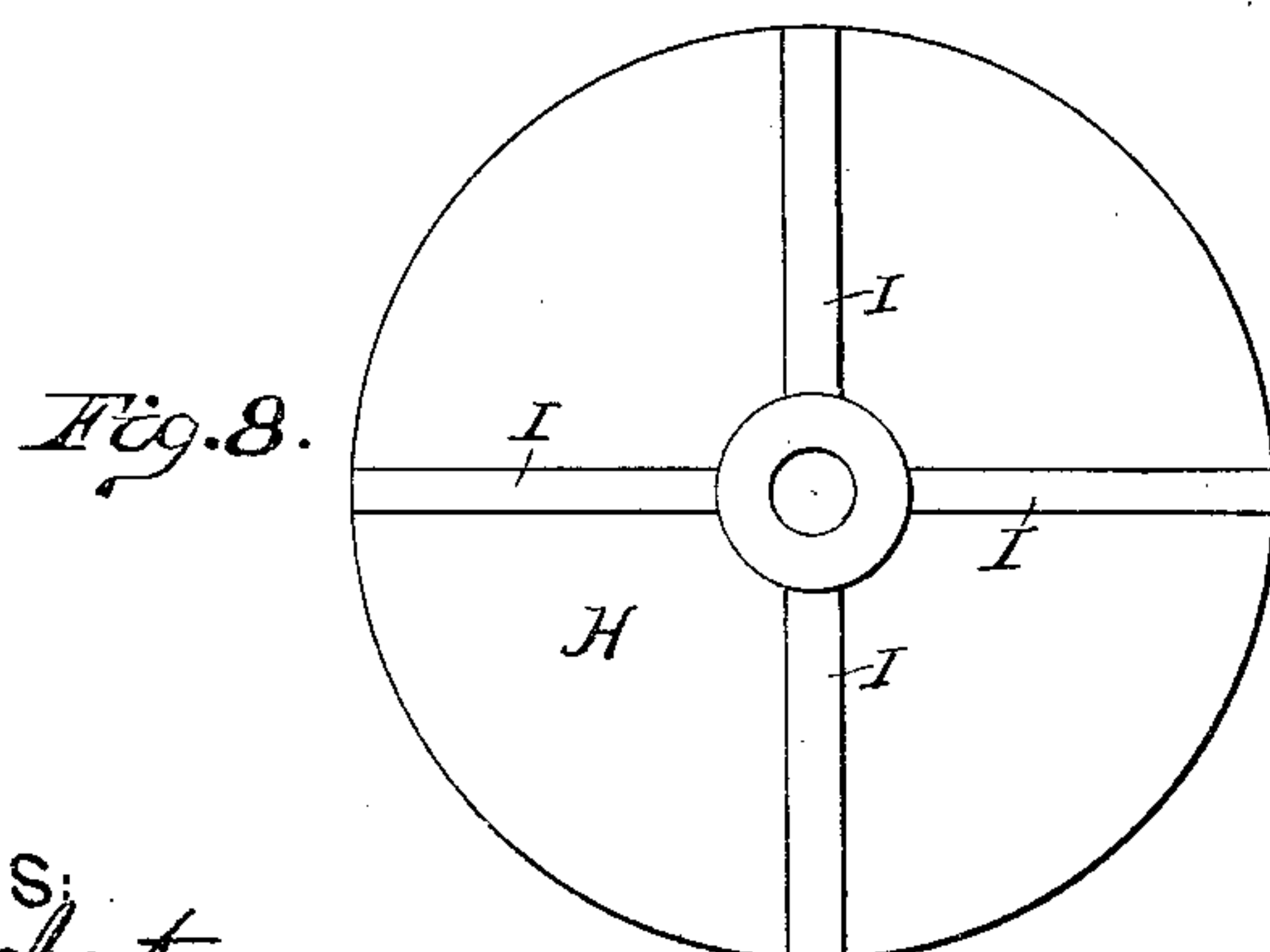
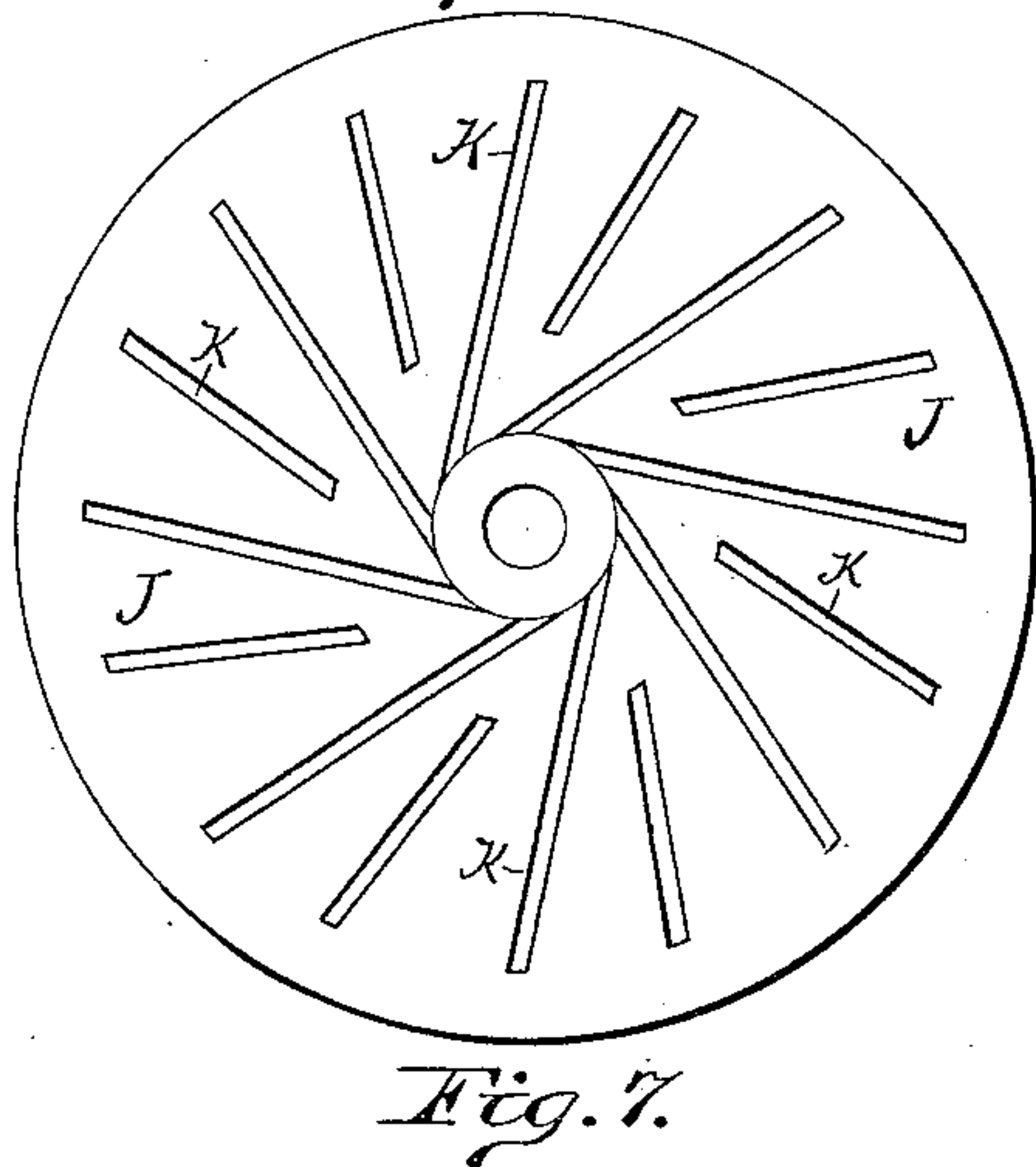
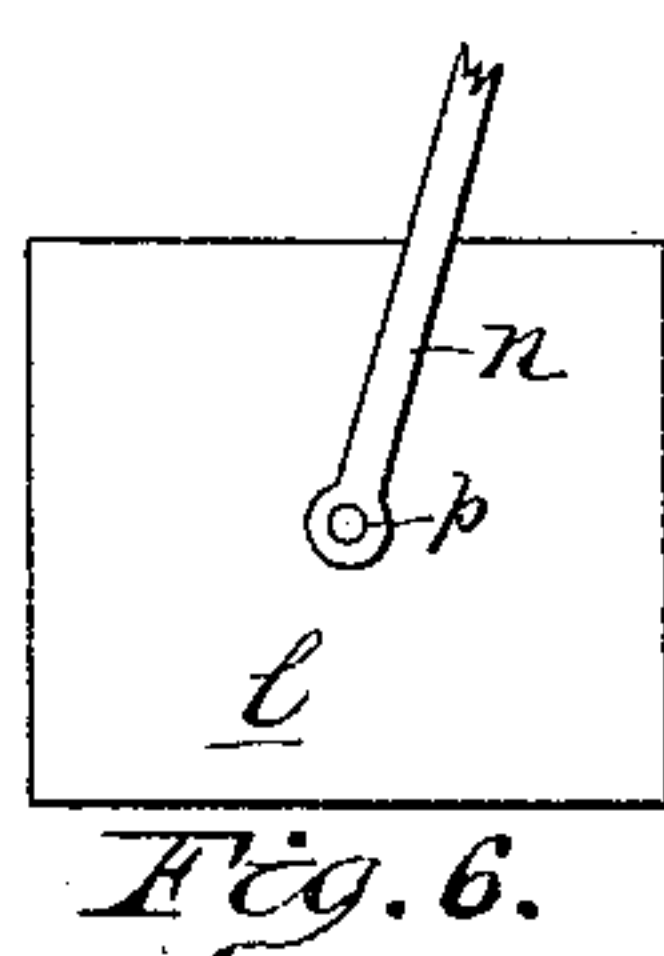
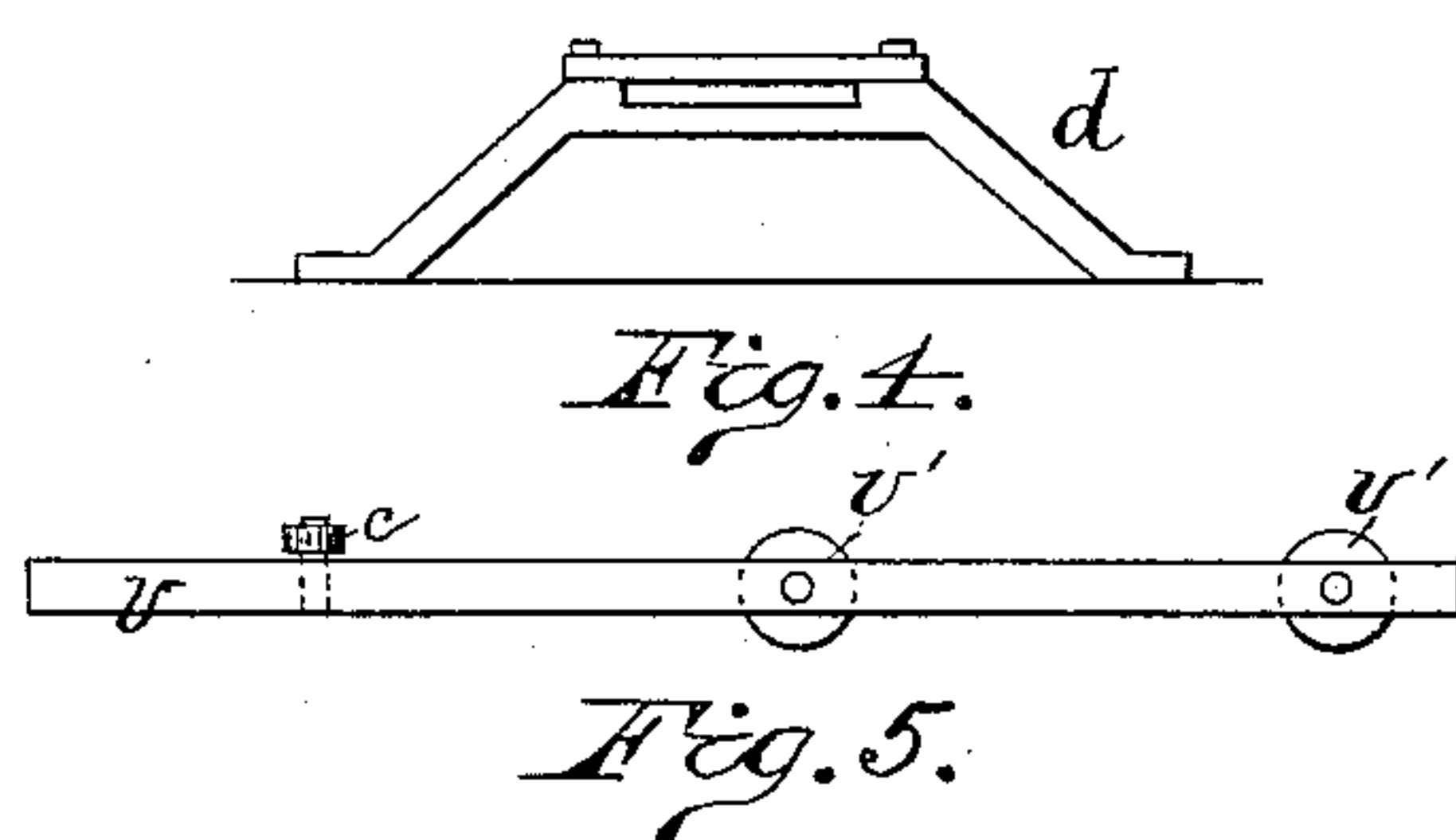
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WITNESSES:
Henry M. Bechert
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UNITED STATES PATENT OFFICE.

NICHOLAS KIRCHNER, OF PHILADELPHIA, PENNSYLVANIA.

BRICK-MACHINE.

SPECIFICATION forming part of Letters Patent No. 368,341, dated August 16, 1887.

Application filed November 13, 1886. Serial No. 218,785. (No model.)

To all whom it may concern:

Be it known that I, NICHOLAS KIRCHNER, a citizen of the United States, and a resident of the city and county of Philadelphia, and State of Pennsylvania, have invented certain new and useful Improvements in Machines for Making Bricks, of which the following is a specification.

The object of my invention is to furnish a machine which will thoroughly mix and temper the clay and form a perfect brick.

In the accompanying drawings, forming part of this specification, and in which similar letters of reference indicate similar parts throughout the several views, Figure 1 is a central sectional elevation through the hopper of my machine; Fig. 2, a side view; Fig. 3, a section of Fig. 2 on line 1 2 3 4; Fig. 4, a rear elevation of guide for back end of reciprocating block; Fig. 5, a side elevation of actuating-bar for reciprocating block; Fig. 6, a plan of plate and part of lever for closing the upper ends of brick-molds; Fig. 7, a top plan of stationary clay grinder and sifter; Fig. 8, a bottom plan of moving clay-grinder, and Fig. 9 a side view of Fig. 8.

A is the frame of the machine; B, a hopper; C, a shaft passing up through the center of this hopper and supported in suitable bearings, D D'; E, a crown-wheel fast on shaft C, and by means of which said shaft is turned, as hereinafter described; F, blades upon shaft C for agitating or mixing the clay; G, a screw upon shaft C for forcing the clay into the molds.

The blades F and screw G are well-known devices in this class of machinery, and will need no further description.

The clay to be formed into bricks is placed in the hopper B by being thrown or poured through the spokes of the crown-wheel E. It first passes through the grinder or sifter, which consists of a disk, H, Figs. 1, 8, and 9, which is fast upon and turns with the shaft C, and which is furnished with one or more downwardly-projecting ribs, I, Figs. 8 and 9, and of a stationary plate, J, Figs. 1 and 7, which is securely fastened to the sides of the hopper B, and which is furnished with slots K, which are larger at the bottom than at the top, and through which the clay falls. The disk H, being revolved, grinds the clay between it and the disk J, and forces it through the slots K, from whence it falls and is mixed by the arms F, and is carried down

and forced into the channels L L', which lead to the molds L² L³. The bricks are formed by plungers M M' and by a reciprocating block, N.

The block N is operated as follows:

Upon a shaft, O, is placed a gear-wheel, P, and this shaft and gear-wheel are driven by a suitable pulley on the shaft, which pulley is not shown.

Q is a gear-wheel gearing into wheel P, and which is carried on a shaft, R. Upon the shaft R is a cam, S, in which a pin, T, projecting from block N, works.

U is a bar projecting at right angles to block N, and to which block N is fastened. V is a crank upon shaft R; W, a plate carried in suitable guides in uprights Y, which are bolted to the frame of the machine; a, a connecting-rod, one end of which is fastened to crank V and the other end to plate W; b, an inclined slot in plate W; c, a pin projecting upward from bar U and carrying a roller which enters slot b.

The revolution of wheel Q causes cam S to be revolved, which causes pin T to travel in slot in cam S and to move one end of block N over. At the same time the crank V, through rod a, causes plate W to be moved, and the slot b in said plate moves the roller on pin c and carries the bar U in, an equal motion being thus given to each end of block N. The rear end of block N is guided in a standard, d, an elevation of which is shown in Fig. 4. Upon the bar U are rollers U' U', which travel upon the bed-plate A' of the machine in order to reduce friction.

The plungers M M' are actuated as follows:

e e' are levers, the lower ends of which are pivoted to the frame, as shown in Figs. 1 and 2. To the upper ends of these levers are pivoted one end of connecting-rods f f', the other ends of which are pivoted to plates g g', which travel in suitable guides in the uprights Y Y'. Upon the wheels P and Q, and also upon toothless wheels P' Q' upon the other ends of shafts R and O, are pins h i h' i'. During the revolution of these wheels the pins h i h' i' alternately strike the levers e e' and cause these levers to be thrown first forward and then backward, causing, through the rods f f', the plates g g' to be moved backward and forward.

In the plates g g' are inclined slots j j', and projecting up from plungers M M' are pins k k',

which enter these slots. As the plates M M' are moved backward and forward, the slots $j j'$, through pins $k k'$, cause the plungers to be moved in and out. Above the plungers M M' and block N is a plate l , Figs. 1 and 6, the function of which is to close the bottom of passages L L' while the bricks are being alternately formed by plungers M M'. This plate is operated as follows: Upon the shaft O is a cam, m , in which one end of a lever, n , works. This lever is pivoted at o , and its other end is pivoted to the plate l at p . As the cam turns, the plate l is thrown alternately from one side to the other. After the clay is admitted to mold L² the plate l closes the top of this mold, and then the plunger M is moved in, compressing the clay. After it has moved a certain distance the block N begins to move with it, and after they have moved a short distance together the block N increases its speed, leaving the brick, which is pushed by plunger M, on the endless belt q , one of the pulleys, r , of which is shown in Figs. 1 and 2, and is carried off by this belt. These movements are given by the inclinations of slots b and j in plates W and g and by inclination of cam S.

The operation of the other side of the machine is similar to the above.

Upon the shaft O is a sprocket-wheel, s , which by means of a chain, t , drives a sprocket-wheel, u , which drives a gear-wheel, v , which drives crown-wheel E and shaft C and its connected parts.

The pulley r and belt q are driven from shaft O by means of a chain-belt, w , and sprocket-wheels x and y .

Having thus described my invention, I claim—

1. The combination, with the hopper B, of the revolving disk H, with radially-projecting ribs I, and the stationary disk J, with slots K, said disk H being placed above disk J and operating to grind and force the clay through slots K in disk J, substantially as described.
2. The combination of block N, cam S, shaft R, wheels P Q, crank V, rod a , plate W, with slot b , and bar U, with pin c , substantially as and for the purposes set forth.
3. The combination of wheels P Q, with pins $h i$, lever e , rod f , plate g , with slot j , and plunger M, with pin k , substantially as set forth.

NICHOLAS KIRCHNER.

Witnesses:

OTIS EGAN,
CHAS. A. RUTTER.