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PATENTED APR. 12, 1904.

H. A. STOFFER.

BRICK MACHINE.

APPLICATION FILED MAY 13, 1903.

NO MODEL.

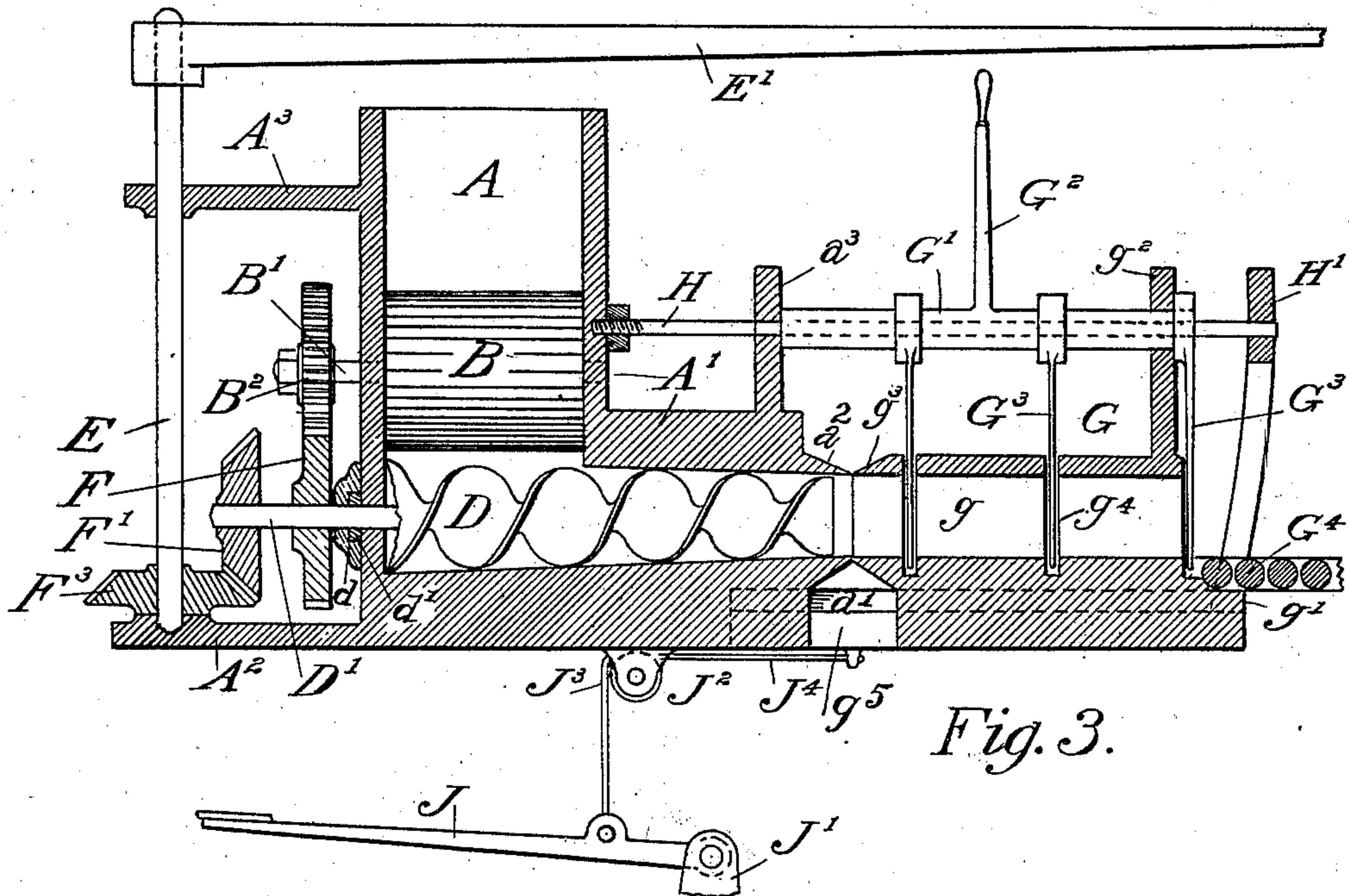


Fig. 3.

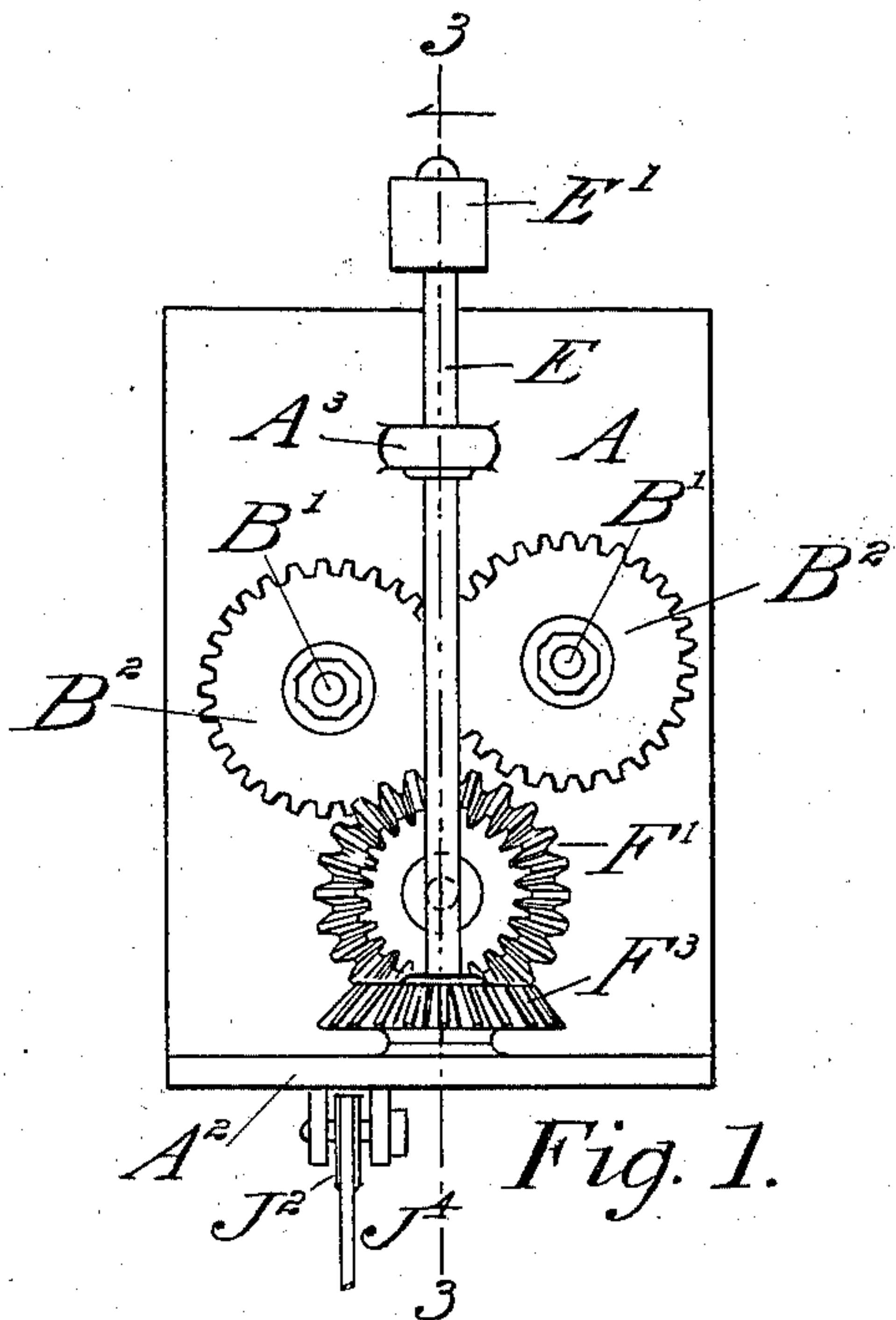


Fig. 1.

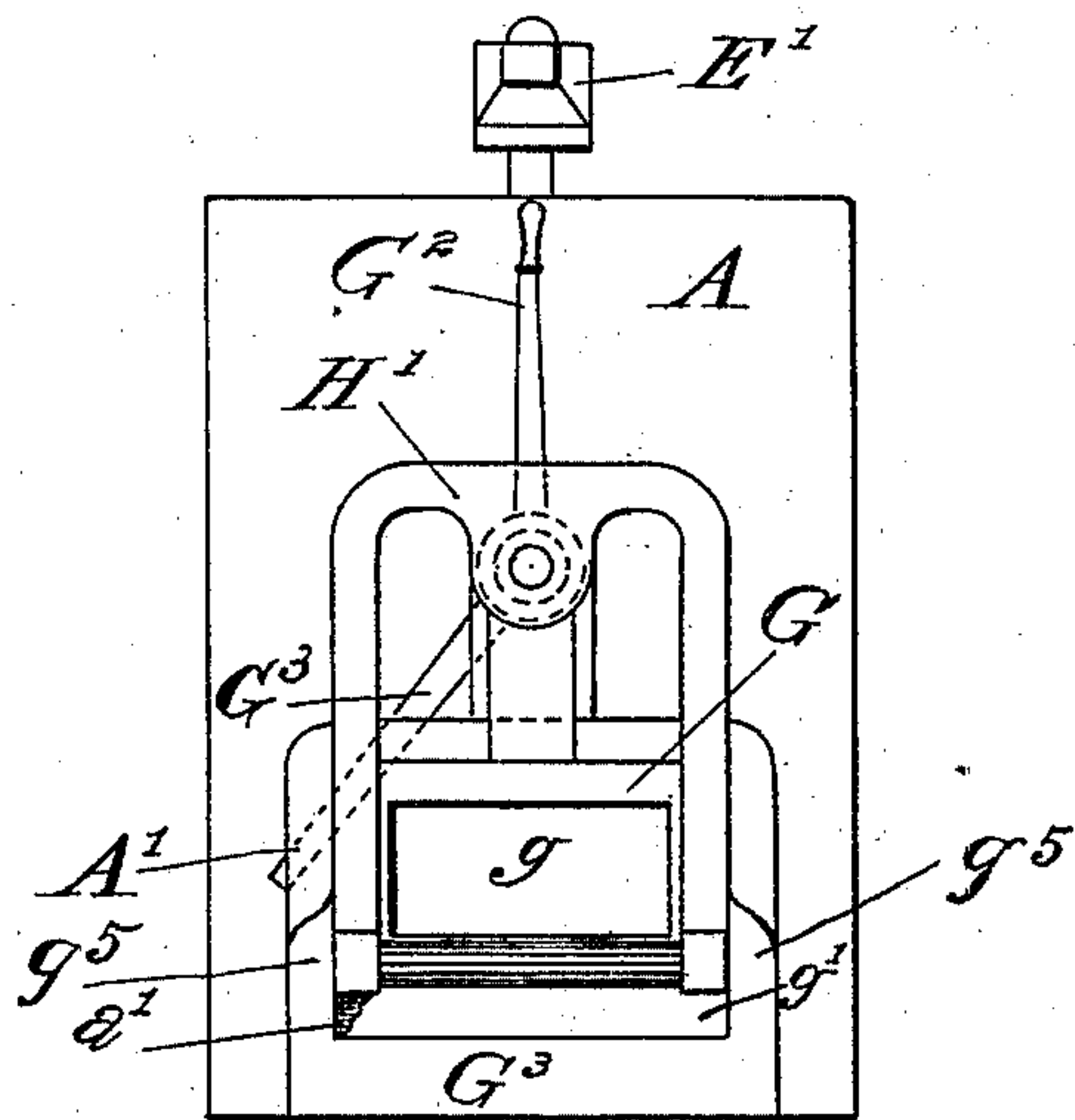


Fig. 2.

Witnesses.  
Victor Gump.  
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By Atty. N. Du Bois,



# UNITED STATES PATENT OFFICE.

HIRAM A. STOUFFER, OF CHATHAM, ILLINOIS, ASSIGNOR OF ONE-HALF  
TO LAURENCE EVOY, OF CHATHAM, ILLINOIS.

## BRICK-MACHINE.

SPECIFICATION forming part of Letters Patent No. 756,906, dated April 12, 1904.

Application filed May 13, 1903. Serial No. 156,882. (No model.)

*To all whom it may concern:*

Be it known that I, HIRAM A. STOUFFER, a citizen of the United States, residing at Chatham, in the county of Sangamon and State of Illinois, have invented certain new and useful Improvements in Brick-Machines, of which the following is such a full, clear, and exact description as will enable others skilled in the art to which it appertains to make and use my said invention.

My invention relates to brick-machines of that class which employ rollers for crushing the clay and a worm for feeding the clay through the brick-machine.

The purposes of my invention are to provide in connection with a machine of the class described improved means for cutting the clay slab into brick during its progress through the machine and to provide simple and effective means for operating the crushing-rollers and the presser screw or worm in time with each other.

A prime feature of my invention is a clay-propelled die-block containing a clay bar from which one or more bricks may be cut by a knife or knives mounted on and traveling with the die-block.

With these ends in view my invention consists in the novel features of construction and combinations of parts shown in the annexed drawings, to which reference is hereby made, and hereinafter particularly described, and finally recited in the claims.

Referring to the drawings, Figure 1 is a front end elevation of the complete machine. Fig. 2 is a rear end elevation, and Fig. 3 is a vertical longitudinal section on the line 3-3 of Fig. 1.

Similar letters of reference designate like parts in all of the views.

This machine is primarily designed to be operated by horse-power to make brick from untempered clay as it comes from the pit, but obviously may be used in connection with a pug-mill to make brick from ground and tempered clay and may be operated by any other suitable power.

The main structure of the machine consists

of a hopper A, in which the crushing-rolls B are mounted to turn side by side, and a horizontal extension A', having a bore in which the worm D turns. Extensions A<sup>2</sup> and A<sup>3</sup> project forwardly from the front of the machine. A vertical shaft E turns in suitable bearings on the extensions A<sup>2</sup> and A<sup>3</sup>. A sweep E' is secured to the upper end of the shaft E, and the team by which the machine is operated may be hitched to the sweep in the usual well-known manner. The shafts B' of the rolls B extend forwardly. Intermeshing cog-wheels B<sup>2</sup> are secured on the shafts. The worm-shaft D' projects forwardly and the spur cog-wheel F and the bevel cog-wheel F' are secured on said shaft. The spur-wheel F meshes with and drives one of the cog-wheels B<sup>2</sup>, and the cog-wheels B<sup>2</sup> mesh with each other, so as to cause the crushing-rolls to turn toward each other. A cog-wheel F<sup>3</sup> is secured on the shaft E and meshes with the cog-wheel F'. The train of gear-wheels F<sup>3</sup>, F', F, and B<sup>2</sup> are so proportioned that the crushing-rolls will revolve at such rate as will cause the rolls to deliver exactly the right amount of clay to the worm.

When it is desired to operate the machine by a steam-engine or other motor, a pulley may be substituted for the cog-wheel F', the pulley being driven by a belt running on a suitable belt-wheel of the engine or motor.

A collar d, secured on the worm-shaft D', turns in a circular box d' on the front end of the machine, and the box and collar serve as a thrust-bearing for the worm-shaft and prevent longitudinal movement of the worm.

A die-block G has a central die g of rectangular cross-section adapted to form a clay bar suitable to cut into brick, and also has laterally-extending members g', which slide in horizontal longitudinal channels a' in the walls of the rearwardly-projecting members g<sup>5</sup> of the extension A'. The edges of the rear end of the extension A' are in the form of chisels a<sup>2</sup>, and the edges of the front end of the die-block G have similar chisel-edges g<sup>3</sup>. When the die-block is pushed forward after having been propelled rearward by the clay bar, the



chisel-edges  $g^3$  coming against the chisel-edges  $a^2$  cut off any clay which may be forced out between the ends of the member  $A'$  and the die-block  $G$  and which if not removed might prevent the die-block from moving up closely against the end of the member  $A'$ . Vertical cuts  $g^4$  extend transversely across the block  $G$ .

A shaft  $H$ , parallel to the axis of the worm, has one end secured to the hopper  $A$ , and the other end of the rod projects rearwardly somewhat beyond the rear end of the die-block  $G$  and is secured to any suitable stationary support  $H'$ . An intermediate support  $a^3$  on the member  $A'$  steadies the rod.

The pipe  $G'$  is secured to the standard  $g^2$  and slides on the rod  $H$ . When the block  $G$  is pushed rearward, the hub of the knife  $G^3$  at the rear end of the pipe  $G'$  strikes against the stop  $H'$  and limits the rearward movement of the die-block. A lever  $G^2$  is secured to the pipe  $G'$ . Double-edge cutter-blades  $G^3$  are secured to the pipe  $G'$  and extend downwardly through the slits  $g^4$  and across the die  $g$ , so that when the lever  $G$  is pushed to the right the blades will cut to the left through the clay bar in the die  $g$  and when the lever is pulled to the left the blades will cut to the right through the clay bar, thus dividing the clay bar into brick lengths. The clay bar being within the die during the operation of cutting off the bricks, the walls of the die hold the clay bar firmly and prevent tearing of the edges of the bricks during the cutting off of the bricks. In the drawings I have shown three cutter-blades, one near each end and one at the middle of the die-block. The cutter-blade at the rear end of the die-block will always cut off any surplus clay which may creep through the die, and the bricks discharged from the machine will all be of the same length. At the rear end of the die-block is a train of rolls  $G^4$ , on which the bricks travel as they are discharged from the machine. The die-block is held firmly against the rear end of the member  $A'$  by means hereinafter described, and the worm forces clay outward through the die in the die-block. When the device holding the die-block against the member  $A'$  is released, the clay pushed rearward by the worm will slide the die-block rearward at the same rate that the clay travels.

From the foregoing it will be seen that the knives travel with the die-block. Hence there can be no creeping of the clay bar across or against the blades during the operation of making the cut.

For the purpose of holding the die-block against the end of the member  $A'$  and for the purpose of releasing the die-block so that it may be propelled by the clay during the operation of cutting I provide means which I will now describe.

A lever or pedal  $J$  is pivotally connected with a suitably-placed stationary support  $J'$ . A sheave  $J^2$  is mounted to turn in a stationary

support  $J^3$ . A rope  $J^4$  or other suitable connecting device has one end secured to the die-block  $G$ . The rope  $J^4$  passes over the sheave  $J^3$  and is connected with the lever  $J$ . The lever  $J$  is depressed to hold the die-block firmly against the member  $A'$  while clay is being forced into the die  $g$ . When sufficient clay has been forced into the die, the lever  $J$  is released, permitting the die-block  $G$  to travel rearward, propelled by the clay bar. During the rearward movement of the die-block the clay bar is divided into bricks by the blades  $G^3$ , operated by the lever  $G^2$ , as already described. As soon as the cut is made the lever  $J$  is again pressed downward to restore the die-block to its original position in firm contact with the rear end of the member  $A'$ , and so on as often as it may be necessary to cut the clay bar.

Any other suitable means for holding the die-block against the member  $A'$  and releasing it at suitable intervals may be employed without departing from my invention.

I am aware that crushing-rolls in operative relation to a worm have heretofore been used in brick-machines. I therefore do not claim that feature broadly.

The operation of the machine is as follows: The parts being assembled as described, horses are hitched to the sweep and driven around the machine. The sweep turns the shaft  $E$ , which, through the gears  $F^3$ ,  $F'$ ,  $F$ , and  $B^2$ , drives the worm and the crushing-rolls at the proper speed for the operation of the machine. Clay fed into the hopper  $A$  is crushed between the rolls  $B$ , by which it is fed down to the worm  $D$ . The worm forces the clay through the member  $A'$  and into the die  $g$ . When the die is full, the operator releases the lever  $J$  and cuts off the brick, as already described, and then immediately operates the lever  $J$  to force the die-block back to position in readiness for the next cutting, and so on during the operation of the machine.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a brick-machine, the combination of a main structure having extensions, a sweep-shaft turning in bearings on said extensions, a sweep connected with said sweep-shaft, a worm having a forwardly-projecting shaft provided with a collar, a box in which the collar on the worm-shaft fits, a spur-wheel and a bevel-wheel on the worm-shaft, a bevel-wheel on the sweep-shaft meshing with the bevel-wheel on the worm-shaft, crushing-rolls having forwardly-extending shafts, cog-wheels on the crushing-roll shafts meshing with each other, one of said cog-wheels also meshing with the spur-wheel on the worm-shaft, a guide-rod secured to the main structure parallel to the axis of the worm, a slitted die-block slidable on the main structure and on said guide-rod, a pipe inclosing and slidable on said rod,



a lever secured to said pipe, and knives secured to said pipe and working in the slits in said die-block, as set forth.

2. In a brick-machine, the combination of  
5 a main structure having an extension provided with chisel-edges, crushing-rolls and a worm turning in the main structure, a slitted die-block abutting against the end of the main structure and slidable longitudinally relative  
10 to the main structure, knives mounted on said die-block and adapted to cut in both directions

through the slits in said die-block and means for forcing one end of said die-block against the chisel-edges on the main structure, as set forth.

In witness whereof I have hereunto subscribed my name, at Chatham, Illinois, this  
4th day of May, 1903.

HIRAM A. STOUFFER.

Witnesses:

M. F. CLOYD,

W. H. WADLEIGH.

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