

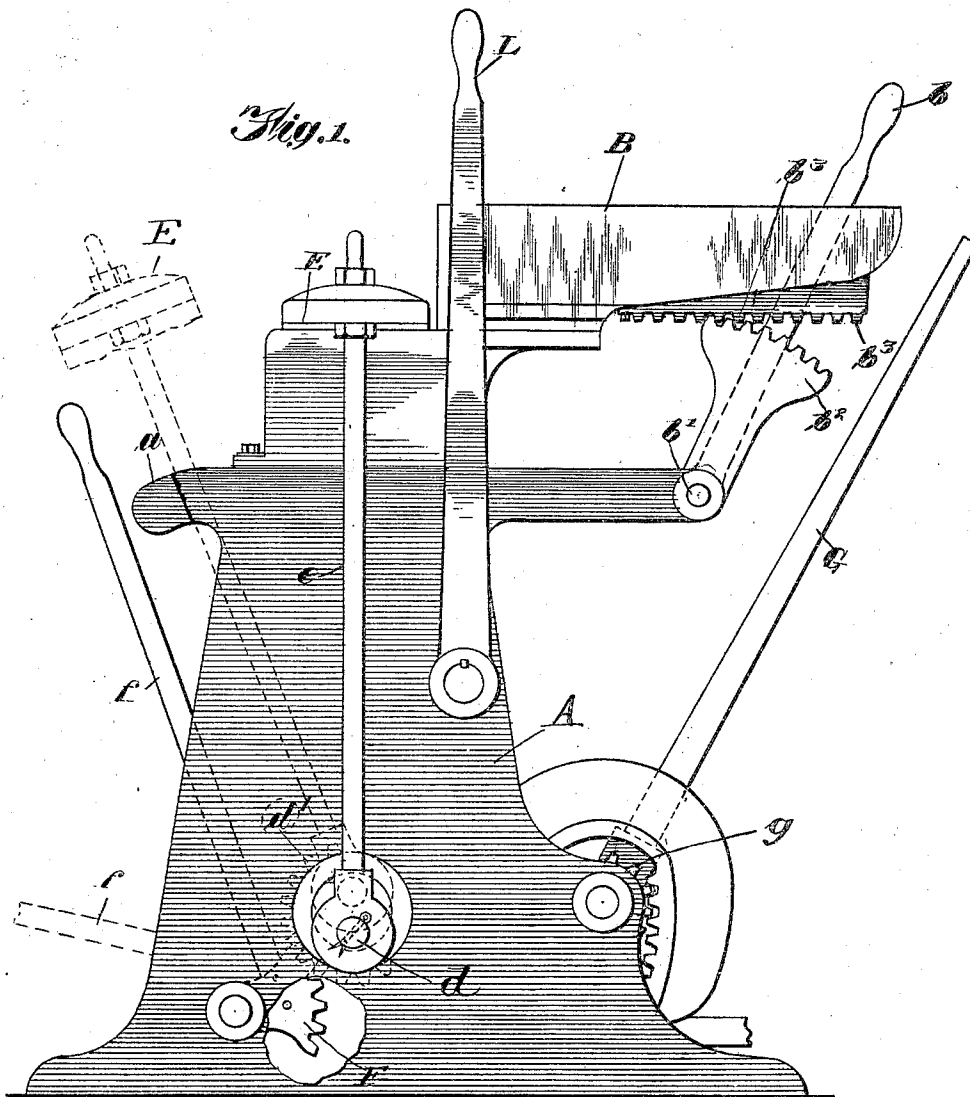
No. 725,025.

PATENTED APR. 14, 1903

R. C. BISHOP.
BRICK MAKING MACHINE.
APPLICATION FILED SEPT. 8, 1902.

NO MODEL.

3 SHEETS—SHEET 1.



Witnesses:

J B Weir
H. M. M. M.

Inventor:

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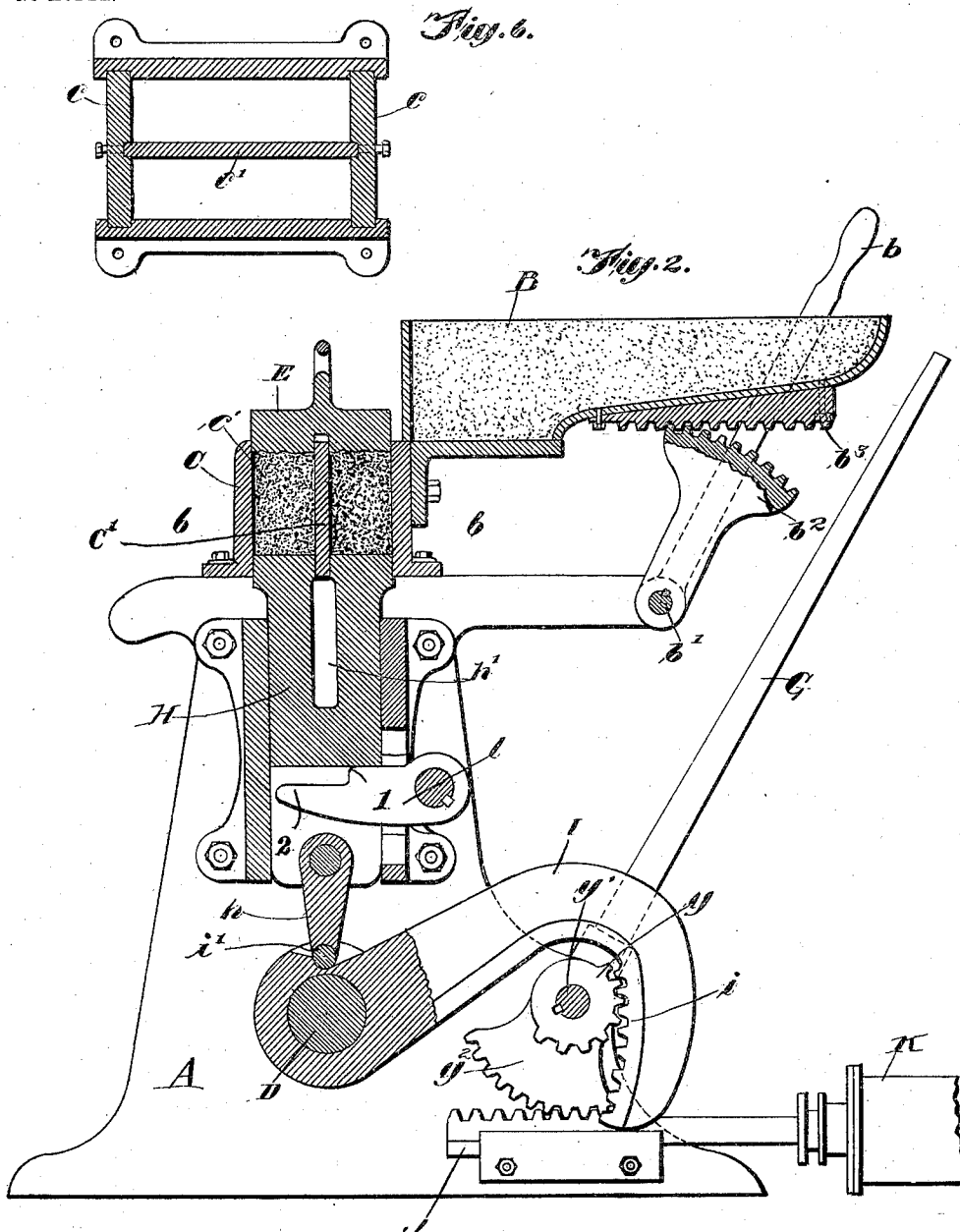
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3. SHEETS—SHEET 2.



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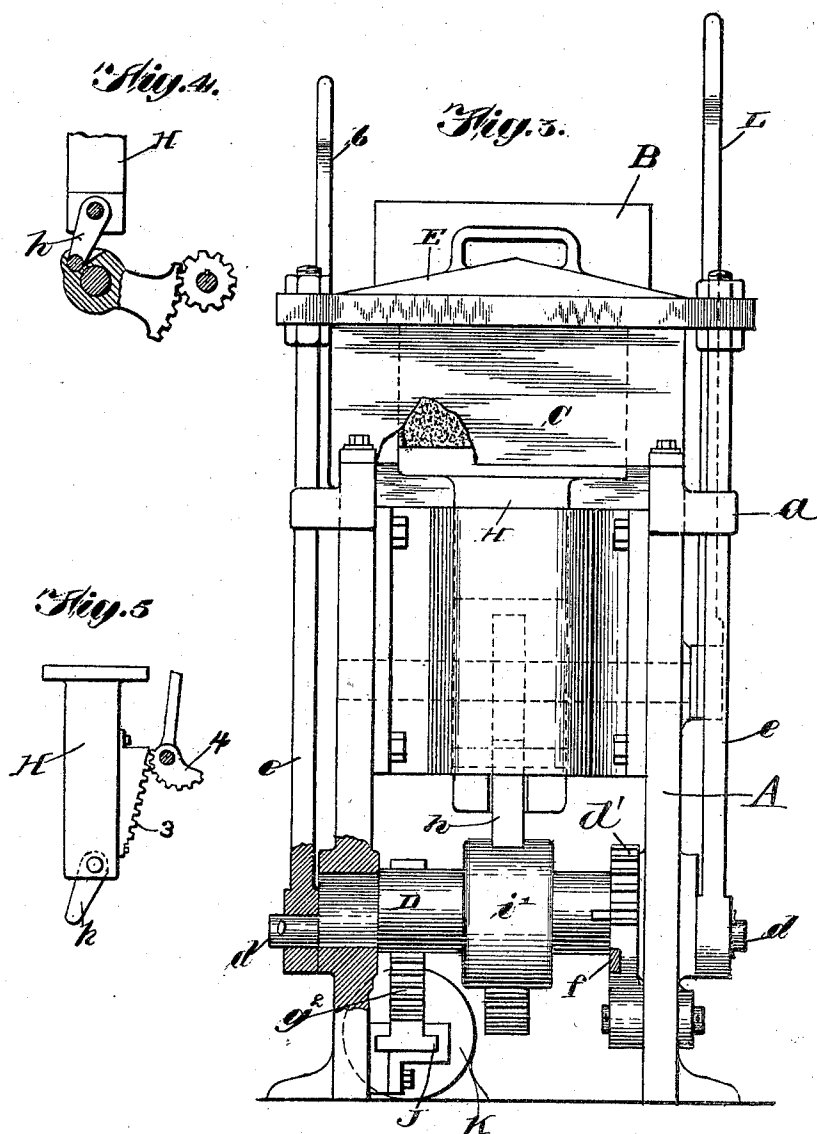
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

RALPH C. BISHOP, OF ST. JOSEPH, MICHIGAN.

BRICK-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 725,025, dated April 14, 1903.

Application filed September 8, 1902. Serial No. 122,518. (No model.)

To all whom it may concern:

Be it known that I, RALPH C. BISHOP, a citizen of the United States of America, and a resident of St. Joseph, Michigan, have invented a certain new and useful Improvement in Machines for Making Bricks, of which the following is a specification.

My invention relates to machines for making bricks.

It relates more particularly to brick-making machines of that type in which suitable means are provided for pressing sand or cement into brick form.

Generally stated, it is the object of my invention to provide a simple, compact, and highly-efficient machine of the foregoing character.

A special object is to provide improved means for bringing together the jaws for compressing the sand or other materials.

Another object is to provide an improved arrangement for ejecting the bricks after they have been suitably compressed and molded into the proper form.

A further object is to provide an improved construction of mold-box.

Another object is to provide an improved and highly-efficient arrangement for operating the hopper in which the sand or other material is held and shifted back and forth above the mold-box.

It is also an object to provide certain details and features of improvement tending to increase the general efficiency and serviceability of a machine of this character.

To the foregoing and other useful ends my invention consists in matters hereinafter set forth and claimed.

In the accompanying drawings, Figure 1 is a side elevation of a brick-machine constructed in accordance with my invention. Fig. 2 is a vertical section of the machine shown in Fig. 1. Fig. 3 is a front elevation of the machine shown in Figs. 1 and 2. Fig. 4 shows a modified form of the mechanism for raising the lower jaw. Fig. 5 shows a modified form of the device for ejecting the finished bricks. Fig. 6 is a horizontal section on line 6 6 in Fig. 2.

As thus illustrated, my improved brick-machine comprises a suitable frame and body structure A, adapted to support the shifting

hopper B and the mold-box C in suitably-elevated positions. The said mold-box is preferably provided with end walls *c* and also with the centrally-arranged partition *c'*. The two compartments thus provided in the mold-box are of the size desired for the bricks, it being understood that in operation a brick is pressed or formed in each compartment. The hopper B is preferably mounted to slide over the mold-box and is controlled by a lever *b*, pivotally mounted at *b'*. The shaft or the like on which the said lever is mounted is also provided with a segmental rack *b²*, adapted to engage a rack *b³* on the under side of the hopper. By this arrangement the hopper when filled with sand or other material can be shifted over the mold-box, so as to deposit within the latter a suitable quantity of the sand or other material from which to make the bricks. The shaft D, which is mounted in bearings on the frame or body structure, is provided at each end with an eccentric-pin *d*. The upper jaw E, which is provided to press down upon the sand in the mold-box, is connected with the said eccentric-pins by means of links *e*. Said shaft D is also preferably provided with a pinion *d'*. The segmental rack F is arranged to engage said pinion and is provided with a hand-lever *f*. In its normal position the upper jaw E rests in the position shown in dotted lines in Fig. 1, the links *e* resting against the stops *a*. After filling the mold-box with sand the jaw E is swung to its position above the mold-box and the lever *f* is then manipulated so as to rotate the shaft D, and thereby draw the said upper jaw down upon the sand in the mold-box, as shown in Figs. 1 and 2. When this has been done, the lever G can then be manipulated so as to rotate the pinion *g*, and thereby raise the lower jaw H. This is accomplished, it will be seen, by mounting a lever I upon the shaft D and by providing the said lever with an internally-toothed rack portion *i*, adapted to engage the said pinion. The lower end of the lower jaw H, which, it will be seen, slides in the bearing of the frame, is preferably provided with a link *h*, adapted to engage a pin *i'* on the lever I. The upper end of the said lower jaw can be provided with a recess *h'*, adapted to receive the mold-box partition *c'*. Thus, as stated, after the preliminary pressing of the

sand has been accomplished by manipulating the hand-lever *f* so as to draw the upper jaw down upon the sand in the mold-box the final compression can then be obtained by throwing the lever *G* into the position shown in Fig. 1, so as to draw the rack portion of the lever downwardly, and thereby raise the plunger-like lower jaw *H*. If desired and as an auxiliary means of operating the lower jaw, the shaft *g'*, upon which the pinion *g* is mounted, can be provided with a toothed gear or segment *g''*, such as shown, adapted to engage the reciprocating rack *J*. This reciprocating rack can be operated by a piston and rod inclosed in a fluid-pressure cylinder *K*. Now after the two bricks in the mold-box have been thus compressed the upper jaw can be released from the mold-box by shifting the lever *f* to the dotted position (shown in Fig. 1) and by allowing said jaw to swing over and rest against the stops *a*. In order to then eject the two compressed and hardened bricks in the mold-box, it is only necessary to manipulate the lever *L*. This lever is connected with another lever, *l*, which bears upwardly against the lower end of the jaw *H*. Preferably this lever *l* is provided with two bearing portions 1 and 2. In this way when the said lever is thrown back the bearing portion 1 first exerts a very powerful leverage, so as to easily start the bricks from the mold-box, and the bearing portion 2 then engages the jaw and accelerates the movement of the latter in ejecting the bricks. It will be understood that the arrangement is such that the lower jaw *H* can be elevated to an extent sufficient to bring its upper surface flush with the top of the mold-box, thereby making it possible to readily move the ejected bricks. During this ejecting operation it will be seen that the link *h* becomes disengaged from the pin *i'* on the segment-lever *I*. Thus it will be seen that I provide a simple and very strong construction of mold-box. Furthermore, it will be seen that I not only provide a simple and improved arrangement for operating the hopper, but also a novel and effective arrangement for obtaining a preliminary downward compression of the sand in the mold-box. In addition to these I also provide, as will be seen from the foregoing, a very powerful and easily-operated lever arrangement for operating the lower jaw. It will also be observed that the lever device for ejecting the bricks is of a character to be not only powerful in the initial ejecting movement, but also easily and conveniently operated.

As far as the feature of the link *h* is concerned it will be seen that I may employ the arrangement shown in Fig. 4, if desired, and without in any way departing from the spirit of my invention. Again, and as far as the decreasing leverage of the ejecting device is concerned, it will be seen that the arrangement shown in Fig. 5 is within the scope of my invention. In Fig. 4 the construction is

substantially the same as shown in Fig. 2 with the exception that the segment-lever is shorter and externally toothed, and consequently not as powerful as the internally-toothed segment-lever shown in Fig. 2. In Fig. 5 the lower jaw is provided with a rack having an inclined toothed surface 3, adapted to be engaged by the eccentrically-mounted pinion 4.

What I claim as my invention is—

1. A brick-machine comprising an upper jaw and an eccentric shaft, links connecting said jaw with said shaft, a hand-lever and gearing for manually rotating said shaft, and adapted for independently adjusting said upper jaw, a lower jaw, power-transmitting connections for operating said lower jaw, and a hand-lever adapted and arranged for lifting said lower jaw for the purpose of ejecting the brick.

2. A brick-machine comprising a movable jaw and a suitable lever arranged to actuate said jaw, a shaft carrying a pinion, a rack on said lever arranged to engage said pinion, a toothed member on said shaft, and a reciprocating rack arranged to engage said toothed member, and a cylinder and piston for operating said reciprocating rack.

3. A brick-machine comprising a mold-box, an eccentric shaft, upper and lower movable jaws, links connecting the upper jaw with said eccentric shaft, a hand-lever connected and arranged for rotating said shaft and thereby independently operating said upper jaw, a lever loosely mounted upon said shaft and connected with said lower jaw, said last-mentioned lever being provided with an internally-toothed end portion, a pinion adapted to engage said internally-toothed portion, and a second hand-lever for rotating said pinion, whereby said lower jaw may be operated independently of the upper jaw.

4. A brick-machine comprising a suitable mold-box, upper and lower movable jaws, a shaft having its ends provided with eccentrically-mounted pins, links connecting said pins with the upper jaw, a pinion keyed to said shaft, a toothed member adapted to engage said pinion, an independently-mounted hand-lever adapted for operating said toothed member and thereby independently adjusting said upper jaw, independent power-transmitting connection for operating the lower jaw independently of the upper jaw, and a hand-lever adapted and arranged for lifting the lower jaw for the purpose of ejecting the brick.

5. A brick-machine comprising a suitable mold-box, upper and lower movable jaws, an eccentric shaft arranged below the lower jaw, an internally-toothed lever loosely mounted on said shaft, a link *h* detachably connecting the hub portion of said lever with the lower end of said lower jaw, a pinion engaging the internally-toothed portion of said lever, a hand-lever for rotating said pinion and thereby independently operating said lower jaw,

another hand-lever and power-transmitting connections for independently operating said upper jaw, and a third hand-lever for raising said lower jaw and link away from the hub
 5 portion of said internally-toothed lever, said third lever thereby being adapted for ejecting the brick from the mold-box.

6. A brick-machine comprising a suitable mold-box, upper and lower movable jaws, an
 10 internally-toothed lever, a pinion engaging the toothed portion of said lever, means for rotating said pinion, a separable connection between said internally-toothed lever and said lower jaw, means for independently op-
 15 erating the upper jaw, and an ejecting-lever provided with bearing portions 1 and 2 adapted to engage the said lower jaw, said ejecting-lever thereby being capable of exerting a relatively powerful leverage during its initial movement.
 20

7. A brick-machine comprising a mold-box with a removable partition, upper and lower movable jaws, the lower jaw having a recess adapted to receive said partition, an eccentric shaft arranged below the said jaws, links
 25 connecting the upper jaw with said eccentric

shaft, a hand-lever connected and arranged for rotating said shaft, and for thereby adjusting the upper jaw independently of the lower jaw, an internally-toothed lever loosely
 30 mounted on said shaft, a separable connection between said lower jaw and the hub portion of said internally-toothed lever, a pinion engaging the toothed portion of said lever, means for rotating said pinion for the
 35 purpose of adjusting the lower jaw independently of the upper jaw, an ejecting-lever having two bearing portions of different leverage adapted to successively engage the lower end of said lower jaw, said ejecting-lever
 40 thereby being adapted for independently raising the lower jaw and thereby ejecting the brick, a sand-box adapted to slide over the said mold-box, and a hand-operated rack-and-segment device for reciprocating said sand-
 45 box.

Signed by me at St. Joseph, Michigan, this
 26th day of July, 1902.

RALPH C. BISHOP.

Witnesses:

EDWARD CRAIG,
 DAVID COOPERMAN.