E. R. Q. GIBSON.

BRICKMAKING MACHINE.

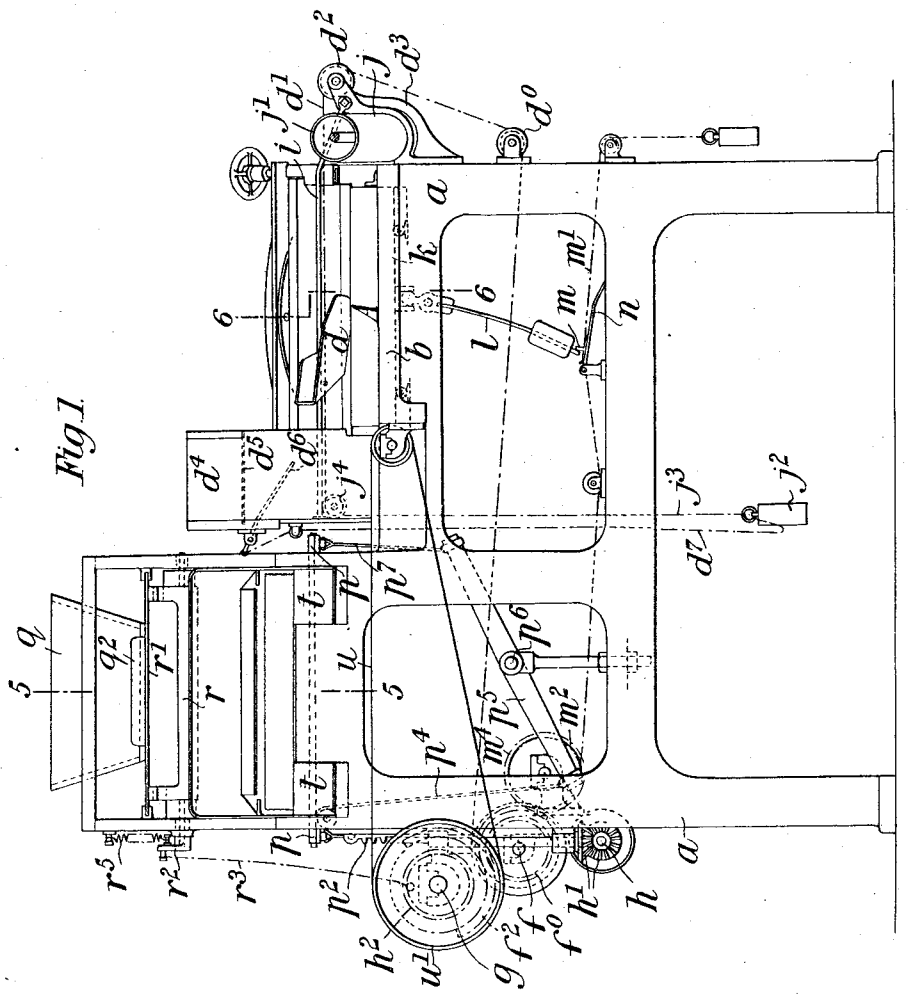
APPLICATION FILED DEC. 4, 1911.

1,066,897.

Patented July 8, 1913.

4 SHEETS—SHEET 1.

Fig 1.



Witnesses.

J. K. Moore

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by

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4 SHEETS—SHEET 2.

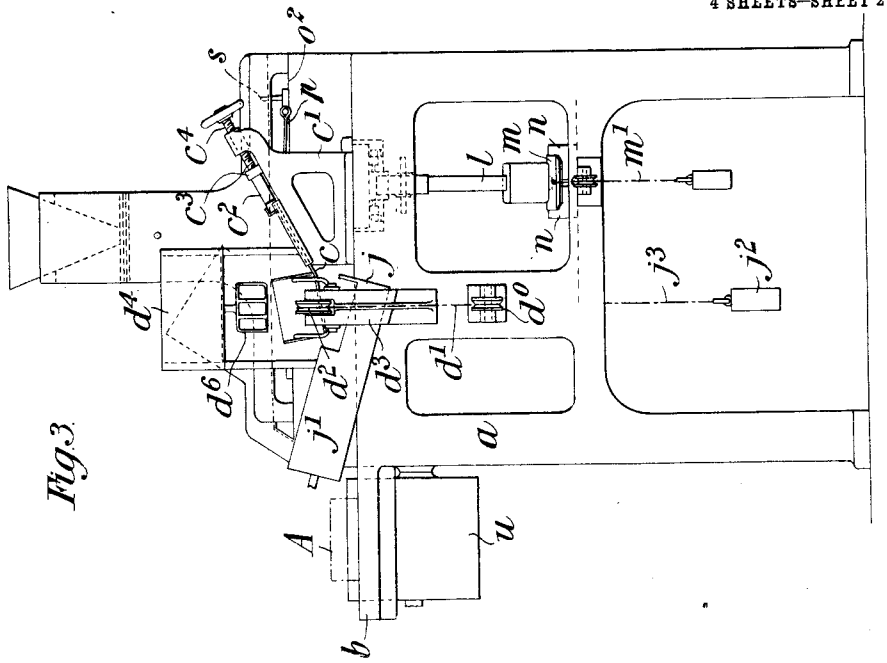


Fig. 3

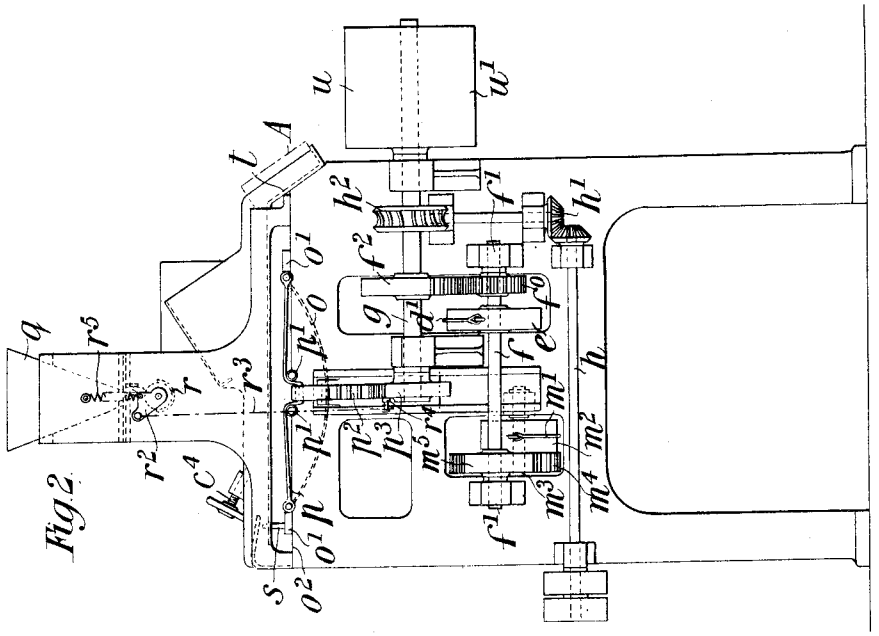


Fig. 2

Witnesses.

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BRICKMAKING MACHINE.

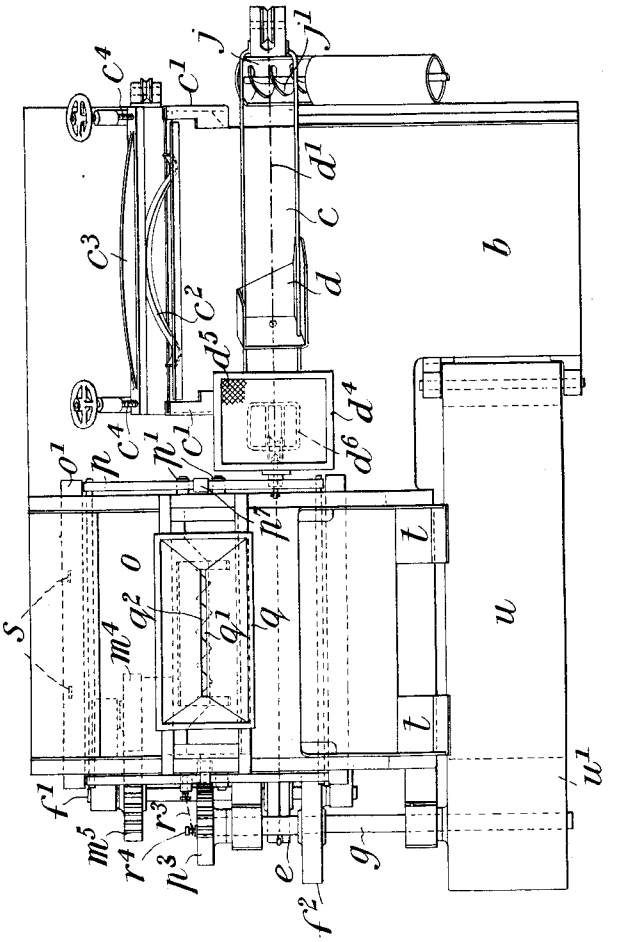
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4 SHEETS—SHEET 3.

Fig. 4.



Witnesses.

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4 SHEETS—SHEET 4.

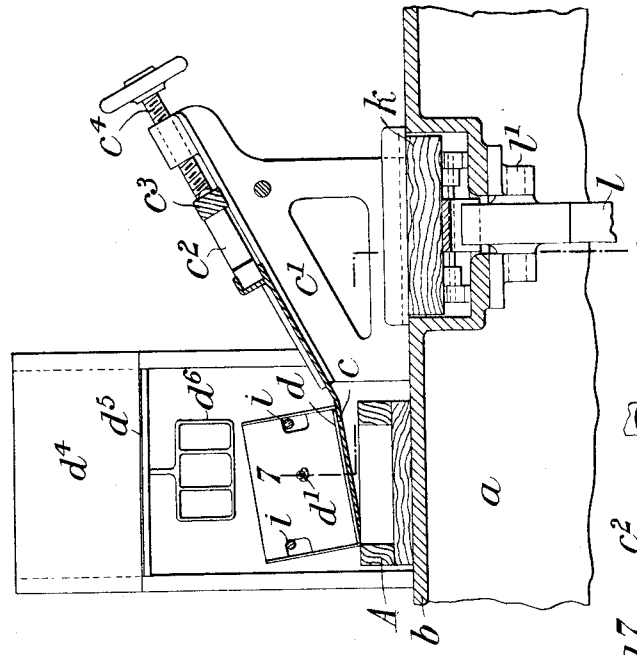


Fig. 6

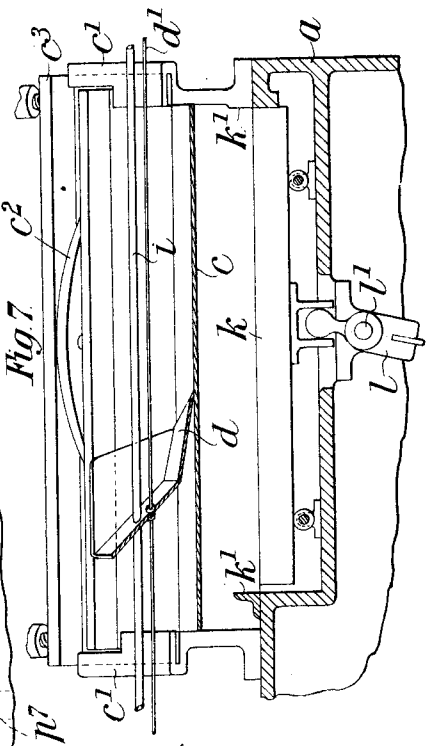


Fig. 7

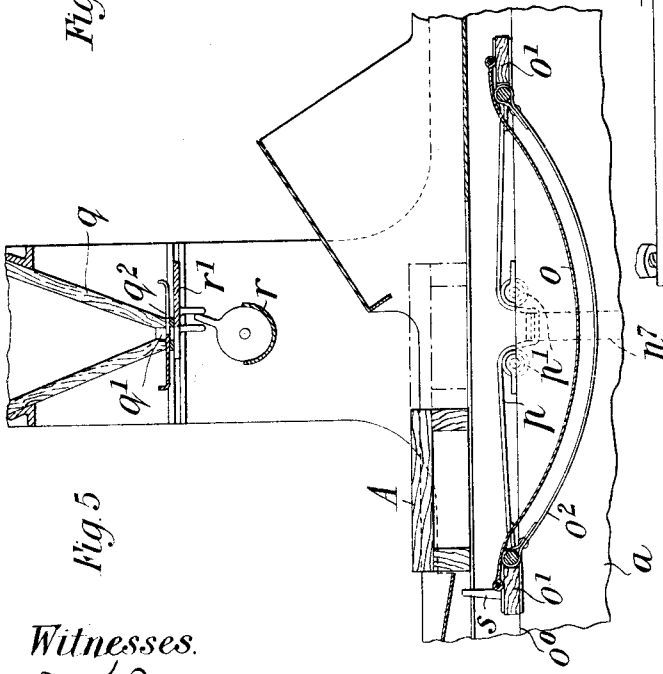


Fig. 5

Witnesses.

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UNITED STATES PATENT OFFICE.

EDWIN RODOLPH QUELCH GIBSON, OF ENFIELD, ENGLAND.

BRICKMAKING-MACHINE.

1,066,897. Specification of Letters Patent. Patented July 8, 1913.

Application filed December 4, 1911. Serial No. 663,907.

To all whom it may concern:

Be it known that I, EDWIN RODOLPH QUELCH GIBSON, a subject of the King of Great Britain, residing at 31 Millais road, Enfield, Middlesex, England, have invented new and useful Improvements in Brickmaking-Machines, of which the following is a specification.

This invention relates to brickmaking machines, and to that class of such machine wherein a series of separate multiple molds is employed which are filled with clay or pug from a suitable hopper, and then pushed along a table to bring them successively beneath the press. In such a machine it is usual, as the molds pass from beneath the press, to strike off the surplus clay; then to strike the sides of the mold in order to loosen the bricks; then to reverse the mold, in order to lift the latter from the bricks, then again to reverse the mold and transfer it to a sander where it is sanded; then once more to reverse the mold to shake out the surplus sand and then again to reverse the said mold before placing it upon the table ready for filling.

The object of this invention is to reduce the number of such operations that have to be performed by hand, and thus to dispense with some of the labor which is necessary with brickmaking machines as now made. Also to diminish the wear and tear of the molds and to effect an economy in the consumption of sand.

According to my invention I arrange over the usual table a striker or striking knife or plate under which the mold travels after the pressing operation, and which pares off the surplus clay; after this operation the mold travels on to a movable platform or table to which a shaking movement is imparted so as to cause the mold to strike fixed side plates or projections which cause the necessary loosening of the clay in the mold and so allow the mold after being reversed to be readily lifted from the molded bricks. The mold when lifted from the bricks, without being reversed, is carried over a sanding device which operates to throw the sand upward into the inverted mold, so that the surplus sand, which does not adhere to the surfaces of the mold, falls back into the sanding device. The mold after passing over the sanding device turns over, and then returns on a traveler on the feed end of the machine ready to be again filled with clay, whereupon the operations before described are repeated.

To enable the invention to be fully understood, I will describe it by reference to the accompanying drawings, in which:—

Figure 1 is a front elevation of a machine or apparatus constructed according to my invention. Figs. 2 and 3 are respectively left and right hand end views of the machine. Fig. 4 is a plan. Fig. 5 is a section on the line 5—5, Fig. 1. Fig. 6 is a section on the line 6—6, Fig. 1, and Fig. 7 is a section on the line 7—7, Fig. 6. Figs. 5 to 7 are drawn to a larger scale than the remaining figures of the drawings.

a is the frame of the machine and *b* is a table which is provided at the upper part of the said machine, and above which is located the press, not shown in the drawings.

c is the striker knife which is mounted to slide in a frame c^1 and c^2 is a spring bearing upon the upper part of the striker knife and tending to press the same on to the top of the multiple mold A, one of which is shown in position in Fig. 6. The spring, however, allows of the lifting of the knife *c* in case any hard substance should interfere with its proper action while the mold is passing beneath it. The spring c^2 is made adjustable to suit various kinds of brick material this being effected by means of the crossbar c^3 which bears upon the said spring and upon two screws c^4 adjustable in the frame c^1.

The striking knife *c* has arranged in connection with it a mechanically operated scraper *d* which moves in the transverse direction of the machine, or longitudinally upon the striker knife *c*. This scraper *d* serves for removing the material cut off by the knife, and is also shaped so that it scrapes off the portion of the surplus material from the end portion of the brick itself, before the latter passes beneath the striking knife, this arrangement serving to leave a cleaner angle at the end of the brick than would be the case if the surplus material were removed wholly by the striking knife *c*. The said scraper *d* is operated so that it executes a rapid travel forward for the full length of the mold through the medium of a rope or chain d^1, one end of which is attached to the scraper and which passes over the pulley d^2 in the bracket d^3 fixed to the frame *a*, and over another pulley d^0 its other end being connected to a pulley *e* upon the shaft *f* which is mounted in bearings f^1 at one

end of the frame *a*. The shaft *f* has keyed upon it a pinion f^0 which engages the mutilated toothed wheel f^2 keyed upon the shaft *g* driven from the main shaft *h* by the bevel gear h^1 and worm gear h^2. The scraper *d* runs along the fixed guides *i* which curve downward at the front so that at the end of the forward stroke the scraper *d* is tilted for the purpose of discharging the material which it carries into the receptacle *j* provided to receive it, an elevator or conveyer j^1 being combined with this receptacle for the purpose of returning the surplus clay to the pug-mill. After it has discharged its contents the scraper *d* is quickly returned to its initial position by a weight j^2 upon a cord or the like j^3 which passes over a pulley j^4 fixed in the frame *a* and is attached to the rear of the said scraper. The mutilated toothed wheel f^2 operates the gear f^0 when their respective teeth mesh, but when the smooth portion of the periphery of the mutilated toothed wheel is reached, there being no teeth at this portion, the gear f^0 is returned to its original position by means of the weight j^2.

A device which for convenience of description I will term a sprayer is arranged above the scraper *d* for the purpose of sanding the same. This sprayer comprises a sand bin d^4 having a bottom d^5 of wire gauze or other perforated material, and a tapper d^6 which serves for striking the said sprayer for causing a shower of sand to pass through the perforated bottom. This tapper d^6 is pivoted to the sand bin d^4 and is actuated by the cord d^7 attached to the weight j^2.

The shaker on to which the mold A containing the pressed bricks is placed after passing the striking knife *c*, is in the form of a platform or table *k* with two fixed sides k^1 projecting above it, the said table *k* being oscillated by the engagement with its underside of one end of a flexible pendulum *l* which is fulcrumed at l^1 to the frame *a* and the lower end of which is swung, as shown in Fig. 1 by a trip-piece *m* connected to a weighted cord m^1 which is attached to the pulley m^2 upon a spindle m^3 carrying a toothed wheel m^4 adapted to be intermittently actuated by the mutilated toothed wheel m^5 upon the shaft *f*, (in a manner similar to the operation of the scraper.) In conjunction with the trip-piece *m* there is provided the pair of pivoted inclines *n* up which the said trip-piece rides on the backward movement and below which it passes on the return movement. It will therefore be seen that with this construction as the trip-piece is reciprocated it oscillates the pendulum *l* and thus imparts a shaking motion to the table *k*. The molds A pass on to the shaking table *k* as they pass from beneath the striker knife *c* and the pendulum *l* is released at the required time to impart the desired shaking action.

The device for sanding the inverted molds comprises a sheet *o* of fabric or other suitable material, the ends of which are connected to two sliding bars o^1 adapted to approach and recede on the horizontal guides o^0 but being normally held at the greatest distance apart by the springs o^2 secured upon the underside of the sheet *o*. The said sliding bars are connected together at each side by means of a strap *p* each of which passes over two guide rollers or the like p^1 at about the center so as to provide a loop, the loop on the left-hand side being directly connected to the rack p^2 which is adapted to engage with a mutilated toothed wheel p^3 upon the shaft *g*. The upper end of the said rack is also connected to a strap or the like p^4 which passes downward and the lower end of which is connected to one end of a rocking arm p^5 pivoted at p^6 to the frame of the machine, and the other end of which is attached to a strap p^7 connected to the loop of the strap *p* upon the right-hand side of the sanding device. With this construction, when the two sliding bars o^1 at the two ends of the sanding sheet *o* are at the proper moment drawn together by the mechanism above described, and the rack p^2 is suddenly released by the disengagement therefrom of the mutilated wheel p^3, the sheet *o* is suddenly extended or drawn tight under the action of the springs o^2 so that the sand which lies upon it will be projected upward into the inverted mold A above it, any surplus sand falling back from the mold on to the said sheet.

In connection with the sanding device a sand bin or hopper *q* is arranged for storing the sand, this bin *q* being provided with an outlet q^1 which is fitted with a regulator q^2 for determining the rate at which the sand flows from the bin or completely stopping the flow when required. I prefer that the sand should not be delivered directly from the bin *q*, but into a trough *r* which is pivotally mounted in the frame *a* and at certain intervals is caused to tilt over and discharge its contents on to the sanding sheet before referred to, the said trough at the same time actuating a slide r^1 so as to close the outlet from the bin while it is discharging its contents. The trough *r* is rocked on its pivot in one direction by an arm r^2 connected thereto, the said arm being actuated by a chain or the like r^3 connected to a crank pin r^4 on the wheel p^3. The trough *r* is rocked in the opposite direction by the springs r^5. One end of the sanding sheet *o* is fitted with fingers *s* which project above the framework surrounding the sheet, for the purpose of causing the brick molds to travel to the correct position for sanding, the travel be-

ing preferably effected simultaneously with the folding of the sanding sheet. After the sanding has been effected and the mold reaches the end of the sanding device it is caused by the inclined shelf *t* and the pressure of the succeeding mold to turn over on to a lower traveler *u* in the form of a belt of leather or other suitable material which passes over the pulley u^1 on the shaft *q* and thereby conveys the molds to the table *b* of the machine into position to be again filled and pressed.

Claims.

1. In a brick making machine of the kind described, a device for sanding the empty molds, comprising a sheet of flexible material, normally held extended, said sheet being adapted to be flexed and released, means for intermittently supplying sand to the surface of said sheet and means for conveying the molds over said sheet.

2. In a brick making machine of the class described, a device for sanding the molds, comprising a sheet of flexible material, springs for normally holding said sheet extended, means for flexing and releasing said sheet, means for intermittently supplying sand to the surface of said sheet, and means for conveying the molds over said sheet.

3. A sanding device, comprising a sheet of flexible material, sliding bars to which the ends of said sheet are attached, said bars being adapted to move toward and from one another, a spring for holding said bars at their greatest distance from one another, the said bars being connected at each side by a strap, guide rollers over which said straps pass, a loop formed in each of said straps, means for lengthening said loops to draw the bars together and flex the sheet, and means for releasing said loops to allow the sheet to assume its original position.

4. A sanding device, comprising a sheet of flexible material, means for flexing and suddenly releasing said sheet, a sand hopper, a trough pivoted beneath said hopper, means for discharging the sand from said hopper into said trough, and means for tilting the trough so as to discharge its contents onto the sheet.

EDWIN RODOLPH QUELCH GIBSON.

Witnesses:

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C. G. REDFERN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."