

(No Model.)

3 Sheets—Sheet 1.

G. L. ROLFE & J. H. JOHNSON.
BRICK MACHINE.

No. 532,186.

Patented Jan. 8, 1895.

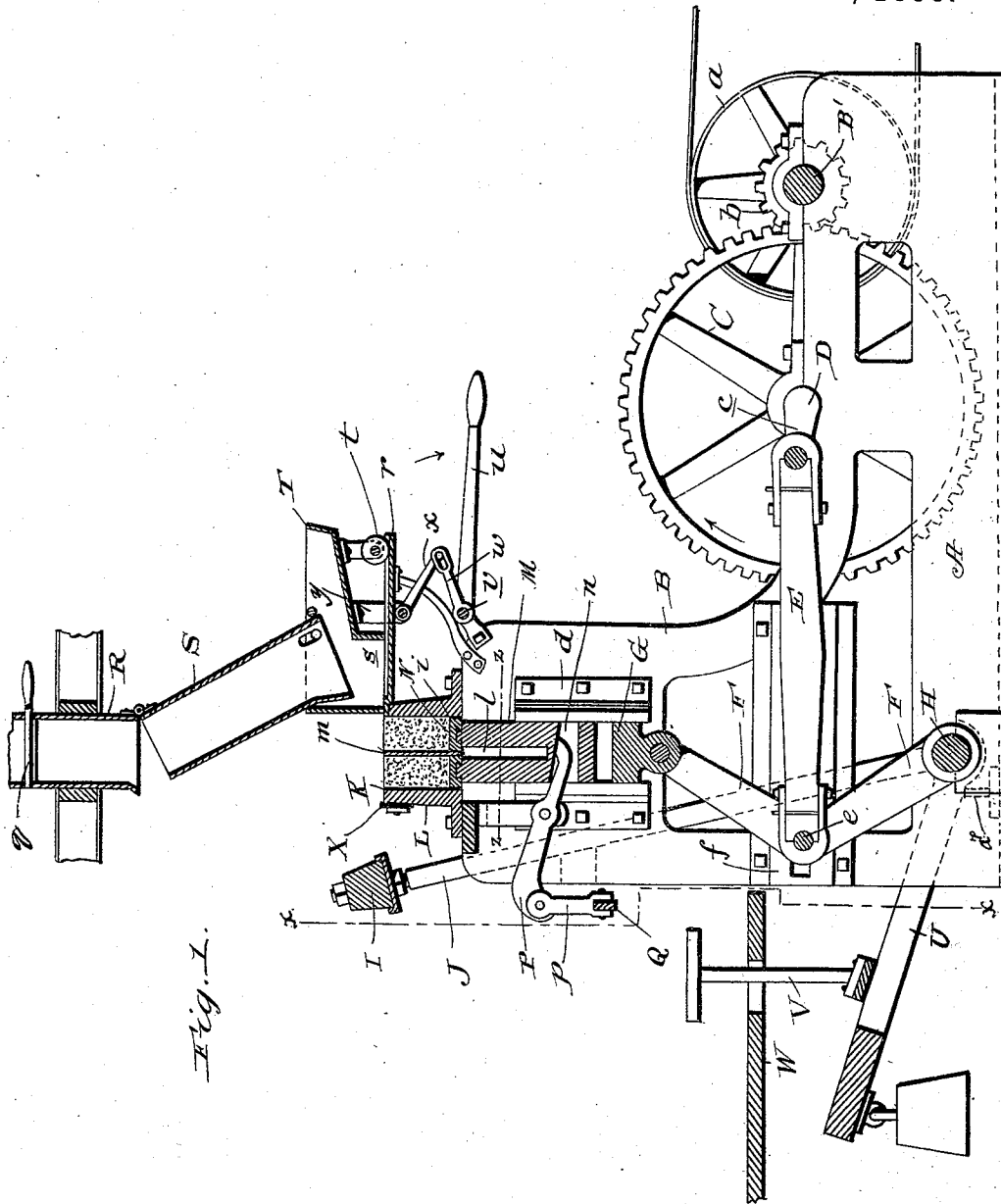


Fig. 1.

Witnesses:

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N. F. Matthews.

Inventors

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By *James J. Shuchy*

Attorney

(No Model.)

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Fig. 2.

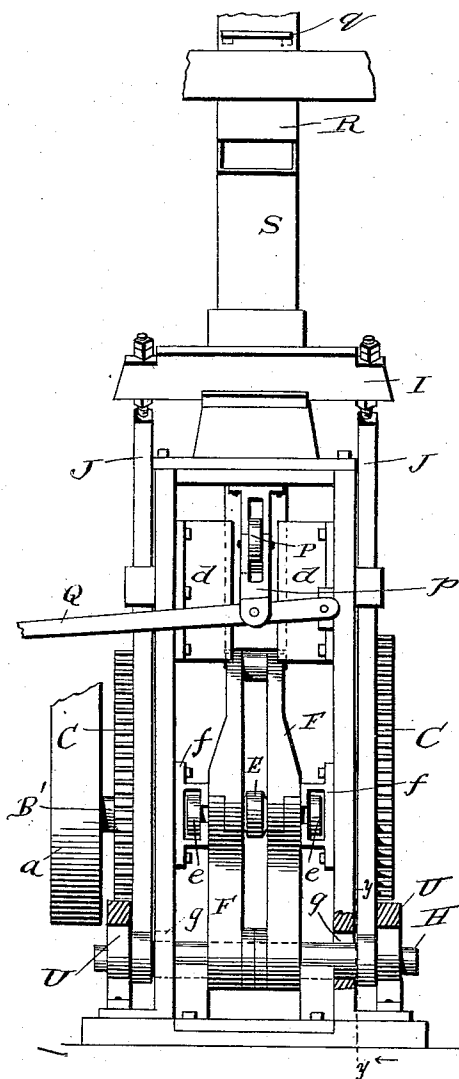


Fig. 3.

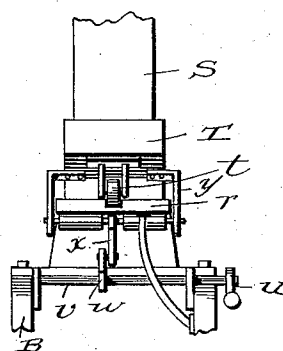


Fig. 4.

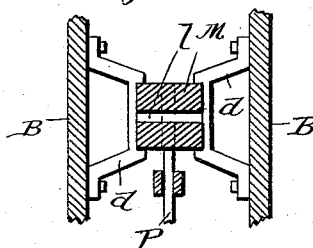
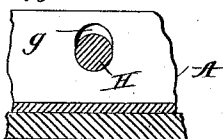


Fig. 5.



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Fig. 6.

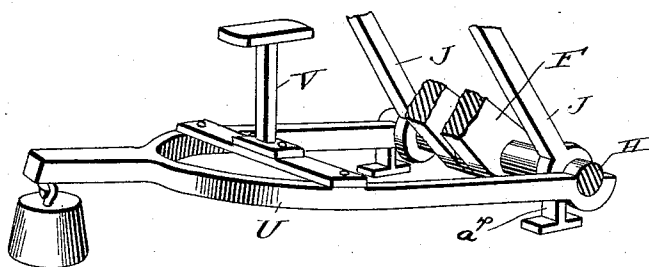


Fig. 7.

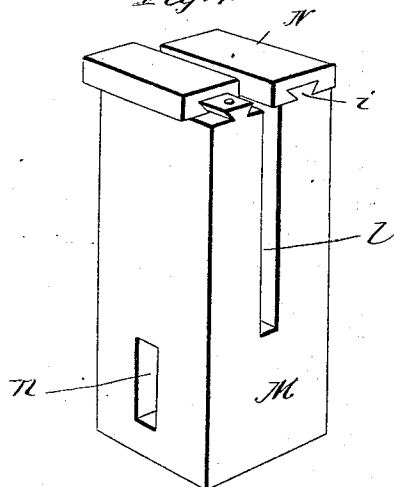
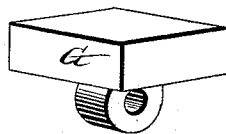


Fig. 8.



Witnesses:

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UNITED STATES PATENT OFFICE.

GEORGE L. ROLFE AND JAMES H. JOHNSON, OF ST. JOSEPH, MICHIGAN.

BRICK-MACHINE.

SPECIFICATION forming part of Letters Patent No. 532,186, dated January 8, 1895.

Application filed May 25, 1894. Serial No. 512,469. (No model.)

To all whom it may concern:

Be it known that we, GEORGE L. ROLFE and JAMES H. JOHNSON, citizens of the United States, residing at St. Joseph, in the county of Berrien and State of Michigan, have invented certain new and useful Improvements in Sand-Brick Machines; and we do 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 appertains to make and use the same.

Our invention relates to improvements in machines for making sand brick; and it has for its several objects to provide sand brick machines embodying such a construction that a plurality of them may be placed side by side and driven through the medium of a common drive shaft; to provide means whereby the pressed bricks may be quickly and conveniently removed from the mold boxes without danger of breakage; to so connect the dies to the follower that they may be readily removed to be cleansed or for any other purpose; to so construct and arrange the parts that breakage will not result from a failure to get the cap upon the mold boxes before the material therein is subjected to pressure; to provide means for automatically cleaning the face of the cap as it is moved toward and from its position above the mold boxes; to provide means for raising the cap so as to enable it to freely move on and off the mold boxes; and to provide means whereby the feed may be quickly cut off without loss of material.

Other objects and advantages of the invention will be fully understood from the following description and claims when taken in connection with the annexed drawings, in which—

Figure 1, is a vertical, longitudinal section of our improved machine. Fig. 2, is a transverse section taken in the plane indicated by the line x, x , of Fig. 1. Fig. 3, is a detail rear elevation of the slidable feed box and the mechanism for adjusting the same. Fig. 4, is a detail, horizontal section taken in the plane indicated by the line z, z , of Fig. 1. Fig. 5, is a detail, vertical section taken in the plane indicated by the line y, y , of Fig. 2. Fig. 6, is a detail perspective view illustrating the mechanism through the medium of which the cap is raised to enable it to take on and off

the mold boxes. Fig. 7, is a perspective view of the follower with one of the dies partly removed, and Fig. 8, is a perspective view of the plunger removed from the toggle levers.

In the said drawings similar letters designate corresponding parts throughout the several views, referring to which—

A, indicates the main frame of the machine which preferably comprises the side castings B, which are of a greater height at their forward than at their rear ends, and B', indicates the drive shaft which is journaled on the side castings adjacent to the rear ends thereof and may therefore be extended in either direction so as to permit of its being employed to drive a plurality of machines. This drive shaft B', is provided with a band wheel a , to receive a belt from a suitable motor, and it is also provided with a suitable pinion as b , which meshes with a large gear wheel C, on the crank shaft D. The said crank shaft D, which is arranged transversely of the frame in advance of the shaft B', has its crank c , connected to one end of the pitman E, which has its opposite end connected to the toggle levers F, at their point of connection, whereby it will be seen that when the crank shaft is rotated, the toggle levers will be alternately flexed and straightened so as to reciprocate the plunger G, which is connected to the upper lever or levers and is arranged in the guides d , upon the inner sides of the side castings B. (See Fig. 1.)

We prefer for the sake of strength and durability to construct the toggle levers F, in the manner shown, and connect them by the bolt e , which is designed to travel to and fro in the guides f , but we do not desire to be understood as confining ourselves to this or any other specific construction as toggle levers of various kinds may be employed.

As better shown in Fig. 2, of the drawings, the lower toggle lever F, is fixedly connected to a transverse shaft H, and this transverse shaft is arranged in slots as g , in the side castings and is designed to rest, when the toggle levers are straightened or drawn into alignment, upon the bearing blocks h . Better shown in Fig. 1. The slots g , admit of the shaft H, moving vertically, and it will therefore be seen that the mold box cap I, which is fixedly connected by bars as J, with the shaft H, may be raised

as presently described so as to enable it to swing on and off the mold boxes K, which are preferably formed in a casing L, arranged upon the upper edges of the side castings B, as illustrated.

M, indicates the pressing follower of the machine which is arranged in the guides *d*, beneath the mold boxes and is normally held in the position illustrated in Fig. 1, by suitable stops (not illustrated). This follower M, is provided upon its upper side with dovetail projections *i*, which are designed to engage corresponding grooves in the dies N, so as to permit of a ready removal of the said dies for cleaning or for other purposes; and the said follower is also provided with a bifurcation *l*, to enable it to pass up on either side of the wall *m*, and with an opening *n*, the purpose of which will be presently understood.

In order to enable the operator to raise the follower M, with the exercise of but little effort, so as to discharge the pressed bricks or to raise the dies to a point above the mold boxes, where they can be readily detached from the follower, I provide the lever P, which is fulcrumed on a hanger depending from the main frame and has its weight end resting in the opening *n*, of the follower, and the lever Q, which is fulcrumed at one end on the frame and is connected with the power end of the lever P, by a link as *p*. By reason of this construction it will be perceived that the operation is enabled to exert a great leverage and consequently raise the follower with but little effort, which is a desideratum.

R, indicates the fixed feed spout of the machine which may lead from an upper floor and be provided with a valve or cut off as *q*, and S, indicates the movable spout section which is flexibly connected to the fixed section in any approved manner. This movable spout section S, is connected in turn to the slidable feed box T, which is mounted on a shelf *r*, at one side of the mold boxes as better illustrated in Fig. 1, and is provided in its bottom with an opening as *s*, through which the material may pass into the mold boxes. The said feed box T, is provided with a wheel *t*, designed to travel in a groove in the shelf *r*, to ease the movement of the box, and said box is designed to be adjusted through the medium of the lever *u*, the rock shaft *v*, the crank arm *w*, and the pitman *x*, which latter is connected to a hanger *y*, which depends from the box through a slot in the shelf *r*, as shown. By reason of this mechanism it will be perceived that when the lever *u*, is raised, the box will be moved to a position over the mold boxes so as to permit a full charge of material to pass into said boxes, and when the lever is moved downwardly in the direction indicated (see Fig. 1), the box will be drawn away from the mold boxes and the feed will be cut off without the loss of any of the material which is an important advantage as is obvious. It will also be perceived that when the feed box is moved from over the

mold boxes, all material above the mold boxes will be carried with the feed box and only the exact amount to form the bricks will be left in the molds.

U, indicates the weighted yoke lever through the medium of which the shaft H, is raised so as to enable the cap I, to clear the mold boxes in moving on and off the same. This yoke lever which has its weight ends resting beneath the shaft H, is fulcrumed at a point adjacent to said shaft as indicated by *a*⁷, and is provided at an intermediate point of its length with a pedal piece V, which extends up through an opening in a platform as W, so as to enable an attendant to raise the shaft H, and consequently the cap I, at the proper time. The yoke lever U, also enables the attendant to raise the cap I, in case the plunger commences its upward movement before the mold boxes are fully charged, so as to permit the loose material to be pushed up without being pressed. This results in a saving of material as we have found from experience that where a part of a brick is pressed it is impossible to connect the loose material to the same so as to form a whole brick of standard size.

X, indicates the strip of rubber or similar material which is designed and adapted to scrape the face of the cap I, as it moves toward and from the mold boxes. This strip X, is connected to the forward side of the casing of the mold-boxes as better shown in Fig. 1, and its fastening may if desired be reinforced by a metal strip.

In the practical operation of our invention, when the machine is set in motion and the mold boxes charged with material, the shaft D, through the medium of the pitman E, will draw the toggle levers into alignment so as to raise the plunger G, and will rock the shaft H, through the medium of the lower toggle lever so as to raise the cap I, to its position above the mold boxes. The plunger as it continues to rise will engage and raise the follower M, and through the medium of the same will subject the material in the mold boxes to pressure, after which the plunger will move downwardly when the pressed bricks may be conveniently removed by raising the follower M, by hand through the medium of the mechanism described.

By reason of the gearing embodied in our improved machine it may be run with but little power; and it will therefore be perceived that a number of the machines may be driven through the medium of a single common shaft as B', by an engine of small horse power.

It will also be perceived that our improved machine is very simple and strong and that it embodies no parts that are liable to get out of order.

While we have in some respects specifically described the construction and relative arrangement of the several parts of our improved machine in order to impart a full and exact understanding of the same, we do not

desire to be understood as confining ourselves to such specific construction and arrangement as such changes or modifications may be made in practice as fairly fall within the scope of our invention.

Having described our invention, what we claim is—

1. In a sand brick machine, the combination with a mold or mold box; of a slidable feed box mounted on a shelf or platform and having an opening in its bottom adapted to register with the mold or mold box, a movable feed spout leading from a source of supply and connected to the feed box, the rock shaft *v*, having a crank arm as *w*, a pitman connecting said crank arm with the slidable box, and a lever fixed on the rock shaft, all substantially as specified.

2. In a sand brick machine, the combination with a mold or mold box; of a slidable feed box having an opening in its bottom adapted to register with the mold or mold box, and a movable feed spout leading from a source of supply and connected to the feed box, substantially as specified.

3. In a brick machine the combination with a frame, and a mold or mold box; of a rock shaft as *H*, a vertically movable plunger, an upper toggle lever connected to said plunger,

a lower toggle lever connected to the upper lever and fixed on the shaft *H*, a cap as *I*, fixedly connected with the shaft *H*, and a suitable means for actuating the toggle levers, substantially as and for the purpose set forth.

4. In a brick machine, the combination with a frame and a mold or mold box; of a vertically-movable rock-shaft *H*, a cap as *I*, fixedly connected with the rock shaft, means for rocking the rock shaft so as to move the cap toward and from the mold or mold box, and means for raising the rock shaft, substantially as and for the purpose set forth.

5. In a brick machine, the combination with a frame, a mold or mold box, a vertically-movable rock shaft *H*, a cap as *I*, fixedly connected with the rock shaft and means for rocking the rock shaft so as to move the cap toward and from the mold or mold box; of a lever *U*, having its weight end resting under the rock shaft, substantially as and for the purpose set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

GEO. L. ROLFE.

JAMES H. JOHNSON.

Witnesses:

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JNO. B. MELSHEIMER.