2 Sheets—Sheet 1.

J. E. ALLEN & P. F. DUFFY.

Brick-Machine.

No. 205,602. **Patented July 2, 1878.**

Fig. 1.

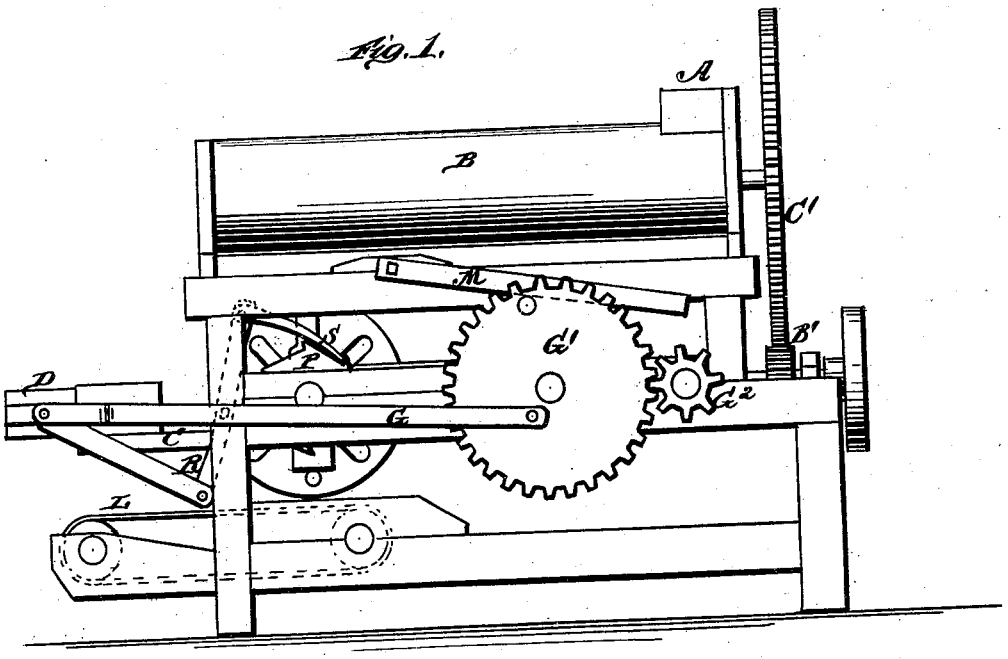

Fig. 2.

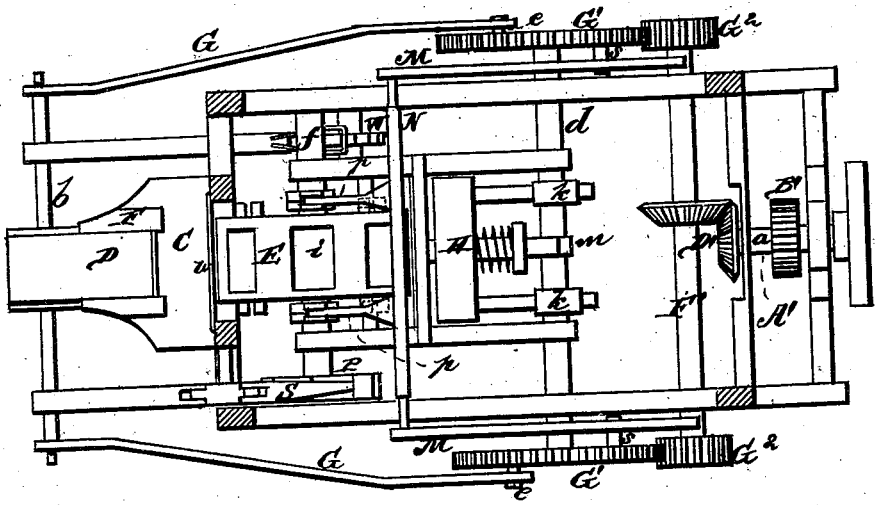

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Fig. 3.

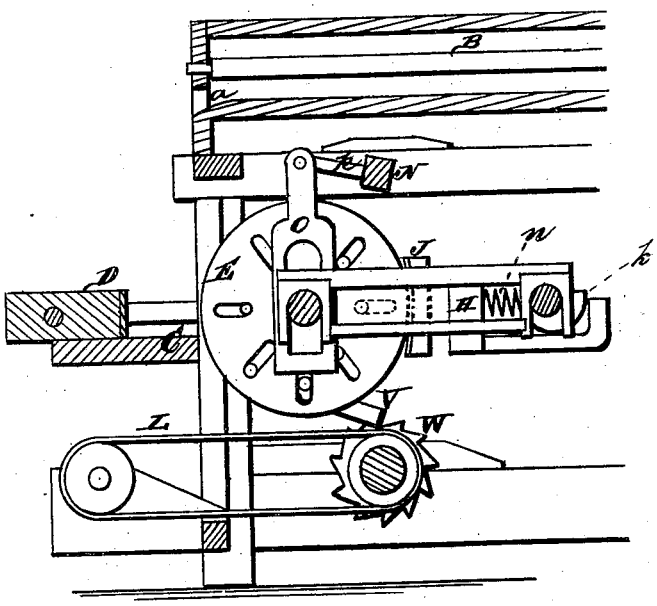


Fig. 6.

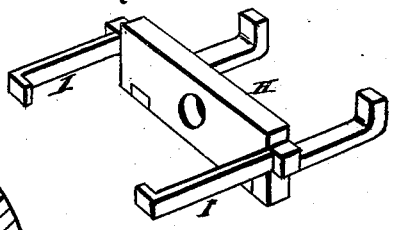


Fig. 5.

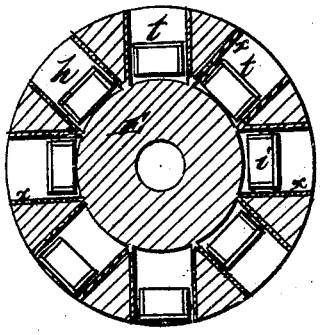
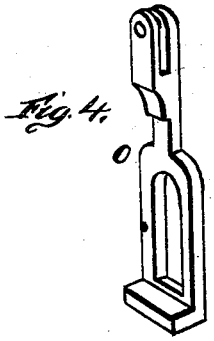


Fig. 4.



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UNITED STATES PATENT OFFICE.

JAMES E. ALLEN AND PATRICK F. DUFFY, OF GREENSBOROUGH, N. C.

IMPROVEMENT IN BRICK-MACHINES.

Specification forming part of Letters Patent No. **205,602**, dated July 2, 1878; application filed June 1, 1878.

To all whom it may concern:

Be it known that we, JAMES E. ALLEN and PATRICK F. DUFFY, of Greensborough, in the county of Guilford and State of North Carolina, have invented a new and valuable Improvement in Brick-Machines; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a side view of our brick-machine. Fig. 2 is a part sectional plan view. Fig. 3 is a detail sectional view. Fig. 4 is a perspective detail. Fig. 5 is a plan view of the cylinder; and Fig. 6 a perspective detail of the same.

The nature of our invention consists in the construction and arrangement of a brick-machine, as will be hereinafter more fully set forth.

The annexed drawings, to which reference is made, fully illustrate our invention.

This machine is intended to make brick from mud, which, as it comes from the bank, is thrown into the hopper A of the mud-mill B. This mud-mill is placed horizontally above the machinery for making brick; and in said mill the mud is cut and ground by knives constructed and arranged for that purpose in any of the known and usual ways, and thoroughly mixed, the necessary water being supplied by pipe or otherwise. When thus mixed the mud is forced by pressure of the revolving knives through an opening, *a*, in the end of the mill, and falls on a table, C, beneath. From this table it is forced by a plunger, D, into the molds as they present themselves in the revolution of the cylinder E.

The plunger D moves in a suitable guide, F, on the table, and a shaft, *b*, passes through its rear end. The ends of this shaft or rod *b* are, by pitmen G, connected with wrist-pins *e* on the outer faces of two large cog-wheels, G′, which are made fast to the ends of a transverse shaft, *d*, having its bearings in the frame of the machine, and the said cog-wheels located one on each side of the machine.

The cylinder E is mounted upon a shaft, *f*, and contains eight molds, *h*, more or less, and it may be of any length desired, in accordance with the number of brick to be made and the power employed. There may be one, two, three, or more rows or molds, as desired.

The plunger D, moving inward, forces the mud into the mold or molds opposite, and as the cylinder passes around or revolves the mud in the molds is subjected to additional pressure in front by means of draw-rods I, connected to a head-block, H, which act upon the projecting ends of the movable bottoms *i* in the molds, driving them forward as the cams *k*, by which they are actuated, revolve. At the same time a face-plate, J, attached to a bolt passing through the head-block, is moved forward by a center cam, *m*, acting in an opposite direction from the other two cams, *k*, and closes the mouth of the mold while the brick is being pressed within. When the draw-rods and face-plate are released from pressure of the cams they are forced back to their places by springs *n*, arranged for that purpose.

After pressure the brick pass on as the cylinder revolves, and are forced from the molds upon an endless belt, L, underneath by means of levers M, attached to the ends of a rocking shaft, N, said shaft having arms P, from the ends of which pendants O are suspended. The levers M are acted upon by pins *s* in the large wheels G′, which raise the levers, causing the pendants O to press upon the projecting pins of the movable bottoms *i*, and press or force the brick out upon the belt L beneath, from which it is removed by hand.

The cylinder E is propelled by means of a ratchet-wheel, P, acted upon by a toggle-joint, R, and pawl S, which toggle-joint is attached to and worked by the rod *b* that passes through and works the plunger D. While each mold in succession is being filled by the plunger a brick is being pressed in front, and another, already pressed, is being forced out beneath; and while these three distinct operations are being simultaneously performed the cylinder remains stationary, and then while the plunger moves backward the cylinder moves forward.

The movable bottoms *i* of the molds in the cylinder are perforated to facilitate the escape of air from the molds while under pressure, and readmit air to the molds when the bricks are being forced out. They are also provided

with a covering, *t*, of felt, cloth, or similar material, to prevent adhesion of brick to the bottoms. The sides and ends of the bottoms *i* are padded, as shown at *x*, which is to be saturated with oil, and thereby constantly keep the molds oiled and cleaned as the bottoms move up and down.

The endless belt L is moved by a draw-rod or pawl, V, attached to the plunger-rod *b*, and acting upon a ratchet-wheel, W, upon the pulley-shaft on which the belt revolves.

The power is applied to a shaft, A′, having a pinion, B′, which meshes with the large cog-wheel C′ of the mud-mill. The shaft A′ is, by miter-gears D′, connected with a shaft, F′, and this shaft provided with pinions G^2, meshing with the wheels G^1.

Immediately above the plunger, and between it and the cylinder, is a wire, *w*, for cutting off surplus mud.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

In combination with a mold-cylinder, a set or sets of cams and intermediate mechanism for securing pressure on the brick from opposite directions without pressing upon the cylinder, as herein set forth.

In testimony that we claim the above we have hereunto subscribed our names in the presence of two witnesses.

JAMES EDWARD ALLEN.
PATRICK FRANCIS DUFFY.

Witnesses:
L. McCULLOCH,
F. C. CLARK.