I. Gregg,

Brick Machine.

No. 50,070. Patented Sep. 19, 1865.

Fig. 1.

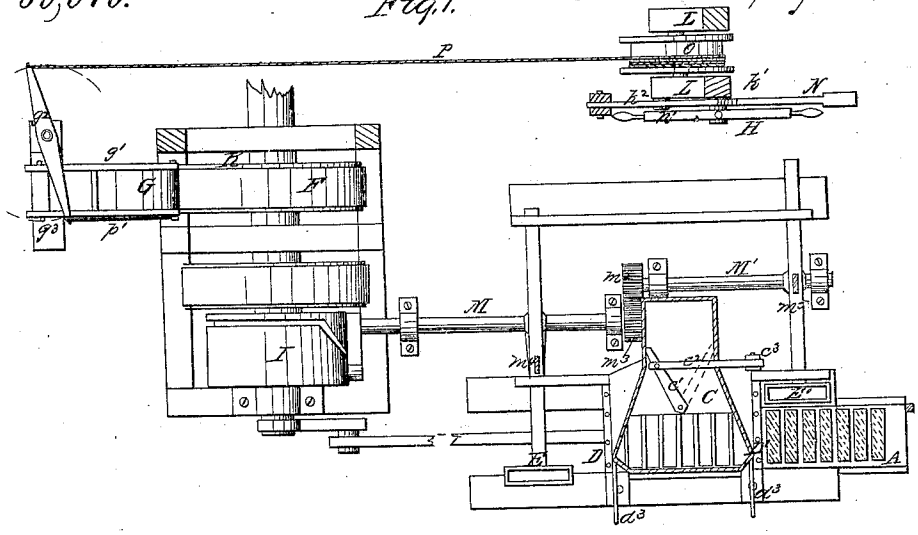


Fig. 2.

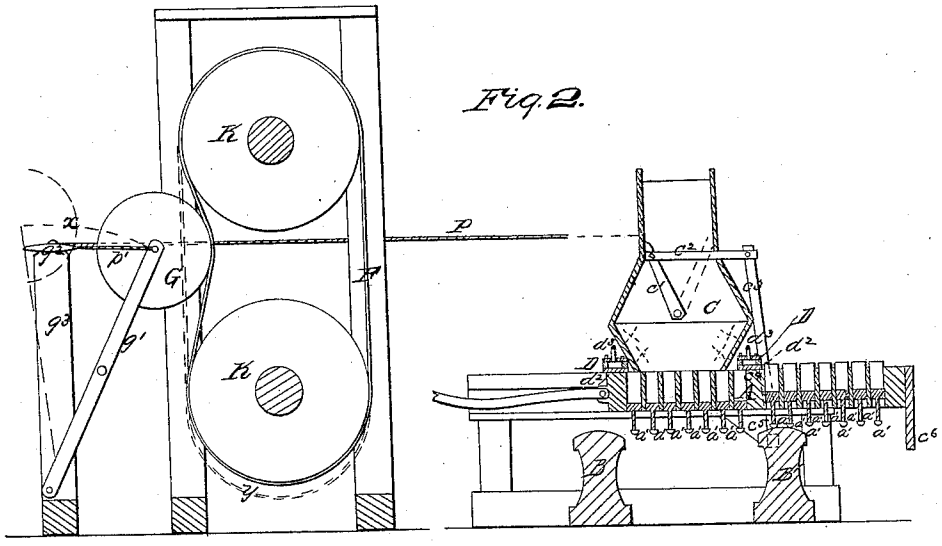
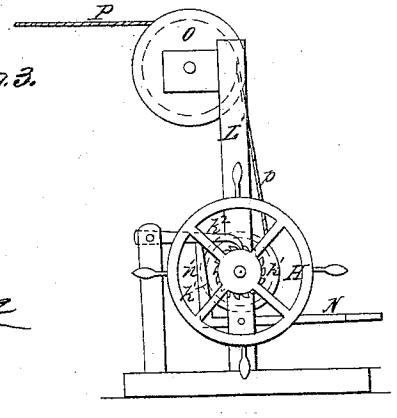


Fig. 3.



Witnesses:
Benj. Munson
Jas Hinsmore

Inventor:
Isaac Gregg

AM. PHOTO-LITHO. CO. N.Y. (OSBORNE'S PROCESS)

UNITED STATES PATENT OFFICE.

ISAAC GREGG, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO ISAAC GREGG, JR., OF SAME PLACE.

IMPROVED BRICK-MACHINE.

Specification forming part of Letters Patent No. **50,070**, dated September 19, 1865.

To all whom it may concern:

Be it known that I, ISAAC GREGG, of the city of Philadelphia in the State of Pennsylvania, have invented a new a useful Improvement in Brick-Machines; and I 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 accompanying drawings, making a part of this specification, in which—

Figure 1 is a sectional plan view, and Fig. 2, a vertical longitudinal section of my said improvement applied, like letters of reference indicating the same parts when in both figures.

My improvement relates more especially to a certain improved brick-machine patented to myself and Henry Moser, dated the 19th day of May, 1863, numbered 38,629, and assigned to me; and has for its objects a reduction of the friction and strain upon certain parts of the said machine, the production of smoother and better edge-faces upon the bricks made therein, and the starting and stopping or controlling the motion of the machine with greater facility and ease.

The nature of my invention consists, substantially as hereinafter described and specified, first, in starting successively the pistons of the respective sets of brick-molds (there being two sets of seven or more molds in the carrier) just before they are required to be elevated by the lifting-lever, which discharges the bricks from the particular set of molds; second, in directing the clay passing into the hopper exclusively to the particular "cutters" and set of molds which are at that side or end of the hopper from which the said set of molds at the time are to be filled; third, in the arrangement of steam heating-chambers in combination with the usual repressure plates; fourth, in giving alternating motions to the two lubricating sweeps or mold-clearers of the machine; and, fifth, in the arrangement and combination of devices for tightening or loosening the driving-band by lowering or raising the friction-roller thereof, and thus starting or stopping the machine at pleasure.

The general construction of the machine is the same as is described and set forth in the patent mentioned and therefore several portions of the said machine which are not required to be shown in the drawings herewith presented are not set forth in the figures referred to.

A is the reciprocating mold-carrier; B B′, the inclined planes for starting the pistons of the mold; C, the hopper, (shown as open in the drawings;) D D′, the steam heating-chambers; E E′, the lubricating-sweeps or mold-clearers; F, the driving-band; G, the friction-roller of the band; and H, a hand-wheel in connection with a treadle, ratchet-wheel and pawl, pulleys or rollers, and cord for raising or lowering the said friction-roller G, as occasion may require.

When either set of the molds in the carrier A, is under the hopper C, the pistons of the said set are at the bottoms of the molds, and being therein immediately filled with clay, under the operation of the pressure-roller and cutters, (not shown in the drawings,) as described in my said patent, they are then drawn or pushed by the carrier A out from under the said hopper C, and the repressure-plate d^2 at that end of the hopper, and immediately thereafter the stems a' a' of the pistons of the said set of molds successively come into contact with the rising surface of the double inclined planes B or B′, as the case may be, and consequently each piston, together with the brick in its mold of the set will be started upward in regular succession or one by one, and thus the adhesion of the clay to the mold lessened, so that the strain upon the lifting-levers, (not shown in the drawings) whose office it is to elevate all the pistons and bricks of the particular set, together or at one operation, is greatly reduced, and therefore less power will be expended and less liability to breakage will occur in the operation of the elevating-levers. The inclined planes B B′ in this instance are stationary bearing parts placed so that their upper surfaces will be impinged upon by the lower ends of the piston-stems a', in regular succession, immediately after its mold passes from under the repressure-plate d^2, at its respective end of the hopper C.

The repressure plates d^2 d^2 are each made to form the bottom of one of the two steam-heating chambers D D′, which by means of suitable conducting-tubes, d^3, leading to the boiler of the engine are kept strongly heated by steam, so as to impart heat directly to the face-edge of each brick in the molds as they pass in succession respectively under them, thus di-

minishing the adhesion of the said bricks to the plates d^2, and allowing them to pass more easily, and at the same time giving to their face-edges a smoother and more perfectly finished surface.

In the upper part of the hopper C there is an upright partition, c', which turns or vibrates upon a pivot at its lower end, while its upper end is jointed to one end of a horizontal bar, c^2, whose opposite end is jointed to the upper end of a vertical bar, c^3, which is pivoted at c^4 and bent under the mold-carrier A, so that it will be vibrated either backward or forward, by means of the studs, c^5 c^6, on the carrier A, as the latter is moved in either direction, thus causing the partition c' to cut off the supply of clay to that side of the pressure-roller in the hopper C at which the molds have just become filled, relieving the cutters on that side from the influx of clay, and consequently saving the power that would be required in their working of it, and turning the whole current of clay over to the cutters just above the molds, which, then coming under them, require to be filled.

The lubricating-sweeps or mold-clearers E E′ are caused to move simultaneously in opposite directions, or so that while the one is engaged in clearing and lubricating one set of the molds, the other is being drawn back to its starting position, thus avoiding the objectionable feature in the old machine, which compelled each sweep to pass over the molds twice as often as necessary. This motion of the sweeps E E′ is effected by dividing the rock-shaft of the old machine into two lengths, M M′, and connecting them laterally by means of sectors of equal spur-wheels, m^2 m^3, (see Fig. 1,) and extending upward from each shaft an arm, m^4 m^5, which is pivoted to its respective sweep; consequently, as the cam-wheel I rotates the shafts M M′ will always be partially rotated in opposite directions, and thus move the sweeps E E′ as required.

The band friction-roller G is a heavy cast-iron roller, supported in a swinging frame, g', in an inclined position against the driving-band F in the usual manner, and by its weight keeping the band stretched on the pulleys K K, so as to keep the brick-machine in motion. The apparatus for controlling the said friction-roller G is shown in plan in Fig. 1, and as a detached elevation in Fig. 3. H is the hand-wheel of the same, arranged vertically on a shaft which carries a roller, h', and a ratchet-wheel, k'. A treadle, N, has an upright piece, n' at its inner end, which, being in contact with the under side of the pawl k^2, raises the latter out of the notches of the ratchet-wheel k' when one's foot is placed upon the treadle N. In the upper part of the frame L there is another roller, O, and a cord, P, passes several times around this roller O, and is fastened at one end to the lower roller, h', and at the other to a horizontal lever, g^2, on the frame g^3, which supports the frame g' of the heavy cast-iron friction-roller G, the latter being attached by another cord, p', to the other end of lever g^2. It will therefore be seen that by rotating the hand-wheel H in one direction, the said friction-roller G can be easily raised so as to loosen the band F, as indicated by the dotted lines x y in Fig. 2, and stop the machine, the ratchet-wheel and pawl acting as retainers, and that by placing one's foot upon the treadle N and thus lifting the pawl, the roller G will fall by gravitation against the band and instantly start the machine. To start or stop a brick-machine instantly and without going to the power-engine is often of great importance, and this device enables the attendant to effect either with great facility and ease.

Having thus fully described my improvement and shown its utility, what I claim as new of my invention, and desire to secure by Letters Patent, is—

1. Starting the pistons or followers of the molds, together with their contained bricks, separately or in succession by means of the inclined planes B B′, or their equivalents, acting upon the stems a' of the said pistons substantially in the manner described, for the purpose of saving power and relieving the lifting-levers of the said brick-machine from the great strain consequent upon their starting and lifting, as heretofore, the whole of one set of the pistons and bricks at one operation.

2. Periodically changing the direction of the current of clay in the hopper from the set of filled molds to the set of empty ones under the hopper by means of the moving partition c', or its equivalent, operating substantially in the manner described, for the purposes specified.

3. The arrangement of the steam-heating chambers D D′, in combination with the re-pressure-plates d^2 d^2, near the ends of the hopper C, substantially as and for the purposes described.

4. Giving the described alternating motions forward and backward to the two lubricating sweeps or mold-clearers E E′ by means of the divided rock-shafts M M′ and pinions m^2 m^3, or their equivalents, arranged to operate the said sweeps or mold-clearers, as and for the purpose described.

5. Controlling, or starting, or stopping the machine at will by means of the apparatus consisting of the hand-wheel H, rollers K and O, ratchet-wheel k', pawl k^2, treadle N, and cord P, supported in a suitable frame, L, and connected with the friction-roller G by means of the cords P p', or their equivalents, so as to operate substantially as described and set forth.

ISAAC GREGG.

Witnesses:
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JAS. WINSMORE.