

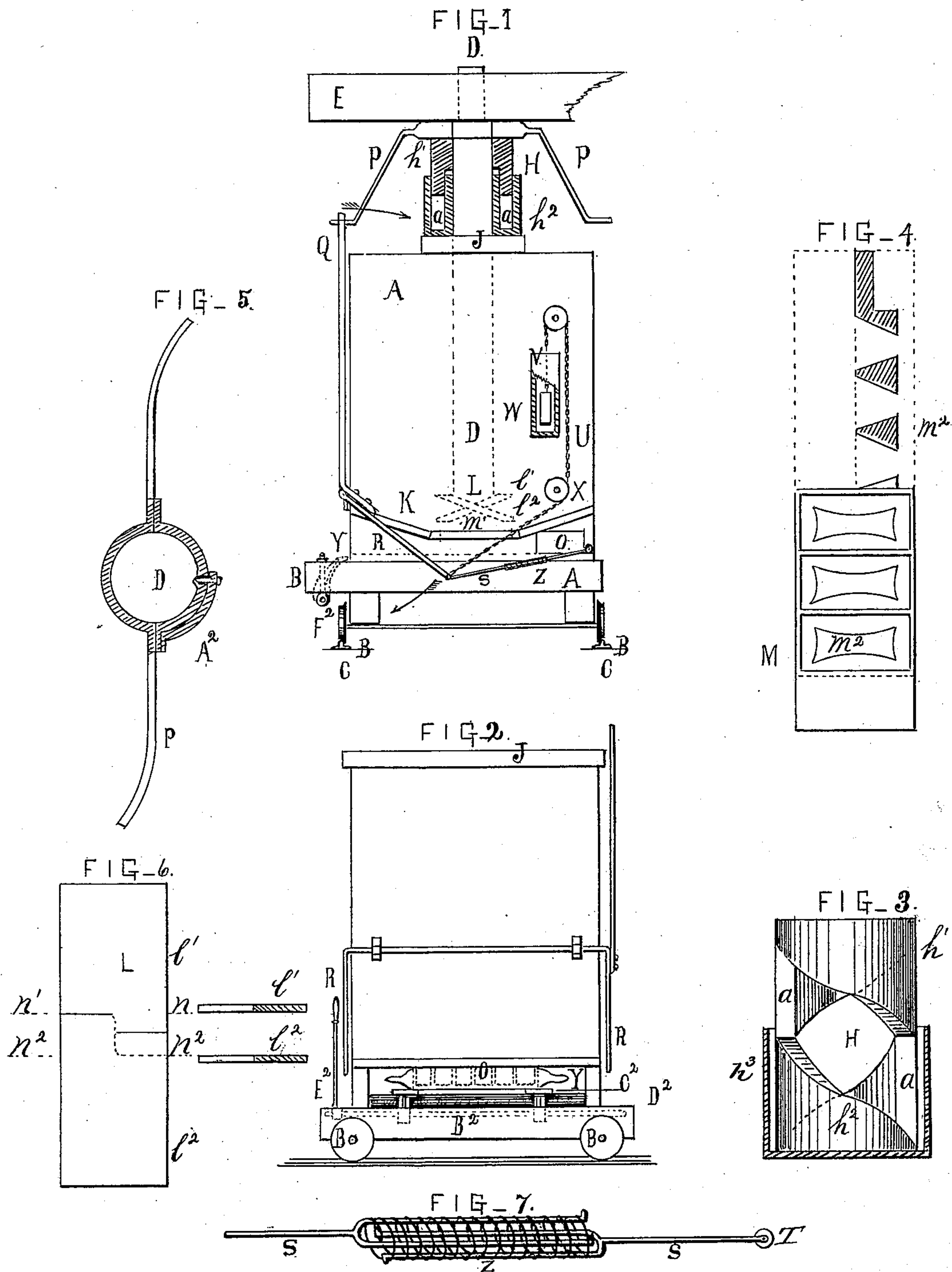
(No Model.)

F. DOERFLER.

BRICK MACHINE.

No. 337,137.

Patented Mar. 2, 1886.



WITNESSES

John McNeill.
J. M. Nichols.

INVENTOR

Frederick Doerfler
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UNITED STATES PATENT OFFICE.

FREDERICK DOERFLER, OF SPRINGFIELD, ILLINOIS.

BRICK-MACHINE.

SPECIFICATION forming part of Letters Patent No. 337,137, dated March 2, 1886.

Application filed July 30, 1885. Serial No. 173,110. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK DOERFLER, a citizen of the United States, residing at Springfield, in the county of Sangamon and State of Illinois, have invented certain new and useful Improvements in Brick-Machines, of which the following is a specification.

My improvements relate to that class of machines in which the clay is impacted in the molds by means of a vertical plunger of suitable size and weight, which, being slowly raised, is suddenly released and falls upon the clay.

The objects of my improvements are to conveniently and automatically remove from the machine the molds containing the brick; to provide means for the continuous lubrication of the bearings of the plunger-head; to provide means for dividing the clay into two or more parts just previous to reaching the molds, thereby insuring the filling of all the molds; to provide means for automatically relieving the operating parts from undue strain, thereby avoiding breakage and delay. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is an end view of the machine, also showing in its proper position on the machine a section through the vertical axis of the self-lubricating plunger-head and oil-reservoir. Fig. 2 is a side view of the machine showing the position of the mold in the machine, also parts of the mechanism for relieving pressure on mold and removing mold from the machine. Fig. 3 is a view of the plunger-head, the surrounding oil-reservoir being shown in vertical section. Fig. 4 combines a half-plan and a half-vertical section of grate under plunger-shoe, through which clay is forced into molds. Fig. 5 is a horizontal section of hub of sweep-lever and the safety-spring. Fig. 6 combines a bottom view of the plunger-shoe with vertical sections through the wings of same on the lines h' and h^2 .

Similar letters refer to similar parts throughout the several figures.

The frame or shell A consists of a rectangular or circular box. Concentric with the box there is a vertical shaft or plunger, D. To the upper end of the plunger is secured the sweep E, to which draft attachment is made. Near

the upper end of plunger is located the plunger-head H, consisting of two parts, h' and h^2 . The part h' is fastened to the plunger and revolves with it, while the part h^2 is secured to the sill J, crossing the shell A at top. The inclined upper and lower faces of h^2 and h' , respectively, being in contact when the plunger is at rest, the rotation of the plunger causes the upper part, h' , to revolve and ascend the inclined surface of h^2 until the offset a is reached, when the plunger falls and the part h' returns to its first position. The wearing-surfaces of the plunger-head H having to support the great weight of the plunger D and sweep E require constant lubrication. To accomplish this in an effective and economical manner, I construct the lower part, h^2 , with a surrounding cylinder, h^3 , Fig. 3. The space between h^2 and h^3 extends below the lowest point of the inclined surface of h^2 , forming a reservoir which contains a constant supply of oil. The fall of the part h' throws the oil over the bearings, also up against the inside surface of cylinder, whence it flows again into the reservoir to be repeatedly used. Near the lower end of the box A there is a bottom, K, sloping toward the center and horizontal in the middle. In the horizontal bottom, and directly under and parallel with the shoe L, is placed the grate, as indicated by dotted lines m , Fig. 1. The rotation of the plunger carries with it the shoe L, which, by the inclined surfaces of its wings, acts as a kneader of the clay and also presses the clay down on the grate M, whence it is driven by the plunger in its fall through the grate M and into the molds O.

The shoe L is constructed with two wings, l' and l^2 , Fig. 6, one-half of the adjacent ends of which overlap for a portion of their length, as shown, presenting at their ends edges to cut into two parts the clay underlying the shoe, thus facilitating its passage through the grate and insuring the filling of all the molds.

The device for removing from the machine the mold containing the pressed brick consists of the sweep-arms P, which are attached to and revolve with the plunger D, and in revolving alternately strike and move the upright lever Q. This lever is connected with the short levers R, as shown, Figs. 1 and 2, and imparts to them motion in the direction indicated. The short levers R are connected at

their lower ends by the rods S, with the roller T, which passes through the machine. There is also connected with the lower end of one of the levers R, by means of chain U passing
5 over pulleys X, the weight W, which acts as a counterpoise to return the levers to position after they have been moved.

The connecting-rods S are constructed in two parts, their adjacent ends being bifurcated
10 and inclosed by a coiled spring, Z, Fig. 7, strong enough to resist the ordinary working-pressure, but compressing under unusual strain.

The operation of this device is as follows:
15 The mold O, Fig. 1, is inserted in machine in front of the roller T. The arm P strikes the lever Q, which, through the short levers R and spring connecting-rods S, moves the roller T horizontally forward, carrying the mold with
20 it in the same direction until it stops under the grate m, Fig. 1. The counterpoise W then returns the levers to their first position. Another mold is inserted, which is in like manner carried under the grate and pushes the
25 preceding mold to the discharge - port Y, whence it is removed by the operator, and so on continuously.

The devices for relieving the operating parts from undue strain consist, first, of the bifurcated spring connecting-rods S, already described, which relieve from any slight temporary pressure; second, the spring A², Fig. 5, which has secured at its outer end a pin penetrating the hub of the arms P and entering a
35 conical hole in the plunger D in such manner that when, by reason of undue pressure on roller T, the motion of arms P is arrested, the pin will slip out of the notch, permitting the plunger to revolve while the arms P and
40 connected parts are at rest.

The pressure on the mold is regulated by means of the cams B², which support the slides C², on which the molds are moved. The cams are secured on the shaft D², at an end of which
45 is the lever E², by means of which the cams are operated to raise or lower the slides supporting the molds.

I am aware that brick-machines have been used of rectangular form, in which the pressure is obtained by means of a plunger revolved

by a sweep, to which draft attachment is made, and in which the plunger is raised by the contact of two inclined surfaces, one at rest and the other revolving with plunger, and in which the plunger falling forces the clay through a
55 grate into the mold. I therefore do not broadly claim these features.

What I do claim as new, of my invention, and desire to secure by Letters Patent, is—

1. The combination, in a brick-machine, of
60 the sweep-arms P, the levers Q and R, the connecting-rods S, the roller T, the chain U, the pulleys X, and the weight W, or their equivalents, in the manner shown, and for the purpose specified. 65

2. The combination, in a brick-machine, of the sweep-arms P, the plunger D, and the safety-spring and pin A², or their equivalents, in manner shown, and for the purposes specified. 70

3. A connecting-rod for brick-machines,
75 constructed in two parts, and supporting between its adjacent ends a spring, substantially as shown, and for the purpose specified. 80

4. A shoe for brick-machines, consisting of two wings (plane surfaces) lying in intersecting planes, one-half of the adjacent ends of said wings overlapping for a portion of their length, and presenting at their ends cutting-edges, substantially as shown, and for the purpose specified. 85

5. An oil cup and reservoir for brick-machines, consisting of an annular chamber surrounding the bearings of plunger-head and extending below the lowest part of said bearings, in the manner shown, and for the purpose specified. 90

6. The combination, in a brick-machine, of a plunger, a plunger-head constructed in two parts having inclined surfaces of contact, and a surrounding annular oil chamber and reservoir, in manner shown, and for the purpose specified. 95

7. The combination, in a brick-machine, of the slides C², the cams B², connecting-shaft D², and lever E², or their equivalents, in the manner shown, and for the purpose specified.

FREDERICK DOERFLER.

Witnesses:

BRIDGET A. DOERFLER,
ALEXANDER DU BOIS.