

Patented Aug. 17, 1886.

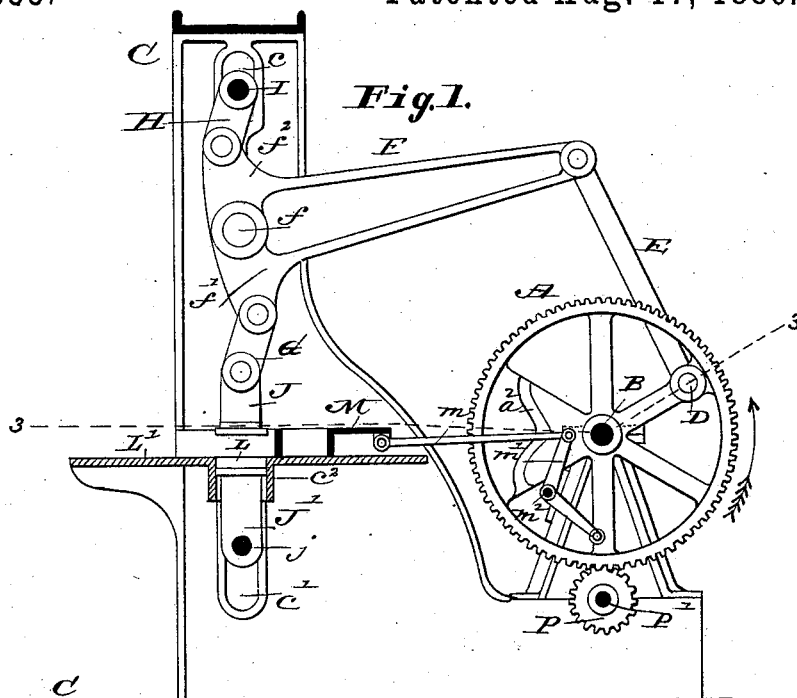
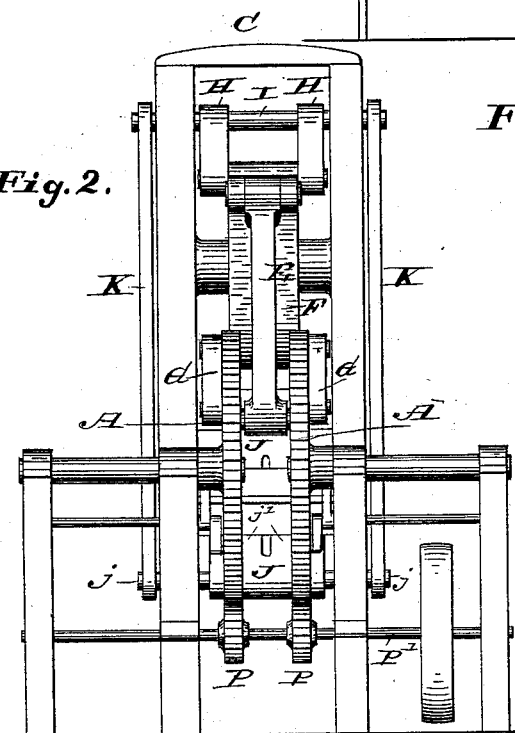


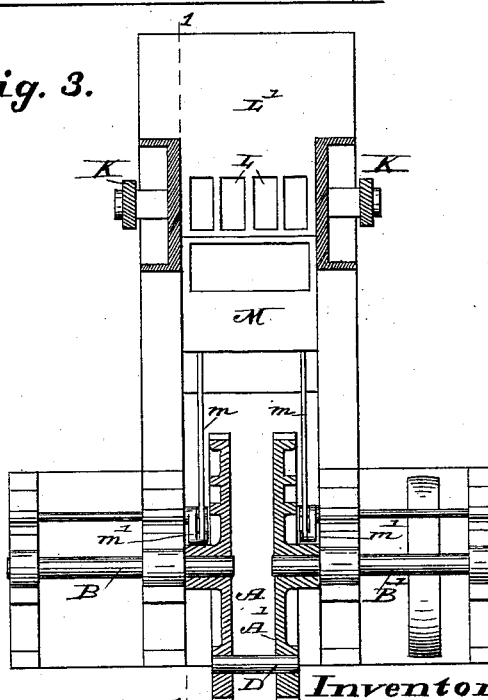
Fig. 2.



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Fig. 3.



Inventor:

Joseph T. Kulage
by C. Moody atty.

UNITED STATES PATENT OFFICE.

JOSEPH J. KULAGE, OF ST. LOUIS, MISSOURI.

BRICK-MACHINE.

SPECIFICATION forming part of Letters Patent No. 347,355, dated August 17, 1886.

Application filed December 19, 1884. Serial No. 150,723. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH J. KULAGE, of St. Louis, Missouri, have made a new and useful Improvement in Brick-Machines, of which the following is a full, clear, and exact description.

The improvement is useful in many forms of brick-machines, and especially in connection with a portion of the brick-machine shown in a pending application of mine for Letters Patent, filed May 9, 1884, and allowed September 5, 1884. The portion referred to is that part of the structure used in transmitting the motive power to those parts which are immediately associated with the plungers; and the present improvement relates to those means immediately employed in operating the plungers.

The annexed drawings, making part of this specification, illustrate this improvement, and include those parts of the machine which are essential to an understanding of the improvement.

Figure 1 is a vertical longitudinal section on the line 1 1 of Fig. 3. Fig. 2 is a rear end elevation, and Fig. 3 is a horizontal section on the line 3 3 of Fig. 1.

The same letters of reference denote the same parts.

A A' represent the two gear-wheels, attached, respectively, to the shafts B B', and united by means of the wrist-pin D, forming a crank, substantially as in the construction above referred to. The pitman E, however, in place of, at its forward end, being connected with a cross-head adapted to work in slides, is jointed to a lever, F. This lever is of a double-bell-crank type, is journaled at *f* in the frame C, and its arms *f'* *f''* are respectively jointed to the links G G and H H. The lower links, G, in turn are jointed to the upper plunger, J. The upper links, H, in turn are jointed to a cross-bar, I, which is adapted to be moved upward and downward in the slots *c c* in the frame C.

K K represent links connected with the cross-bar, and leading thence past the upper plunger to the cross-bars or lugs *j j*, to which the lower plunger, J', is attached. The frame C is slotted at *c' c'*, to admit the bars *j j*, which are adapted to be moved upward and downward therein. The lower plunger works upward and downward at *c''* in the frame C, and

the upper plunger works upward and downward in combination with the lower plunger, substantially as in the construction above referred to, saving as modified by the present improvement.

The operation is as follows: The molds L, in which the sub-plungers *j' j'* work upward and downward, are filled with the clay by any suitable method, and preferably by means of the charger M, which in turn is operated, as in the original construction referred to, by means of the rods *m m*, which extend from the charger to the bell-crank levers *m' m'*, journaled at *m''* in the frame C, and moved reciprocatingly in their bearings, and so as to operate the charger, by means of the guides *a'' a''* upon the wheels A A', respectively.

The lever F and links G H in effect constitute a double toggle. As the wheels A A' are rotated, the pitman E causes the lever F to turn upon its bearing *f*, and the toggles to be straightened—that is, the lever-arms *f' f''* and the links G and H are moved into line with each other and with the plungers. The movement causes the upper plunger to be thrust downward, and the lower plunger to be drawn upward, the upward motion of the links H H and cross-bar I being, through the links K K, transmitted to the cross-bars *j* and lower plunger, J'. As the rear end of the lever F passes above the level of the bearing *f*, the toggles act to separate the plungers, and thus for every revolution of the wheels A A' the plungers are closed together and opened apart. No strain, beyond that of supporting the parts, comes upon the frame C in operating the plungers, for the pressure upon the bearing *f* is balanced and the main stress is sustained by the toggle and links K K. The lever F can be extended, as desired, to increase the leverage upon the toggle, and the wheels A A' and pitman E are useful not only for operating, but also for increasing the efficiency of the toggle. It will also be noticed that the toggle is arranged above the table L', upon which the clay is worked. This serves to keep the toggle free from the trouble arising from the dirt getting into the joints of the working parts. The wheels A A' are driven by the pinions P P upon the shaft P'. After the bricks have been pressed, the lower plunger, by means similar to that shown in the con-

struction above referred to, but not here shown, becomes attached to the upper plunger, and therefore when the upper plunger rises it lifts the lower plunger with it, and the lower plunger is thereby caused to eject the bricks from the molds, and after they are ejected the charger in its movement operates to move the bricks out of the way, and also to detach the lower plunger, which then drops. To provide for this movement of the lower plunger the links K K are suitably slotted, (not shown in the drawings,)—that is, as the lower plunger is lifted by the upper plunger the arms *j j* move upward in the slots in the links K K, and when the lower plunger is detached the arms *j j* drop to the lower end of the slots.

I claim—

1. In a brick-machine, the combination, with the frame and the upper and lower plungers, of a bell-crank lever supported upon a fixed pivot in the frame, a set of toggles for forcing down the upper plunger, and a second set of toggles and connecting-rods for simultaneously raising the lower plunger to compress the clay, all said parts being supported by the single fixed pivot, whereby both plungers are moved

an equal distance and the frame relieved of strain, which is transferred entirely to the working parts, the frame being provided with guides for keeping the extremities of the upper and lower toggles and said connecting-rods in the same vertical line with the pivot and the plungers, substantially as set forth.

2. The combination of the double-bell-crank lever, mechanism for oscillating the same, the upper and lower plungers, links connecting the lower end of the lever with the upper plunger, the frame having a guiding slot or way, *c*, a cross-bar, *I*, fitting in said way, links connecting the upper end of the plunger with said cross-bar, and links K K, connecting the cross-bar with the lower plunger, the lower plunger being movable vertically relative to the links K K, and the plungers being provided with devices for temporarily locking them together, substantially as set forth.

Witness my hand this 16th December, 1884.

JOSEPH J. KULAGE.

Witnesses:

C. D. MOODY,

C. C. HARTMAN.