

(No Model.)

4 Sheets—Sheet 1.

J. J. KULAGE.
BRICK PRESS.

No. 484,896.

Patented Oct. 25, 1892.

Fig. 2.

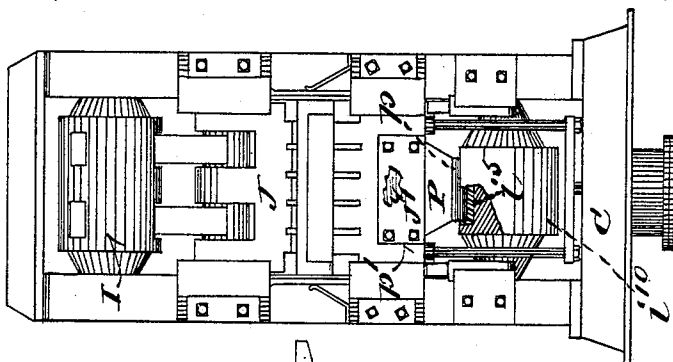
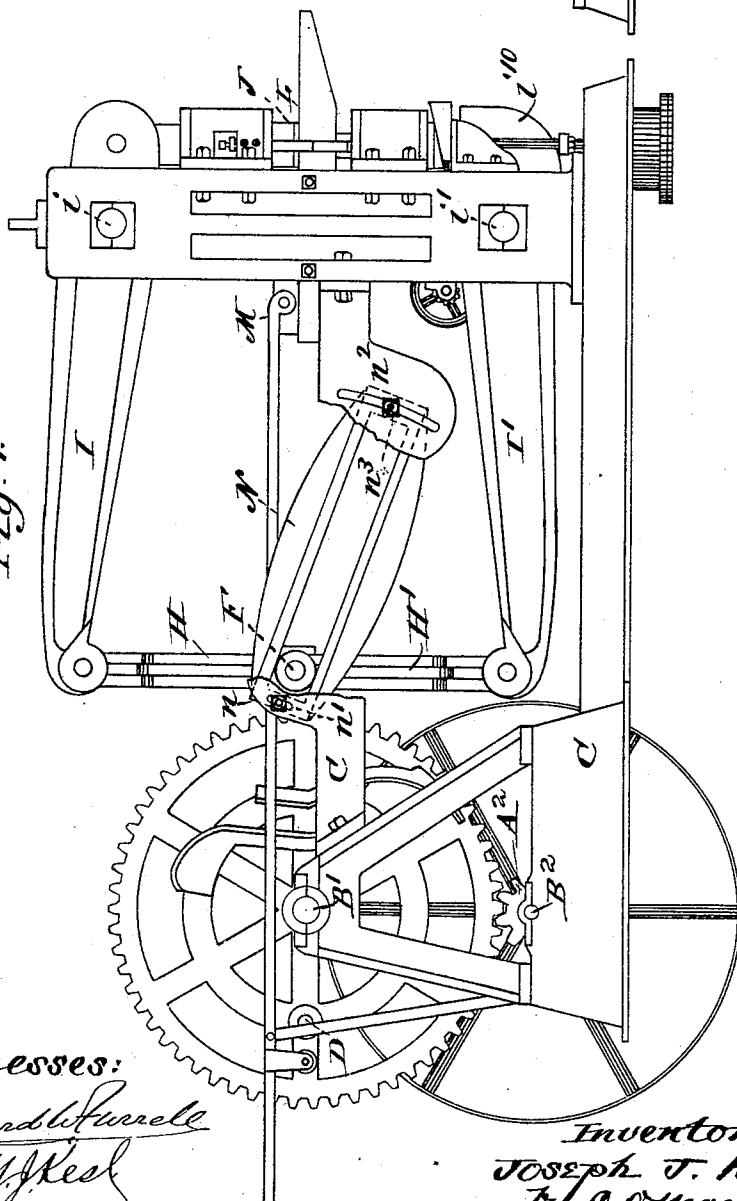


Fig. 1.



Witnesses:

Edward W. Funnell
W. J. Keck

Inventor:
Joseph J. Kulage
by C. D. Moody his atty.

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Fig. 4.

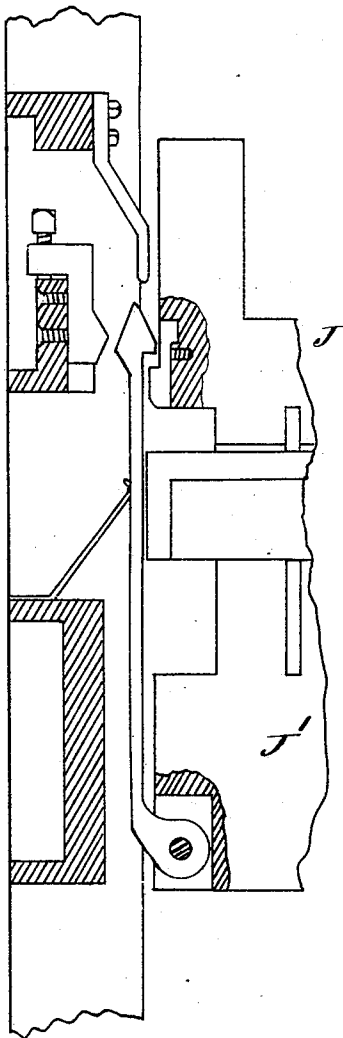
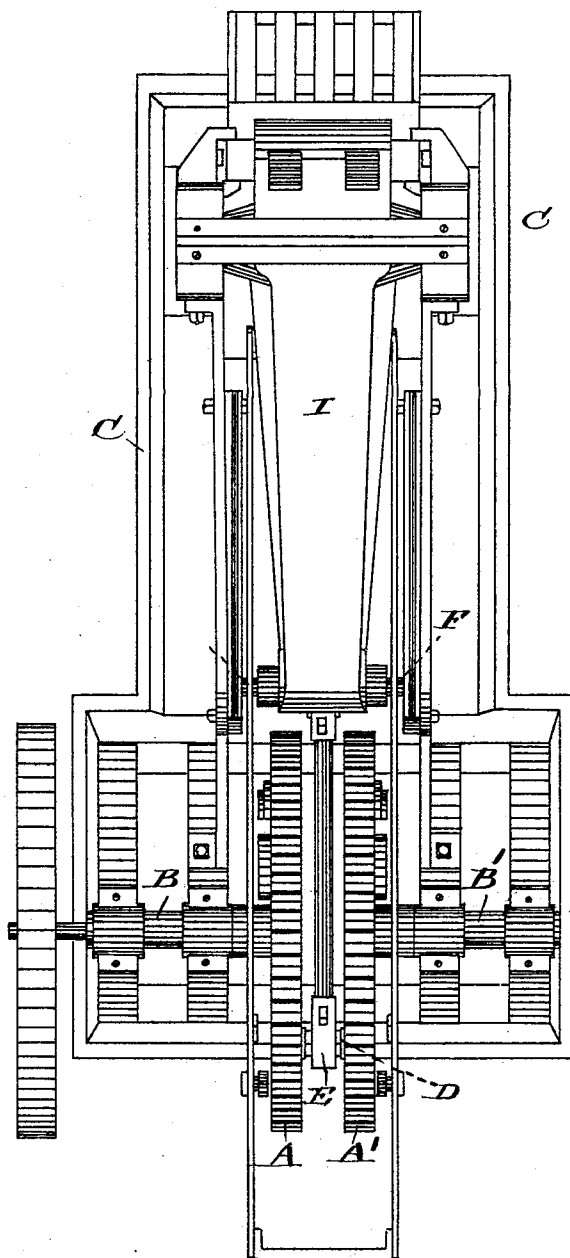


Fig. 3.



Witnesses:

Edward H. Surrency
W. J. Keel

Inventor:
Joseph J. Kulage
by C. D. Moody
his atty

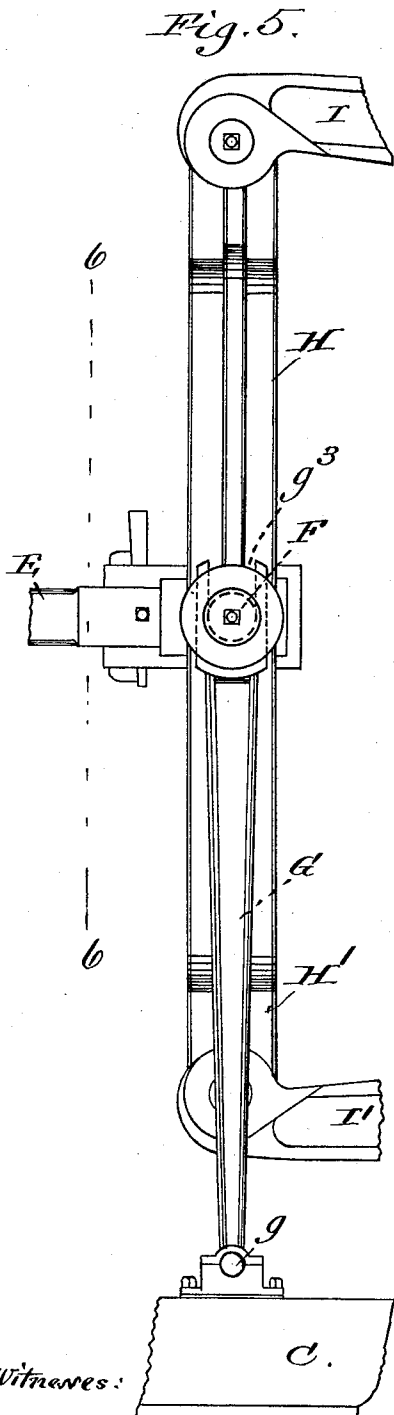
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J. J. KULAGE.
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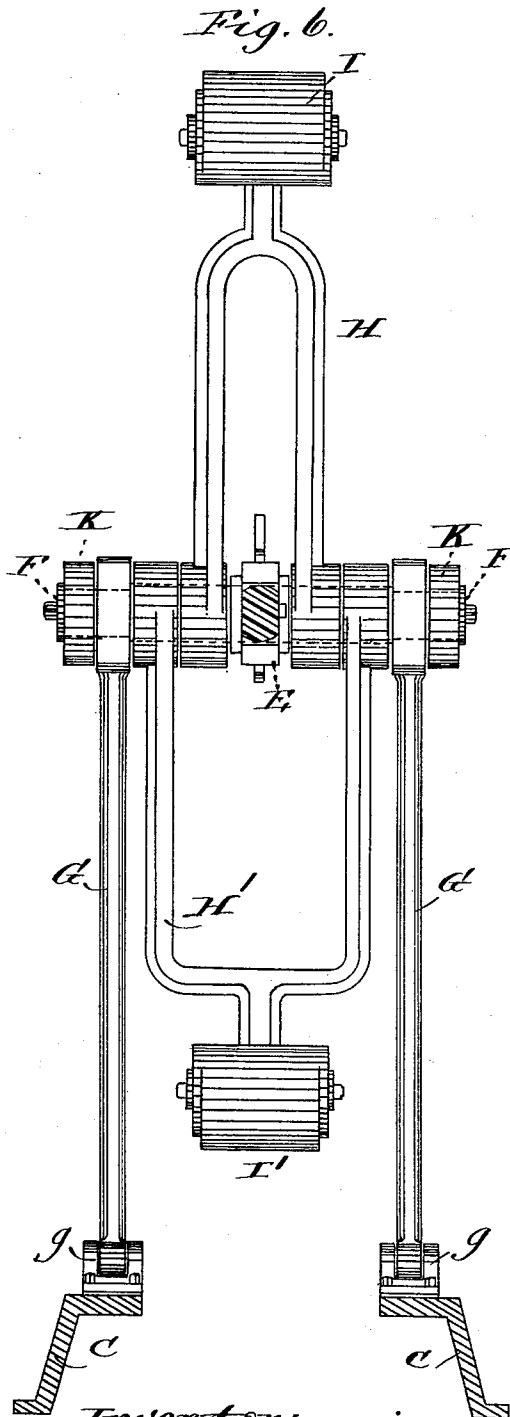
No. 484,896.

Patented Oct. 25, 1892.



Witnesses:

Edward A. Furrell
N. J. Kesler



Inventor:

Joseph T. Kurlage
by C. D. Moody
his atty.

UNITED STATES PATENT OFFICE.

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

BRICK-PRESS.

SPECIFICATION forming part of Letters Patent No. 484,896, dated October 25, 1892.

Application filed January 9, 1891. Serial No. 377,301. (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 Presses, of which the following is a full, clear, and exact description.

The present improved machine is adapted for pressing various substances for various purposes into various forms. It is especially adapted for forming bricks and it is in connection with a brick-machine that it is illustrated.

The present improved machine, so far as its general construction is concerned and also some of its details, resembles the construction shown in Letters Patent No. 309,549, granted to me December 23, 1884, for an improvement in brick-machines—that is, the power is communicated to a pair of gear-wheels, which are journaled side by side and united by means of a wrist-pin, from which a pitman leads and which at its forward end is connected with the cross-head working in slides and jointed to links, forming thereby a toggle construction, which in turn operates a pair of levers, with which the upper and lower plungers are respectively connected.

The improvement relates to the cross-head and the means for controlling its movement, whereby a simpler and easier-working construction is obtained and whereby the plungers can readily be adapted to operate at a higher or lower level in and with reference to the molds, as may be desired.

The improvement also has reference to the means for transmitting the motion of the lower lever to the lower plungers, all substantially as is hereinafter described and claimed, aided by the annexed drawings, making part of this specification, in which—

Figure 1 is a side elevation of the improved machine, a portion of the framework being broken away; Fig. 2, the front end elevation of the machine, a portion of the lower lever being in section; Fig. 3, a plan of the machine; Fig. 4, a detail upon an enlarged scale, being a vertical sectional view exhibiting the means for upholding the lower plungers; Fig. 5, a side elevation of the cross-heads and link and including the cross-head supports and the ends of the levers to which said links lead; Fig. 6, a vertical cross-section on the line 6 6 of Fig. 5; Fig. 7, a side elevation similar to

that of Fig. 1, but showing a portion only of the construction. The view is introduced more especially to illustrate a modified means for supporting and guiding the cross-head and the parts therewith connected. Fig. 8 is a view similar to that of Fig. 7, but exhibiting a further modification; and Fig. 9, a horizontal section on the line 9 9 of Fig. 8.

The views are not all upon the same scale.

The same letters of reference denote the same parts.

A A' represent the gear-wheels, attached, respectively, to the shafts B B'. The driving-shaft of the machine is shown at B². It is provided with pinions, such as A², which engage, respectively, with said gear-wheels.

C represents the framework of the machine. D represents the wrist-pin, which unites the wheels A A', and E represents the pitman, which connects the cross-head F with the wrist-pin. I I' respectively represent the upper and lower levers, which are journaled in the framework at i i', respectively, and at their front ends respectively connected with the upper and lower plungers J J'. L represents the mold-frame, and M the charger.

The parts thus far described are constructed and operated substantially as in the construction above referred to, saving as modified by the improved features now under consideration.

In the place of connecting the pitman and the links H H', which unite the cross-head with the levers, with the cross-head at three different points, respectively, thereon, the cross-head is in the form, substantially, of a pin and the links and pitman are jointed together by means thereof—that is, the pitman is arranged centrally, and the links are forked to successively include the pitman, and the parts are united by passing the pin F through the links and pitman, which at the ends thereof are suitably perforated to receive the pin, substantially as shown in Figs. 5 and 6. The upper link H includes the pitman E and the lower link includes the upper link; but, if desired, the parts may be otherwise relatively arranged, so long as they all turn upon a common bearing—namely, the pin F. The cross-head is guided suitably in its movement, so that it shall keep in place, and to this end it may be supported upon stationary guides

or upon movable ones, such as the radius-rods G G, which are pivoted at g and at their upper ends adapted to uphold the cross-head, which is extended sufficiently to engage in the radius-rods, as shown. The cross-head is also preferably extended still farther and provided with friction-rollers K K, which are of service at times when the cross-head does not depend wholly upon the radius-rods for its support.

A leading feature of the improvement, however, is the provision whereby whatever is formed in the molds can be pressed at a higher or lower level therein. If the bricks or other objects formed in the molds are always pressed at the same level therein, the molds are unequally worn. It is desirable to obviate this difficulty, and it is accomplished by varying the level at which what might be termed the "center of the pressing" is effected, pressing the object sometimes lower and sometimes higher in the molds. There are other reasons, also, which render it desirable to be able to alter the level at which the forms are pressed. This desired end is accomplished by controlling the position of the cross-head, especially at the time of the completion of the pressing, and this in turn is accomplished by making the part or parts which support the cross-head vertically adjustable. This can be done in various ways. One method is shown in Fig. 1. The cross-head at each end thereof works in a guide N. This guide is in the form substantially of a slotted frame, whose rear end n by means of the slot and pin or any equivalent construction n' can be raised or lowered within certain limits adapted to the purpose in view and which at its forward end n^2 is pivoted to provide for the described adjustment of the rear end of the guide. By raising said guide at its rear end the center of the pressing is lowered in the mold and by lowering said guide at its rear end the center of the pressing is raised in the mold. Another feature of this guide is its inclination, the forward end of the guide being inclined downward, substantially as shown. By this arrangement of the guide the cross-head in opening the plungers apart from each other is moved to a lower level, and in consequence of this the upper plunger is elevated higher above the molds and the lower plungers are arrested at a higher level in the molds than when the cross-head is moved horizontally in its movement. Such a relative arrangement of the plungers when opened apart from each other is sometimes desirable, as thereby more room is provided above the molds at the time of ejecting the forms from the molds and recharging the molds. This last-described feature of the construction is carried out more fully by making the forward end of the guide vertically adjustable, as by means of the pin-and-slot construction n^3 , substantially as shown. By lowering the guide at its forward end the upper plunger is raised higher, and by raising the guide at its forward end the upper plunger is not raised as high. These de-

scribed results can be obtained by equivalent means—for instance, the means exhibited in Figs. 7, 8, and 9. A portion only is shown in Fig. 7. As there shown the radius-rod G is adapted to be raised and lowered by means of lining-plates—such as shown at g' —inserted beneath the bearing g^2 of the radius-rod. By withdrawing the plate the radius-rod and cross-head are lowered, and by inserting the plate or additional plates the radius-rod and cross-head are raised and the center of pressing the molds is accordingly varied. The radius-rods G G, especially when arranged as in Fig. 7, also become the equivalent of the inclined feature of the guides N in Fig. 1.

In Figs. 8 and 9 the radius-rods are shown, but with additional features. O, Fig. 8, represents one of the pair of bearings at opposite sides, respectively, of the machine and supported upon its framework, which serve at the time of the final pressure in the molds to uphold the cross-head at a higher level than when supported by the radius-rods. As the radius-rods are swung backward toward the completion of the pressing the cross-head, preferably by means of its friction-rollers, rides upon the bearings O, and is thereby raised so as not to rest upon the radius-rods, and the radius-rods are slotted at g^3 to permit of the described upward movement of the cross-head. The other additional feature (exhibited in Figs. 8 and 9) in the longitudinal horizontal adjustment of the radius-rods is that the lower end thereof can be pivoted nearer to or farther from the plane in which the press-plungers operate. By shifting said pivots forward in the press the center of the pressing at the time of the final pressure is raised in the molds, and by shifting said pivots backward in the machine the center of the pressing is lowered in the molds. The described shifting of the pivots is conveniently provided for by means of the series g^5 of bolt-holes in the framework of the machine. The bearing g^2 can be bolted to the framework at any point along said series of holes. The upper lever I is connected with the upper plunger, as in the former construction referred to. The lower lever I' is connected with the lower plunger J' in a modified manner. In place of being jointed to said lower plunger the said lever at i^5 is recessed to receive the foot p of a toggle P, which rests loosely in said recess in the lever and which is adapted to work vertically in the guide p' in the framework on the machine and at its upper end to support the lower plunger. When the forward end i^6 of the lever I' is lowered, the toggle drops with the lever end and the lower plunger is lowered, and when the lever end is raised it lifts the toggle, which in turn elevates the lower plunger.

I claim—

1. The combination of the cross-head, links, pitman, levers, and an adjustable guide for said cross-head, said guide being a separate

part from said cross-head, links, and pitman, substantially as described.

2. In a press having upper and lower plungers and molds, as described, the combination of the cross-head and its guide, the said guide being vertically adjustable at its rearward end, substantially as and for the purpose described.

3. In a press having upper and lower plungers and molds, as described, the combination of the cross-head and its guide, said guide being vertically adjustable at its forward end, substantially as described.

4. In a press having upper and lower plungers and molds, as described, the combination of the cross-head and its guide, said guide being higher at its rearward end than at its forward end and being vertically adjustable at said rearward end, substantially as described.

5. In a press having upper and lower plun-

gers and molds, as described, the combination of the cross-head and its guide, said guide being higher at its rearward end than at its forward end and being vertically adjustable at said forward end, substantially as described. 25

6. In a press having upper and lower plungers and molds, as described, the combination of the cross-head and its guide, said guide being higher at its rearward end than at its forward end and being vertically adjustable at both said ends, substantially as described. 30

7. The combination of the lower lever, lower plungers, and interposed toggle, said toggle at its lower end resting loosely in a recess in said lower lever, substantially as described.

Witness my hand.

JOSEPH J. KULAGE.

Witnesses:

GEO. W. FISHER, Jr.,

C. D. MOODY.