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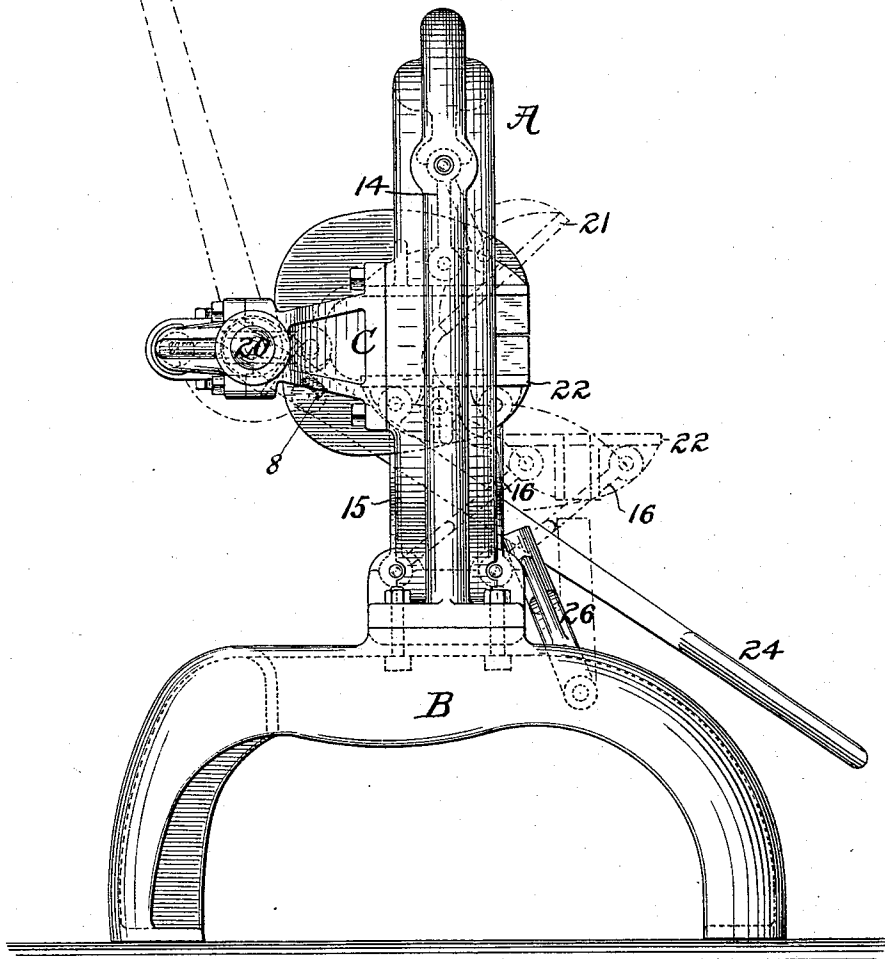
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BRICK PRESS.

No. 488,049.

Patented Dec. 13, 1892.

Fig. 1.



Witnesses
Chas Hanimann

Geo. H. Graham

Inventor
Geo. H. Babcock
By *his* Attorney
Chas W. Jordan

(No Model.)

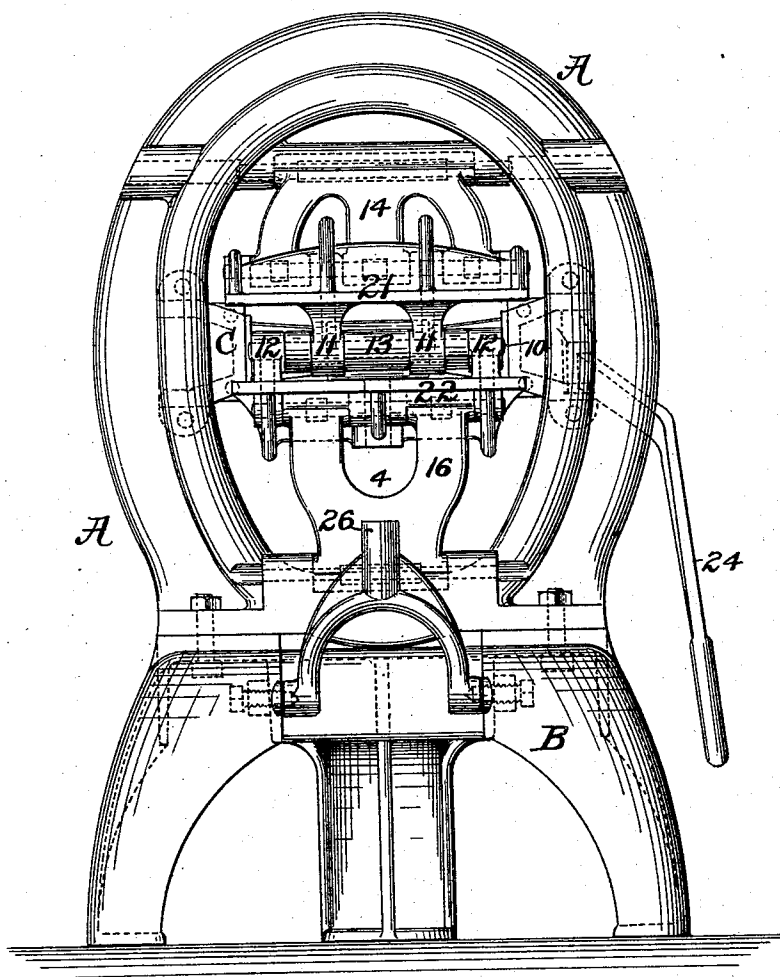
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BRICK PRESS.

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Fig. 2.



Witnesses
Chas Hanimann
L. H. Chatham

Inventor
Geo. H. Babcock
By *his* Attorney
Chas W. Jordan

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Fig. 3.

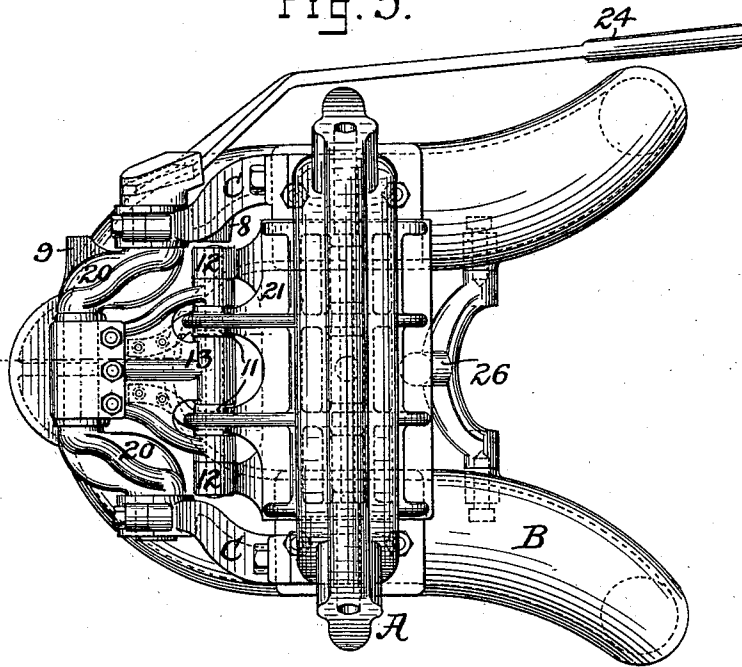
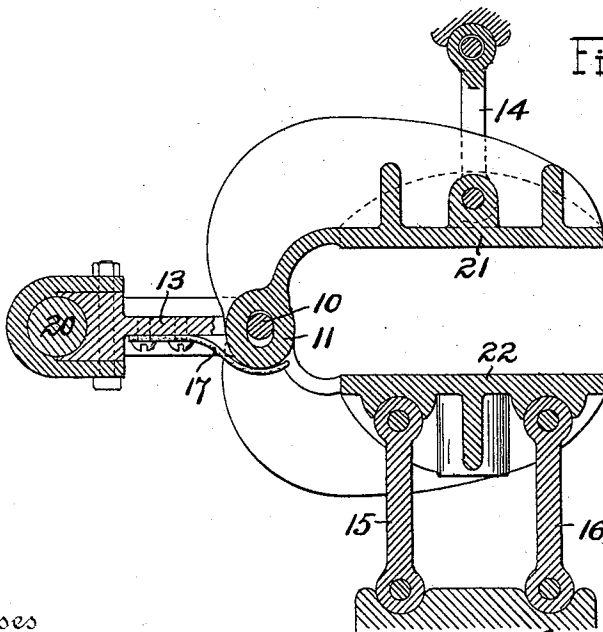


Fig. 6.



Witnesses
Chas Hanemann
Geo. K. Wabner

Inventor
G. H. Babcock
By *for Attorney*
Chas W. Jordan

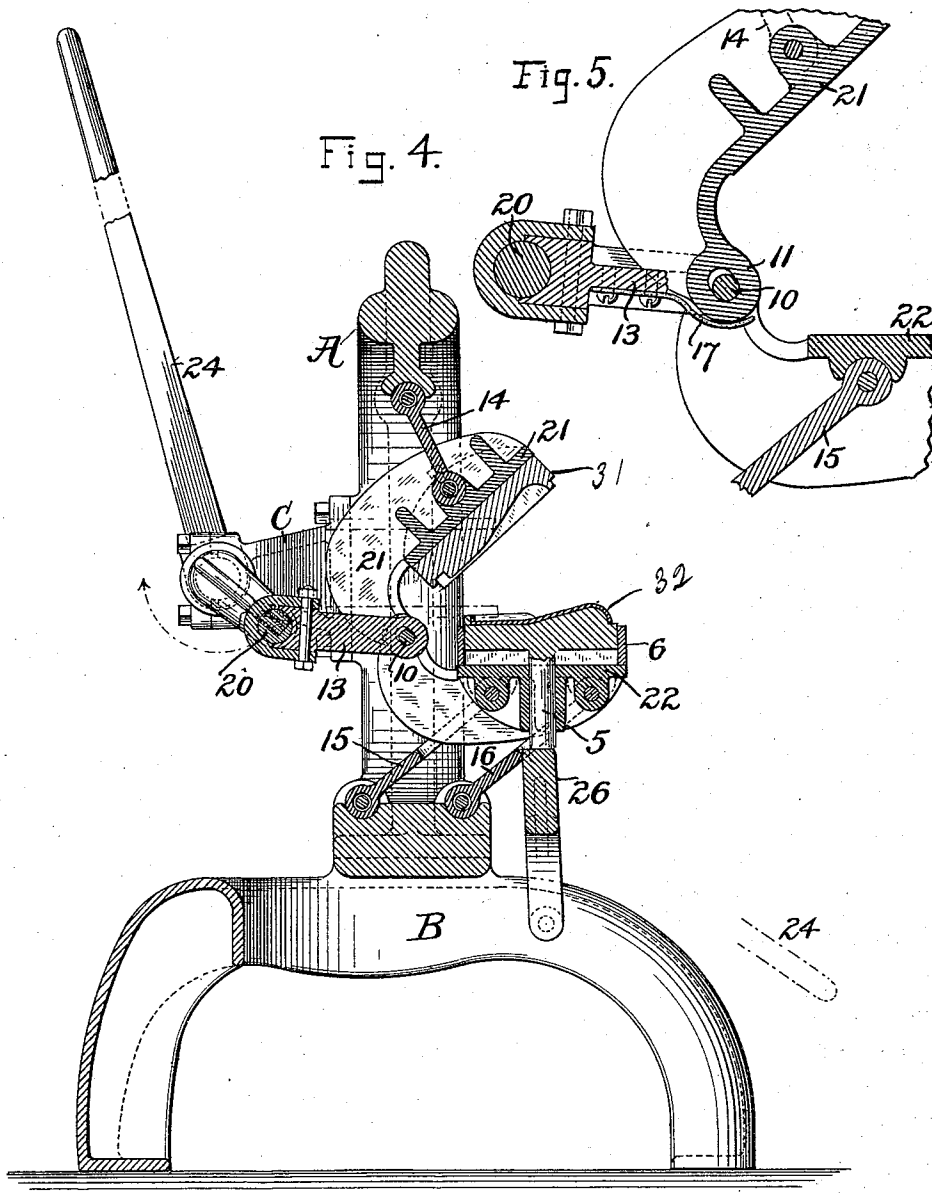
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BRICK PRESS.

No. 488,049.

Patented Dec. 13, 1892.



Witnesses
Chas Hanimann

Geo. H. Graham

Geo. N. Babcock Inventor
By his Attorney
Chas. M. Jordan

UNITED STATES PATENT OFFICE.

GEORGE H. BABCOCK, OF PLAINFIELD, NEW JERSEY.

BRICK-PRESS.

SPECIFICATION forming part of Letters Patent No. 488,049, dated December 13, 1892.

Application filed February 12, 1891. Serial No. 381,123. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. BABCOCK, a citizen of the United States, residing at Plainfield, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Machines for Pressing Tile, Brick, &c., of which the following is a specification.

This invention relates generally to presses, and more particularly to that class of presses adapted for hand manipulation—that is to say, wherein the movement of the parts is effected by mechanical connections with an operating-handle as distinguished from those presses operated by hydraulic power—although it is to be understood that certain features of the invention are also applicable to presses operated automatically as by hydraulic or steam power.

The improved press is particularly applicable to the manufacture of clay and other similar tiles used for roofing and sheathing purposes, although by simply changing the dies or molds it may be employed for the manufacture of other articles. In such presses wherein the die employed is a two-fold one—that is to say, wherein the configuration or contour is carried by both portions of the die—it is advantageous to be able to examine both of the die portions after each operation, so that the chance of making imperfect articles is reduced to the minimum; and in hand-operated presses it is requisite that the die should be readily and quickly moved together into their pressing or squeezing position, and in so doing have brought the mechanical connections in the most advantageous position for the exertion of the manual power in the final pressing or squeezing operation. It is to these ends, among other things, that the present invention is directed; and it consists, essentially, in employing a pair of coacting platens, which, in their most complete embodiment, are simultaneously movable into and from their operative positions, one of the platens having a parallel-angular motion downward and the other having a swinging motion upward, whereby the platens in being moved into their separated or open position, or the faces of the dies carried thereby are exposed to view, so that the up-

per portion of the die may be as readily examined as the lower portion.

As a better understanding of the improvement may be had by a detailed description of a practical embodiment of the same, such description will now be given, reference being made to the accompanying drawings, in which—

Figure 1 is a side elevation of a press embodying the invention. Fig. 2 is a front elevation of the same. Fig. 3 is a plan view. Fig. 4 is a central vertical section, taken on the line X X of Fig. 2, the platens being shown in their changed positions. Figs. 5 and 6 are sectional details hereinafter referred to.

The heavy framework of the press consists of an arched or U-shaped vertical member A, securely bolted to a lower or legged member B, the shape of which in plan is also of U shape, the open end of the U being at the front, so that its legs will not prevent the near approach of the attendant to the operating parts of the press. The arched member A of the framework supports a pair of rearwardly-extending brackets C, which provide bearings for an operating crank-shaft 20. In the space formed by the arch of the arched member there is provided a pair of platens 21 22, which may be of any usual construction, presenting opposed straight faces on which the die or portions of the die 31 32 may be secured. These two platens are adapted to move from their working position outwardly to the front of the machine, and in such movement be moved either both with respect to each other or one with respect to the other, so that upon reaching said forward position the platens will have been separated to enable the article just formed to be removed and to supply a fresh quantity of material for the forming of another article.

In the preferred embodiment of the invention each of the platens are hinged or pivotally connected together by a pintle 10, that passes through a pair of knuckles 11 12, projecting from the rear of the upper and lower platens, respectively, which pintle also serves to connect one end of a pitman or link 13 with the two platens, the opposite end of which is connected to and carried by the

wrist of the crank-shaft. The upper platen is suspended by a link 14, one end of which is pivoted to the press-frame and the other end pivotally connected to the platen at substantially midway of its length. The pivots of the link occupy such a position with respect to the platen that at the time the platens are exerting the greatest pressure upon the material, or when they are in their active position, said link and its pivot will be in line with the vertical strain upon the platen. The link, also, is so connected with the platen that in the forward and outward movement thereof the platen is sustained thereby and allowed to swing, and in swinging raise its outer end or incline its face to the front to such an extent that it or the portion of the die that may be carried by it will be brought to view for inspection.

The lower platen 22 is carried by a pair of parallel links 15 16, the lower ends of which are pivoted to the press-frame between the vertical members of the arch-shaped member and their upper ends pivotally connected to the platen. These links are so arranged that when the platens are in their active position the axes of the parallel links will be with the vertical strain upon the platen, and being upon opposite sides of the center of the platen will oppose the strain exerted by the single centrally-arranged link of the upper platen, the three links thus being in substantially-parallel planes, so that should there be any tendency of the platens to spring, the lower one would naturally spring to a concavity between the separated links while the upper one would spring in harmony therewith to a convexity by reason of its centrally-arranged link. The pair of links 15 16 are also such that in the movement of the platen to its forward position, its surface will be guided horizontally, so that the article which has been formed and which may be carried by the platen or by the die upon the platen is in no danger of being prematurely discharged.

The connection between the two platens and the crank-shaft and the position of the wrist of the crank-shaft are such that at the time the extreme pressure is being exerted by the platens, the axis of the wrist, crank-shaft, and pintle will be in line, whereby the strain is exerted through the longitudinal axis of the link and is sustained directly by the bearings of the crank-shaft, which are also in line with said strain.

In the joint between the two platens the knuckle 11 of the upper or swinging platen (see Figs. 5 and 6) has a slightly-elongated hole in a direction normal to the plane of the platen, and a spring 17 (which is shown as attached to the link 13) is so applied as to tend to keep the joint raised, so that the pintle bears upon the lower side of the elongated hole or slot. The effect of this is that as the platens come into action they arrive at a parallel position a little before their controlling-

links become vertical—or, in other words, before the platens have made their nearest approach to each other. If now there is interposed between them at this time the blank upon which the dies are to operate, the resistance of this compression is so greatly in excess of the resistance of the spring that the two platens are compelled to approach each other during the remainder of their motion in parallel planes, and all parts of the tile or other article is equally compressed. In practice it is preferred to make this distance and the thickness of the blank such that the entire action upon the tile or articles occurs during this parallel approach. When the retrograde motion is made, the spring lifts the upper die from the finished tile from one edge first, which causes it to exert less suction and consequent tendency to distortion thereon. A counterbalance-weight attached to the opposite side of the platen from the joint would act in the same manner as the spring and be equivalent thereto.

In the movement of the crank-shaft to open the platens and thus relieve the pressure, the first movement will be a slow one, and then a gradually accelerated one until the platens reach their extreme forward position, and thus in the return movement of the crank-shaft in drawing the platens rearwardly to their active position the first motion will be a quick one, gradually decreasing to the final motion during the exertion of the greatest strain, which will be a slow one. As both platens are moved by the single crank-shaft, their movement will be simultaneously in either direction of the crank-shaft, so that in moving forward and outwardly they will be moved apart simultaneously, the lower one in a downward direction with its face constantly horizontal, while the upper one will first be rocked slightly upon the pivots of the link and then rocked or swung on its pivotal connection with the link, so that the rear lower face of the platen is moved forward and outward, while the front lower face is moved upward and backward, thus exposing the entire under face of the upper platen or the die that may be carried by it.

The platens may be both stopped in the position shown in Fig. 4 and prevented against further movement by a stop (see Fig. 3) formed by a lug 9 on the crank-shaft 20, meeting a similar lug 8, projecting from the inner side of one of the brackets C.

The crank-shaft may be operated in any suitable manner, as by a hand-lever 24, which is shown as secured to a projecting end of the crank-shaft, as seen in Fig. 3.

In the making of clay or other similar tiles a portion of the die is secured to the face of each of the platens 21 22, and the portion 32 upon the lower platen is preferably in the form of a sliding die, the main part of which is mounted to slide vertically between fixed walls 6, forming a ledge around the die, the center or die portion having a pin 5, project-

ing through an opening in the center of the platen 22 in position to meet a stop 26 just before the platen reaches its forward position, and upon the slight further movement of the platen the further movement of the die will be arrested, while the ledge thereof moves with the platen, the effect of which will have been to have dropped the platen, leaving exposed the article sustained by the die above the ledge, so that it may be readily removed.

The stop 26 is formed by a forked arm mounted upon centers at the forward end of the lower section of the framework, the tendency of which arm is to fall inwardly and rest with its upper end against the link 16. Upon the forward or outward movement of the platen 22 the link 16 will rock the arm outwardly until an opening 4 in the link reaches the end of the arm, at which point the stop-arm will rest in position to meet the end of the pin 5 of the lower die just before the platen reaches the limit of its forward movement. Upon the return movement of the platens the stop-arm will gradually return to its idle position, resting against the link 16, and when not required the stop-arm may be swung out of action by simply throwing it forward and allowing it to hang down.

What is claimed is—

1. In a press, a pair of coacting platens having a swinging movement, one maintaining parallelism to a given plane and the other having a swinging movement intersecting said plane, as set forth.

2. In a press, a pair of coacting platens pivoted together, one having a combined swinging and parallel movement and the other a combined swinging and revolving movement, whereby, when brought together, the supporting and resisting parts shall be in the line of compression and when separated shall be moved out of said line of compression, as set forth.

3. In a press, a pair of coacting platens having a swinging movement, one supported upon two parallel pivoted links and the other suspended from a single link and adapted to move from and into parallel planes, as set forth.

4. In a press, a pair of coacting platens, a single link for controlling the motion of one of the platens, a pair of parallel links for controlling the motion of the other platen, and a connected crank for simultaneously moving both platens, substantially as described.

5. In a press, the combination of a pair of

hinged platens, a link sustaining one of the platens, a pair of links supporting the other platen, a crank for moving the platens, and a link connecting the crank with the pivot of the platens, substantially as described.

6. In a press, a pair of platens hinged together and having a swinging and separating motion, substantially as described, the hinge of one of said platens being slotted and bearing upon a spring whereby the respective platens assume a relative parallel position previous to compression, as set forth.

7. In a press, the combination of a platen swinging upon two substantially-parallel links, a die carried by and movable relative to said platen, and an abutment located to cause said relative movement of the die and platen, substantially as described.

8. In a press, the combination, with a platen having both swinging and parallel movement, a die-carrier by and movable with respect to said platen, and an abutment located to cause the relative movement of the die while permitting the continued movement of the platen, substantially as described.

9. In a press, the combination, with a platen having a swinging movement, of a movable die supported thereby, and a swinging abutment adapted to be moved in or out of engagement, substantially as described.

10. In a press, the combination of two coacting platens, one of which is controlled by two links and the other by a single link, whereby, when said links are in position for compression, the plane of the single link of one platen stands midway the planes of the two links of the other platen, substantially as described.

11. In a press, the combination and arrangement of two coacting platens, one being controlled by one link and the other by two substantially-parallel links, a crank for giving motion to the platens, and a link connecting the crank with the platens, whereby the crank and its connecting-link shall come into the same plane at substantially the same instant that the three supporting-links come into substantially-parallel planes, substantially as described.

In testimony whereof I have hereunto set my hand, this 4th day of February, A. D. 1891, in the presence of two witnesses.

GEO. H. BABCOCK.

Witnesses:

CHAS. W. FORBES,

GEO. H. GRAHAM.