

(No Model.)

2 Sheets—Sheet 1.

C. H. WESTON.
PRESS.

No. 458,650.

Patented Sept. 1, 1891.

Fig. 1.

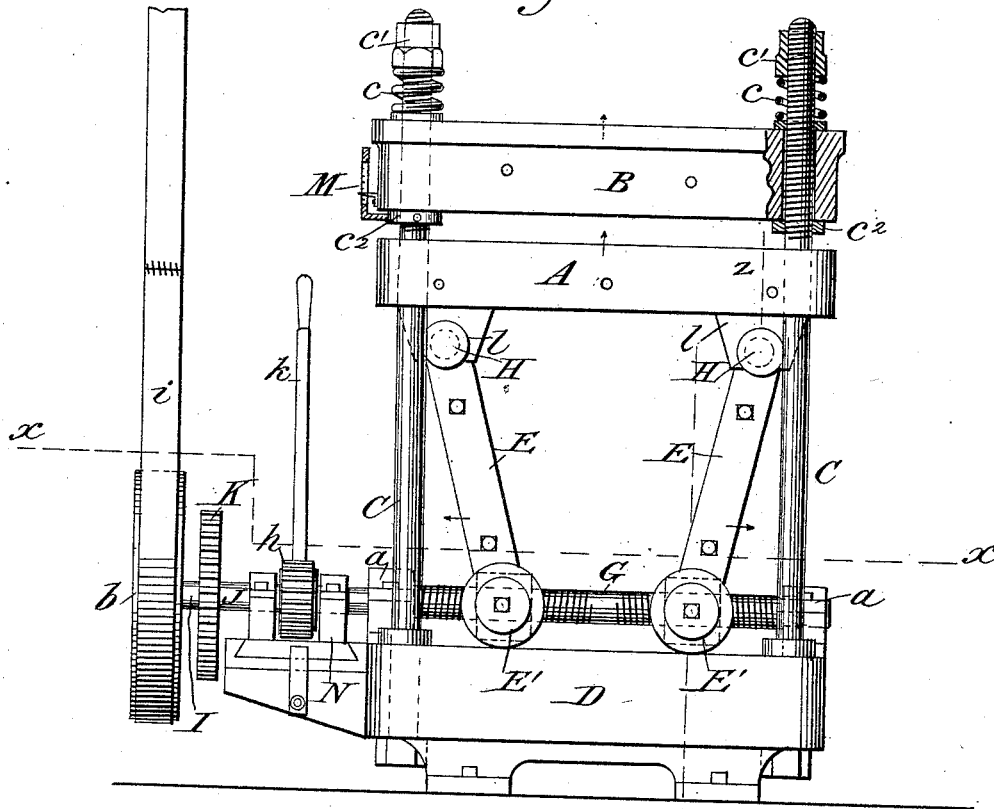
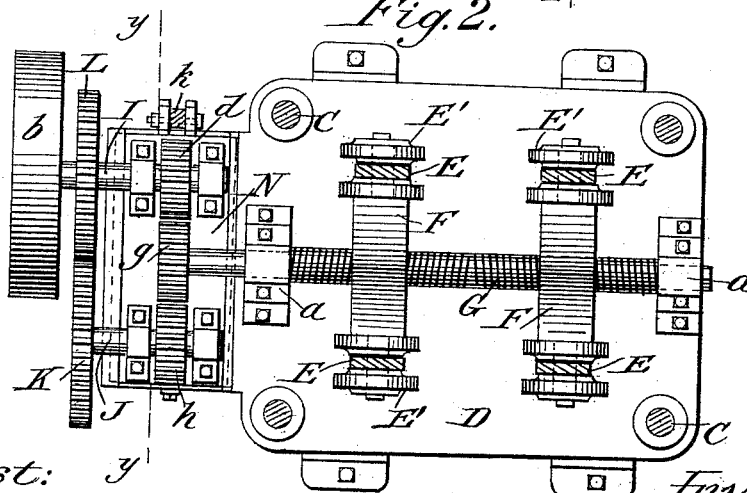


Fig. 2.



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per John C. Parker
Atty

(No Model.)

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2 Sheets—Sheet 2.

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Fig. 3.

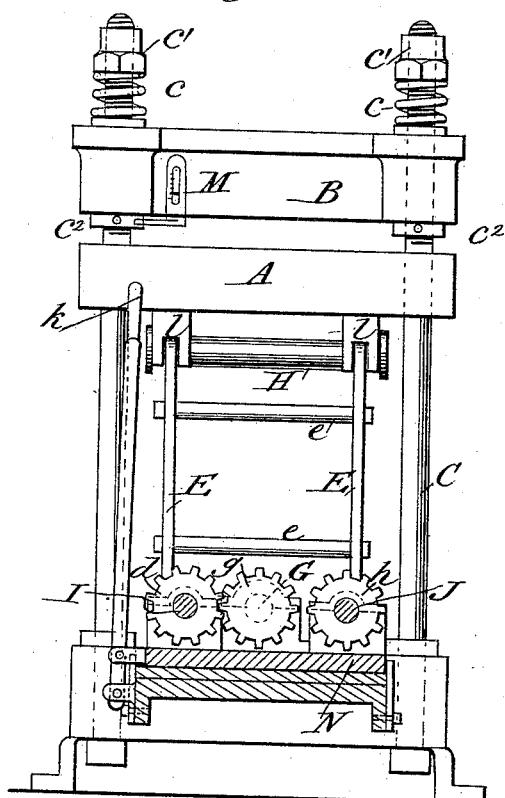
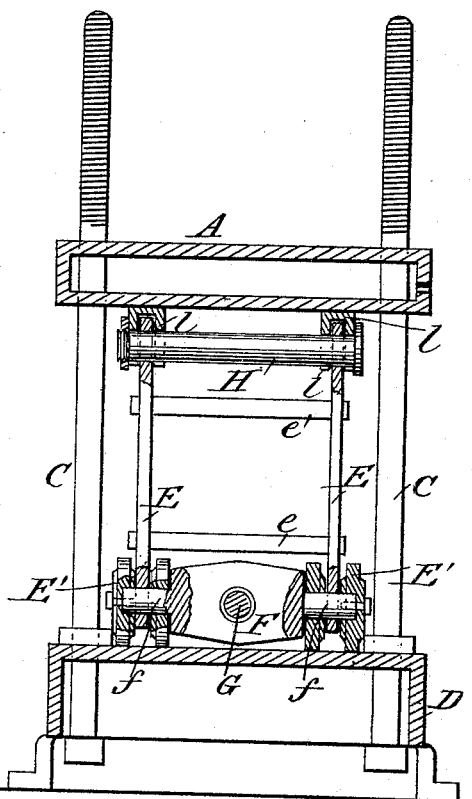


Fig. 4.



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UNITED STATES PATENT OFFICE.

CHARLES H. WESTON, OF YARMOUTHVILLE, MAINE.

PRESS.

SPECIFICATION forming part of Letters Patent No. 458,650, dated September 1, 1891.

Application filed December 18, 1890. Serial No. 375,117. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. WESTON, a citizen of the United States, residing at Yarmouthville, in the county of Cumberland and State of Maine, have invented certain new and useful Improvements in Presses; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to an improvement in presses used for various purposes, and particularly to that class of presses known as "toggle presses," the object being to provide a simple, efficient, and complete construction which will successfully perform all the duties required of a press of this character; and the invention therefore consists in the construction, arrangement, and combination of the several parts, substantially as will be hereinafter described and claimed.

In the annexed drawings, illustrating my invention, Figure 1 is a side elevation of my improved press with certain details thereof shown in section. Fig. 2 is a horizontal sectional plan view on the line *x x* of Fig. 1. Fig. 3 is an end elevation in partial section on the line *y y* of Fig. 2. Fig. 4 is a vertical section on the line *z z* of Fig. 1.

Similar letters of reference designate corresponding parts throughout all the different figures of the drawings.

This press which forms the subject-matter of the present invention may be either a single press or a double press, whichever may be preferred and desired.

In the drawings I have represented a single press; but it is obvious that the construction may be changed and modified or duplicated in such a manner as to provide a successful double press.

D designates the bed plate or frame of the press.

A denotes the vertically-movable follower, and B the movable or yielding horizontal platen, situated at the top of the press-frame. At each corner of the press-frame is a vertical rod C, which is fastened securely at its lower end in the bed-frame D. The follower A is provided with a suitable hole or perforation near each corner, through which

these upright rods C pass, the follower thus being arranged so as to move up and down on the rods as guides; also, the yielding platen B is provided with holes or perforations near each corner, through which the said rods C likewise pass, said platen B being movable within certain limits upon the guide-rods, as will be hereinafter explained.

E E designate toggle-levers. There are two pairs of them. The members of each pair are connected by horizontal tie-rods *e e*, as shown in Figs. 3 and 4. One pair of toggle-levers operates upon the follower near one edge thereof, while the other pair of toggle-levers operates upon the follower near the opposite edge thereof. The under side of the follower A is provided with lugs, projections, or suitable castings in order that the toggle-levers may be pivotally connected to the follower. By referring to Figs. 3 and 4 we will see that this pivoting is accomplished by providing a shaft H, which passes through the ends of the levers E E and likewise through the projections *l l*, said shaft H being provided at one end with a head and at the other end with a screw-threaded end having a nut. This shaft is a pivot or fulcrum. The toggle-levers E E at one side of the press oscillate in the performance of their functions, while the pair of toggle-levers E E at the other side of the press are similarly pivotally connected to another pair of projections *l l*, so that they may likewise properly perform their functions.

G indicates the horizontal operating-screw of the press, a half of which is provided with a right-hand screw-thread and the other half with a left-hand screw-thread. (See Figs. 1 and 2.) Each pair of toggle-levers E E is pivotally supported at the lower ends of its members upon the oppositely-projecting horizontal trunnions or journals *f f* on the block or cross-bar F, which is bored and internally screw-threaded for the reception of the screw G. It will be noted, therefore, that there are two of these screw-threaded blocks F F, which act as nuts. They are both located upon the screw G, but one of them is located upon the right-hand screw-threaded portion of the shoe, while the other is located upon the left-hand screw-threaded portion, so that as the screw rotates one nut F will move in one direction

and the other nut F will move in the opposite direction. As these nuts or blocks F F are connected to the respective pairs of toggle-levers, it will be evident that the result of the rotation of the screw G will be to oscillate said toggle-levers either way from each other or toward each other, accordingly as the direction of rotation of the screw G may be, as shown by the arrows on the toggle-levers in Fig. 1, and, furthermore, it will be observed that each of the journals *ff* has mounted thereon a pair of rollers or wheels E' E', which serve as trucks and roll upon the bed-plate D. Thus it may be observed that the nuts F F are provided with trucks which sustain the weight of the toggle-levers, so that no matter how heavy or cumbersome the press may be in order to do strong and powerful work, yet the weight of the heavy levers and nuts will not be borne by the screw which operates them, but will be carried by the trucks, and they will roll easily upon the bed-plate as the screw revolves. The lower ends of the members of each pair of toggle-levers E E are supported upon the journals *ff* between the trucks thereon, as shown in Figs. 2 and 4. The screw G is held in guides or bearings *aa*, bolted or otherwise firmly secured upon the bed-plate D. One end of the screw-shaft G is provided with a pinion *g*. On one side of this pinion *g* is another pinion *d* on a shaft I, which carries a gear-wheel L and a band-wheel or pulley *b*, around which passes a belt *i*, which imparts power to the said band-wheel for the purpose of actuating the press. On the other side of the pinion *g* is another pinion *h* on a shaft J, which carries likewise a gear K, that meshes with the aforesaid gear L, it being in line therewith. The shafts I and J are held in suitable bearings. The pinions *d* and *h* are adapted to be brought into mesh with or thrown out of mesh with the pinion *g*.

k denotes a hand-lever, which is pivoted to the base of the frame and which operates the slide N, (shown in Fig. 3,) which carries the pinions *d* and *h* and their respective shafts, in such a manner that either the gear *d* or the gear *h*, as the case may be, may be thrown into mesh with the pinion, and accordingly as one or the other is put into mesh the result will be to actuate the screw-shaft in one or the other direction, either for the purpose of opening or closing—that is, oscillating outward or inward—the toggle-levers.

The upper end portions of the vertical guide-rods C C are screw-threaded, as shown in Figs. 1 and 4, the top ends being provided with nuts *c' c'*. Enveloping the said screw-threaded portions between the nuts *c'* and the yielding platen B, or between said nuts *c'* and loose collars resting on said platen, are coiled springs *c c*, of greater or less strength,

as may be preferred, which act downwardly upon the platen and press it downward, so that it normally rests upon collars *c'*, secured to the rods C, at suitable points below their upper ends. These springs make the platen yielding, and thus enable the capacity of the press to be increased by providing a greater space between the follower and platen when a large amount of pressing is to be done. These springs will be often made of great power and strength. It will be predetermined as to what the springs will hold at any desired point to which they may be closed, and I find it convenient to provide an indicator or graduated scale M, which will register in a certain number of divisions—say six divisions—and which will show the position of the platen at any desired degree of pressure. These springs are an exceedingly valuable feature, for besides making the platen yielding they enable better and more effective work to be done in the operation of the press.

The operation of the press and its use for various purposes will be evident to those skilled in the art without need of additional description. When the press has been stopped, both of the pinions *d* and *h* will be out of mesh with the pinion *g*, as shown in Fig. 2. The operator will then lay hold of the lever-handle *k* and shift either one gear or the other, as the case may be, and thus cause the power which is transmitted to the press by the belt *i* to operate the press in the desired direction, either moving the follower up or down. When a sufficiently great pressure has been brought to bear against the platen B to overcome the resiliency of the springs *c*, the platen will move upward, as shown by the arrow in Fig. 1, its extent of movement being indicated by the indicator M.

Many changes may be made in the precise construction, arrangement, proportions, and connections of the several parts, as well as modifications in the form and size of the mechanical elements, without departing from the invention, which is broad enough to include all such minor changes which may be necessarily adopted to suit different cases and demands.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

In a press, the combination of the guide-rods, the platen B, resting on collar *c'*, the springs *c c*, coiled around the guide-rods and acting downwardly on the platen, and the nut *c'* above said springs, all substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES H. WESTON.

Witnesses:

FRED O. ALLEN,
BYRON D. ALLEN.