W. H. HOFFMAN & B. St. J. HOYT.

Copying-Press.

No. 168,494. Patented Oct. 5, 1875.

Fig. 1

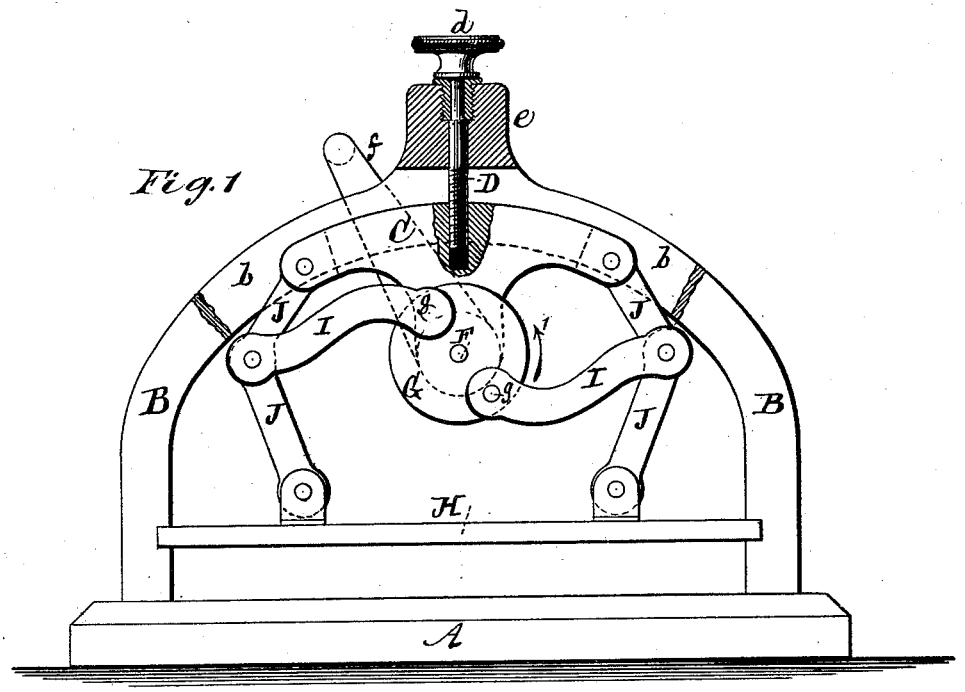
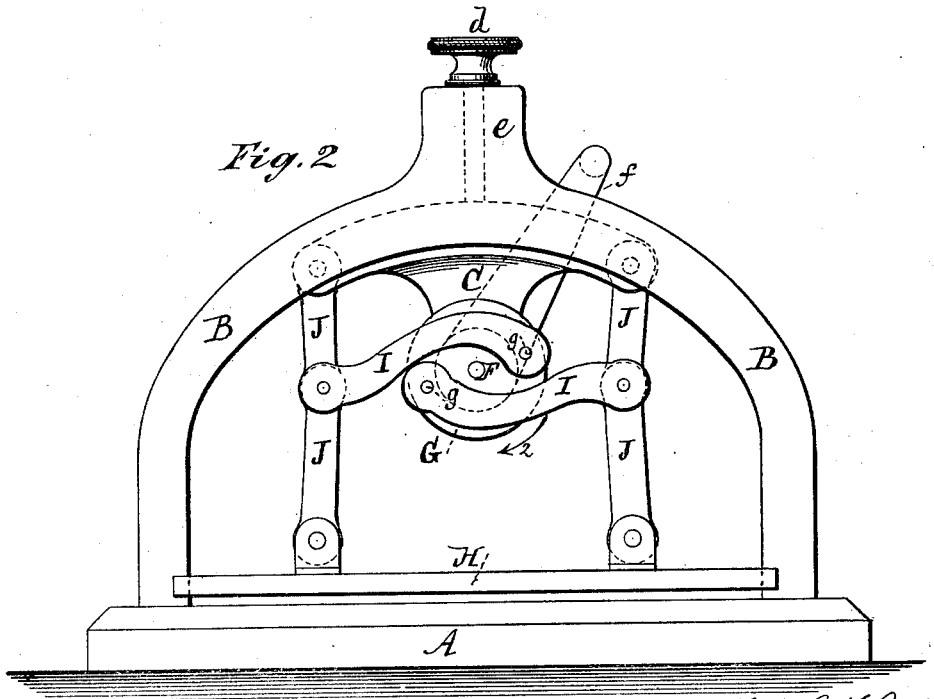


Fig. 2



Witnesses:
Michael Ryan
Fred Haynes

W. H. Hoffman
B. St. John Hoyt
by their Attorneys
Brown & Allen

UNITED STATES PATENT OFFICE.

WILLIAM H. HOFFMAN, OF PASSAIC, NEW JERSEY, AND BUCKINGHAM ST. JOHN HOYT, OF NEW YORK, N. Y.

IMPROVEMENT IN COPYING-PRESSES.

Specification forming part of Letters Patent No. **168,494**, dated October 5, 1875; application filed September 15, 1875.

To all whom it may concern:

Be it known that we, WILLIAM H. HOFFMAN, of Passaic, in the county of Passaic and State of New Jersey, and BUCKINGHAM ST. JOHN HOYT, of New York, in the county and State of New York, have invented an Improved Copying-Press; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, making part of this specification.

Our invention relates to a press which is intended more particularly for use in copying letters in a book, but may be used for various pressing purposes.

The invention consists in a novel construction and arrangement of a toggle mechanism and an adjustable cross-head, and the combination thereof with the platen and other parts of the press, whereby a rapid motion and powerful pressure are obtained in a simple manner, and provision is made for adjusting the platen to books or articles of various thicknesses.

In the accompanying drawing, Figure 1 represents a side view, partly in section, of our improved press, with the platen or pressure-plate nearly in its highest position. Fig. 2 is a similar view, with the platen in its lowest position.

The press may be made of either cast or wrought iron or steel.

A represents the base or bed-plate, from which rises an arched truss, B, which may be cast in the same piece with the base A, or made separately and attached thereto. The truss may be made in two pieces, to provide for an open space between them, or it may be made in one piece, with a vertical slot, *b*, extending from near the spring of the arch on one side to a corresponding point on the opposite side. In this vertical opening or slot *b* works a cross-head, C, which is held in place by means of a device which may be adjusted to regulate the height of the cross-head. The regulating device shown herein consists of a screw, D, passing through a boss or solid enlargement, *e*, at the apex of the arched truss, and having its point engaging with a tap-hole in the cross-head C, so that by turning the screw in one direction or the other the cross-head is raised or lowered. The screw may be provided with a handle or a milled head, *d*, to facilitate the turning of the same. In the lower portion of the cross-head C a horizontal shaft, F, has its bearings. This shaft is provided with a handle or lever, *f*, at one end, and to the other end is attached a disk or plate, G, which is provided with two wrists, *g g*, and thus constitutes a double crank. The platen H is connected to the cross-head C by two toggle-joints, J J, each of which has its upper end pivoted to the cross-head, and its lower end pivoted to the platen. The toggle-joints are connected to the disk or double crank G by links I I, each of which has one end pivoted to the joint and the other end pivoted to the plate or disk G by means of the wrists *g g*. These links may be either straight or curved in any suitable form. We prefer to have them curved in a form similar to that shown in the drawing, or somewhat similar to the letter **S**, as such form facilitates their proper attachment and operation. When the shaft F is turned in the direction indicated by the arrow 1 in Fig. 1, the toggle-joints J are bent outward, and the platen H is raised and continues to rise until the ends of the links I, which are attached to the plate G, are furthest from each other, and all the pivots of said link are in line, and the platen is then in its highest position. When the shaft is turned in the opposite direction the motion is reversed, the toggles J are drawn toward each other so as to straighten them, and the platen H descends until the wrists *g g* or pivots of the inner ends of the links I have passed each other—each describing nearly a semicircle as the plate G revolves—and have arrived in a position with relation to each other nearly the reverse of the first position, by which means the platen is depressed to its lowest point, or so as to exert the greatest pressure upon the book or article placed between the platen and the bed or base-plate. The handle or lever *f* may be so arranged on the shaft F as to pass the center before the platen has reached the lowest point in its descent, by which means greater leverage will be obtained. The size of the plate G, the

length of the links I, and the points of attachment or connection of the toggles J, may be varied at pleasure in order to vary the amount of travel of the platen and the power required to obtain the desired pressure.

By means of the regulating device attached to the cross-head the platen may be raised or lowered and held at various distances from the bed-plate, so as to provide for pressing books, articles, or packages of various thicknesses, without changing the arrangement or operation of the devices employed for raising and lowering the platen in the pressing process, as the platen and its attachments are connected with the cross-head, and rise and fall therewith, and their operation is not interfered with by the rising and falling thereof.

In a press constructed as herein described, a rapid motion and powerful pressure are obtained in a simple manner; and, as the platen cannot rise after the pivots of the inner ends of the links I have passed a vertical line in the downward movement of the platen, the book or other article in the press may be allowed to remain under pressure as long as may be desired.

What I claim as new, and desire to secure by Letters Patent, is—

1. The adjustable cross-head C, containing the bearing of the toggle-operating shaft F, in combination with said shaft and the arch B, for the purpose of adjusting the distance between the platen and bed-plate to accommodate books or articles of various thicknesses, substantially as herein described.

2. The combination of the platen H, the adjustable cross-head C, the toggles J, connecting-links I, disk or crank G, rotating shaft F, and arch B, substantially as herein described.

WILLIAM H. HOFFMAN.
BUCKINGHAM ST. JOHN HOYT.

Witnesses:
MICHAEL RYAN,
BENJAMIN W. HOFFMAN.