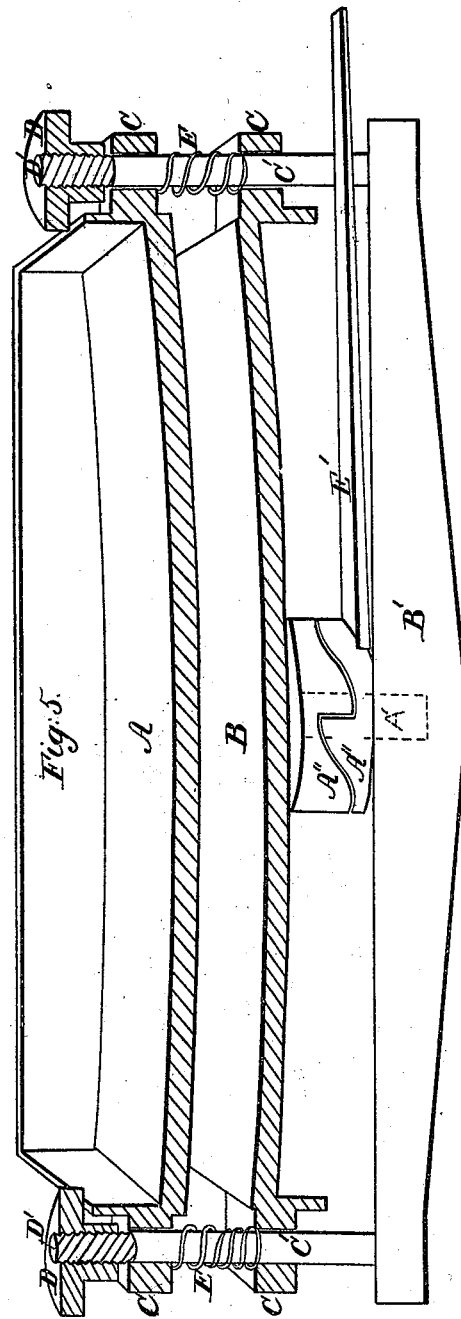
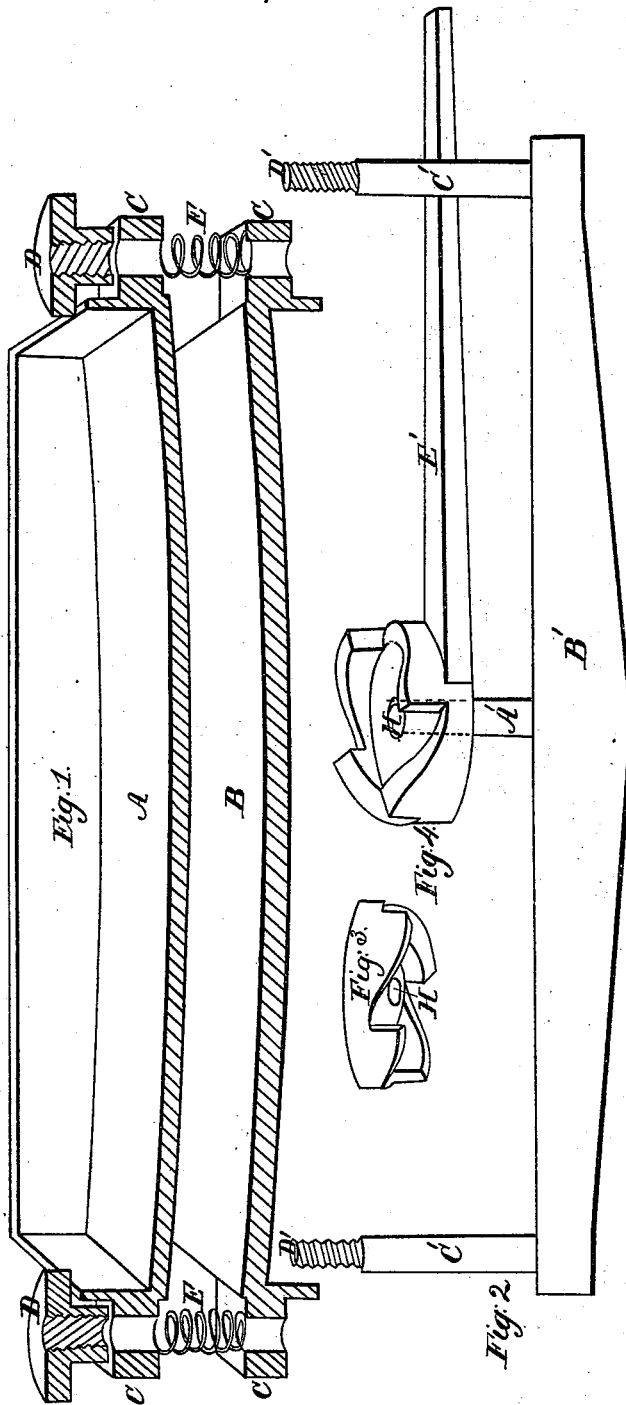


H.M. Paine.
Copying Press.

N^o 6752.

Patented Oct. 2. 1849.



UNITED STATES PATENT OFFICE.

HENRY M. PAINE, OF WORCESTER, MASSACHUSETTS.

PORTABLE COPYING-PRESS.

Specification of Letters Patent No. 6,752, dated October 2, 1849.

To all whom it may concern:

Be it known that I, HENRY M. PAINE, of Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Copying-Press for Copying Letters or other Written Matter; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making part of this specification, Figure 1 being a sectional view through the platen, bed plate, or guides, adjusting nuts, and springs; Figs. 2, 3, and 4 representing the several parts by which the pressure is obtained; and Fig. 5 giving a sectional view showing the combination of the whole machine, the same letters being used to refer to the same parts, in all the figures, the letters (A'' A'') in Fig. 5 showing the helices (Figs. 3 and 4) in contact..

I construct the bed plate (B Fig. 1,) with its upper, or working surface concave, and I make the lower or working face of the platen (A Fig. 1) convex. The curves of both of these plates are of the same radius. On the under side of the bed-plate, and in the center of its square, I make a conoidal helix (Fig. 3) of three or more parts, and on the end of a lever I make a duplicate to this helix (Fig. 4.) Through the common centers of both helices a hole, (H, H, Figs. 3 and 4) is drilled, into which a pin (A, Fig. 2) attached to the beam (B, Fig. 2) is entered, which pin keeps the working faces of the helices in true position with each other. At both ends of the beam (B, Fig. 2) are guide rods (C' C') with screws cut on their ends (D' D'). These rods pass through ears, or projections (C C C C) on the sides of the platen and bed plates, and receive nuts (D, D Fig. 1,) on their ends projecting above the ears on the platen plate. Around these rods, and between the platen and bed plates, are coiled spiral springs (E, E). These springs keep the plates apart, and the helices in contact, which in their turn, when the lever (E, Fig. 4) is moved, bring the plates together, compressing any object between them. The nuts (D, D, Fig. 1) adjust the plates to any required pressure, or size of book.

The making of the plates curved lines, secures two desirable results, first, great strength with little weight, and second a good copy with much less force than is required in the use of the usual flat surfaces. The book when placed in the press rests on the edges of the bed, and the center of the platen presses its middle, consequently as the platen comes down, the book is slightly bent, and the result must be, a perfect contact of the leaves. The curving of the plates involves a greater rise and fall than if their surfaces were planes, to enable the operator to readily place the book, and as the action of the lever is limited by the sections of the helix, and legs of the press, it becomes necessary in order to secure sufficient pressure and the required rise and fall with the limited sweep of the lever, that the platen be brought down quick at the start when there is comparatively no resistance and its velocity decreases as the pressure increases; and this is accomplished by the peculiar form of the surfaces of the helices. If a cone be made to revolve on its axis and a point resting on its surface, at the same time moves from the base to the apex, parallel with the axis, a curved line will be described denominated a conoidal line, and such a line possesses the property of increase or decrease of pitch or angle, according as the base or apex is approached.

The lines of the working surfaces of the helices partake of the properties of such lines and therefore are denominated conoidal helices, and differ essentially from the series of inclined planes as patented by Mr. John I. Wise 17 of May 1839, and I therefore expressly disclaim the use of said inclined planes in my combination, as being totally useless.

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

The curved form of the bed and platen plates as hereinbefore described.

HENRY M. PAINE.

Witnesses:

JOHN W. WETHERELL,
C. H. BROOKS.