Sheet 1-2 Sheets.

P. W. Porter,

Cotton Press,

No. 2,752, Patented Aug. 11, 1842.

Fig: 1.

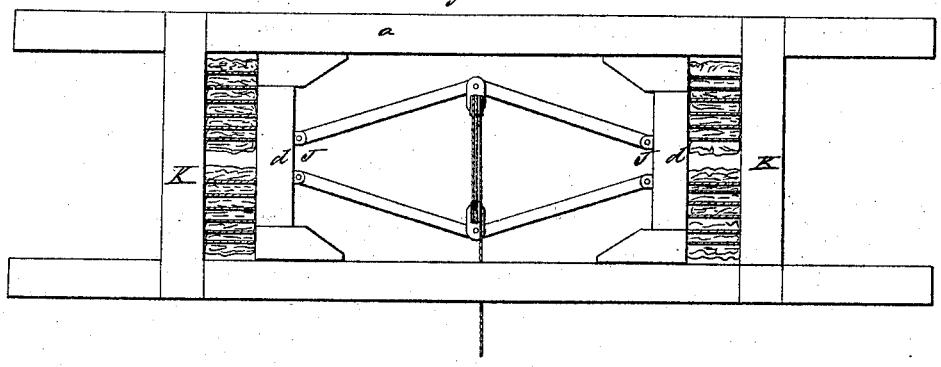


Fig: 2.

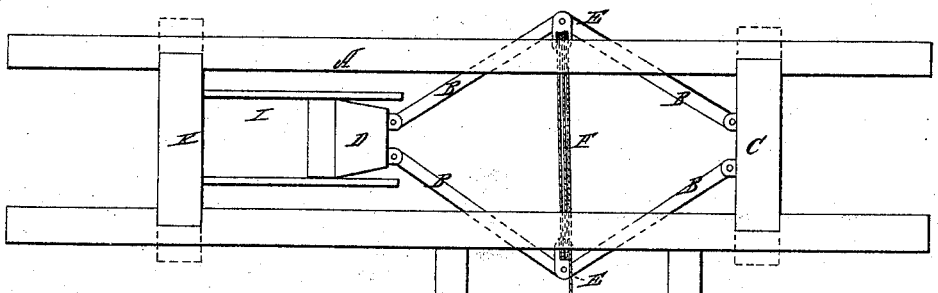
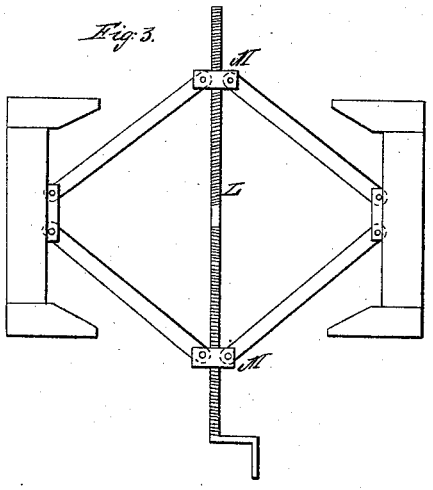
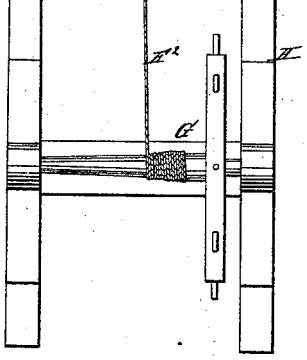


Fig: 3.





Sheet 2 - 2 Sheets

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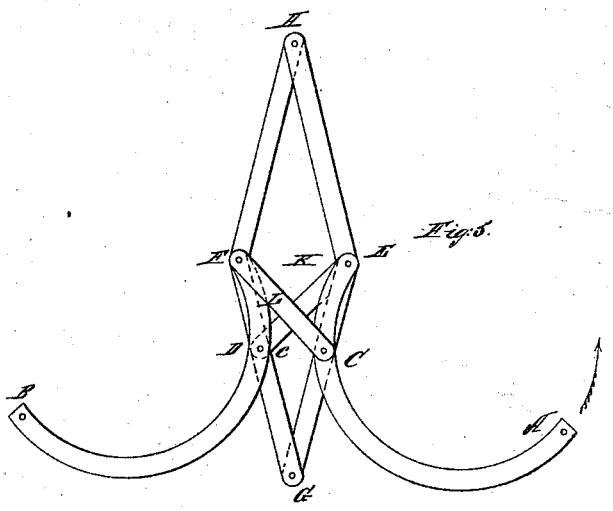

Fig: 5.

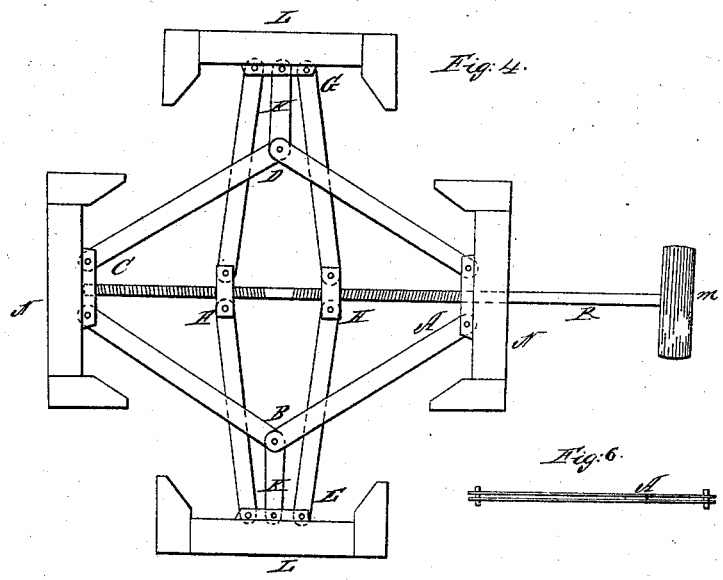

Fig: 4.

Fig: 6.

UNITED STATES PATENT OFFICE.

PARRY W. PORTER, OF COLUMBIA, TENNESSEE.

IMPROVEMENT IN COTTON-PRESSES.

Specification forming part of Letters Patent No. **2,752**, dated August 11, 1842.

To all whom it may concern:

Be it known that I, PARRY W. PORTER, of Columbia, in the county of Maury and State of Tennessee, have invented a new and useful improvement in the press for pressing and compressing cotton and other substances, called the "Rhombic Lever Press," which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

Figure 1 represents a plan of a press for compressing bales of cotton. Fig. 2 represents a plan of press used at the gin for pressing the cotton into bales. Fig. 3 is a plan of a modification of the press in which the joints of the rhombus levers are opened or closed by means of a right-and-left screw. Fig. 4 is a top view of two sets of levers and platens moved simultaneously for pressing bales while discharging bales. Fig. 5 is a plan of a movable rhombus moved by curved levers having movable fulcra; Fig. 6, an edge view of the double rhombic levers.

The frame A of the press used at the gin-stand for pressing the cotton into bales is of a rectangular form, of suitable size and strength for the purpose intended. Four levers, B B B B, Fig. 2, are arranged in this frame in the figure of a rhombus when extended, preparatory to the commencement of the operation of pressing, forming two acute and two obtuse angles, as represented in Fig. 2, one of the angles being jointed to a fixed foot-block, C, and the opposite angle to a movable platen, D, Fig. 2, and the two joints of the other angles being provided with combined blocks and pulleys, E, Fig. 2, attached thereto, around the pulleys of which is passed a rope, F, Fig. 2, with as many returns as the desired speed or pressure may require, the fall F^2 of which being conveyed to a windlass, G, Fig. 2, arranged in a lateral frame, H, to which the manual or other power is applied.

A box, I, Fig. 2, in which the cotton to be pressed is put, and in which the platen D moves, is constructed upon or against a strong and fixed head-block, K, Fig. 2, of the frame, against which block K the cotton is pressed, said box being provided with movable sides, for the purpose of being easily removed in order to insert the ropes or straps with which the bale is tied or secured.

To press cotton with this press, the rhombus-levers B, Fig. 2, must be extended, which lifts the platen D from the box I. The loose cotton is then put into the box, and pressed therein with a hand-lever. The power, which may be manual, steam, horse, or other power, is applied to the windlass G, which winds up the fall F^2, and draws the joints of the levers, to which the blocks and pulleys E are attached, toward each other, at the same time causing the toggle-joints to approach parallel straight lines, and at the same time thrusting the platen D into the box I, and pressing the cotton with a power, gradually increasing as the levers approach parallel straight lines, the maximum of power being obtained when the toggle-joints are straight.

The press *a*, Fig. 1, for compressing the bales of cotton, is made and operated in the manner of that above described, except that it is provided with two platens, *d*—one at each of the joints J of the angles of the rhombus-levers—having a simultaneous longitudinal movement from each other in the act of straightening the toggle-joints of the levers in compressing, which is performed by a windlass such as the one above described, or a screw, or by means of curved or segment levers, hereinafter described, in which press several bales may be pressed simultaneously at a single operation of the windlass against permanent head-blocks *k* of a very simple frame, constructed in the manner represented in Figs. 1 and 2, or in any convenient and substantial manner adapted to the required purpose.

Instead of applying the blocks, pulleys, and fall to the joints of the angles of the rhombus-levers for straightening the toggle-joints, a right and left screw rod, L, and nuts M may be used, which will produce the same effect. (See Fig. 3.)

Fig. 4 represents a combination of rhombic levers so arranged that the cotton is pressed at the four several points or platens shown in the drawings. The rhombus A B C D will be placed in a frame such as that shown in Fig. 1, or any convenient frame, the said frame to support the work of the rhombus. Another rhombus, E F G H, will cross it at right angles, supported by a suitable frame, the timbers of which being united at the several crossings by letting one into the other by suitable

mortises. The screw R will pass through the platens N, and through the spaces between the bales of cotton, into and through the nuts F and H. The rhombus A B C D has all its sides double. The rhombus E F G H is single, and its sides work in the spaces between those of the rhombus A B C D.

K K are bars connecting the platens L L with the joints B and D of the rhombus A B C D. Manual, horse, or other power will be applied to the wheel *m*, (if horse-power, by means of gearing, and I prefer an inclined tread-wheel.) As it is turned, the screw draws the sides F and H into the position of parallel right lines, throwing forward the platens L L against the cotton, resting against the end pieces of the frame, (such as those in Fig. 1, marked K K.) When the motion of the screw is to be reversed in order to remove the cotton, the platens L L, by means of the bars K K, throw the sides B and D of the rhombus A B C D toward a right-line position, at the same time throwing the platens N N forward against the cotton resting against the end pieces of the cross-frame containing the rhombus A B C D.

Fig. 5 represents a series of rhombic levers closed by curved or segment levers. It is supported by a frame similar to the frame before described, and represented in Fig. 1. The curved lever A C E is attached to the joint of the rhombus or toggle-joint at E. The fulcrum L of this lever, which is movable, is attached to it at C, and to the opposite corner of the rhombus at F. The power is applied at A, in the direction of the arrow 1, to throw the corner E toward the center at K. This action of the lever A, by means of the fulcrum C F, draws the opposite side of the rhombus in toward the center K likewise, thus throwing forward the platens at G H against the cotton. Manual or animal power may be used in this modification.

The pulleys and the wheel and axle may be made use of in moving the ends of the segment-levers. When this is in a square position, a bar may extend from H to G, and attached to the joint at G. A cross-beam may be thrown across this and extend on each side half the length of the levers, to receive at its extremities one set of pulley-blocks, the others being attached to the ends of the levers.

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

1. The before-described addition of the levers E F G H, as represented in Fig. 4, operated by the screw R in such manner that in turning the screw to the right or left the operation of pressing will continue without cessation, as one pair of platens will be pressing the bales while the other pair will be receding from the opposite bales, the power applied being by means of cords and pulleys, or any convenient mechanical power.

2. The combination of the curved levers, as represented at A in Fig. 5, and the movable fulcra L L, by which the sides of the rhombus are drawn together, as described.

P. W. PORTER.

Witnesses:

WM. P. ELLIOT,

ALBERT E. JOHNSON.