R. Harding,

Hay Press.

No. 2,769. Patented Sep. 3, 1842.

Fig. 1.

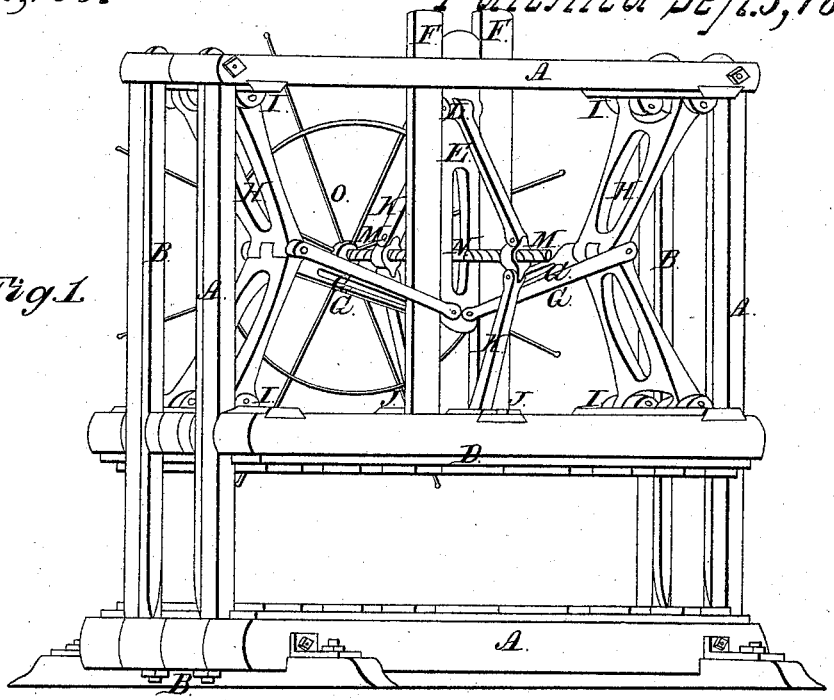


Fig. 2.

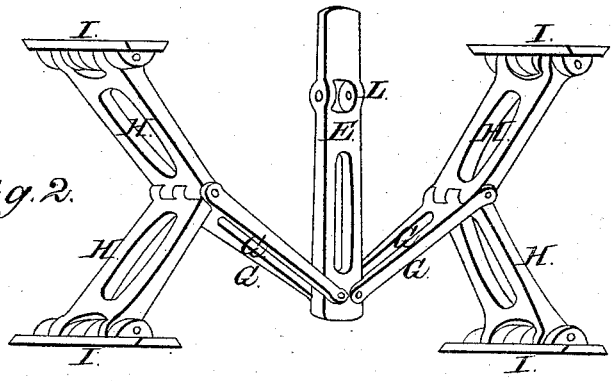
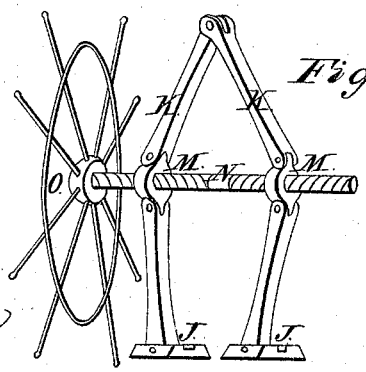


Fig. 3.



Witnesses.

Jas. Hubbard

Samuel Harding

Inventor.

R. Harding

UNITED STATES PATENT OFFICE.

ROBERT HARDING, OF SOUTH BERWICK, MAINE.

IMPROVEMENT IN THE CONSTRUCTION OF TOGGLE-JOINT PRESSES FOR COTTON, HAY, &c.

Specification forming part of Letters Patent No. **2,769**, dated September 3, 1842.

To all whom it may concern:

Be it known that I, ROBERT HARDING, of South Berwick, in the county of York and State of Maine, have invented a new and useful machine for compressing cotton on shipboard, called a compound double-elbow-lever press; 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 a part of this specification, in which—

Figure 1 is a perspective view of the whole press. Figs. 2 and 3 are the different parts of the machine separated from the frame of the press.

The frame of the press, A A, is made in a portable manner of timber sufficiently strong to sustain a pressure of two hundred tons, the top and bottom being securred together by rods and bars of iron and nuts B B. On the sills is laid a movable platform, C, with cross-pieces and spaces between them according to the number of ropes on a bale of cotton, and to the bottom of the follower D is a corresponding platform.

The follower is made of timber, the center pieces being separated from each other sufficiently wide to admit of the ends of the horizontal pitman G, which are secured to the vertical center piece, E, to descend to the platform, which is secured to the bottom of the follower. The center piece, E, is made of cast iron, with a space in the center to allow the screw to pass through, and sufficiently low to admit of its own rise and fall. A place is also cast in the center piece at L to allow the upper end of the vertical toggle-joints K K to be connected with it. The lower ends of the same toggle-joints are connected with stands J J, which are secured to the follower. These toggle-joints are connected together with nuts or female screws M, through which and the center piece passes a double inverted screw, N, on one end of which is a windlass-wheel, O. One end of the horizontal pitman G being secured to the lower end of the center piece, the other ends act against the vertical toggle-joint H H at each end of the press, which are secured to the top frame of the press and the follower by stands I I. On each side of the center piece are guiding-planks F F, which are secured to the follower, and pass through the top frame of the press, answering the double purpose of keeping the follower square and the center piece in a central position.

The operation of the press is as follows: By turning the windlass-wheel the vertical toggle joints are drawn together, thereby forcing the follower D down and the vertical center piece, E, up, which causes the horizontal pitman G G to operate with double power against the vertical toggle-joints H H at each end of the press, thus making a gain of threefold power without loss of time or speed. It is evident that the same power applied to a double inverted screw and toggle-joint alone would produce two-thirds less pressure after they open beyond an angle of forty-five degress, and in both cases the follower moves the same space in about the same time, and yet by the arrangement of the screw and toggle-joints acting directly against the follower, as well as against the other toggle-joints, no more power is lost below a right angle than what is lost in a screw and toggle-joint alone.

This press is made portable and for ships' use, for the purpose of repressing cotton, and can also be used for other purposes for pressing where a great pressure is required. For most purposes the dimensions would be eight feet high, six wide, and two deep, and it can be put up or taken down in an hour.

I do not claim the application of the right and left handed screw to operate the two pairs of toggle-joints, as above described; nor do I claim the manner of operating two pairs of toggle-joints by a horizontal pitman connecting to a central movable piece; but

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

The manner of combining the toggle-joints moved by a right and left handed screw operating on the movable center piece, E, with the toggle-joints moved by the horizontal pitman G, constructed and operating as above described.

In testimony whereof I, the said ROBERT HARDING, hereto subscribe my name in the presence of the witnesses whose names are hereunto subscribed, on the 19th day of August, A. D. 1842.

R. HARDING.

Witnesses:
JOHN HUBBARD,
SAMUEL HARDING.