(No Model.)

E. HAIMAN & J. WINSHIP.

COTTON PRESS.

No. 305,304. Patented Sept. 16, 1884.

Fig. 2.

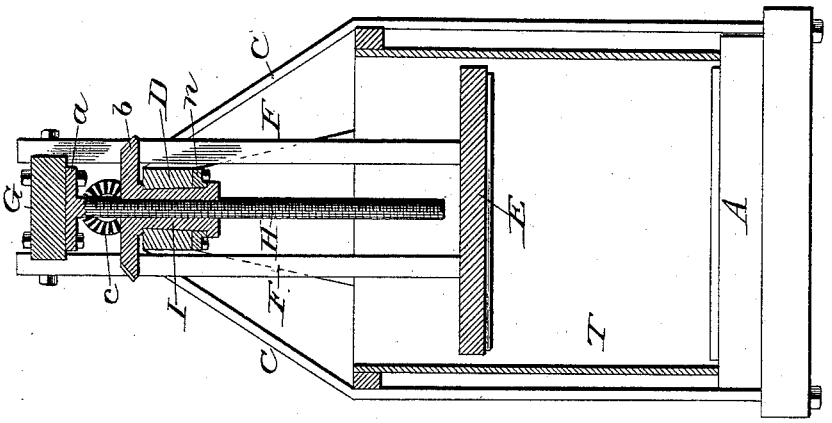
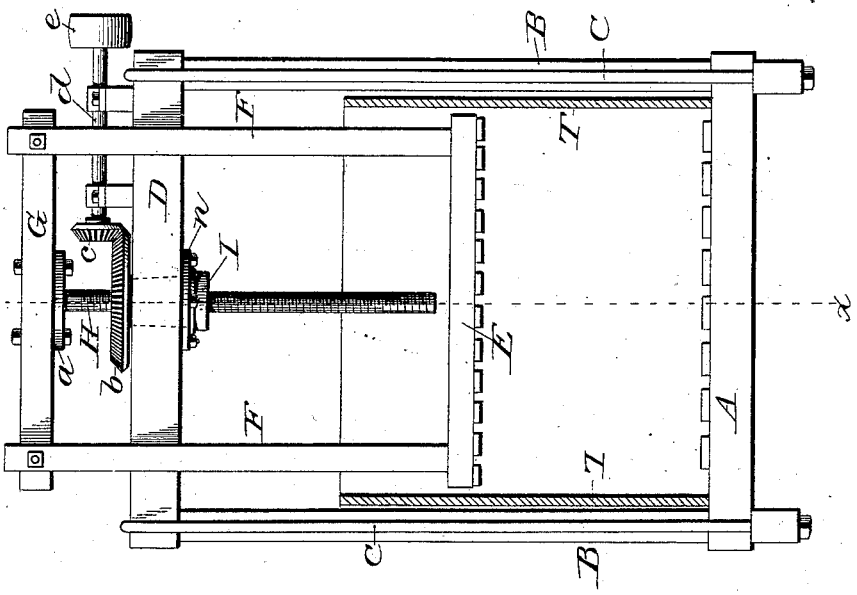


Fig. 1.



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UNITED STATES PATENT OFFICE.

ELIAS HAIMAN, OF ATLANTA, GEORGIA, AND JOHN WINSHIP, OF JEWETT, TEXAS.

COTTON-PRESS.

SPECIFICATION forming part of Letters Patent No. 305,304, dated September 16, 1884.

Application filed July 23, 1884. (No model.)

To all whom it may concern:

Be it known that we, ELIAS HAIMAN, of Atlanta, Fulton county, Georgia, and JOHN WINSHIP, of Jewett, in the county of Leon and State of Texas, have invented certain new and useful Improvements in Cotton-Presses, of which the following is a specification.

The invention relates to presses for compressing cotton or any similar material; and the invention consists in so constructing and arranging the parts that the pressure shall be applied by a pulling instead of a pushing action of the screw.

Figure 1 is a side elevation, with a portion shown in section, and Fig. 2 a central vertical section, of a press embodying our invention.

A great variety of presses have been constructed from time to time; but, so far as we are aware, when a screw is used, it is always so arranged, in connection with the other parts that it exerts its force by pushing or by pushing and pulling on the follower. When so arranged, the screw has to be made very large and heavy in order to overcome the tendency to buckle, bend, or break, which tendency increases in proportion to the length from the nut in which it is held and turns to the follower, and which, of course, is greatest at the last part of the compression, and just when the strain on the screw is the greatest.

The object of the present invention is to so construct a press that the force shall be applied solely by the pulling action of the screw, and so that the cotton can be put in at the top of the box and compressed without the usual tramping of the same therein by an operative preparatory to applying the force of the press, thereby doing away with a door or opening near the top of the box for inserting the cotton, and dispensing with the tramping operation. The construction of the presses will of course vary according to circumstances—whether stationary or portable, &c.; but the general plan or principle of construction will be the same in all cases, and may be readily understood from the following description.

In the drawings, A represents the bed of the press, B the uprights or posts, and D the cross-beam at the top of the stationary frame, and in which is mounted the rotating nut, as hereinafter described, the cross-beam being tied or secured to the bed by tie-rods C, as shown. Within this main frame is arranged a box, T, for receiving and holding the cotton while being compressed, this box being made with one or more of its sides either hinged or removable at the bottom for removing the bale, as usual; and the bed and follower may be provided with recesses for inserting the bands or hoops which are to hold the bale after it has been formed or compressed, these features being well understood, and hence not requiring a detailed description.

The follower E is secured to rigid uprights or posts F, which extend up above the cross-beam D of the main frame, as shown, and are connected at their upper ends to a strong cross head or beam, G, to the center of which the screw H is securely bolted, so as to hang dependent therefrom, as shown in Figs. 1 and 2, it having no other bearing except the nut I, through which it passes, said nut, as previously stated, being mounted in suitable bearings in the cross-beam D of the main frame, and so as to rotate freely therein. As shown in Fig. 2, the nut I is provided at its lower end with a laterally-projecting flange, which bears on its upper side against a metal ring or washer, *n*, bolted to the under side of cross-beam D. To impart motion to the nut I, it is provided on its upper end with a bevel gear-wheel, *b*, which engages with a bevel-pinion, *c*, secured to a shaft, *d*, mounted in suitable bearings on the cross-beam D, and having a pulley, *e*, on its opposite end, to receive a driving-belt from the motor, which may be of any kind desired, though it may be operated by hand-power, if desired. With the screw and follower thus arranged, it will be seen that whenever the nut I is rotated it will force the screw down, thereby causing the latter to exert a pulling strain or force on the cross-head G of the follower, this force being transmitted from the cross-head G through the rigid frame or posts F to the follower E, which will thereby be made to descend and compress the material within the box between the follower E and the bed A. By these means the whole force applied is brought to bear upon the screw in the form of a di-

rect pull in a right line from the nut I to the cross-head G, and consequently all tendency of the screw to buckle, bend, or break by a lateral flexure is entirely obviated. Moreover, by making the screw of steel or metal having great tensile strength, it may be greatly reduced in diameter and weight, and yet exert the necessary power or force required.

It is of course obvious that the details of construction may be varied somewhat; but in all cases the screw should be arranged to exert its full force on the follower by a pulling strain solely. The depth of the box is limited only by the length of the screw used, and as the force is applied solely by a pulling strain on the screw, it is obvious that a much deeper box can be used with the same diameter of screw than can be when the screw is made to push instead of pulling the follower to compress the bale. By thus increasing the depth of the box a much larger quantity of loose cotton can be put in, and as the follower can be run clear above the top of the box, the cotton can be put in at the upper open end of the box, thus avoiding the necessity of any side opening or door at the upper portion of the box for that purpose.

In practice the loose cotton is put into the box and pressed down as much as it can conveniently be by hand, but without the operator getting into the box and tramping it down, as is usually done, and then the follower is run down upon it. If enough cotton cannot be put in at once to form a bale, the follower is run up and more put in, when the pressure is again applied, and thus the entire operation is performed in less time than is required for the tramping alone in the ordinary presses heretofore used. When operated by steam or similar power, as is usually the case, the follower can be run up very quick, and, if desired, a change of speed may be used for that purpose.

It will be observed that, as the entire strain in compressing a bale is brought upon the metal frame or rods C, all heavy and clumsy wooden framing for that purpose is dispensed with, and the press can be made simple and cheap, and so as to occupy but little space, and at the same time be exceedingly strong. By the arrangement shown it will also be seen that the weight of the follower and its frame is made to assist in compressing the material, thereby lessening the power required to that extent.

We are aware that presses have been patented in which the screw was attached at both ends to the follower-frame, so as to exert both a pushing and a pulling force, and we make no claim to such an arrangement; but,

Having fully described our invention, what we claim is—

1. A cotton-press having its bed A and its cross-head B, in which the rotating nut I is journaled, connected by metallic tie-rods C, in combination with a follower-frame having a non-rotating screw, H, secured to its upper end and extending down through said rotating nut, substantially as shown, whereby the screw is made to exert its force by a pulling strain solely.

2. In a cotton-press, the combination of the follower-frame, having a screw, H, rigidly secured thereto at one end only, the rotating nut I, provided with a bevel gear-wheel, *b*, journaled in the cross-head of the main or stationary frame, and the shaft *d*, provided with pinion *c* and pulley *e*, all combined and arranged to operate substantially as described.

3. The combination, with a box for receiving the cotton to be pressed, of a follower adapted to be raised above the upper open end of the box, to permit the cotton to be put in at said open end, a screw connected to the follower-frame at its upper end, and a nut secured to the main frame above the box, whereby the follower can be raised above the box, the screw be made to exert its force by a pulling strain exclusively, and the weight of the follower is utilized in compressing the contents of the box, as set forth.

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