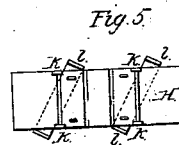
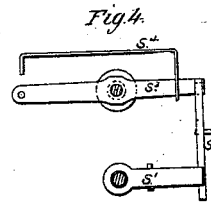
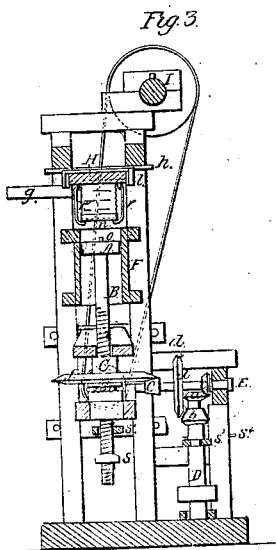
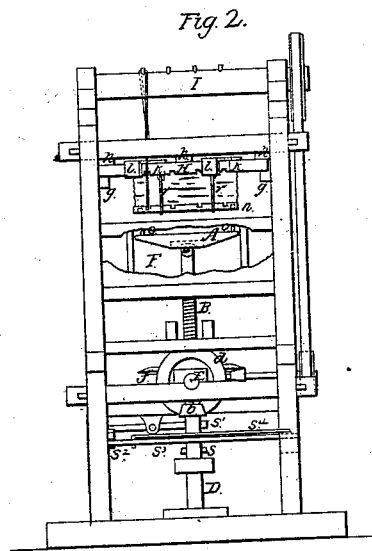
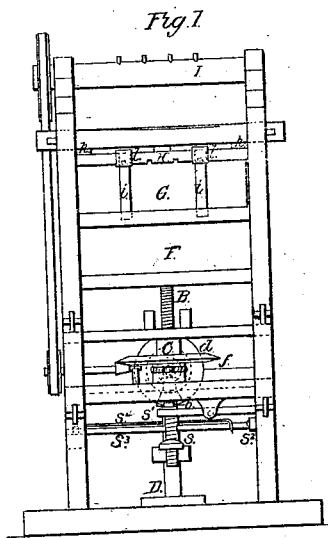


J. B. Armstrong.

Cotton Press.

No. 10,329

Patented Dec. 20, 1853.



UNITED STATES PATENT OFFICE.

J. B. ARMSTRONG, OF BARNWELL, SOUTH CAROLINA.

IMPROVEMENT IN COTTON-PRESSES.

Specification forming part of Letters Patent No. **10,329**, dated December 20, 1853.

To all whom it may concern:

Be it known that I, J. B. ARMSTRONG, of Barnwell District, in the county of Barnwell and State of South Carolina, have invented certain new and useful Improvements in Presses for Packing Cotton and other Flocculent Substances, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form part of this specification, and in which—

Figure 1 represents a front side elevation of my improved press; Fig. 2, a rear side elevation of the same, with part of the immovable press-box in section; Fig. 3, a vertical transverse section; Fig. 4, a horizontal view or plan of the trip-gear for disconnecting the platen with driving-shaft at any required point; Fig. 5, an inverted plan or under view of the bed with swiveling-straps attached thereto, and Fig. 6 a plan of the removable upper press-box detached.

The wheels and other similar driving-gear are represented in Figs. 1, 2, and 3 in red lines.

In packing cotton in the lint—that is, as it comes from the gin—presses of various kinds, both as regards their construction, arrangement, and operation, have been employed; but all of them have involved the necessity of considerable delay in their operation, owing to the pause in the action of the platen which has been held requisite during the stitching and roping of the bale. This delay is of much importance when the time ordinarily consumed in addition by the return movement of the platen to establish a repetition of the pressing action is taken into consideration, the stroke of the platen being necessarily from three to four times the thickness of the compressed bale. To obviate this delay and improve the operation of the press is the object of my invention.

The press represented in the accompanying drawings resembles in its general features others in common use for packing cotton; but it is somewhat differently operated as regards its driving-gear, and is provided with a novel arrangement of mechanical devices for facilitating and expediting the action of the press, as will be hereinafter specified. Motion is communicated to the platen A by means of a screw, B, which is raised or lowered as required by giving a suitable movement to a revolving screw-box, C. To rotate this screw-box the

propelling-power—whether steam, cattle, or water—is applied to a vertical shaft, D, that carries pinions *a* and *b* near its top. These pinions take into pinions *c* and *d* on a horizontal shaft, E, that is further provided with a pinion, *e*, taking into a wheel, *f*, keyed or otherwise secured to the screw-box. The pinions *a* and *b* on the vertical shaft gear (either one alternately) with the pinions on the horizontal shaft E, to produce the up-and-down movement of the platen, and these several pinions are of such relative diameters as to give a slow powerful movement to the platen when ascending to produce the requisite compression, and a quick return movement when the platen is required to be run back for the reception of a fresh load of cotton in the press-boxes F and G.

To change the motion of the platen as specified, the vertical driving-shaft D is so hung that it may be slid horizontally for the purpose of throwing either one of its pinions into gear with the pinion on the horizontal shaft it meshes into; or, by only giving the vertical shaft half its lateral movement, the motion of the platen may be arrested, while the vertical driving-shaft continues to travel in one and the same direction, which movement of the driving-shaft, by the disposition of the gear on the horizontal shaft, is the same for both motions of the platen, so that no reverse action or stoppage of the prime mover is at any time requisite during the operation of the press.

To reduce the friction of the screw-box in turning, as induced by the weight of the cotton, platen, and screw, the box is caused to rest and run upon anti-friction rollers or balls.

The press-boxes F and G are similar in construction and arrangement to those devices in other presses for packing cotton, the lower one, F, being immovable and firmly secured to the frame of the press, while the upper box, G, is so constructed that its sides and ends may be readily separated for the purpose of stitching, roping, and removing the bale. The top plate or bed, H, is also made capable of being slid out of the way on rails *g*, when it is requisite to charge the press from above; but after the press has been charged with the proper quantity of cotton the bed is slid over the upper box and wedges *h* driven in between it and the rails of the frame, to prevent the

bed from being raised by the pressure of the cotton under it during compression.

To restrain the sides of the upper box, G, from yielding and its sides and ends from separating when the bale is being compressed, the sides of the box are braced by strips *i*, which are inserted at their lower ends in recesses cut in the upper flange of the lower immovable press-box, F, while the upper ends of these strips fit into notches *k* in the bed, and are clasped or held by straps *l*, which are pivoted in their center to the bed at its top, and are provided with lips that lap over the upper ends of the brace-strips, as represented in Fig. 1, by which arrangement the pressure of the cotton against the sides of the bale-box G will be borne partly by or divided partly between the bed H and lower box, F, both during the early action of the platen and at its close, when the entire and greatest pressure is thrown against the upper box and bed as the cotton approaches its compact form of a bale, so that excessive and destructive strain which usually takes place upon the bale-box will be avoided, while the greatest facility is afforded for making fast and taking down the upper box, as by swiveling the clasping-straps *l* to one side (as represented in Figs. 2, 3, and 5) the brace-strips *i* may be removed from their recesses and the sides and ends of the box separated with dispatch, instead of the present clumsy and tedious process of unscrewing nuts or bolts to disconnect these parts.

The platen A of the press has a false top or platen, *n*, seated loosely upon it, and restrained from moving horizontally by guide-pins *o*, which enter recesses in the false top. This false platen, which carries the load of cotton under compression during the ascent of the screw, is detached from the under or main platen (as represented in Figs. 2 and 3) upon the pressure of the cotton being completed, and is held so as to retain the bale between it and the bed by hooked linking-rods *r*, which catch into loops in the bed and under the false platen, as seen in Figs. 2 and 3, the motion of the platen being arrested during the taking down of the bale-box G and the hitching of the false top *n* to the bed, after which, and while the bale—thus restrained from yielding by its retention between the false top and bed—is being stitched and roped, the main platen is run down to its lowest point of action, when, the bale being stitched and roped, the link-rods *r* are unhooked from holding the false top, which drops down or is seated on the main platen, the finished bale removed, the upper box, G, again built up, and a fresh charge of cotton inserted to be acted upon, as before.

To rope the bale, the rope is threaded through grooves across the inner faces of the bed and false top, in the same manner as is now done in other presses, by threading it through grooves in the main platen and bed, and the rope is similarly tightened by lapping it round a windlass-barrel, I, which is caused to rotate by gear connecting it with the revolving screw-box.

By this arrangement and operation of the false top it will be perceived that the time usually consumed by the pause of the main platen during the stitching and roping of the bale is economized, and that the press is run down for a fresh charge while the compressed bale is being finished, the said bale being as firmly held from springing during stitching and roping as if it were held by the main platen against the bed, as has heretofore been the mode of operation. A great saving of time will therefore, by this arrangement, be effected.

To meet the demands of the market by compressing the cotton into bales of a specified and uniform thickness, much inconvenience and uncertainty have heretofore been experienced in the operation of the several presses in use, owing to the difficulty of adjusting and determining the action of the platen so that it ceases to compress the cotton beyond a bale of a given thickness, and to arrest the motion of the platen at the exact point such action should take place by stopping the prime mover, which requires not only constant attention, but is accompanied by much serious delay in ascertaining from time to time the progress of the platen, which, moving in a closed box, is concealed from view. To obviate this inconvenience, difficulty, and delay I propose to connect indicating and adjustable self-acting devices with the platen-screw, which shall arrest the pressing action of the platen at any required set or thickness of bale. The devices for effecting this may consist of a nut, S, adjustable on the lower end of the platen-screw, to regulate the length of stroke to the platen, a trip-lever, S', which the nut, on arriving at a certain height by the ascent of the platen-screw, strikes and causes it, by an intermediate cross-lever, S², to disconnect itself with a third lever, S³, that, on being disconnected, is drawn back by a spring, S⁴, and that, by bracing the vertical driving-shaft D, shifts the latter so as to throw its driving-pinion out of gear with the pinion on the horizontal shaft which gives the upward movement to the platen, whereby the motion of the platen is arrested, and remains so during the taking down of the upper press-box and the hitching of the false top to the bed, when the vertical driving-shaft is again shifted a little farther back, so as to throw its upper pinion in gear with the pinion on the horizontal shaft which gives the downward movement to the platen; and when desired again to elevate the platen the vertical driving-shaft is again pushed forward, so as to throw the elevating-pinions in gear, and the intermediate cross-lever, S², hooked or otherwise hitched to the spring-lever S³, when the same tripping action as before takes place on the arrival of the nut S at its proper point. Thus it will be seen that no attention is requisite, beyond the first setting of the adjustable tripping-nut, to insure a uniformity in the sizes of the compressed bales, much delay, uncertainty, and inconvenience are avoided, and the stroke of the platen readily determined by

measuring the distance between the nut and the trip-lever at the extremity of the downward stroke of the platen. These indicating and self-acting adjustable arrangements may, it is obvious, be variously modified—as regards the mechanical devices employed—to operate in an equivalent manner for the purposes specified.

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

The method herein described of holding the bale under compression and preventing it from springing or yielding during the stitch-

ing and roping of the same while the platen is being run down or back, by means of a false top or platen hooked or otherwise hitched to the bed, and arranged to work in connection with the main platen, substantially as specified, whereby time is economized in the operation of the press, as herein set forth.

In testimony whereof I have hereunto subscribed my name.

J. B. ARMSTRONG.

Witnesses:

WM. M. SMITH,
ALFD. GREGORY.