

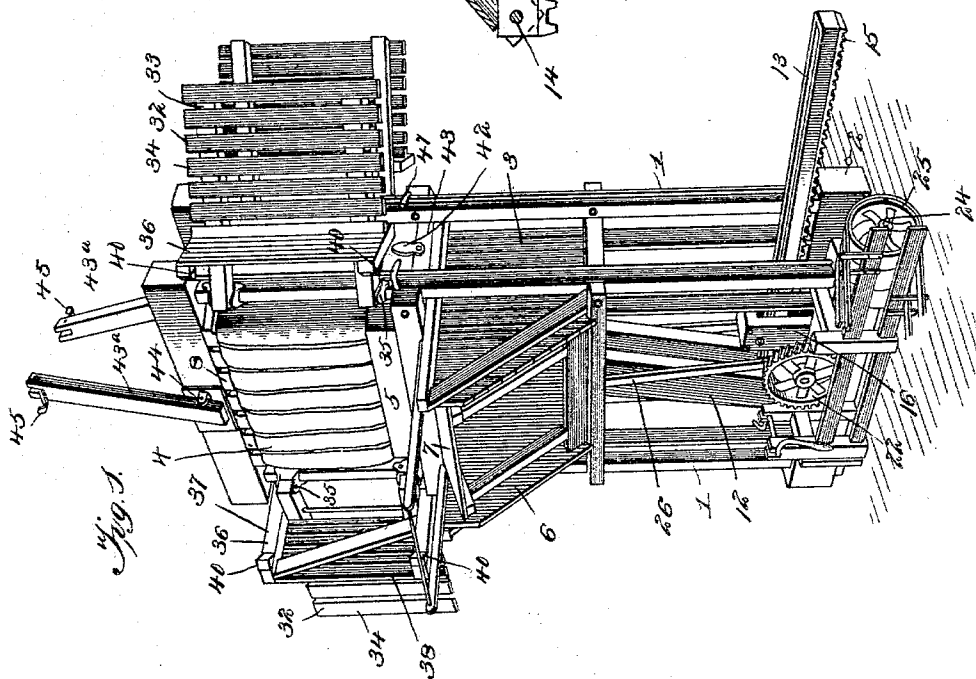
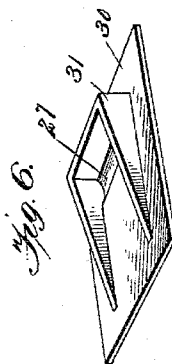
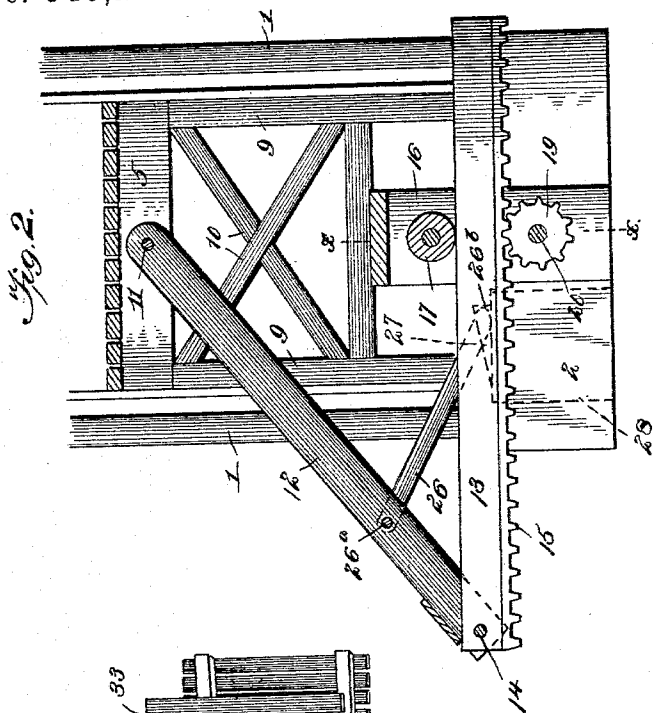
(No Model.)

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J. C. NELSON & F. E. SMITH.
COTTON PRESS.

No. 546,242.

Patented Sept. 10, 1895.



Inventors

Jabez C. Nelson
Ferdinand E. Smith,

Witnesses

John C. Shaw.
S. P. W. H. H. H.

By their Attorneys.

C. A. Snow & Co.

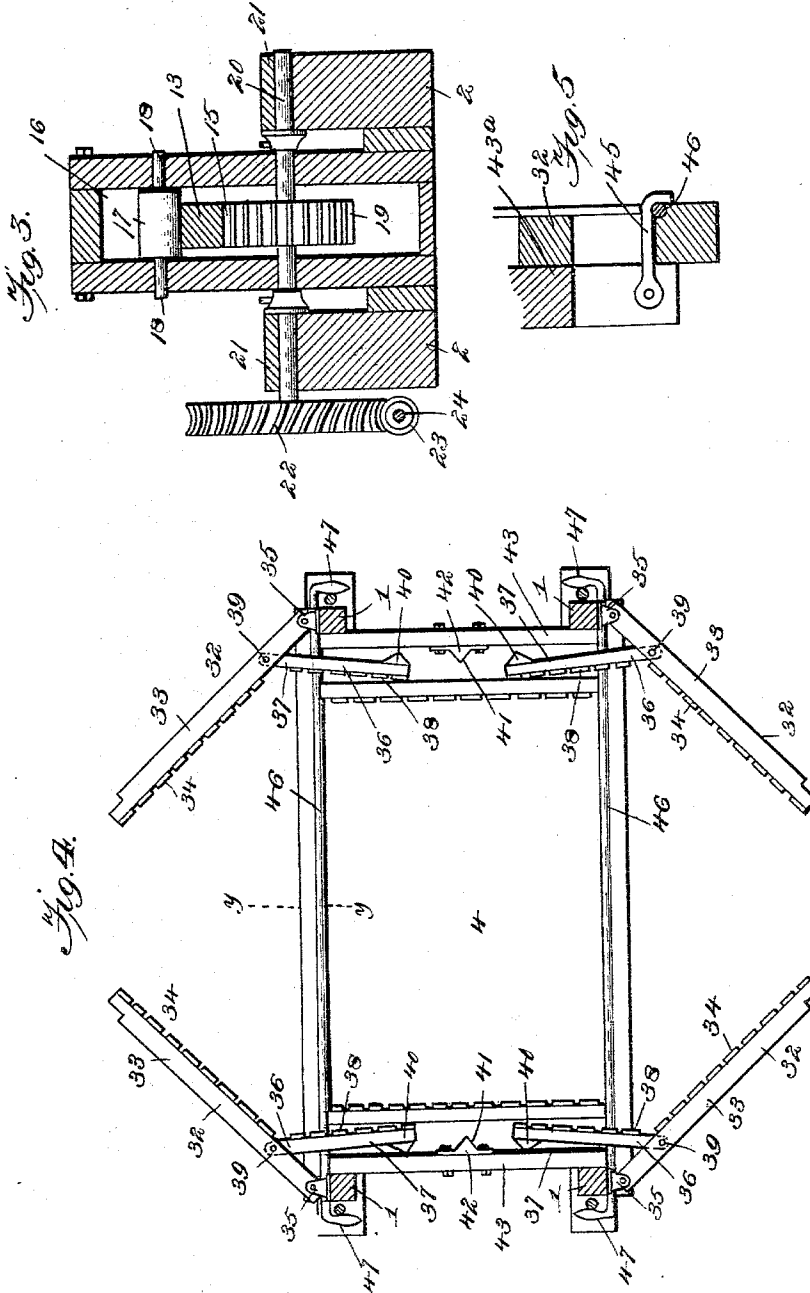
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UNITED STATES PATENT OFFICE.

JABEZ CURRY NELSON AND FERDINAND ELLIS SMITH, OF BIRMINGHAM,
ALABAMA, ASSIGNORS TO THE SMITH SONS GIN AND MACHINE COMPANY,
OF SAME PLACE.

COTTON-PRESS.

SPECIFICATION forming part of Letters Patent No. 546,242, dated September 10, 1895.

Application filed June 14, 1894. Serial No. 514,589. (No model.)

To all whom it may concern:

Be it known that we, JABEZ CURRY NELSON and FERDINAND ELLIS SMITH, citizens of the United States, residing at Birmingham, in the
5 county of Jefferson and State of Alabama, have invented a new and useful Cotton-Press, of which the following is a specification.

This invention relates to cotton-presses; and it has for its object to provide certain
10 improvements in presses of this character whereby the operating mechanism for the plunger or follower and the means for closing and opening the baling-chamber of the press-box shall be greatly improved in points of
15 durability, strength, and efficiency.

To this end the main and primary object of the present invention is to construct a cotton-press with new and improved means for operating the follower-block of the press and a novel
20 and efficient construction of baling-chamber for the press-box, whereby ready access may be had to all parts of the bale for conveniently tying and removing the same from the press.

With these and other objects in view, which
25 will readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts, hereinafter more fully described, illustrated, and claimed.

In the accompanying drawings, Figure 1 is
30 a perspective view of a cotton-press constructed in accordance with this invention, showing the arrangement of the various parts of the press with the side and end doors of the baling-chamber swung open. Fig. 2 is an
35 enlarged vertical sectional view of the lower part of the press, showing the toggle-lever-operating mechanism. Fig. 3 is a similar view on the line *x x* of Fig. 2. Fig. 4 is a horizontal
40 sectional view at the upper end of the press-box, showing the arrangement of the side and end doors for inclosing in the baling-chamber. Fig. 5 is a detail sectional view on the line *y y* of the upper part or baling-chamber of the
45 press-box. Fig. 6 is a detail in perspective of one of the open bearing shoes or sockets.

Referring to the accompanying drawings, 1
50 designates an upright box-frame constructed of suitable strength timbers in the ordinary manner and rising from the lower sill-frame 2, that rests on the floor or ground where the

press is being operated. The upright frame 1 surrounds and forms a support for the upright press-box 3, that is constructed in substantially the same manner as the press-
55 boxes of similar cotton-presses and is built up within the frame 1. The press-box 3 is provided at its upper end with the baling-chamber 4, into which the cotton is to be packed under the pressure of the vertically-
60 moving follower block or head 5, which works up into the press-box from the lower end thereof, and said press-box is further provided at one side and below the plane of the baling-chamber 4 with the off-standing side
65 walls 6, that inclose between the same a receiving chamber or pocket, through which the cotton is introduced into the lower end of the press-box in the ordinary manner, and working
70 between the side walls 6, within the side receiving-chamber, is the swinging drop-door 7, that provides for closing in the top of the space between the walls 6 when the cotton is being pressed into a bale, and which when
75 dropped down opens up the receiving-chamber for the reception of a fresh supply of cotton. This arrangement for supplying the cotton to the press-box and for cutting off the supply is well understood by those skilled in the art, and needs no further description. 80

The vertically-moving follower block or head 5 is constructed in the usual manner, and is adapted to press the cotton into a bale between the same and the fixed press-head 8, arranged at the upper end of the upright
85 frame 1 and forming the closed top of the press-box, and said vertically-moving follower block or head 5 has depending from the opposite corners thereof the corner guide-arms 9, that are securely connected together by in-
90 termediate braces 10, and said depending guide-arms are arranged so as to rest on the sills of the bottom sill-frame 2 when the follower reaches its lower limit of movement, and are adapted to snugly work in the corners
95 of the press-box 3 as the follower ascends therein, so as to guide the follower in its upward movement and serve to retain the same in a horizontal position for evenly pressing the bale into shape. 100

The follower block or head 5 has pivotally
105 attached to the under side thereof on the

pivot pin or bolt 11 the upper ends of the parallel toggle-levers 12, the lower ends of which are connected together and pivotally secured to one end of the horizontal rack-lever 13 on the pivot pin or bolt 14. The horizontal rack-lever 13 is provided on the under side thereof with an ordinary rack-bar 15 and is supported to work in a horizontal plane at the lower end of the frame 1 directly above the sill-frame 2, and said horizontal rack-lever is guided to work within the short upright guide-frame 16, supported centrally within the lower end of the frame 1 and extending slightly above the frame 2. The guide frame or housing 16 supports therein a top retaining roller 17, the spindle or journal extremities 18 of which are mounted in the opposite sides of the frame or housing 16, and said roller is arranged directly over the top of the horizontal rack-lever 13, in order to retain or hold the same properly in position to keep the rack-bar 15 thereof constantly in mesh with the operating-pinion 19. The operating-pinion 19 is mounted on the pinion-shaft 20 that is journaled at its opposite ends in the bearing-boxes 21 at opposite sides of the sill-frame, and on one extremity of the shaft 20 is mounted the worm-gear 22, with the under side of which meshes the worm 23. The worm 23 is arranged on the inner end of the horizontal operating-shaft 24, that is journaled in suitable bearing at one side of the bottom sill-frame 2, and has mounted on the outer end thereof suitable pulleys 25 to provide convenient means for rotating the shaft 24 in either direction according as the follower-block is to be moved up or down. A pair of spaced toggle-legs 26 are pivoted at their upper ends on the pivot pin or bolt 26^a to the toggle-levers 12 at a point intermediate of their ends, and the lower unpivoted ends of the toggle-legs 26 are rounded, as at 26^b, to work loosely in the open bearing shoes or sockets 27. The open bearing shoes or sockets 27 are arranged at opposite sides of the horizontal rack-lever and are securely fastened on a cross-sill 28 of the lower sill-frame 2. The open bearing shoes or sockets 27 consist of an attaching-plate 30 and a substantially socket-inclosing rim or flange 31, arising from the plate and open at one end to admit of the lower ends of the toggle-legs 26 working freely in and out of the space inclosed by the rim or flange when the follower block or head is lowering to the lower end of the press-box. It will be obvious that when the gearing is operated to force the follower block or head upward within the press-box to bale the cotton the toggle-legs 26 will assume a substantially vertical position, with their lower ends resting in the shoes or sockets, so as to sustain and carry in this position almost the entire pressure of the bale, while, on the other hand, by reason of the socket inclosing rim or flange being open at one end when the follower-block has reached the lower end of the press-box the lower rounded ends of said

toggle-legs will draw out of their working positions within the said shoes or sockets, and will thereby prevent any straining or breaking of parts, since the motion of the pinion-shaft 20 does not quite stop when the follower-block has reached the lower end of the press-box.

The upper part of the press-box 1, which is ordinarily termed the "baling-chamber," when the press packs upward, is opened at the sides and the ends, and when the cotton is being pressed into a bale the baling-chamber is inclosed in at the opposite sides by the opposite pairs of swinging side doors 32, which when closed have their free ends meet at the center of the sides of the bale, in order to properly inclose in the opposite sides of the baling-chamber. The opposite pairs of swinging side doors 32 essentially consist of the horizontal rails 33 and a series of closely-arranged door-slats 34, secured to the inner sides of the said rails, and both of the horizontal rails of each door are pivotally secured at one end in the hinge-brackets 35, which are fastened to the corner uprights or posts of the upright frame 1. The opposite pairs of side doors 32 not only serve to temporarily inclose in the opposite sides of the baling-chamber of the press-box, but also provide means for adjusting the opposite pairs of end doors 36. The doors 36 are arranged in pairs, and are adapted to inclose in the opposite ends of the baling-chamber, and said doors 36 also consist of the parallel rails 37 and a series of closely-arranged door-slats 38, that are fastened to the inner sides of said rails.

The horizontal rails 37 of the end doors 36 are extended beyond the door-slats 37 at one end and are pivotally connected by the pivot bolts or pins 39 to the upper and lower horizontal rails 33 of the side doors 32, so that each side door will have an end door pivotally connected thereto near the pivoted end thereof. When the side doors 32 are closed, the end doors are adapted to fit inside of opposite ends of the upright frame and to meet at their free ends at the center of the opposite ends of the bale in order to properly inclose in the opposite ends. The end doors of each opposite pair have attached to their outer sides near the upper and lower edges thereof at the moving ends the beveled engagement-lugs 40, that are adapted to bear or engage against the inner beveled sides 41 of the upper and lower retaining-plates 42, that are secured to suitable cross pieces or bars 43 of the frame 1 at the top and bottom of the end doors 36. The inner beveled sides 41 of the retaining-plates 42 are provided with double bevels or reversely-beveled portions to provide for receiving in engagement therewith the lugs 40 of both end doors, so that when the opposite pairs of side doors are closed and the end doors also closed in alignment with each other the said retaining-plates will hold the meeting unpivoted ends of the end doors firmly in position to prevent

the same from springing outwardly while the cotton is being baled; but by reason of the beveled joint between the lugs of the end doors and the retaining-plates therefor it will be understood that when the side doors are swung open the end doors will easily slip from behind the retaining-plates 42, and the great outward pressure of the bale will therefore not hold or keep the end doors from opening readily when the side doors are released.

When the side doors are closed, the same are held locked in position by means of the swinging lock-bars 43^a. The swinging lock-bars 43^a are hinged at their upper ends, as at 44, to opposite sides of the frame 1 at the upper end thereof, and said lock-bars 43^a are adapted to be sprung downward outside of the side doors over the meeting ends thereof to hold them firmly in position, and pivotally secured in the unpivoted ends of the bars 43^a are the L-shaped hooks 45, that are adapted to be engaged at one end over the turning releasing-rods 46. The turning releasing-rods 46 are mounted on the frame 1 at opposite sides thereof and are provided at their outer ends with the handle-cranks 47, which are manipulated by the hand to release the hooks 45. When the hooks 45 are engaged over the rods 46, the bars 43^a will be held in a position to hold the side doors locked, and by turning the rods 46 in one direction it will be seen that the hooks 45 will be raised and released by reason of the great friction with which the said hooks engage over the rod.

The herein-described features complete the improvements contemplated by the present invention, and the advantages therefor will be readily understood by those skilled in the art.

Changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

1. In a cotton press, the combination with the sill frame, the upright press box, and the vertically moving follower working within said box, of an upright guide frame or housing, a rack bar lever supported to work horizontally in said guide frame or housing below the press box, and having a rack bar on its underside, an operating pinion mounted in said guide frame or housing and meshing with the teeth of said rack bar lever, worm gearing for rotating said pinion, a retaining roller mounted in the guide frame or housing above the rack bar lever, two toggle levers pivotally connected at one end to one end of the rack bar lever, and at their other ends to the under side of said follower, stationary open bearing shoes or sockets secured on the sill frame,

said bearing shoes or sockets having socket inclosing rims or flanges open at one end, and a pair of toggle legs pivoted at their upper ends to the toggle lever and provided with lower rounded ends working loosely in said shoes or sockets and adapted to slide in and out of the same through the open ends thereof, substantially as set forth.

2. In a cotton press, the combination with the upright box frame, and the press box open on all sides at its upper end; of opposite pairs of swinging side doors hinged at their ends to the corner posts of said box frame, opposite pairs of end doors pivoted at one end to the side doors, and means for securing the unpivoted ends of the side and end doors when closed, substantially as set forth.

3. In a cotton press, the combination with the upright box frame and the press box open on all sides at its upper end; of opposite pairs of swinging side doors hinged at one end to the corners of said box frame, and adapted to have their free ends meet when closed at the centers of the opposite sides of the press box, opposite pairs of end doors pivoted at one end to the side doors near the hinged points of the latter, said end doors being provided with upper and lower beveled engagement lugs at the free ends thereof, upper and lower retaining plates secured to the upright box frame and provided with inner beveled sides adapted to receive in registering contact said engagement lugs when the end doors are closed, and means for securing the side doors closed, substantially as set forth.

4. In a cotton press, the combination with the upright box frame, the press box open on all of its sides at its upper end, and the follower; of opposite pairs of swinging side doors, swinging lock bars hinged at their upper ends to the upright frame at its upper end and on opposite sides, said lock bars being adapted to be swung down over the meeting ends of the side doors to hold the same closed, L-shaped hooks pivoted at one extremity to the unpivoted ends of said lock bars, and horizontal rotatable releasing rods mounted in a fixed position at opposite sides of the upright frame and provided at both ends with handles, said rods being adapted to be frictionally engaged at an intermediate point by the unpivoted end of the hooks of said lock bars, whereby said unpivoted ends of the hooks can be automatically raised and disengaged from said releasing rods by turning the latter in one direction, substantially as set forth.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

JABEZ CURRY NELSON.
FERDINAND ELLIS SMITH.

Witnesses:

A. W. SMITH,
E. L. SMITH.