

(No Model.)

2 Sheets—Sheet 1.

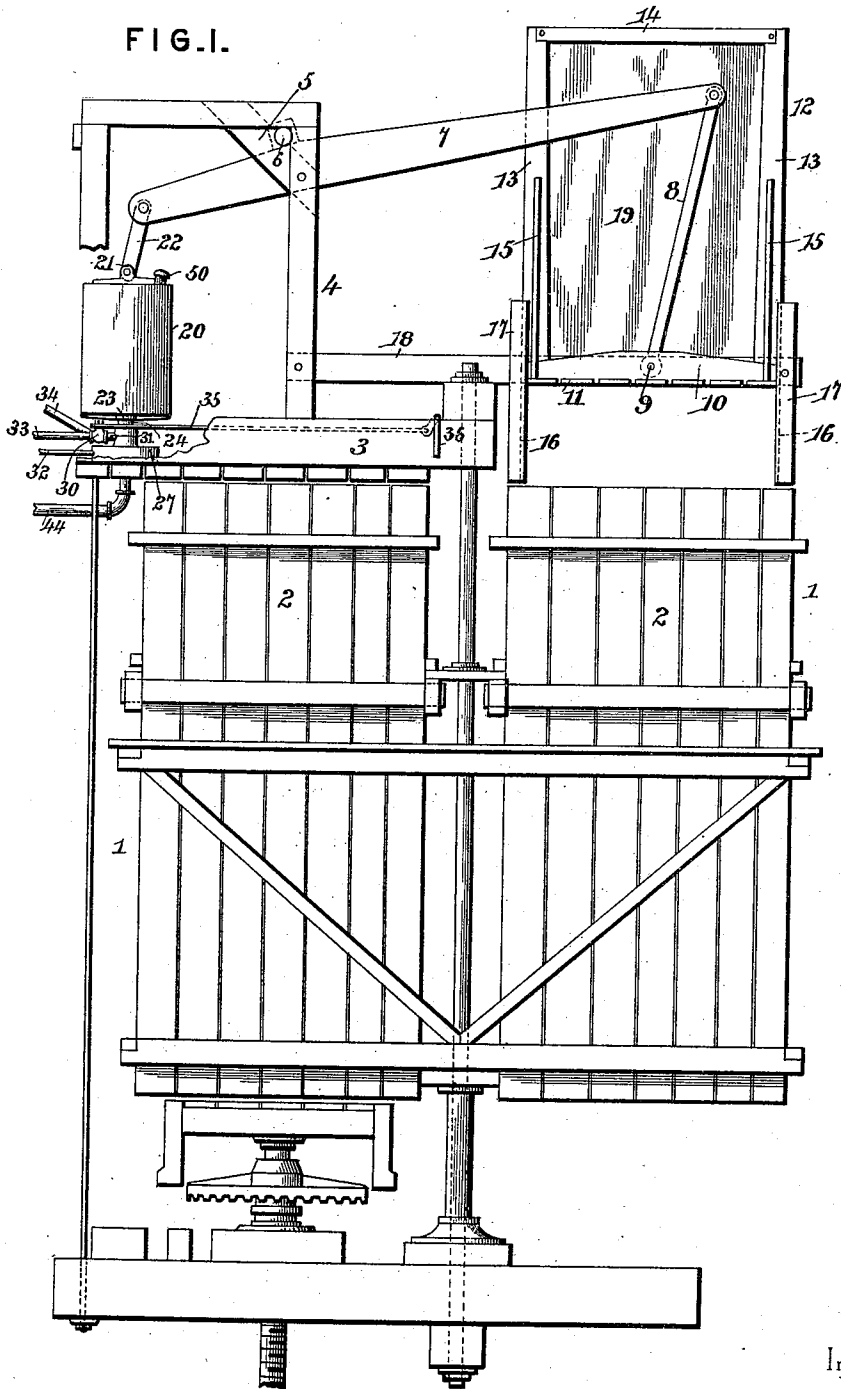
T. C. EBERHARDT.

TRAMPING ATTACHMENT FOR COTTON PRESSES.

No. 548,304.

Patented Oct. 22, 1895.

FIG. 1.



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Witnesses

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By his Attorneys.

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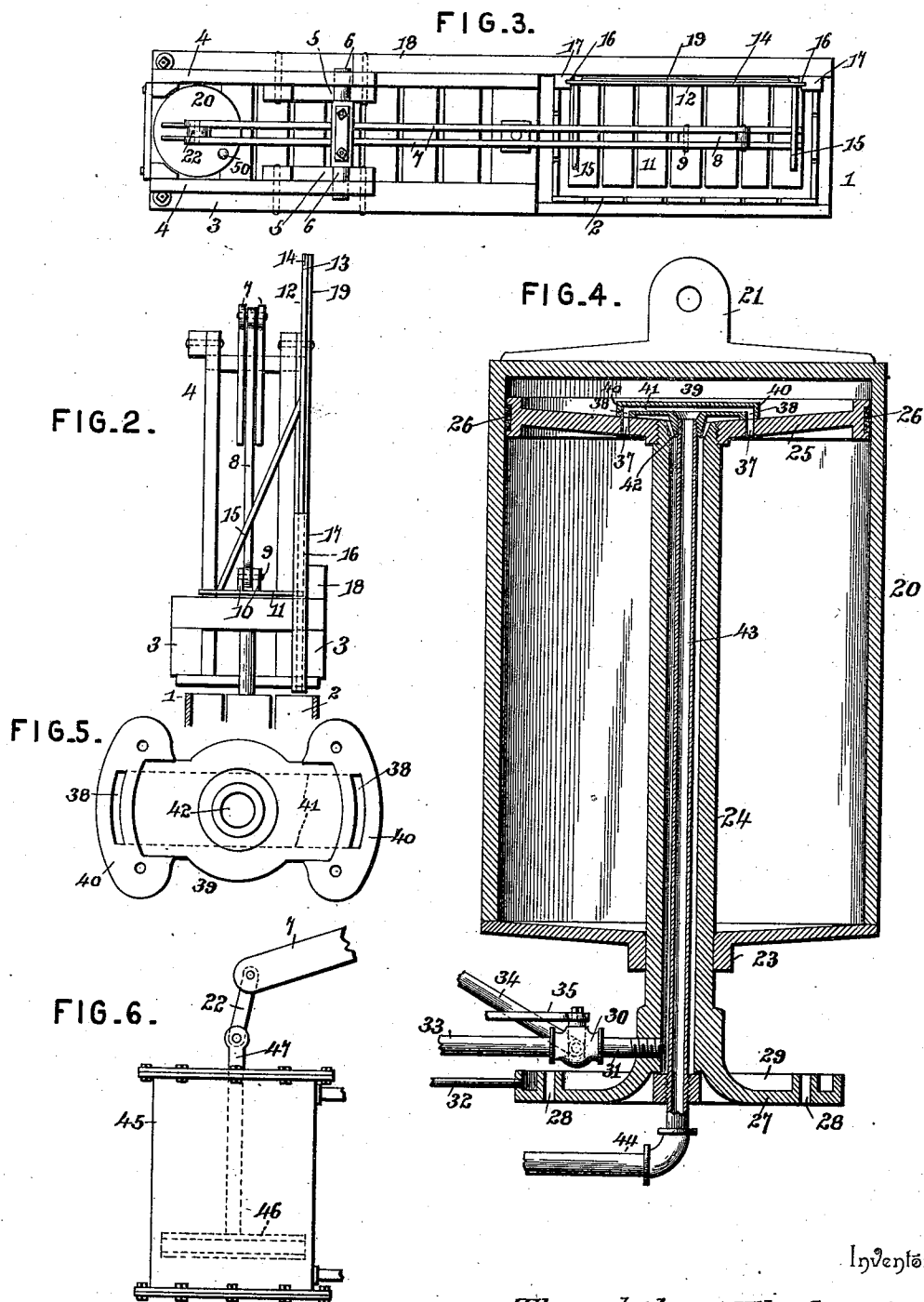
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UNITED STATES PATENT OFFICE.

THEOPHILUS C. EBERHARDT, OF ANNISTON, ALABAMA.

TRAMPING ATTACHMENT FOR COTTON-PRESSES.

SPECIFICATION forming part of Letters Patent No. 548,304, dated October 22, 1895.

Application filed March 28, 1894. Serial No. 505,469. (No model.)

To all whom it may concern:

Be it known that I, THEOPHILUS C. EBERHARDT, a citizen of the United States, residing at Anniston, in the county of Calhoun and State of Alabama, have invented a new and useful Self-Tramping Attachment for Cotton-Presses, of which the following is a specification.

This invention relates to self-tramping attachments for cotton-presses; and it has for its object to provide an improved device of this character which shall possess novel and efficient means for tramping or pressing lint cotton into the receiving chamber of a press-box previous to pressing it into a bale in the usual way.

While the present invention is applicable to any style of cotton-press that receives its supply of lint cotton at the upper open end of the receiving-chamber, it is especially designed for and adapted to be used in connection with what is commonly known as a "double-box cotton-press," in which one of the receiving-chambers is being filled with lint cotton by any ordinary means, either by hand or by a suitable condenser or conveyer, while the lint cotton in the other chamber can be pressed and tied into a bale at the same time.

Heretofore in devices of this character which have employed cylinder and piston actuating devices it has been customary to locate the cylinder and piston devices immediately over the receiving-chamber of the press-box and to attach the follower directly to the lower end of the piston-rod. Steam is then admitted at the upper side of the piston-head to force the follower down on the cotton, and by means of suitable weight connections the follower is elevated after steam is cut off. This method of tramping the cotton is open to many objections, among which are that all condensation of steam will leak down the piston-rod directly onto the lint cotton in the press-box, the weight connections and other retracting devices are liable to break or part, and, in the case of employing weights, the weights are likely to fall, thus causing much damage to the machinery beneath them. Furthermore, by placing the cylinder devices directly over the receiving-chamber of the press-box a heavy and expensive superstructure for the support of the same is required, and the

steam-cylinder necessarily has to be of a considerable length to allow the follower to have the necessary up-and-down travel, and such enlarged construction is also necessarily quite expensive.

It is the object of the present invention to overcome these objectionable features to other tramping attachments for cotton-presses and to provide a cheap and efficient device for accomplishing the purposes specified.

With these and other objects in view, which 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 a front or side elevation of a double-box cotton-press equipped with the herein-described self-tramping attachment. Fig. 2 is an end view of the tramping attachment. Fig. 3 is a top plan view of the same. Fig. 4 is an enlarged detail sectional view of the cylinder-actuating devices. Fig. 5 is a detail plan view of the air-vent cap. Fig. 6 is a detail elevation illustrating a modification in which the walking-beam or lever is actuated by a moving piston.

Referring to the accompanying drawings, 1 designates a double-box cotton-press of the ordinary construction and which is provided with the ordinary pressing devices and with means for operating them, said cotton-press being provided with the separate press-boxes 2, one of which is adapted to receive a supply of lint cotton at its upper open receiving end or chamber, while the other press-box is arranged in a position for having the cotton therein pressed and tied into a bale. At the upper ends of the press-boxes 2 of the cotton-press are located the top girts or frame-timbers 3 of the cotton-press, which girts or frame timbers are arranged stationary and comprise the ordinary top frame of the press, beneath which the boxes are shifted from the receiving-point to the pressing and baling point, as is usual.

The top frame of the cotton-press, consisting of the top girts or frame-timbers 3, supports in position the upright supporting or bearing frame 4, constructed of suitable strength materials, and which is located above

that press-box in which the ordinary pressing devices move to press the cotton into a bale, and said upright supporting or bearing frame 4 is provided at upper opposite corners with the opposite bearings 5, that loosely receive the opposite journals of the pivot block or gudgeon 6, that is secured to the top side of the bifurcated walking-beam or lever 7 and at one side of the center of this walking-beam or lever. The short end of the walking-beam or lever 7, at one side of its pivot block or gudgeon 6, is adapted to be actuated by steam or fluid pressure devices, which will be more particularly referred to, and the other longer end of the walking-beam or lever extends to a position directly over the receiving-chamber of the press-box to be filled, and the walking-beam or lever 7 has pivotally connected to this extremity the upper end of the plunger beam or arm 8, the lower end of which is pivotally secured at 9 between the blocks 10, secured to the top side of the slatted tramping-follower 11.

The slatted tramping-follower 11 is constructed in the same manner as the ordinary pressing-followers and is arranged to move directly above and into the upper receiving-chamber of the press-box that receives its supply of lint cotton before being pressed, and secured to and arising from the top of the follower 11 is the upright runner-frame 12, consisting of the opposite slide-bars 13, connected at their upper ends by the top cross-bar 14 and securely braced to the top of the follower by the inclined braces 15, and the opposite side bars of the upright runner-frame are adapted to slide in the inner side grooves 16 of the opposite vertically-disposed guides or guide-bars 17, that are secured fast to one side of the supporting-rail 18, extended from the top press-frame beyond one side of the pivot of the press-boxes to hold the guides 17 in the proper position over the point to which the unfilled press-box is moved. When an up-and-down movement is imparted to the walking-beam or lever 7, the follower 11 is caused to slide up and down in its guides and to work into the open upper end of the receiving-chamber of the press-box which has just received a fresh supply of cotton, so as to thoroughly tramp down the cotton previous to pressing the same.

When the lint cotton is being delivered to the receiving-chamber of the unfilled press-box in a continuous bat, as by a suitable condenser or conveyer, and it therefore becomes necessary to hold back the cotton temporarily while the follower descends in the press-box for the purpose of tramping the lint cotton, a cut-off plate or diaphragm 19 is secured to one side of the runner-frame 12 for this purpose, so as to allow the feeding cotton to be held in check until the follower 11 has again raised sufficiently to permit the cotton to again feed into the receiving-chamber of the press-box; and it will of course be understood that this cut-off diaphragm must be placed

next to the receiving side of the press-box, for which reason the upright runner-frame 12 rises from the follower 11 near one side edge thereof.

The long end of the walking-beam or lever which is connected with the tramping-follower is moved downward by means of the vertically-movable steam-cylinder 20, provided at the closed end or head thereof with the pivot-lug 21, to which is pivotally connected the lower end of the link bar or rod 22, the upper end of which is pivotally connected to the extremity of the short end of the walking-beam or lever. The vertically-movable steam-cylinder 20 is closed both at its upper and lower ends, and the lower head thereof is provided with a neck-opening 23 to receive the upright stationary piston rod or stem 24. The stationary piston rod or stem 24 forms a support on which the cylinder slides up and down and is hollow throughout its entire length. The upper inner end of the hollow piston rod or stem 24 has suitably secured or attached thereto a stationary piston head or disk 25, the outer edge of which is provided with suitable packing 26, contacting with the inner sides of the cylinder 20.

The lower end of the hollow piston rod or stem below the lower end of the vertically-movable cylinder is provided with a flanged attachment-base 27, having at intervals bolt openings or holes 28 to receive suitable securing-bolts for securing the stationary piston rod or stem with its attached head in a stationary position on the top frame of the cotton-press. The flanged attachment-base 27 at the lower end of the piston rod or stem is recessed at its upper side to form a drip-pan 29, that serves to receive and collect any condensation of steam leaking down the piston rod or stem or leaking from the three-way steam-cock 30, located directly thereabove and arranged in a casing at the outer end of the combined live-steam and exhaust pipe 31, opening into the lower end of the hollow piston rod or stem. A drain-pipe 32 is connected with the flanged attachment-base and communicates with the drip-pan 29 to carry off or drain the water therefrom.

Steam is admitted into the hollow rod or stem 24 by the valve 30 through the steam-pipe 33, and steam is also exhausted from the rod or stem 24 by the valve 30 through the steam-exhaust pipe 34, connected with the casing of said valve, and the cock 30 has connected thereto an operating-rod 35, controlled by a conveniently-arranged lever 36, whereby the operator can readily control the movements of the vertically-movable cylinder 20. The live steam that enters the hollow piston rod or stem 24 passes through the upper end thereof into the space above the piston-head 25, and therefore elevates the vertically-movable cylinder to actuate the tramping devices, and while the cylinder ascends the air in the lower part thereof below the piston-head 25 escapes freely through the air-vent openings

37, formed in the piston-head 25 at opposite sides of the rod or stem 24, and which communicate with the opposite end ports 38, formed in the lower side of the air-vent cap 39, near opposite ends thereof.

The air-vent cap 39 is secured on top of the stationary piston-head 25 by suitable means, and is provided near its opposite ends, where the ports 38 are located, with the short spacing lugs or feet 40 to slightly elevate the same above the piston-head to allow for the free inlet and escape of steam out of and into the rod or stem 24; and said vent-cap is further provided with a longitudinal air-passage 41, connecting the opposite end ports 40 and communicating with the central neck-opening 42, into which is fitted the upper end of the small air-vent pipe 43. The air-vent pipe 43 is arranged longitudinally within the piston rod or stem 24, and is smaller than the same to leave a free steam-passage. The said pipe 43 passes out through the lower closed end of the hollow piston rod or stem 24 and is connected to the air-pipe 44, which admits and discharges air as the cylinder ascends and descends, as will be readily apparent.

In operation steam is admitted into the top end of the cylinder 20 by the means already described. This causes the cylinder to be forced upward, raising one end of the walking-beam or lever 7 and forcing the other end of the walking-beam or lever, with the attached tramping-follower, downward upon the lint cotton in the receiving-chamber of the press-box being filled. By manipulating the cock 30 steam may be exhausted from above the piston-head out through the pipe 34, and as soon as the steam-pressure is exhausted from the cylinder the weight of the cylinder, together with the weight of the end of the walking-beam to which it is connected, will be sufficient to allow the cylinder to descend again and to raise the tramping-follower out of the press-box.

While the preferred construction of actuating device for the walking-beam or lever has been described, still it will be obvious that a stationary steam-cylinder 45 may be substituted for the cylinder 20 and suitably secured in the same stationary position as the stationary piston rod or stem 24. The cylinder 45 may be provided with any suitable means for admitting and exhausting the steam or other expansive fluid and controls the movement of an ordinary moving piston-head 46, that actuates a piston rod or stem 47, which is pivotally connected with one end of the walking-beam or lever 7, thereby providing a simple form of actuating device for the walking-beam or lever and which will secure the same operation as the preferred devices described.

The location of the cylinder and piston devices at a convenient point away from over the receiving-chamber of the press-box being filled especially adapts the herein-described attachment for double-box cotton-presses and

the many advantages for which arrangement will readily suggest themselves to those skilled in the art, and it will be understood that 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.

Any suitable devices—such as the oiler 50—may be connected to the cylinder to lubricate the interior parts thereof.

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

1. In a self tramping attachment for cotton presses, the combination with a double box cotton press, of a walking beam or lever adapted to be pivotally supported at a point intermediate of its ends above said cotton press with one end moving above the upper receiving end of one of the press-boxes, a tramping follower connected with that end of the walking beam or lever and guided to work into and above said press box, and cylinder and piston actuating devices connected with the other end of the walking beam or lever and located at a point away from said receiving press box, substantially as set forth.

2. In a tramping attachment for cotton presses, the combination with a double box cotton press; of an upright supporting or bearing frame adapted to be supported on the top frame of said double box press, a walking beam pivoted on said supporting frame, parallel grooved guide bars secured in a fixed position at the top of the press in a plane above the receiving chamber of one press box, a tramping follower having an upright runner frame extending from its upper side and sliding in said guide bars, a plunger beam or arm pivotally connected to the follower and one end of the walking beam or lever, and means for mechanically moving the other end of said walking beam or lever, substantially as set forth.

3. In a tramping attachment for cotton presses, the combination with a cotton press; of suitably arranged guides, a tramping follower arranged to work above and into the upper receiving chamber of the press box by means of a walking beam or lever connected thereto, an upright runner frame extended from the upper side of said follower, and a cut-off plate or diaphragm secured to the upright runner frame that is extended from the upper side of the tramping follower, substantially as set forth.

4. In a tramping attachment for cotton presses, the combination of an upright supporting or bearing frame adapted to be supported at the top of a cotton press, a horizontally moving walking beam having a pivot block or gudgeon journaled on said upright supporting or bearing frame, stationary guides adapted to be secured at the top of the press above the top receiving chamber of the press box, a tramping follower having an

upright runner frame the opposite sides of which slide between said stationary guides, a plunger beam connected to one end of the walking beam and to the tramping follower, a stationary piston suitably mounted at the top of the cotton press away from the receiving chamber of the press box being filled, a vertically movable cylinder mounted to work over the stationary piston and pivotally connected to one end of the walking beam or lever, means for admitting and exhausting steam to and from the said cylinder above the piston, and separate means for automatically admitting and exhausting air below the piston, substantially as set forth.

5. In a tramping attachment for cotton presses, the combination with the walking beam or lever and the tramping follower connected to one end thereof; of a stationary hollow piston rod or stem having at one end a piston head and opening at its upper end into the space above the latter, a vertically movable cylinder sliding on the piston rod or stem over said head, and connected to one end of the walking beam or lever, an air venting attachment for the lower part of the cylinder fitted to one side of the piston head, and means for controlling the inlet and outlet of steam through the hollow piston rod or stem to and from that portion of the cylinder at the other side of the piston head, substantially as set forth.

6. In a tramping attachment for cotton presses, the combination with the walking beam or lever and the tramping follower connected to one end thereof, of a stationary hollow piston rod or stem carrying at one end a piston head and provided at its lower end with a flanged attaching base having a top drip pan recess therein, a drain pipe communicating with the drip pan recess, an automatic air vent for the cylinder, and an inlet and exhaust device for the hollow piston rod or stem, substantially as set forth.

7. In a self tramping attachment for cotton presses, the combination with the walking

beam or lever and the tramping follower connected to one end thereof; of an upright stationary hollow piston rod or stem carrying at its inner end a piston head provided with air vent openings, said rod or stem opening into the space above the piston head, an air vent cap spanning the upper end of the piston rod or stem and communicating with the vent openings in the piston head, an air vent pipe arranged longitudinally within the piston rod or stem and connected at one end to said vent cap, means for admitting steam into and exhausting it from the hollow piston rod or stem, and the vertically movable cylinder sliding on the piston rod or stem and connected at one end to one end of the walking beam or lever, substantially as set forth.

8. In a self tramping attachment for cotton presses, the combination with the walking beam or lever and the tramping follower connected to one end thereof, of a stationary hollow piston rod or stem carrying at its inner end a piston head provided with air vent openings, a vent cap raised above the plane of the vent openings and secured to the piston head, said vent cap being provided with a longitudinal air passage, opposite end ports communicating therewith and the vent openings in the piston head, and a central neck opening, an air vent pipe arranged longitudinally within the hollow piston rod or stem and connected at its upper ends within a central neck opening of the vent cap, means for admitting and exhausting steam to and from the hollow piston rod or stem, and the vertically movable cylinder sliding on the piston rod or stem and connected at one end to one end of the walking beam or lever, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

THEOPHILUS C. EBERHARDT.

Witnesses:

A. L. SMITH,

T. B. TAYLOR.