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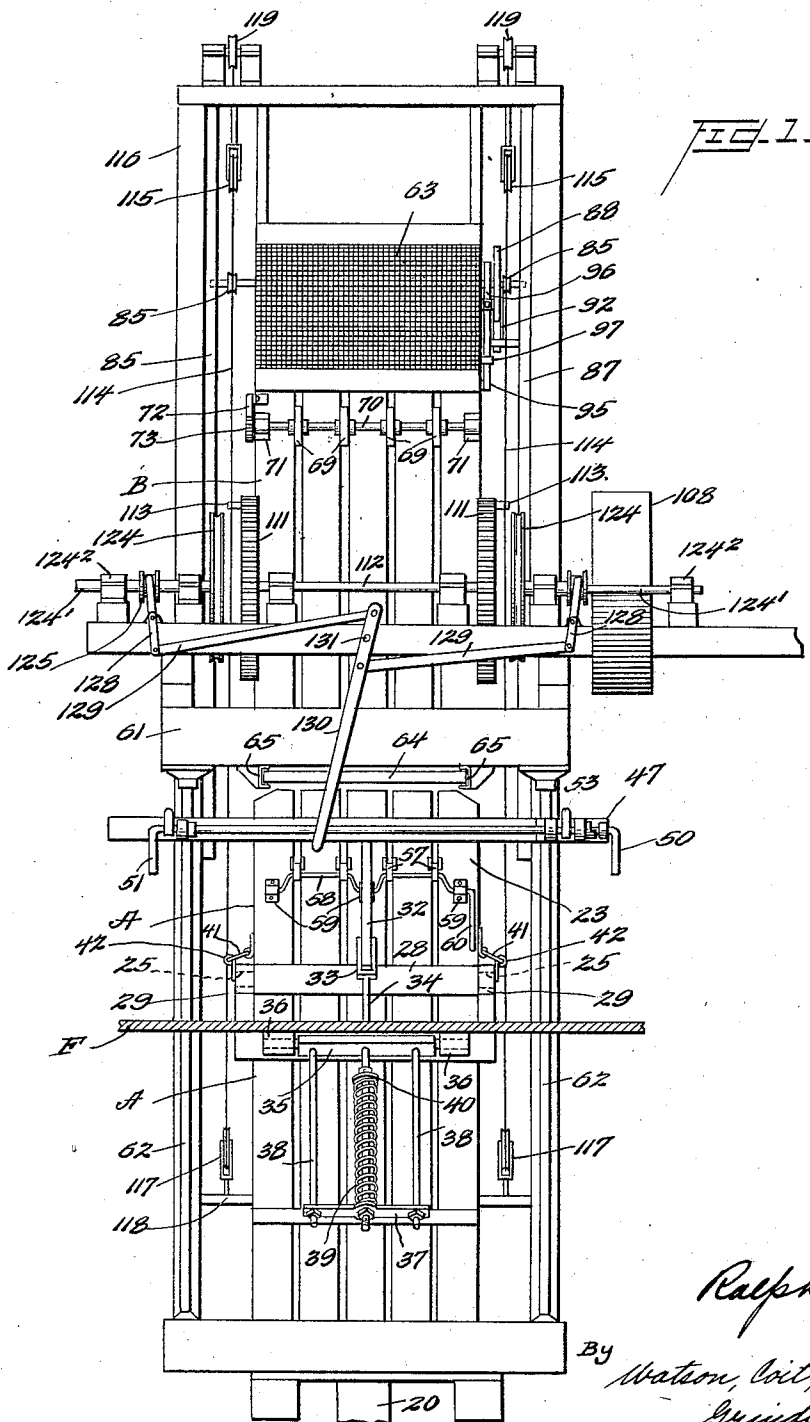
R. BELL

1,857,707

COTTON PRESS

Filed June 20, 1928

7 Sheets-Sheet 1



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May 10, 1932.

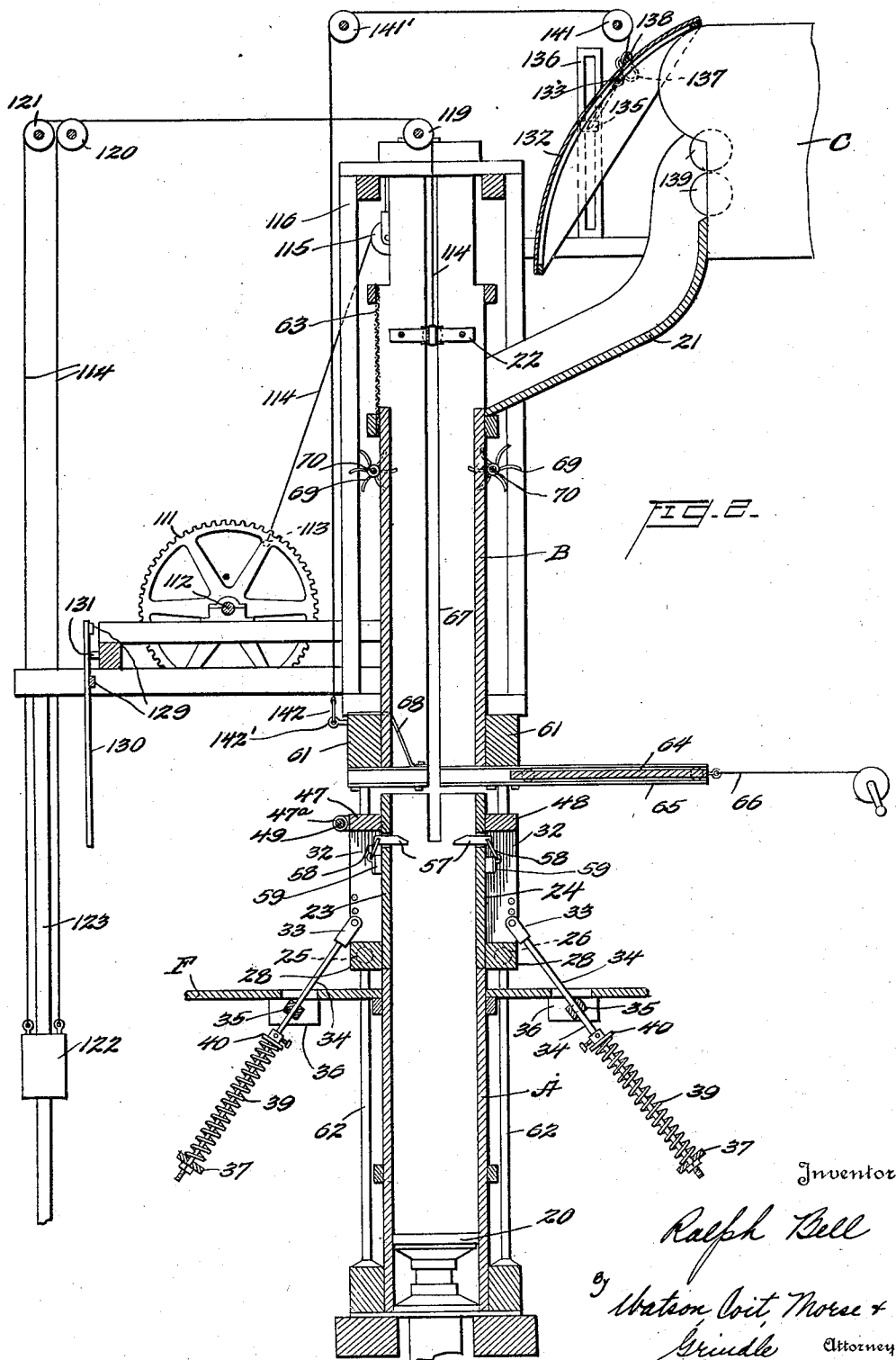
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COTTON PRESS

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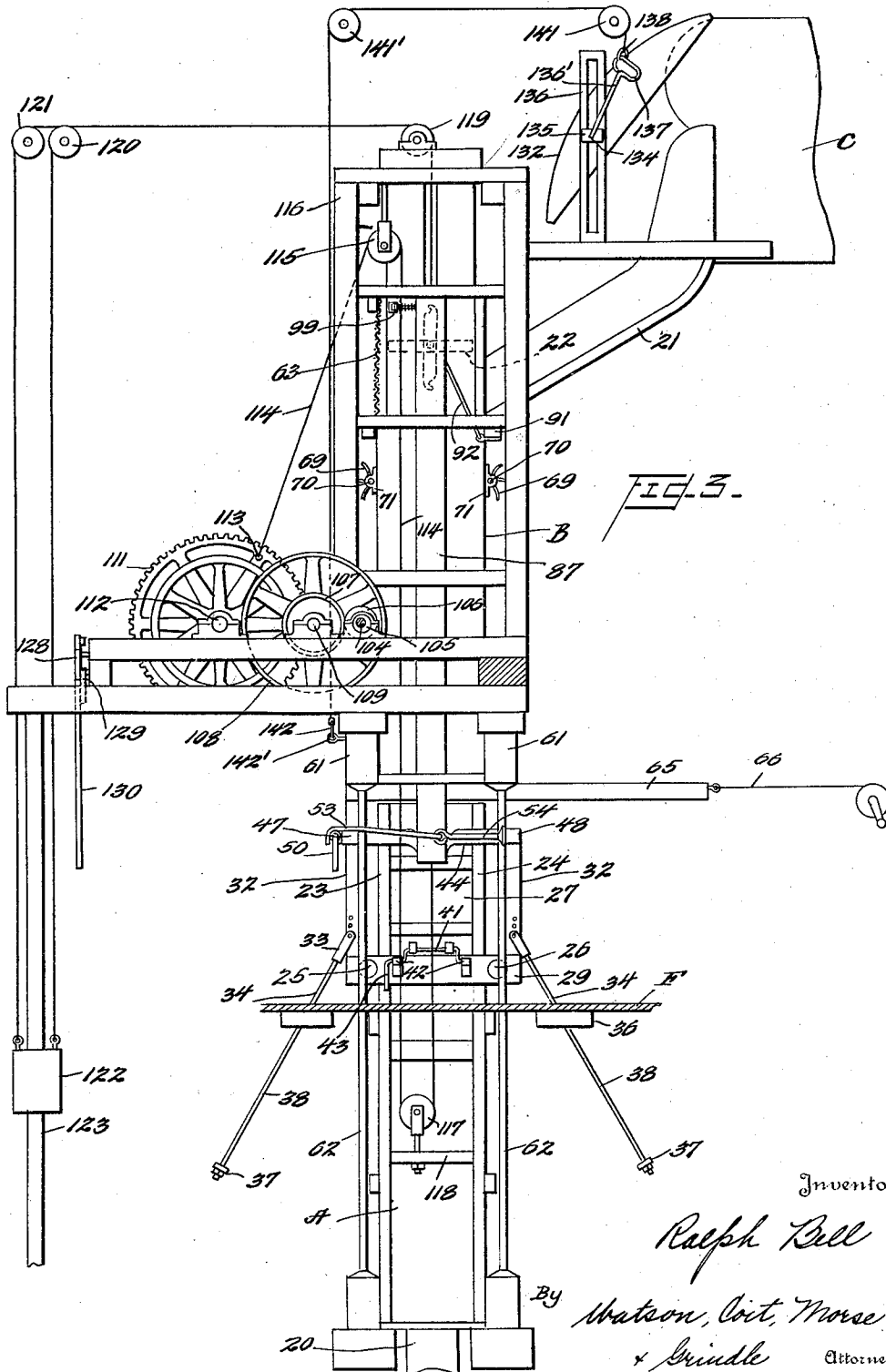
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COTTON PRESS

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7 Sheets-Sheet 3



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COTTON PRESS

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7 Sheets-Sheet 4

FIG. 4.

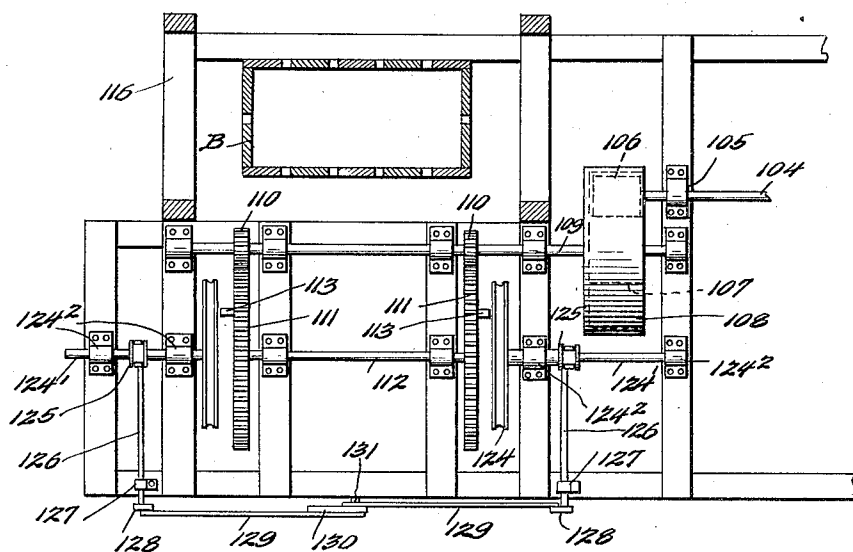


FIG. 7.

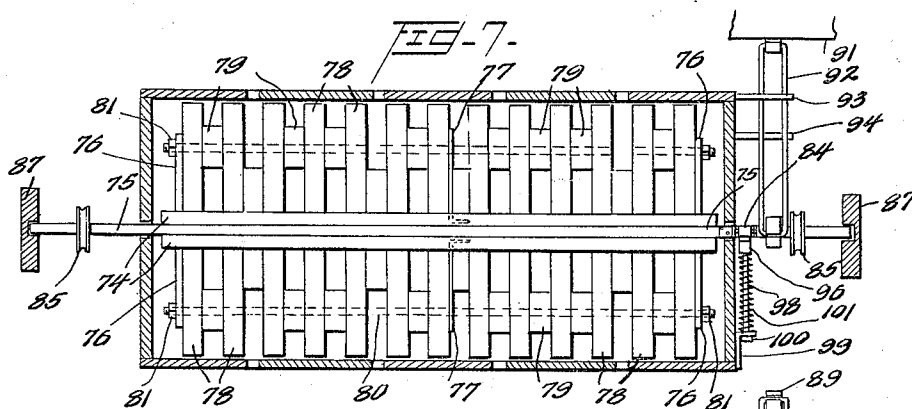
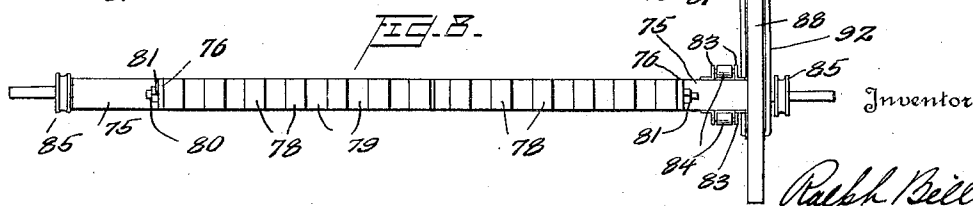


FIG. 8.



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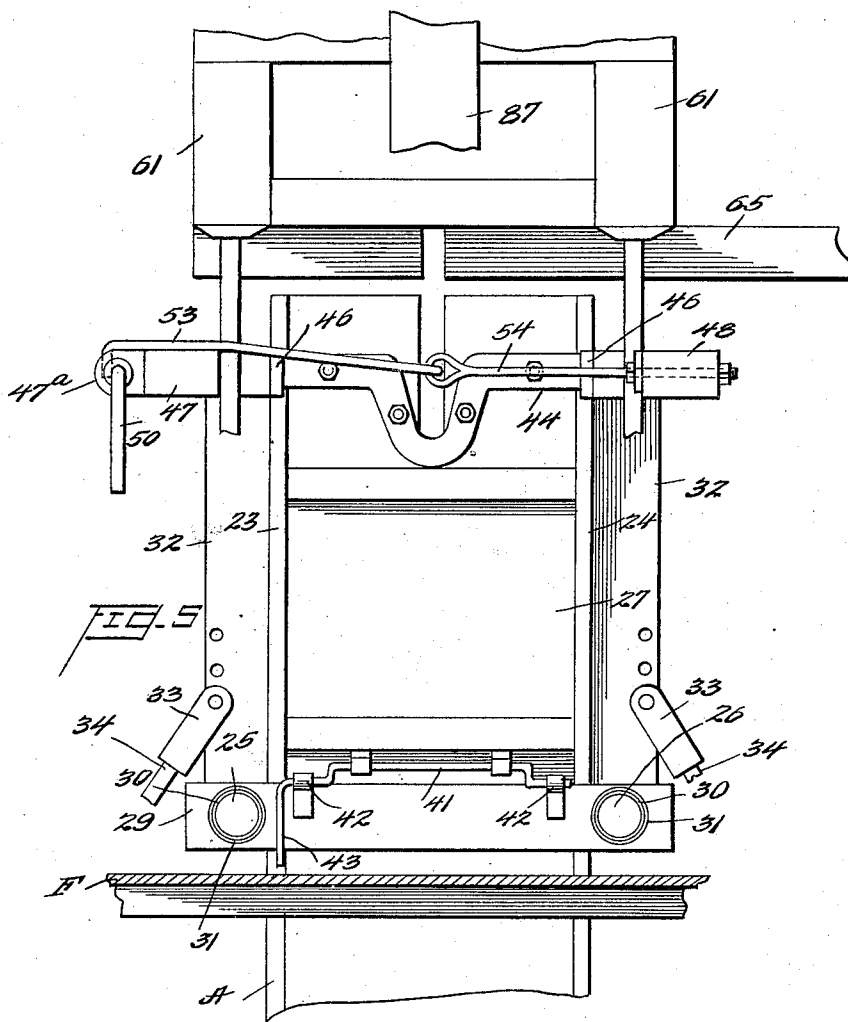
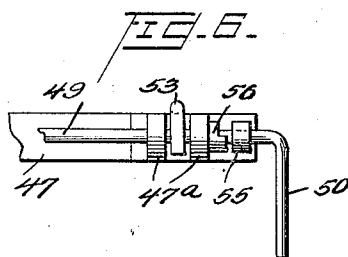
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COTTON PRESS

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7 Sheets-Sheet 5



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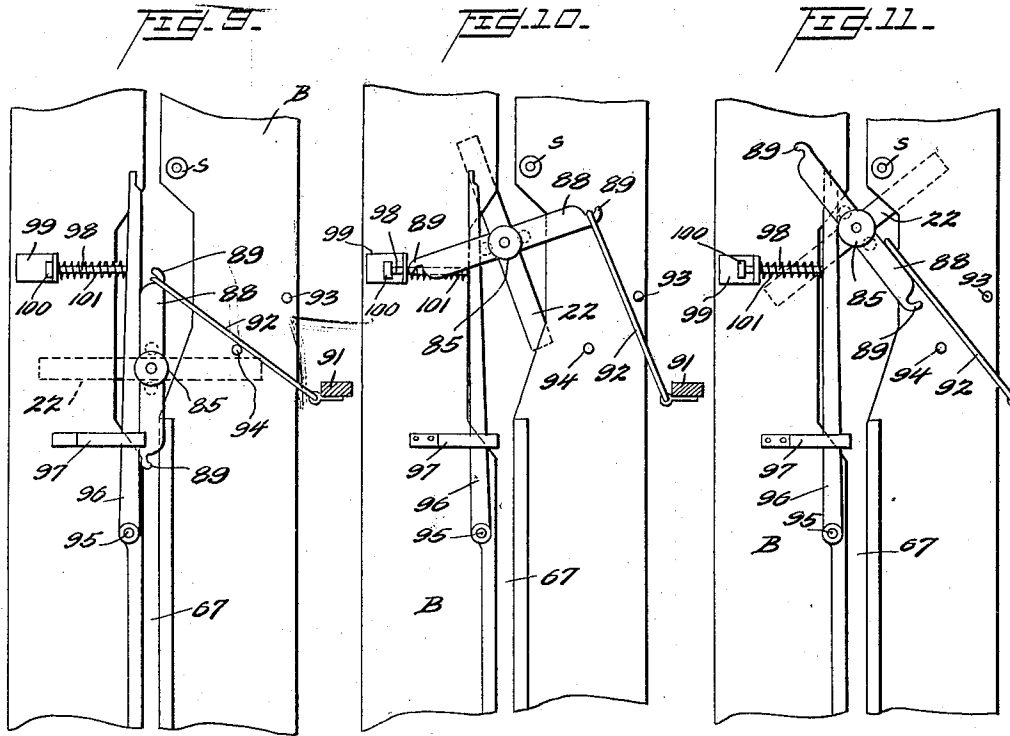
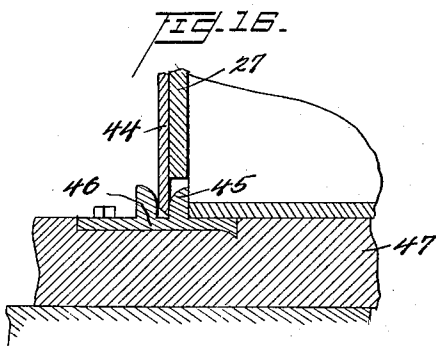
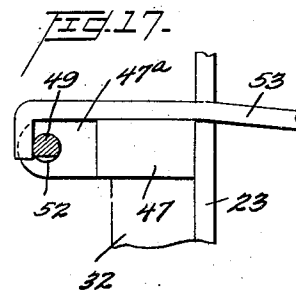
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COTTON PRESS

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7 Sheets-Sheet 6



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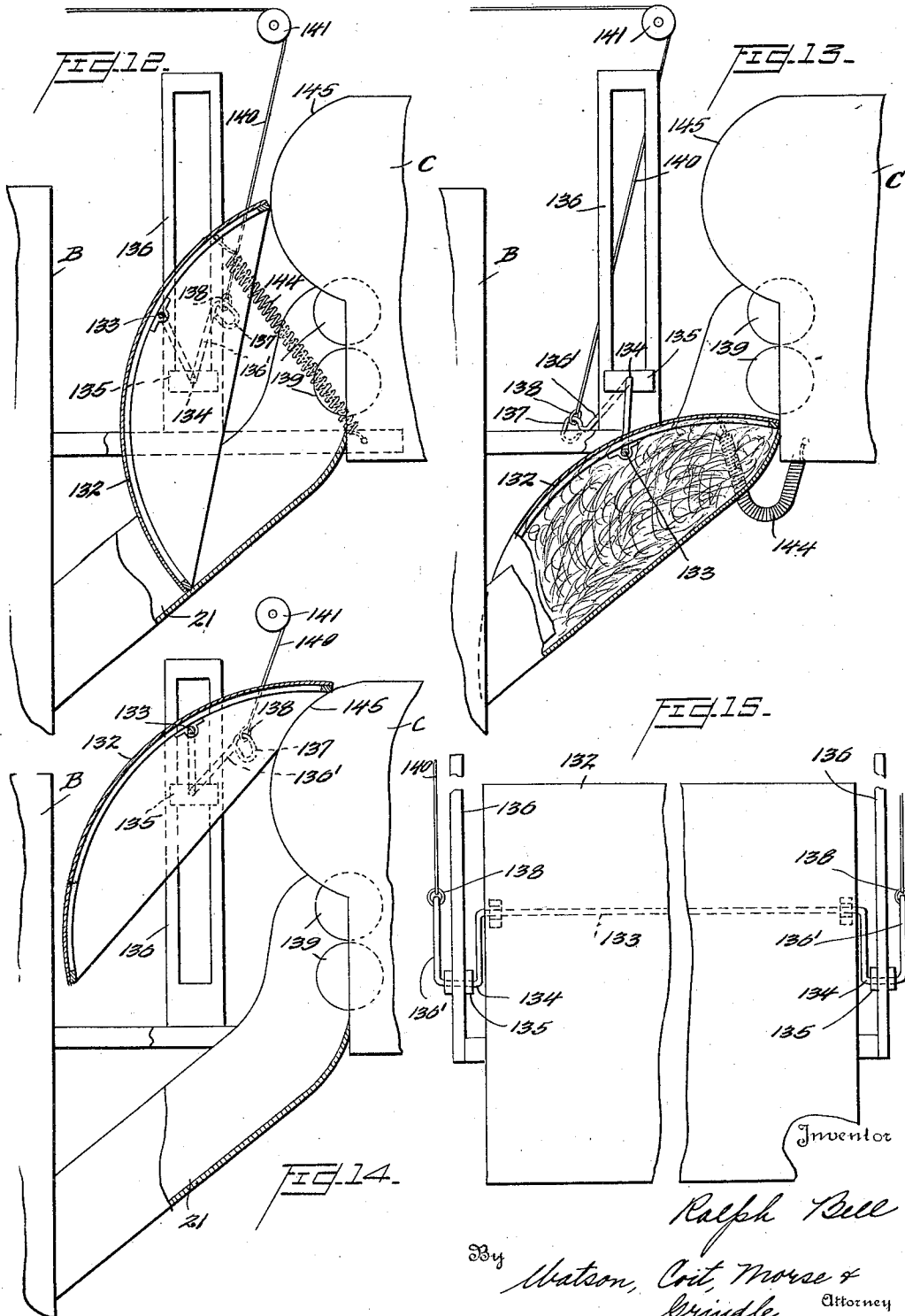
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COTTON PRESS

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7 Sheets-Sheet 7



UNITED STATES PATENT OFFICE

RALPH BELL, OF LAMAR, SOUTH CAROLINA

COTTON PRESS

Application filed June 20, 1923. Serial No. 236,914.

This invention relates to presses, and has particular reference to a cotton press of the kind having a lower press box in which the cotton is compressed by a ram and an upper

5 tramper box in which the cotton coming from the condenser is compacted by a reciprocating tramper, a sliding door being provided to open or close communication between the two boxes as desired.

10 The general object of the invention is to provide a press of the above mentioned character which has a greater output and which is more durable in construction than presses of the types heretofore used, and the various

15 operations of which are carried out with greater facility. For the attainment of these general objects the invention provides, among other improvements, a tramper mechanism which will permit an uninterrupted

20 flow of cotton into the tramper box, thus eliminating the cut off mechanisms which have heretofore been employed to hold back the cotton during portions of the tramper stroke. This mechanism operates to rotate

25 the tramper about its longitudinal axis upon approaching the upper limit of its movement, whereby the cotton which has been deposited on the upper side of the tramper during its movements below the point of discharge into the tramper box is discharged and smoothly

30 laid across the box.

Improved operating mechanism for the tramper is provided, and this mechanism is so constructed that the tramper can at will

35 be given a stroke of increased length whenever it is desired to force the cotton from the tramper box down into the press box.

An important improvement effected by the invention is the provision of a cut off gate

40 in association with the chute leading from the condenser to the tramper box. This gate is partially automatic in operation. It is placed in operative position across the chute by manually operable means at the

45 beginning of each bale for the purpose of retaining the initial portion of the cotton, this initial portion of the bale being known in the art as "the roll". The gate is so constructed and mounted that, after "the roll"

50 has been accumulated, the pressure of the

cotton automatically trips the gate and causes the latter to assume such a position that the continued flow of cotton can pass thereover and into the tramper box, while "the roll" is still retained and can be caused to discharge into the tramper box by manually

55 raising the gate. This mechanism provides very simple and effective means for locating "the roll", which is usually of a different grade of cotton, in the interior of the bale.

60

Other improvements effected by the invention relate to mechanism for operating, controlling and locking the doors and end gates of the press box, to the dogging mechanism associated with the tramper box, and to other various details of construction, as will hereinafter appear.

Referring to the accompanying drawings:

Fig. 1 is a front elevation of a cotton press embodying the invention;

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Fig. 2 is a central vertical section through the press;

Fig. 3 is a side elevation;

Fig. 4 is a horizontal sectional view;

Fig. 5 is a fragmentary side view illustrating particularly the mechanism of the press box;

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Fig. 6 is a detail view showing particularly the press door and end gate locking mechanism;

80

Figs. 7 and 8 are detail views showing the construction of the tramper block;

Figs. 9, 10, and 11 are detail views showing the tramper controlling mechanism in different positions;

85

Figs. 12, 13, 14 and 15 are detail views illustrating a stop gate associated with the chute leading from the condenser to the tramper box; and

Figs. 16 and 17 are detail views of the door locking mechanism.

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The press shown by the drawings comprises a lower or press box A, in which the cotton is compressed by a ram 20 in the usual manner, and an upper or tramper box B, disposed in vertical alignment with the lower box and into which the lint coming from a condenser C is discharged through a chute 21 and is compacted by a vertically reciprocating tramper 22.

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The press box A comprises a lower fixed section in which the ram 20 operates and an upper hinged section adapted to enclose the compressed bale. The upper hinged section consists of front and rear doors 23 and 24 hinged respectively at 25 and 26, and end gates 27. The hinges 25 and 26 are constituted by trunnions formed at the ends of wooden beams 28 secured to the lower edges of the doors and bearings for the trunnions formed in the projecting ends of timbers 29 which are fixed to the beams of floor F. These hinges are rendered durable by providing the trunnions with steel sleeves 30 and lining the bearings with steel bushings 31, the sleeves and bushings being easily removable for repair or replacement.

The doors 23 and 24 are massive and are therefore counterbalanced to facilitate the opening and closing operations, which are performed manually. Heretofore this counterbalancing has been effected by weights and has been only partially effective because the weights did not counterbalance for all positions of the doors. One of the improvements effected by the present invention is the provision of counterbalancing springs for the doors which are adapted to counterbalance the doors in all positions thereof. Referring to Figs. 1 and 2, pivoted in vertical boards 32 secured to the doors are forks 33 which are integral with the upper ends of rods 34. These rods 34 pass downwardly at an outward incline through slots formed in the floor F and through apertures in bars 35 pivoted in bearings 36 secured to the underside of floor F. The lower ends of the rods pass through apertures in cross bars 37 which are secured to bars 35 by rods 38. Coil springs 39 surrounding the lower portions of rods 34 are adapted to be compressed between the cross bars 37 and abutments 40 adjustably secured to rods 34. In this construction, when the doors 23 and 24 are lowered about their hinges 25 and 26 to discharge the bale, the coil springs 39 will be compressed, and the resistance offered thereby to the lowering of the doors will increase in proportion to the angle through which the doors are turned from the vertical. The force necessary to hold the doors, of course, also increases with this angle, and, therefore, by correctly choosing the tension of the springs, the doors can be perfectly counterbalanced for all positions.

The end gates 27 are pivoted at their lower edges to crank shafts 41 which are journaled in bearings 42 secured to the timbers 29. These crank shafts are integral at their front ends with right angular arms 43 which are adapted to be depressed by the foot of the operator to throw the end gates outwardly and loosen the compressed bale so that it can be easily removed from the box. Bolted to the end gates near the upper edge thereof are

strap irons 44, the ends of which project, as shown in Fig. 16, and are adapted to coact with flaring sockets 45 formed in iron or steel socket pieces 46 which are bolted to the locking sills 47 and 48 respectively carried by doors 23, 24 near the upper edges thereof. Thus, when these doors are turned to closed position, the sockets 45 receive the ends of bars 44 and due to their flaring formation bring the end gates into correct position and lock said gates.

The front and rear doors are clamped and locked in closed position by the mechanism shown most clearly in Figs. 1, 3, 5, 6, 17 and 18. Journaled in bearings 47a fixed to the front locking sills 47 is a shaft 49 formed at its ends with cranks 50 and 51, the crank 50 functioning as a handle, and crank 51 as a stop to limit the sliding of shaft 49 to the right, looking at Fig. 1. The bearings 47a at each end comprise two spaced bearing blocks, and the shaft 49 between these blocks is formed with a flattened portion 52, (Fig. 17).

Adapted to engage over shaft 49 between the bearing blocks at each side is the hooked end of a link 53 which is pivoted in the eye of a bolt 54 secured to the rear locking sill 48. When the crank handle 50 hangs vertically, the flattened portion 52 is horizontal, as shown in Fig. 17, and the doors are clamped and locked in closed position. To unlock the doors, handle 50 is turned up, moving hooks 53 up by friction to a position where they will jump off shaft 49, because of the great pressure of the compressed bale. To hold the crank handle up, there is fixed on the shaft 49 a notched collar 55 (Fig. 6) adapted to engage a complementary collar 56 fixed to the adjacent bearing block 47a. When the crank 50 is turned to unlocking position, it is moved slightly to the left sliding the shaft 49 and bringing the collar 55 into engagement with the fixed collar 56. The coacting shoulders on these collars will prevent rotation of shaft 49, and will consequently hold the handle 50 in unlocking position.

The usual manually operable dogs 57 are associated with the upper section of the press box as shown in Figs. 1 and 2. These dogs operate in steel lined slots formed in the doors 23, 24 and are pivoted to the crank portions of shafts 58 which are rotatable in bearings 59 secured to the outside of the doors, each shaft being formed at one end with a handle 60, whereby the dogs can be thrown inwardly to operative position when the cotton from the tramper box is forced by the tramper into the press box.

It is to be noted that, when the doors 23 and 24 are closed, the projecting ends of locking sills 47 and 48 abut against the steel pillars 62 which are secured to the foundation sills of the ram. This centers the press box and prevents its being moved out of alignment with the upper or tramper box.

The tramper box B is supported vertically over the press box A above described, its lower end being secured to sills 61 which rest on and are secured to the pillars 62. The sides and ends of the tramper box are fixed and braced by suitable timbers (not shown). The box extends up to a horizontal plane passing through the lower end of chute 21, and the front side is extended above the chute by a wire screen 63.

A sliding door 64 is mounted in channel irons 65 secured to the under sides of sills 61. This door is adapted to be retracted from position between the upper and lower boxes by means of a chain 66 operably connected to a suitable windlass (not shown). The door may be equipped with anti-friction rollers bearing on the channel iron guides, so that it may be easily slid by hand into operative position between the boxes. The end sides of the tramper box are formed with vertical slots 67 for the passage of the tramper shaft, and in order to permit the tramper to be moved down to the lower box, the upper portions of the end gates 27 of the lower box are formed with vertical slots registering with the slots 67, and the channel iron guides 65 are divided, as shown in Figs. 2 and 5, the front parts thereof being braced by metal straps 68. The door 64 is retracted from position between the boxes when it is desired to discharge the cotton from the tramper box. When in position between the boxes, it functions as a bottom closure for the tramper box and as an abutment against which the ram presses the cotton to form the bale in the press box.

Operating through vertical slots formed between adjacent boards of the tramper box are rotary dogs 69. In the form illustrated, these dogs consist of curved spokes radiating from a shaft 70 journaled in bearings 71 fixed in horizontal alignment to the side of the box. The shafts 70 are permitted to rotate in one direction only by the provision of pawls 72 pivoted to the box and engaging ratchets 73 fixed to the respective shafts. As the cotton is forced down into the box by the tramper, the spokes rotate with the cotton, permitting free passage thereof, but on the return stroke of tramper, the spokes are held stationary by the pawl and ratchet mechanisms and therefore hold the cotton, preventing it from following the tramper. It is to be particularly observed that, as the spokes rotate, they withdraw laterally from the cotton, leaving no substantial air pockets.

The tramper, shown in Figs. 7 and 8, is of rectangular and grid-like form. It comprises a pair of central axial angle irons 74 between the vertical webs of which is inserted and bolted a flat bar or shaft 75. A pair of transverse metal straps 76 are suitably secured to the channel irons at each end thereof, and similar straps 77 are secured to the

channel irons near the center. Wooden blocks 78 have their inner ends engaged in the channels of bars 74, and spacer blocks 79 are inserted between blocks 78. Clamping rods 80 pass through blocks 78 and the spacer blocks 79 and also through straps 76 and 77, and nuts 81 on the ends of the rods when tightened clamp the parts together to form a rigid structure. A tramper of this construction is easily repaired if any of the parts become broken or damaged, as it can be readily disassembled and the damaged parts replaced. The flat bar or shaft 75 secured between the ends of channel irons 74 carries bearings 83 on its opposite edges, in which are mounted rollers 84 adapted to operate in the vertical guide slots 67 formed in the end sides of the tramper box and in the upper portions of the end gates 27. The end portions of bar or shaft 75 are cylindrical, and mounted thereon are pulleys 85 which are held from endwise displacement by fixed collars. These cylindrical end portions of bar or shaft 75 project from pulleys 85 and engage in vertical guides 87 which are suitably secured to the framing surrounding the tramper box.

The tramper is adapted to be vertically reciprocated by mechanism hereinafter described, and automatic means is provided for rotating the tramper block through an angle of 180° when it approaches the limit of its upward movement in order to throw off the cotton which has been deposited on its upper side during that part of the movement of the tramper below the discharge end of chute 21. This means is shown more particularly in Figs. 9, 10 and 11. Secured to one end of the tramper is a cross arm 88 which terminates in oppositely facing hooks 89. Pivoted to a member 91 of the frame is a bail 92 adapted to oscillate through an arc defined by the fixed pins 93 and 94. Pivoted at 95 to the tramper box is an arm 96 guided by a strap 97 and having fixed adjacent its upper end a rod 98 loosely slidable in a bracket 99 and having a head 100 engaging the bracket to limit its inward movement. A coil spring 101 surrounding rod 98 yieldingly holds the arm 96 in a vertical position.

When the tramper approaches the limit of its upward movement, the bail 92, resting on pin 94, engages the hook portion 89 of cross arm 88, as shown in Fig. 9, so that in the continued upward movement of the tramper, the cross arm and tramper will be rotated in a clockwise direction, as indicated in Fig. 10, one of the rollers 84 mounted on the tramper shaft engaging arm 96 and moving said arm to the left against the tension of coil spring 101. When the tramper has been thus rotated through an angle of somewhat more than 90°, the pressure of arm 96 against roller 84 will quickly throw arm 88

and tramper around through the position shown in Fig. 11 until the arm 88 strikes a rubber cushioning stop S, this movement disengaging the hook end 89 from bail 92, the latter dropping down on pin 94 in position to engage the other hooked end of arm 88 upon the next approach of the tramper toward its upper position. The guide slot 67 communicates with a widened portion adjacent the arm 98 and bail 92, this widened portion permitting rotation of the rollers 84 about the axis of the tramper. Inclined walls of this widened portion are adapted to guide the rollers 84 and position them vertically in the slot 67 with arm 88 vertical and the tramper block 22 horizontal.

It will be noted that the tramper rotates in one direction only, making a 180° rotation each time it completes its upward stroke. This complete turning over of the tramper effectually dislodges the cotton accumulated thereon and lays it smoothly across the tramper box.

The mechanism for reciprocating the tramper will now be described. Supported on a wooden super-structure at the front of the tramper box is a shaft 104 which is driven from any suitable power source. This shaft is mounted in an eccentric bushing 105 and has fixed to its end a friction wheel 106 which is adapted to engage the exterior periphery of a friction wheel 107 or the inner surface of a large friction drum 108, according as the eccentric bushing 105 is in one position or the other. This bushing is adapted to be operated by any suitable manual means. The wheel 107 and drum 108 are integral or suitably secured to one another so that they rotate together. They are fixed on a shaft 109 carrying pinions 110 engaging gear wheels 111 fixed on a shaft 112. Each gear wheel 111 carries near its periphery a laterally projecting pin 113 on which is pivoted the eye of a wire rope 114. The ropes 114 lead from pins 113 upwards over pulleys 115 suspended from the top of a frame 116, thence the ropes extend downwardly and around pulleys 85 on the tramper shaft and then downwardly around pulleys 117 mounted on cross bars 118 of the lower press box, thence upwardly and around the pulleys 85 on the tramper shaft and thence upwardly over pulleys 119 mounted on the top of frame 116, and thence horizontally and forwardly, the rope on one side passing over pulley 120 and that on the other side passing over pulley 121, and finally from pulleys 120 and 121 the ropes pass vertically downward and are attached at their ends to eye bolts secured in a weight 122 which is slidably mounted on a vertical guide rod 123. Obviously, with this arrangement, when the pins 113 are rotating downwardly through an arc of 180°, the tramper is pulled downward, and during the upward rotation of pins 113, the

tramper is pulled up by the action of weight 122.

When the tramper box has received sufficient cotton to form a bale, the gate 64 is retracted, and the tramper is given a long stroke so as to force the cotton positively down into the press box. To accomplish this extra long stroke of the tramper, the mechanism now to be described is provided.

At the outside of and adjacent to each of the gear wheels 111 is a grooved pulley 124 fixed to a freely rotatable shaft 124' which is slidable in bearings 124^a and carries a grooved collar 125. Engaging each collar is a fork at one end of a rod 126 which is pivoted in a bearing 127. The outer ends of rods 126 are rigid with cranks 128 to which are pivoted one end of links 129, the other end of said links being pivoted to a lever 130 which is fulcrumed at 131 and extends downwardly within reach of an operator standing on floor F. Normally the friction pulley 106 is engaged with the small friction wheel 107, and shaft 109 is driven at relatively high velocity. When the tramper is to be given a long stroke for the purpose mentioned, the eccentric bushing 105 is rotated to shift the friction pulley 106 into engagement with the large friction drum 108, which, of course, causes the shaft 109 to be driven at a less velocity. The lever 130 is then operated to shift the grooved wheels 124 inwardly into the path of the wire ropes 114, and accordingly the cable will wind about these pulleys which will increase the stroke of the tramper, causing it to descend into upper section of the press box A positively forcing all the cotton from the tramper box into the press box. The low speed imparted to shaft 109 by engagement of pulley 106 with drum 108 compensates for the increased velocity of the tramper which would otherwise occur, because of the winding of the ropes on the pulleys 124, so that the tramper has the same velocity when making the long strokes, that it has when making the short strokes. The length of the short strokes will, of course, equal the diameter of the circle described by pins 113, whereas the long stroke will be equal to the circumference of this circle of the diameter of pulleys 124.

The cotton discharged from the condenser rolls 139 falls on the chute 21 and slides down the same by gravity into the tramper box B. Associated with the chute is a cut off gate 132 having an arc shape in longitudinal section. This gate is pivoted on the crank portion 133 of a shaft 134 which is journaled in blocks 135 slidably mounted in vertical guides 136. The outer ends of shaft 134 are integral with arms 136' which terminate in eyes 137 threaded through rings 138 which are attached to cords 140 which pass upwardly and over pulleys 141 and thence horizontally and over pulleys 141' and are se-

cured at their lower ends to hooks 142 adapted to engage eye bolts 142'. Normally this cut off gate 132 occupies its upper position, as represented in Figs. 2, 3 and 14, having
 5 been pulled to this position by an operator standing on floor F, grasping the ends of cords 140, and being retained in such position by engaging the hook 142 in eye 142'. The gate is biased to the position shown in
 10 Fig. 12, by gravity and by springs 144 which are secured at their upper ends to the gate and at their lower ends to the sides of the condenser housing, the springs acting to maintain the upper edge of the gate in engagement with the edges of sector plates 145
 15 projecting forwardly from the sides of the condenser housing.

When it is desired to cut off the flow of cotton into the tramper box, the operator releases the cords 140 from eyebolt 142 and lets
 20 go of the cords, whereupon the end gate 132 under the action of gravity and the springs 144 will move from the position shown in Figs. 2, 3 and 14 to the cut off position shown
 25 in Fig. 12, the sector plates 145 guiding the upper edge of the gate and the gate pivoting about the axes 134 and 133 as it moves bodily downwards. In the cut off position shown
 30 in Fig. 12, the gate forms with the chute a pocket for the collection of a predetermined roll of cotton. As the cotton accumulates, it presses against the lower end of the chute and causes the gate to move downwardly in the
 35 chute, the gate having a movement which is the resultant of a clockwise pivotal movement about the axis 133 and a counterclockwise movement about the axis 134. When in this movement the upper edge of the gate 132
 40 has moved downwardly on the sector plates 145 to a point where the said plates do not prevent the rotation of the gate about axis 134, the gate will fall to the position shown
 45 in Fig. 13. In this position the cotton coming from the condenser rolls will pass over the curved wall of the gate and be discharged into the tramper box. When a certain
 50 amount of cotton has been thus discharged into the tramper box, the operator pulls down on cord 140 which rotates the shaft 134 in a clockwise direction and causes the gate
 55 132 to assume the position shown in Fig. 12, the upper edge thereof engaging the sector plates 145 and the springs 144 being placed under a slight tension; then, upon further
 60 pulling of cords 140, the gate is raised bodily in the vertical guides 136, springs 144 maintaining the upper edge of the gate engaged with the sector plates, and the gate finally assumes its normal position as shown in Figs.

2 and 14.
 The function or purpose of the gate 132 is to collect the cotton ginned at the beginning of a bale so as to enable the same to be placed
 65 inside the bale, this initial part of the bale being commonly known in the art as "the

roll". It is desirable that "the roll" be located inside the bale rather than at the end thereof as it is ordinarily of a different grade of cotton. The gate 132 therefore is let down
 70 into the position shown in Fig. 12 at the beginning of the bale to catch the "roll" and then, when a desired amount of cotton has been discharged over the gate (as indicated in Fig. 13) into the tramper box, the gate is
 75 raised, permitting the "roll" to discharge into the tramper box, the remainder of the cotton forming the bale being discharged into the box above the "roll", so that the latter will occupy an intermediate position in
 80 the bale, where it cannot be readily sampled.

The provision of this cut off gate enables the gins to be changed instantly from one bale to another, as the first part of the bale is taken care of while the cotton in the
 85 tramper box is being discharged into the press box, so that ginning does not have to be discontinued while the cotton is being transferred from the tramper to the press box. This feature of the invention effects a
 90 saving of from two to five minutes per bale, as compared with the operation of presses heretofore in use, very materially increasing the output in the run of a day.

Having thus described the invention, what is claimed as new and desired to be secured
 95 by Letters Patent is:

1. In a press, the combination with two vertically aligned compartments, of a sliding door separating the compartments, a ram
 100 operating in the lower compartment, a tramper operating in the upper compartment, means for continuously feeding cotton into the upper compartment, and means for rotating the tramper as it approaches the end
 105 of its upward stroke to discharge the cotton deposited thereon.

2. In a press, the combination with two vertically aligned compartments, of a sliding door separating the compartments, a ram
 110 operating in the lower compartment, a tramper reciprocating in the upper compartment, means for continuously feeding cotton into the upper compartment, and means for turning the tramper completely over as it
 115 approaches the end of its upward stroke, whereby the cotton deposited thereon from the feeding means will be discharged therefrom.

3. In a press, the combination with two vertically aligned compartments, of a sliding
 120 door separating the compartments, a ram operating in the lower compartment, a tramper reciprocating in the upper compartment, and means to give the tramper at will a relatively long stroke in order to force the
 125 cotton positively from the upper into the lower compartment.

4. In a press having a tramper box, a tramper having a shaft guided for vertical
 130 reciprocation therein, means for operating the

tramper comprising a driven wheel, a pin fixed thereon, a flexible member connecting the pin to the tramper shaft, a pulley coaxial with said wheel, and manual means for moving the pulley into the path of said flexible member whereby said flexible member will wrap about said pulley and cause the tramper to make a relatively long stroke.

5. In a press having a tramper box, a tramper guided for vertical reciprocation therein, and means for operating the tramper comprising a driven wheel, a pin fixed thereon, a flexible member having one end pivoted on the pin, guide pulleys for said members and a connection between said member and said tramper.

6. In a press having a tramper box, a tramper guided for vertical reciprocation therein, and means for operating the tramper comprising a driven wheel, a change speed gearing for driving the wheel at two velocities, a laterally projecting pin fixed to said wheel adjacent the periphery thereof, a flexible cable pivoted on the pin, guide pulleys over which the cable passes from the pin to a connection with the tramper, a weight fixed to the end of said cable, the parts being arranged so that the tramper is pulled downward by said wheel and is pulled upward by said weight, a pulley slidably mounted adjacent the wheel, and manual means for sliding the pulley into the path of said cable, whereby the tramper may at will be given a relatively long stroke.

7. In a press having a tramper box, a tramper having a shaft guided for vertical reciprocation, pulleys mounted on the shaft near each end thereof, and means for operating the tramper comprising two driven wheels, a pin laterally projecting from each wheel near the periphery thereof, a cable pivoted to each pin, and means for guiding the cables so that they extend upwardly from the pins thence downwardly below the tramper box, thence upwardly and around the pulleys on said tramper shaft, thence upwardly, thence forwardly and finally downwardly, and a vertically slidable weight to which the ends of both cables are fixed.

8. In a press having a tramper box, a tramper having a shaft guided for vertical reciprocation, a pulley mounted on the shaft, and means for operating the tramper comprising a driven wheel, a pin laterally projecting from the wheel, a cable pivoted to the pin, means for guiding the cable so that it extends upwardly from the pin, thence downwardly, thence upwardly and around said pulley and thence upwardly and finally downwardly, and a weight secured to the end of said cable.

9. In a press having a tramper box, a tramper having an axial shaft, vertical slots in the tramper box through which said shaft projects, vertical channel guides engaged by

the ends of said shaft, pulleys mounted on said shaft between said box and guides, flexible cables passing around the pulleys, rotating pins to which corresponding ends of the cables are pivoted, and a weight secured to the other ends of the cables, the cables being so guided that the tramper is moved downwardly by the action of the pins and upwardly by the action of the weight.

10. In a press having a tramper box, a tramper guided for vertical reciprocation therein, a cross arm secured to the tramper extending at right angles thereto and terminating in oppositely facing hooks, a pivoted bail adapted to engage said hooks and turn the tramper through an angle of 90° as the tramper approaches the limit of its upward stroke, a substantially vertical spring pressed arm and two abutments on the tramper located respectively on opposite sides of the axis thereof coacting with said pivoted arm to continue the turning of the tramper through an angle of 90°, whereby the tramper is turned completely over each time it approaches its upper limit of movement.

11. In a press, a vertical press box and a flooring through which the box extends, front and rear doors for the box hinged adjacent their lower ends on horizontal axes above the flooring, a rod pivoted to each door and extending downwardly and outwardly through slots formed in the flooring, a horizontal shaft pivoted in bearings secured to the under side of the flooring and having an aperture through which the rod passes, arms secured to the shaft, a cross head carried at the outer ends of the arms having an aperture through which said rod passes, and a coil spring surrounding the rod and bearing at its ends respectively against the cross head and an abutment secured to the rod.

12. In a press, a box having hinged front and rear doors and hinged end gates, flaring metal sockets secured to the doors and metal projections on the end gates adapted to engage said sockets as the doors are closed to center and lock the gates.

13. In a press, a box having a door hinged adjacent its lower end and an end gate also hinged adjacent its lower end, a transverse locking sill secured to the door, a metal socket secured to the inner face of the sill adjacent each end thereof, and a transverse metal strap secured to the gate having projecting ends adapted to engage said sockets when the door is closed.

14. In a press, a box having a door hinged on a horizontal axis adjacent its lower end and an end gate also hinged on a horizontal axis adjacent its lower end, a flaring metal socket secured to one of said parts and a metal projection secured to the other part adapted to engage the socket when the door is moved to closed position.

15. In a press having a tramper box and a

tramper reciprocating vertically therein, a transverse horizontal shaft rotatable in bearings secured to a side of said box, arms radiating from said shaft and projecting into said box through vertical slots formed there-
 5 through, said arms being curved so as to dispose their concave sides upwardly in the box, and means permitting free rotation of the shaft in one direction only permitting the arms in the box to rotate downwardly but
 10 locking them from upward movement.

16. In a cotton press having a tramper box and a chute connecting said box with a condenser, a cut off gate adapted to form with the
 15 chute a pocket for the collection of a predetermined amount of cotton, said cut off gate having an arc form in longitudinal section with its concave face disposed towards the condenser, a shaft having a crank portion
 20 which extends across the inner face of said gate and is pivoted in bearings secured to the gate, blocks at the sides of the gate in which said shaft is journaled, vertical guides for the blocks, crank arms secured to the outer
 25 ends of the shaft, flexible members secured to said crank arms for raising the gate, sector plates projecting from the condenser housing adapted to engage the upper edge of the gate, and coil springs secured at their
 30 upper ends to the gate near the upper end thereof and secured at their lower ends to the condenser housing.

17. In a cotton press having a tramper box and a chute connecting said box with a condenser, a cut off gate adapted to form with the chute a pocket for the collection of a pre-
 35 determined amount of cotton, said gate having an arc-form in longitudinal section with its concave side disposed towards the condenser, a block at the side of the gate, a vertical guide in which the block is slidable, an arm pivotally supporting the gate and also
 40 pivotally mounted in the block, means for raising the block and gate, a curved guide for the upper edge of the gate, and a spring holding said edge engaged with said guide.

18. In a cotton press having a tramper box and a chute through which cotton is discharged into the box from a condenser, a cut
 50 off gate adapted to form with the chute a pocket for the collection of a predetermined amount of cotton, said gate having an arc-form in longitudinal section with its concave side disposed away from the tramper box, means for mounting the gate so that it can
 55 rotate about two horizontal axes and can also be raised and lowered bodily, a guide for the upper end of the gate, a spring holding said end against said guide, the parts being
 60 so constructed and arranged that after the gate has been lowered to operative position across the chute and the pocket formed thereby with the chute has become filled with cotton, the pressure of the cotton will cause
 65 the gate to move about its pivotal axes down-

wardly in the chute until its upper end is released by said guide, whereupon said end will fall, permitting cotton coming from the condenser to pass over the curved surface of the gate and into the tramper box.

19. In a cotton press having a tramper box and chute adapted to discharge cotton into said box, a cut off gate adapted to form with the chute a pocket for the collection of a
 70 predetermined amount of cotton, means for mounting the gate so that it can rotate about two horizontal axes and can also be raised and lowered bodily, and a guide for the upper end of the gate, the parts being so constructed and arranged that after the gate
 75 has been lowered into operative position across the chute and the pocket formed thereby has become filled with cotton, the pressure of the cotton will cause the gate to move about its pivotal axes downwardly in the chute until its upper end moves free of the
 80 guide, whereupon said end will fall permitting the cotton coming from the condenser to pass over the gate and into the tramper box.

20. In a cotton press, a press box having front and rear doors hinged adjacent their lower ends, locking sills extending across the upper ends of the doors and projecting laterally from the box, and fixed abutments
 85 extending inside said projecting ends and adapted to engage said ends when the doors are closed to center said box.

21. In a cotton press having a tramper box, a chute through which cotton is fed into said box, a normally inoperative gate associated with said chute for interrupting the flow of cotton into said box, manual means to
 90 move said gate to operative position to accumulate a predetermined roll, automatic means to move said gate into such position that the roll is retained while the cotton continues to flow into the tramper box, and means for returning said gate to inoperative position.

22. In a cotton press having a tramper box and a chute adapted to discharge cotton into said box, a gate associated with said chute and normally held in an inoperative position, means for moving the gate across the
 95 chute to interrupt the flow of cotton into the tramper box, means governed by the pressure of cotton against said gate to move the latter into such a position as to retain the accumulated cotton while permitting cotton to
 100 flow into the tramper box, and means for moving the gate to its original inoperative position to permit the accumulated cotton to pass into said box.

23. In a cotton press, in combination, a tramper box, a chute discharging into said box, means for feeding cotton continuously into said chute, a normally inoperative gate associated with said chute, manual means to
 105 move said gate to operative position for in-

interrupting the flow of cotton into said tramper box to accumulate a roll, automatic means operating when the roll has reached a predetermined size to operate said gate so that
5 the roll will be retained while cotton continues to pass into said tramper box, and manually operable means for moving said gate to inoperative position.

24. In a cotton press having a tramper box,
10 means for feeding cotton into said box, a normally inoperative manually controlled gate for interrupting the flow of cotton into said box for the purpose of accumulating a predetermined roll, automatic means governed
15 by the pressure of the roller to move said gate into such position that the roll is retained while the cotton continues to flow into the tramper box over said gate, and means for returning said gate to inoperative position.
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In testimony whereof I hereunto affix my signature.

RALPH BELL.

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