

(No Model.)

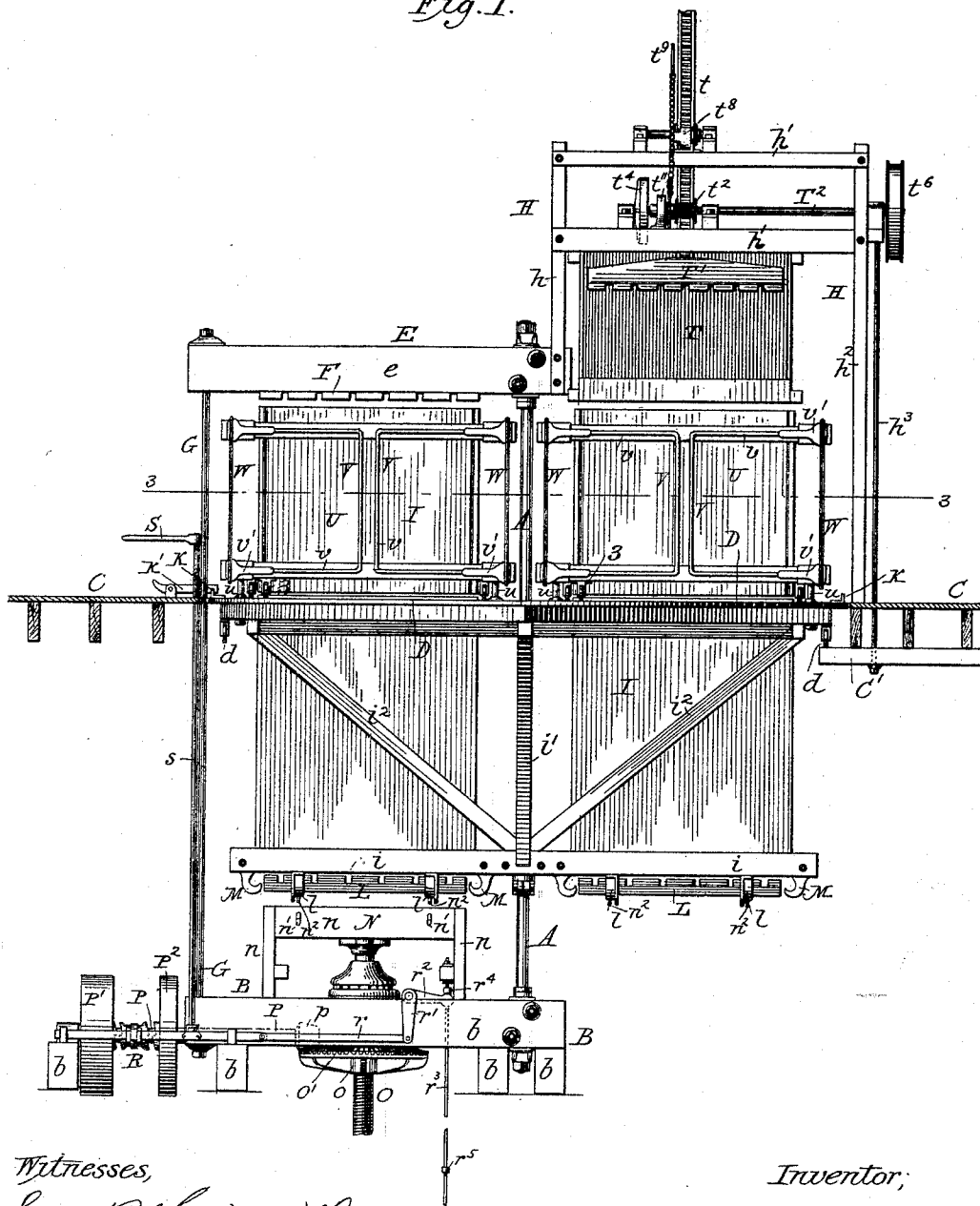
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F. GARRAUX.
COTTON PRESS.

No. 498,052.

Patented May 23, 1893.

Fig. 1.



Witnesses,
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Inventor;
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by his attorneys,
Baldwin, Davidson & Wright.

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COTTON PRESS.

No. 498,052.

Fig. 3. Patented May 23, 1893.

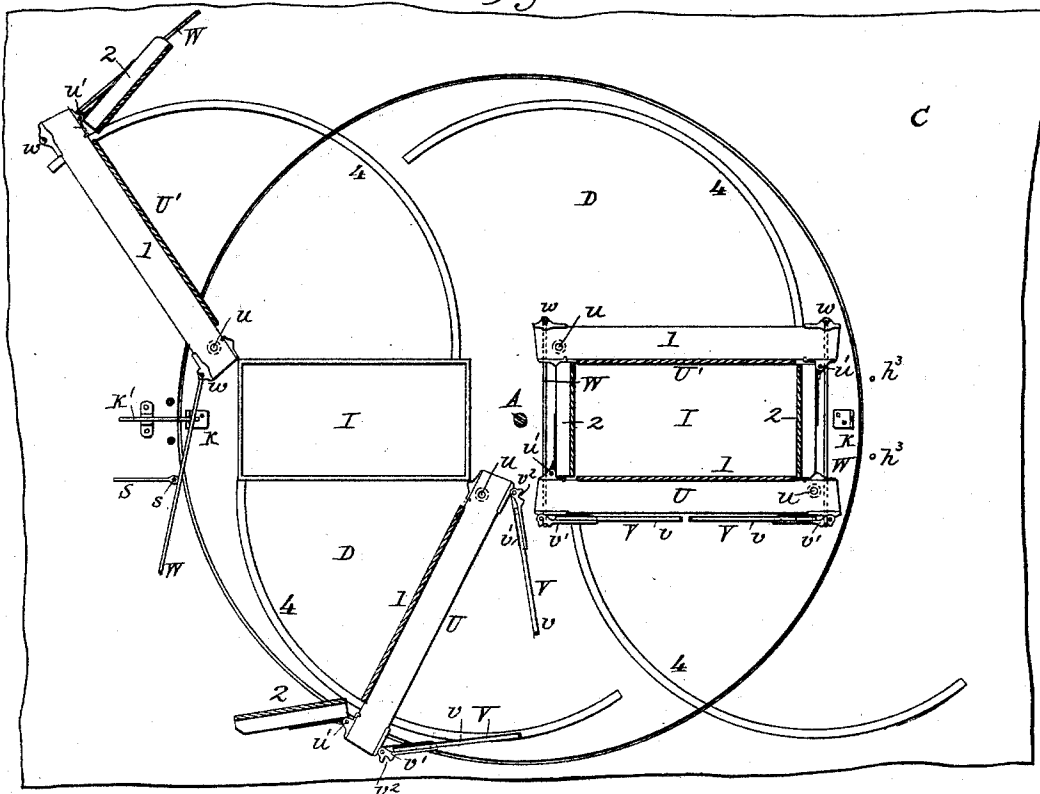
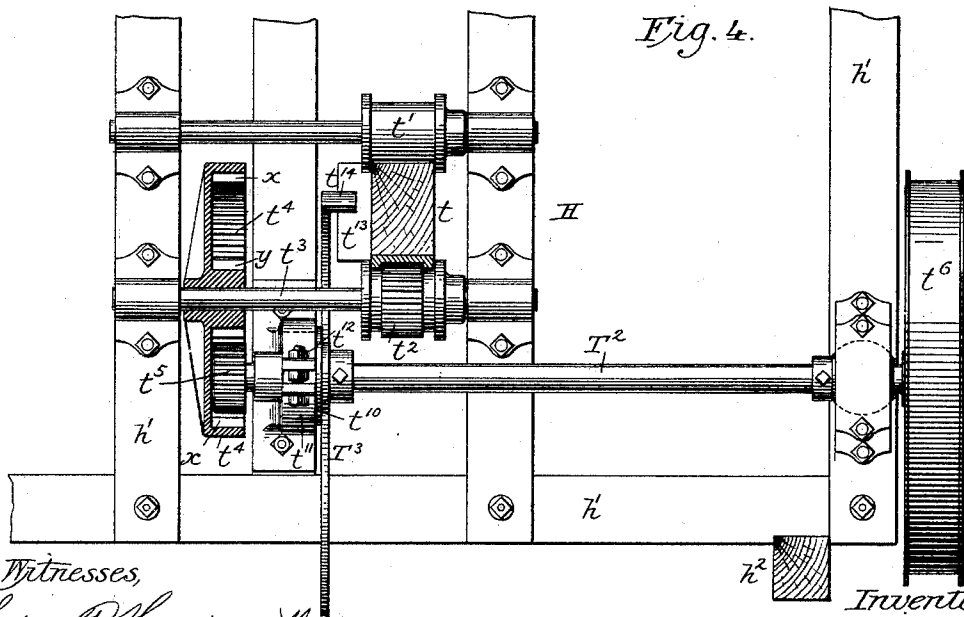


Fig. 4.



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Fig. 5.

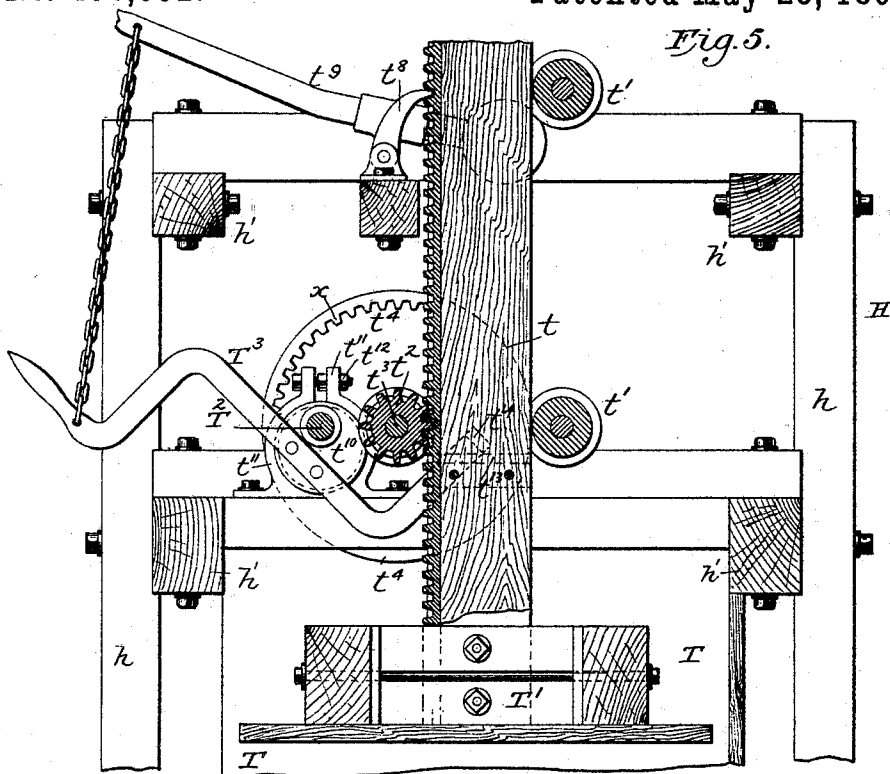


Fig. 6.

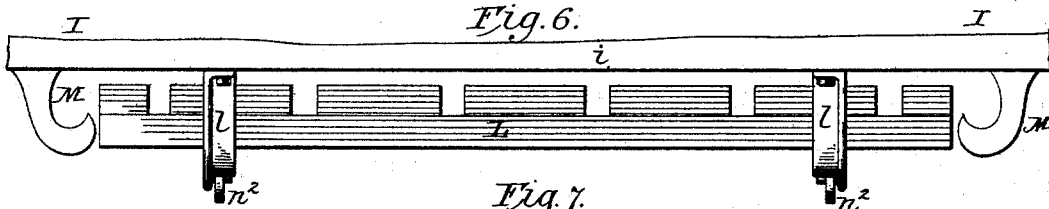
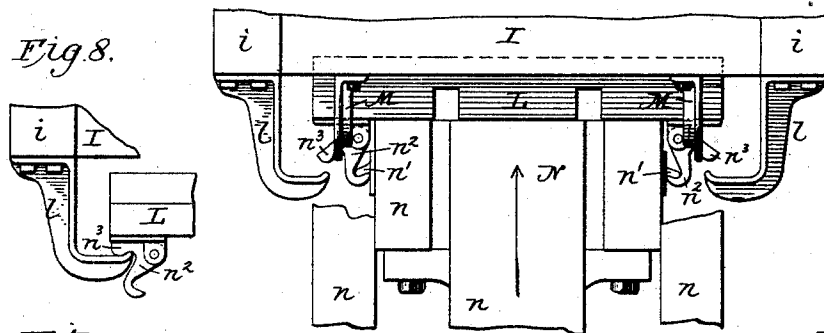


Fig. 7.

Fig. 8.



Witnesses;

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(No Model.)

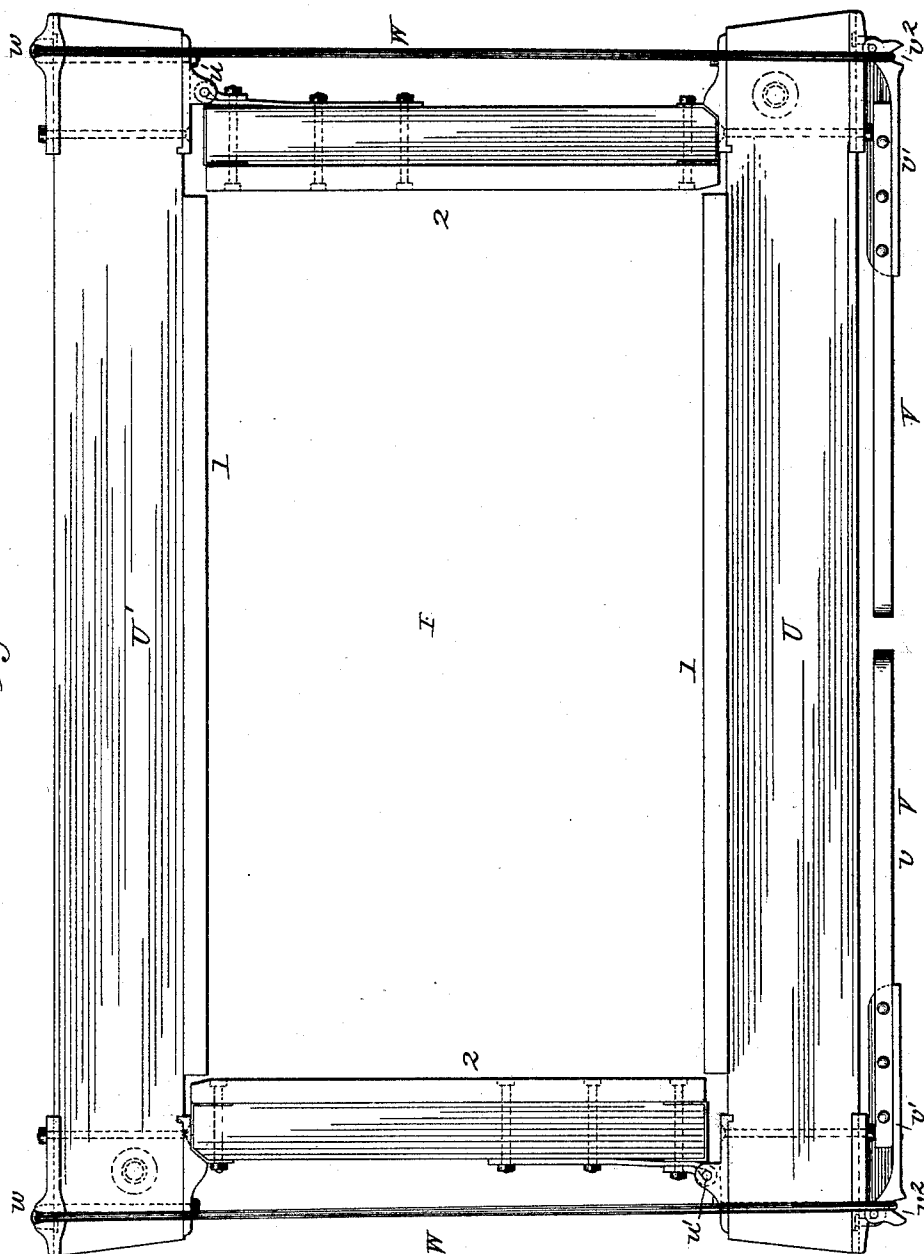
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F. GARRAUX.
COTTON PRESS.

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Patented May 23, 1893.

Fig. 9.



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COTTON PRESS.

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Fig. 11.

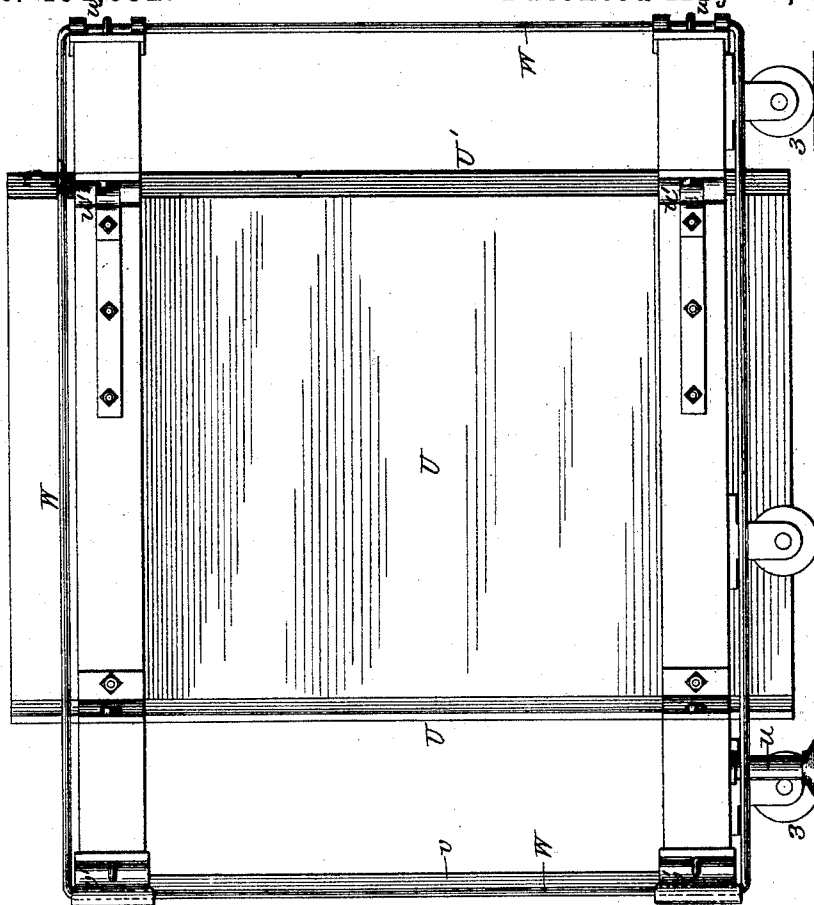
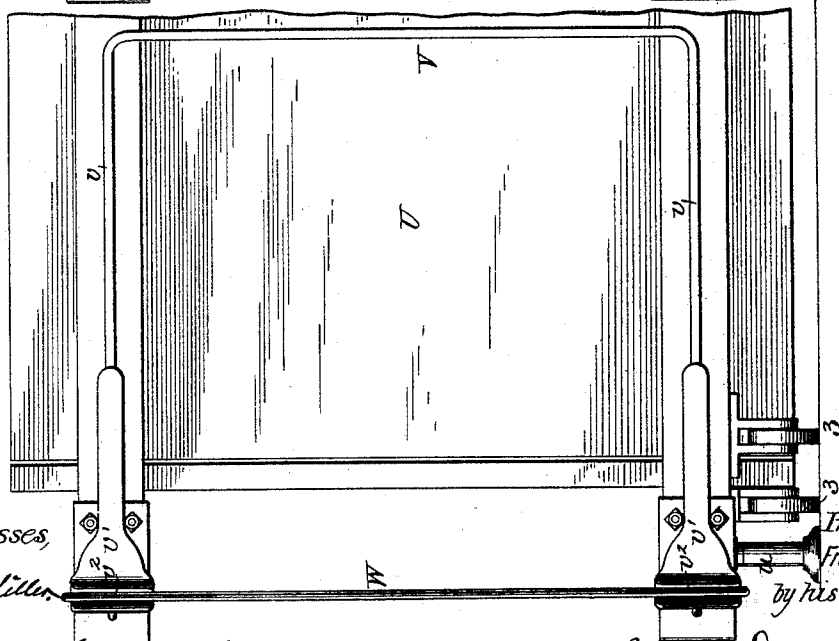


Fig. 10.



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UNITED STATES PATENT OFFICE.

FREDERICK GARRAUX, OF ATLANTA, GEORGIA, ASSIGNOR TO THE
WINSHIP MACHINE COMPANY, OF SAME PLACE.

COTTON-PRESS.

SPECIFICATION forming part of Letters Patent No. 498,052, dated May 23, 1893.

Application filed October 5, 1892. Serial No. 447,910. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK GARRAUX, a citizen of the United States, residing at Atlanta, in the county of Fulton and State of Georgia, have invented certain new and useful Improvements in Cotton-Presses, of which the following is a specification.

My invention more especially relates to that class of cotton presses in which a pair of baling chambers or boxes are pivotally supported on a central post or standard and are adapted to be swung on said center post in order that each chamber may alternately assume a position to receive a charge of cotton, which is packed by a tramper, and then move to another position over a compressing plunger which forms the tramped cotton into a bale ready for the ties.

My invention involves certain improvements in the general organization of the press and in the details of construction, as will be hereinafter set forth.

The object of one part of my invention is to improve the operating mechanism of the tramper, whereby it may act more efficiently, more rapidly and with increased power.

Another object is to construct the upper part of the bale box or chamber in such manner that it may more quickly and more easily be opened and closed, more securely locked and more expeditiously unlocked.

A further object of my invention is to provide improved means for supporting the follower when separated from the plunger, and novel devices for locking the follower to the plunger when they are operating together.

Further objects of my invention are to provide improved means for starting and stopping the plunger, and novel devices for preventing the engagement or entanglement of the cloth covering of the bale between the plunger and the follower.

My improvements are shown in the accompanying drawings embodied in a cotton press of a well-known class.

Some of my improvements may be used in cotton presses of other classes, and indeed in many classes of presses not specially designed for packing cotton.

Unless otherwise specified, the mechanism is of usual well known construction.

Figure 1 shows a front elevation of my press. Fig. 2 is a side elevation thereof. The remaining views are on an enlarged scale. Fig. 3 is a transverse section on the line 3—3 of Figs. 1 and 2. Fig. 4 is a detail view, partly in transverse section, of the tramper-operating mechanism. Fig. 5 is a vertical section of the same mechanism. Fig. 6 is a detail view showing the means for supporting the follower when separated from the plunger, and the devices for holding the bale covering. Fig. 7 is a detail view showing especially the means for connecting the follower to the plunger. Fig. 8 is a detail view showing parts of the same mechanism. Fig. 9 is a plan view of one of the baling chambers or boxes, showing clearly the mechanism for opening and closing and locking the sides or doors thereof. Fig. 10 is a front elevation of one end of one of the boxes; and Fig. 11 is an end view thereof.

A central supporting post or column A, is securely fastened to a foundation B, made of strong beams or timbers *b*, in any suitable way. The standard extends through the floor C, of the gin house, and carries a circular platform D, which is on a level with, and really constitutes a continuation of, the gin floor, but is separated therefrom and is pivoted on the standard so as to be able to revolve thereon. At the top of the standard is securely fastened a heavy frame E, composed of stout timbers *e*, and carrying the head block F, of the press. Vertical rods G, extend from the head block frame to the foundation frame, and in connection with the center post securely hold the head block frame against all strains.

The tramper frame H, is constructed in any preferred way, suitable to support the operating mechanism of the tramper. As shown, vertical timbers *h*, rise from the inner end of the head block frame, and support at their upper ends the cross pieces *h'*, which at their opposite ends are secured to the posts *h²*, rising from the gin floor. A rod *h³*, also secured to the gin floor, is fixed to the tramper frame, and serves to tie it in place and hold it against vertical strain when the tramper is in operation.

The baling chambers or boxes I, are simi-

lar in construction, and extend through the circular platform D. The beams i , at the lower ends of the boxes are securely fastened and tied together, and diagonal or inclined braces i' , and i'' on opposite sides of the center post, connect these braces with the platform. Rollers d , secured on diametrically opposite sides of the platform are adapted to alternately bear on the bracket C', of the gin floor. One of the rollers is shown in Fig. 1, as bearing on this bracket, and when in this position, the platform is supported and strengthened while the tramper is operating. The roller on the opposite side is not supported, as the platform on this side is not subjected to a downward strain. Over each roller, is a notched plate K, with which a foot lever K', on the gin floor, is adapted to engage. Only one such foot lever or latch is employed, and this engages with the notched plate on the left-hand side of the press, as shown in Fig. 1, and when thus engaged, there is always a baling chamber under the tramper and one over the plunger. The latch automatically engages with a notched plate when the bale boxes are swung around, and the operator may, by putting his foot on the end of the lever, release the latch and then by giving the boxes a push and taking his foot from the latch, the position of the two baling boxes or chambers may be reversed.

The baling chambers are open at top and bottom, as usual, and each has a follower or platen L, constructed in the usual way, and adapted to move from top to bottom of the press. When not engaged by the plunger, the follower is supported by brackets l , secured to the under sides of the bottoms of the bale boxes and projecting a short distance inwardly beneath the follower, as clearly shown. Preferably, I employ four such brackets under each baling chamber.

In order that the edges of the cloth bale cover, or bagging usually employed, may not become entangled with the plunger, I provide catches or hooks M, at the bottom of each press, which receive the edges of the cloth, and prevent its hanging down below the bottom of the follower. Four such hooks or catches for each baling chamber will be sufficient and they may be located on opposite sides at the ends of the boxes, as indicated in Figs. 1 and 2.

The plunger N, is supported in the foundation framing B, and is adapted to be moved vertically by suitable mechanism. The plunger proper may be constructed of suitable strong and stout timbers n , and it is connected with a screw O, carrying a nut o , provided with gear teeth o' , meshing with a pinion p , on a driving shaft P. This driving shaft is mounted in suitable bearings and carries two pulleys P', P², both of which may be belted to any suitable prime mover. The pulleys are loose on the shaft and are adapted to be engaged alternately by a clutch R, sliding on a feather

of the shaft. When the pulley P', is connected with the driving shaft, the plunger is moved upwardly, while the pulley P² is adapted to move the plunger downwardly. A rod r , is connected with the clutch, and with a bell crank lever r' , the arm r'' , of which is connected with a rod r^3 , carrying stops or collars r^4 , r^5 . The rod r^3 , is secured to the plunger and is adapted to move vertically therewith. The arrangement is such that when the plunger has reached the limit of its upward or its downward movement, the collars acting upon the bell crank lever automatically throw the clutch out of engagement with the pulleys. These devices are not intended to reverse the action of the press, as this is done by the operator by means of a handle S, secured to a vertical rod s , engaging with the rod r . By this handle the clutch may be thrown into engagement with either the pulley P' or P², to cause the plunger to rise or fall.

The plunger is provided with catch fingers n' , which are adapted to engage with hooks n^2 , pivoted to the under side of the follower L. Four such fingers and hooks may be conveniently employed, but a greater or less number may be made to do the work. When the plunger is moved upwardly, and comes into contact with the follower, the catches n^2 , are automatically moved outwardly on their hinges and the hooks engage with the under sides of the fingers, as indicated in Fig. 7. By this means, the follower is locked to the plunger. When the plunger moves upwardly it, of course, carries the follower with it, but when it moves downwardly, were it not for some such locking devices, the follower might get caught in the baling box and become separated from the plunger, but by means of the locking devices or catches just described, the follower is made to descend co-incidentally with the plunger. As soon, however, as the plunger has reached the lower end of the bale box, the arms n^3 , of the catches n^2 , abut against the inner ends of the brackets l , as indicated in Fig. 8, and are caused to assume the positions shown in that figure, and are separated from the catch fingers, so that the plunger may now be moved downwardly a short distance to the limit of its downward stroke, and separated from the follower.

In the tramper frame is a box T, arranged directly over a baling chamber, when in position for receiving a charge of cotton. The box T, is open at one side, and the cotton is fed in through this open side, and is delivered to the baling chamber. A tramper head or platen T', moves vertically in the box T, and in the baling chamber arranged below it. The tramper is secured to a vertical rack bar^t, extending upwardly through the tramper frame, on one side engaging with flanged guide rollers t' , and on the other side with a flanged cog wheel or pinion t^2 . The pinion t^2 , is secured to a shaft t^3 , which carries a large

driving gear wheel t^4 , having teeth x , within its peripheral flange and teeth y , on its hub.

The main driving shaft T^2 , of the tramper operating mechanism carries a pinion t^5 , adapted to engage with either the teeth x or y . At its outer end, the shaft carries a flanged belt pulley t^6 . A ball bearing t^7 , connects the shaft to the tramper frame near the pulley t^6 , so that the shaft may have a slight movement at this point to shift the pinion t^5 , to engage with either the teeth x or y . When elevated, the tramper is held by a pawl t^8 , engaging with the teeth on the rack bar t , and a counterbalanced lever t^9 , tends to hold the pawl in engagement with this bar. As soon, however, as the pawl is disengaged from the rack bar, the tramper will fall through the tramper box and on to the cotton in the baling chamber.

To shift the pinion t^5 , so that it shall be disengaged from the teeth x or y , or made to engage with either the teeth x or y , I employ a lever T^3 , secured to an eccentric t^{10} , through which the shaft T^2 , extends. This eccentric is mounted in a housing t^{11} , secured to the tramper frame, and provided with adjusting devices t^{12} . As the lever T^3 , is elevated, or depressed, the shaft is suitably shifted. When depressed, the pinion is made to engage with the teeth x , on the periphery of the wheel t^4 , and the tramper is moved downwardly at a comparatively slow speed, but with great power. When the lever is elevated, the pinion is made to engage with the teeth y on the hub of the wheel t^4 , and the tramper is elevated rapidly.

In order to automatically disengage the pinion t^5 , from the teeth y , when the tramper has reached the limit of its upward movement, I employ a stop t^{13} , on the rack bar t , which engages an arm t^{14} , on the inner end of the lever T^3 . This stop causes the lever to move the eccentric in such a manner as to separate the pinion from the teeth y , but does not move it far enough to cause it to engage with the teeth on the periphery of the wheel; the tramper will thus be stopped and will neither move up nor down, and when thus disengaged, the pawl t^8 , engages the rack bar and holds the tramper elevated.

When sufficient cotton has been supplied to the baling chamber, the lever t^9 , is operated to disengage the pawl t^8 , from the rack bar, and the tramper falls. If the lever t^9 be released, it will cause the pawl t^8 to engage the teeth of the rack bar, and a further downward movement be prevented, but in order that the pawl may be disengaged from the rack bar as soon as the pinion t^5 is made to engage with the teeth x , of the wheel t^4 , to further depress the tramper, I employ a chain t^{15} , connecting the lever t^9 , with the lever T^3 , and thus the pawl t^8 , cannot interfere with the operation of the machine, and there will be no danger of the pawl's stripping the teeth from the rack bar, impeding the descent of the tramper, or in any way hindering the proper operation of the mechanism.

The upper end of each baling chamber is formed in section U, U', each section comprising a front piece or back piece 1, and an end piece 2. Each section is hinged on a vertical pivot u , mounted on the platform D. When the sections are closed together, as indicated on the right-hand side of Fig. 3, they constitute the upper portion of the baling chamber, but when open, as shown on the left-hand side of Fig. 3, there is a free space to allow of the compressed bale being tied in the usual way, and moved off laterally over the platform D, and the gin floor.

The end pieces 2 are hinged at u' , to castings on the ends of the front and rear pieces 1, and rollers 3 are employed to separate the sections of the box, so that they may be readily opened and closed. These rollers may be run on tracks 4, as indicated. At each end of the front piece 1, is hinged a handle V, adapted to move about a vertical pivot. Each of these handles may be composed of a bent rod v , secured at its ends to end pieces or castings v' , and these castings carry the hinges of the handles.

Tie rods W, hinged at w to the back piece 1, are adapted to extend over the ends of the front piece, and to enter notches v^2 , in the end pieces or castings v' . When the handles are closed or lie flat against the front piece, as shown at the right-hand side of Fig. 1, the tie rods are held inside the pivots of the handles, and the sections of the box are firmly held together, and locked, and no strain inside the box can unlock the sections, but when the handles are moved outwardly, away from the front piece, as shown at the left-hand side of Fig. 3, the notches v^2 , are moved past or outside of the handles, and the strain inside the box causes the tie rods to separate from the notches, and the sections swing open, as indicated, and the bale may be removed. By then moving the box sections together, causing the tie bars to engage with the notches v^2 , and moving the handles inwardly, so that they shall assume the position shown in Fig. 9, or at the right-hand side of Fig. 3, the sides will be securely locked together again.

The operation of the press has been indicated in the foregoing description, but, briefly stated, the operation is as follows: When the mechanism is in the position shown in Fig. 1, the lint cotton is fed into the box T, and into the baling chamber over a section of bagging on the follower L, until a sufficient quantity has accumulated. Then the lever t^9 , is depressed to disengage the pawl t^8 from the rack bar. The tramper then falls as far as the cotton will allow it. Then the lever T^3 , is depressed, and power is applied in the manner hereinbefore explained, to further depress the tramper until the cotton is compressed sufficiently. The lever T^3 , is then raised and the gearing shifted to cause the tramper to be raised to the position indicated in Fig. 1. The stop then acts on the lever T^3 , to cause the disengagement of the pinion t^5 from the rack, and

the pawl t^2 , holds the tramper in an elevated position. Another and successive charges of cotton may then be supplied and tramped in the same way, until a sufficient amount has been tramped to form a bale. The baling box with the tramped cotton is then moved into position over the plunger N, and this is caused to rise and compress the tramped cotton into a bale. While the plunger is operating, cotton may be tramped in the baling chamber on the opposite side of the center post, as is usual in this class of presses. As the plunger moves upwardly, it engages the follower L, and the catches n' , n^2 , engage each other and securely lock the follower to the plunger. When the follower and plunger have reached the limit of their upward movement, the collar r^5 , moves the bell crank lever and causes the clutch R, to be disengaged from the driving pulley. Then the sections of the baling chamber above the gin floor are unlocked and swung open and the bale removed. By means of the handle S, the clutch is made to engage with the pulley P^2 , and the follower and plunger are moved downwardly. While they are descending, a sheet of cloth or bagging is placed over the follower, and this constitutes the bottom section of the packing in the bale next to be formed. When the plunger has reached the bottom of the baling box, it is automatically separated from the follower, as hereinbefore described, and after having moved a short distance farther, the collar r^4 , engages the bell crank lever, and causes it to operate the clutch R, to disengage it from the pulley P^2 , and thus the follower is stopped. These operations are successively repeated to form successively the desired number of bales.

I claim as my invention—

1. The combination of the central post or support, a bale box on each side of the post, a circular, rotary platform mounted on the post intermediate the upper and lower ends of the bale boxes, the floor C, on a level with the platform, the tramper frame above the bale boxes, a bracket C' below the floor, a tie rod securing the upper part of the tramper-frame with the bracket C' , and rollers on the platform adapted to alternately bear on the bracket C' , the organization being such that the tramper-frame is securely fastened to the bracket, and when the tramper is operated, the strain on the bale box in which the tramping is being done is taken by the roller which bears on the bracket.

2. The combination of a baling chamber, a tramper-head or platen, a rack bar secured thereto, a pawl engaging with the rack bar, a pinion engaging with the rack bar, a driving shaft, a pinion thereon, a driving wheel connected with the pinion which engages with the rack bar and which has two sets of teeth, as described, a stop carried by the rack bar, and connections between the stop and the driving shaft for automatically shifting the shaft to

disengage the driving pinion from the toothed driving wheel.

3. The combination of the tramper-head, the vertical rack bar secured thereto, a pinion engaging with the rack bar, a driving wheel having two sets of teeth, a shaft connecting said wheel with the pinion which engages with the rack bar, a driving shaft T^2 , a pinion thereon adapted to engage with either set of teeth on the driving wheel, an eccentric in which said shaft is mounted, and a lever for shifting said eccentric to shift the pinion on the driving shaft, substantially as set forth.

4. The combination of the tramper-head or platen, the vertically moving rack bar connected therewith, the counter-weighted pawl engaging with the rack bar, the pinion also engaging with the bar, a driving shaft for said pinion, a lever operatively connected with the driving shaft to throw it into and out of gear with the pinion, and connections between this lever and the pawl, whereby when the lever is depressed to cause the tramper to descend, the pawl is disengaged from the rack bar.

5. A baling chamber comprising a side piece hinged at one end on a vertical pivot, an end piece hinged at one end to that end of the side piece opposite to the hinged end, another side piece parallel with the first mentioned side piece and hinged at the end diagonally opposite the hinged end of said first mentioned side piece, an end piece hinged to the outer end of said parallel side piece, and means for securing the side pieces and end pieces together when assembled, substantially as set forth.

6. A baling chamber comprising two parallel side pieces hinged at diagonally opposite corners of the baling chamber on vertical pivots, and each carrying at its outer end an end piece hinged on a vertical pivot in combination with means for securing the side pieces and end pieces together when assembled, substantially as described.

7. A baling chamber comprising a side piece hinged at one end on a vertical pivot, an end piece hinged at one end to that end of the side piece opposite to the hinged end, another side piece hinged at one end and having hinged at its opposite end an end piece, means for securing the sides and ends together when assembled, and rollers secured to the baling chamber sections at their lower ends and adapted to bear on a suitable support.

8. A baling box or chamber having the upper part formed in sections with the ends hinged to the front and rear sides, the handles hinged to the front side and the hinged tie bars or loops adapted to engage with the inner ends of the handles near their vertical pivots, in such manner that when the handles are closed, the tie bars are securely locked in position, but when the handles are moved

outwardly, the adjacent ends of the tie bars are moved beyond or outside of the pivots of the handles and are automatically disengaged therefrom.

- 5 9. The combination of a baling chamber, a follower, means for supporting the follower, a plunger, means for moving it vertically, and locking devices for securing the plunger to the follower.
- 10 10. The combination of a baling chamber, a follower, means for supporting the follower, a plunger, means for moving it vertically, and automatic locking devices for securing the plunger to the follower.
- 15 11. The combination of a baling chamber, a follower, means for supporting the follower, a vertically moving plunger, locking devices

carried thereby, and locking devices carried by the follower adapted to automatically engage with the locking devices carried by the 20 plunger.

12. The combination of a baling chamber, a follower, means for supporting the follower, a vertically moving plunger, locking devices for connecting the plunger with the follower, 25 and means for automatically locking said devices when the plunger has reached the bottom of the baling chamber.

In testimony whereof I have hereunto subscribed my name.

FREDERICK GARRAUX.

Witnesses:

LLOYD B. WIGHT,
CHAS. F. SENSNER.