

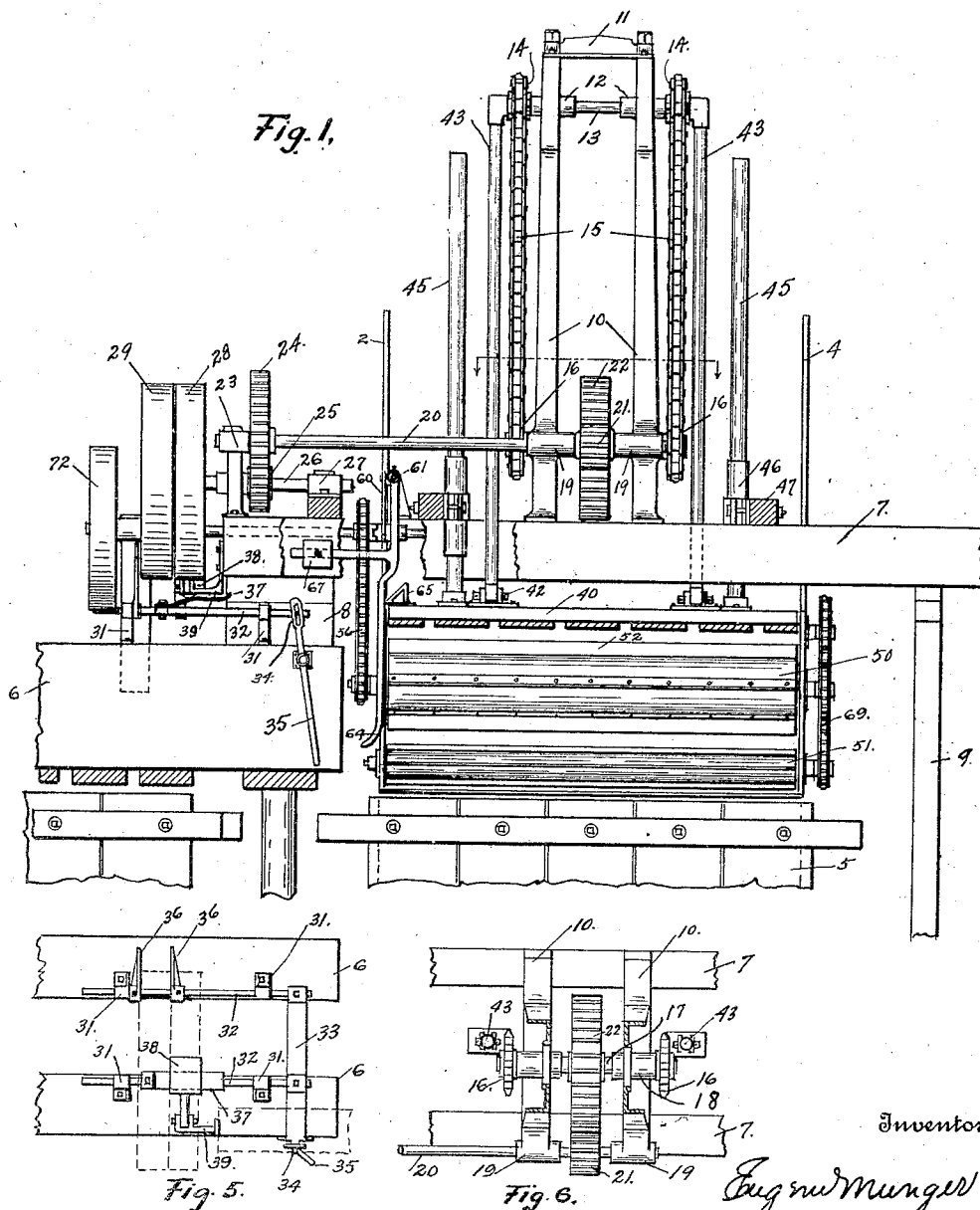
E. MUNGER.  
COTTON TRAMPER.

APPLICATION FILED MAR. 4, 1919.

1,340,971.

Patented May 25, 1920.

3 SHEETS—SHEET 1.



Inventor

*Eugene Munger*

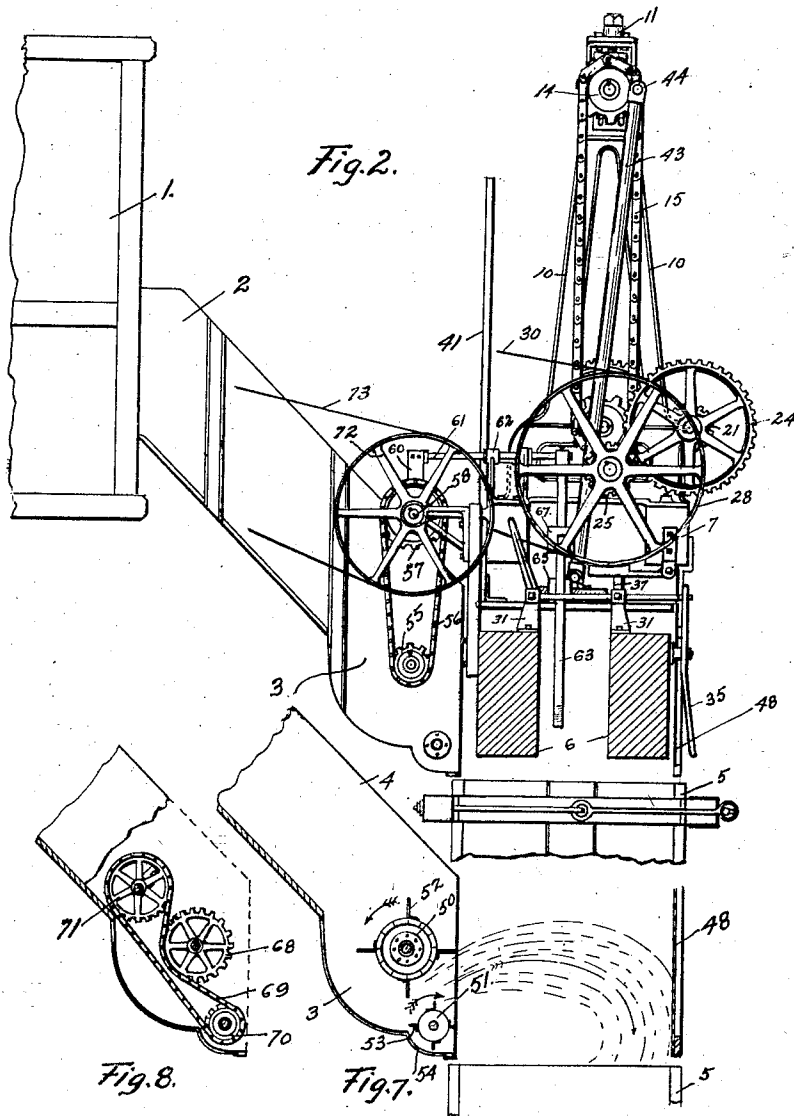
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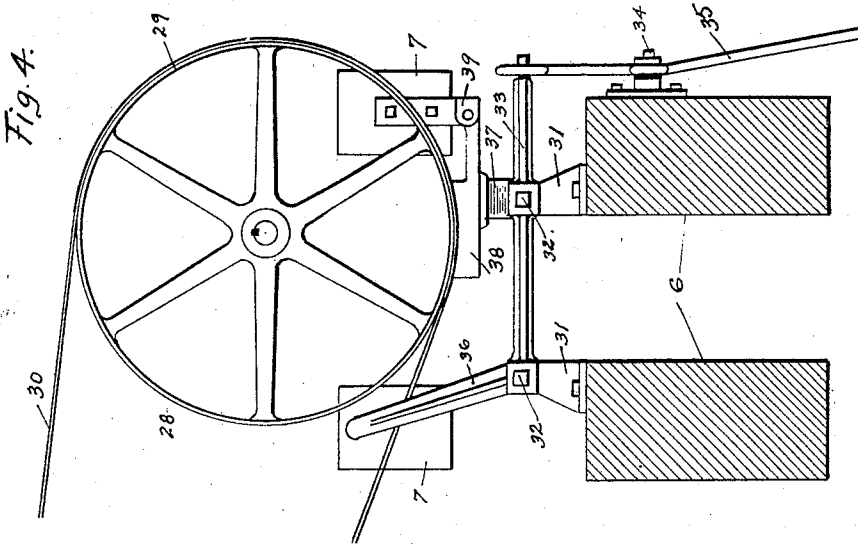
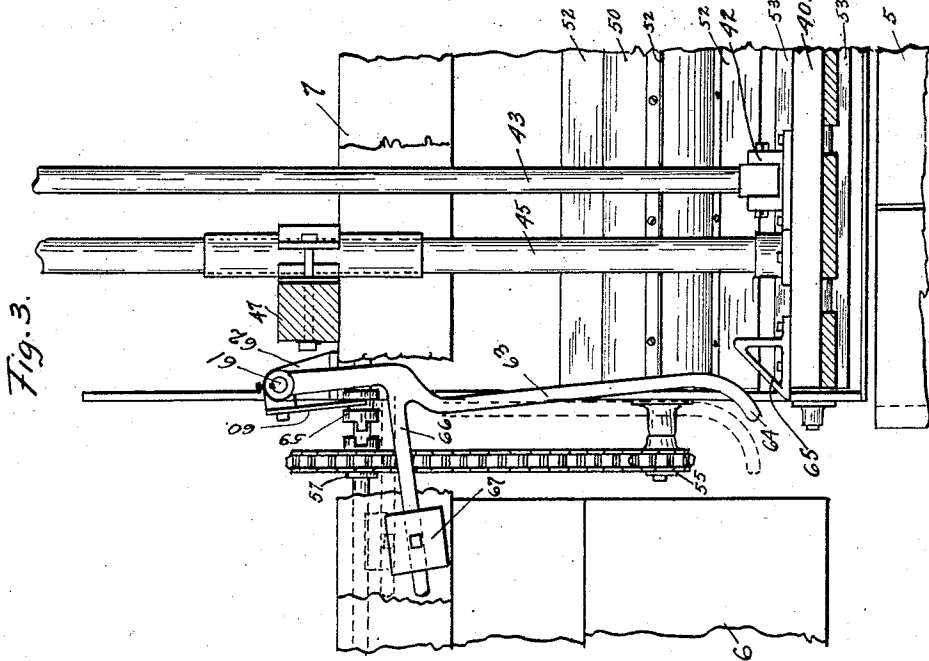
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# UNITED STATES PATENT OFFICE.

EUGENE MUNGER, OF BIRMINGHAM, ALABAMA, ASSIGNOR TO CONTINENTAL GIN COMPANY, A CORPORATION OF DELAWARE.

COTTON-TRAMPER.

1,340,971.

Specification of Letters Patent.

Patented May 25, 1920.

Application filed March 4, 1919. Serial No. 280,651.

*To all whom it may concern:*

Be it known that I, EUGENE MUNGER, a citizen of the United States of America, residing at Birmingham, in the county of Jefferson and State of Alabama, have invented certain new and useful Improvements in Cotton-Trampers, of which the following is a specification.

My invention relates to an improvement in trampers or presses for baling cotton or like materials.

My invention relates more particularly to the type of trampers or presses wherein the platen is driven continuously from any suitable power drive, such for instance as an endless chain, and in which the movement of the platen serves automatically to start and stop a feed means for delivering and distributing the cotton or like material from the lint slide or feed chute into the press box.

One object of my invention is to simplify and perfect a novel type of feed means for feeding the material into the press box in such manner as to effect a uniform distribution thereof in the press box quickly and without breaking or injuring the bat of the cotton or material. To this end I utilize revolving spaced feed rollers having longitudinal blades designed, adapted and suitably driven by the rollers to throw the cotton that has accumulated in, or is being fed through the feed chute into the press box so that it will be properly distributed thereover to produce layers of substantially uniform density when pressed.

A further object of my invention is to simplify and perfect the platen controlled means for automatically starting and stopping the drive of the feed mechanism.

A still further object of my invention is to perfect a novel brake means to arrest and hold the platen when its driving belt is shifted to the loose pulley and to this end I have designed a brake means adapted to cooperate with the tight driving pulley as a brake drum, and which, if desired, can be operated by or with the belt shifting means employed to shift the driving belt from the tight to the loose pulley.

My invention also involves the novel details of construction and arrangements of parts, which in their preferred embodiments only are illustrated in the accompanying drawings which form a part of this specification, and in which:—

Figure 1 illustrates in front elevation my

improved tramper and its driving and feeding mechanisms, the view being partly broken away where necessary to more clearly illustrate the more salient feature of my invention.

Fig. 2 is a side elevation of Fig. 1.

Fig. 3 is an enlarged detail view showing the counter-weighted platen actuated means for starting and stopping the feed drive.

Fig. 4 is an enlarged detail side elevation of the braking appliance cooperating on the fast driving pulley as a brake drum.

Fig. 5 is a detail plan view of the belt and brake shifting appliances.

Fig. 6 is a detail plan view of the driving mechanism for the platen, the operating chains being shown in sectional view taken on the line 6—6 of Fig. 1.

Fig. 7 is a sectional view through the feed chute showing the feed rollers in end elevation and illustrating the distribution of the cotton in the press box.

Fig. 8 is a view similar to Fig. 7 with the chute broken away to show the drive for the feed rolls.

Similar reference numerals refer to similar parts throughout the drawings.

I have illustrated my invention as embodied in a cotton tramper, the cotton from the condenser 1 being delivered to the lint slide 2 and passing therethrough into a boot-like feed chute 3 and thence into the press box. The chute 3 is closed overhead by the top 4 of the lint slide and has a front opening extending in a vertical plane from the top 4 to the base of the feed chute. By the mechanism hereinafter described the cotton will be fed from this chute 3 into the press box 5 of any suitable type of press, that shown being a revolving double box press. Above one press box is disposed the platen timbers 6 which are suitably supported by uprights (not shown) in any practicable manner, and above the other press box to be packed with cotton is a pair of tramper sills 7 supported at one end by blocks 8 resting on the timbers 6 and at the other end by a suitable upright framework 9. On the sills 7 I suitably mount a bearing frame 10 comprising spaced upright members connected at their top by a cross brace 11 and having journals 12 below this in which a shaft 13 turns with its ends projecting at each side of the frame and having fast thereon upper sprockets 14 over which the heavy driving

chains 15 pass to the lower sprockets 16 which are fast on a shaft 17 journaled in bearings 18 near the base of the frame members. In bearings 19 on the front side of the frame I mount a driving shaft 20 having a small pinion 21 fast thereon and adapted to mesh with a large chain driving pinion 22 fast on the shaft 17 between the frame members. The shaft 20 at its outer end is supported in a bearing 23 on the sills 7 adjacent to which bearing is a large gear wheel 24 fast on the shaft and meshing with a small gear 25 on the main driving shaft 26 which turns in bearings 27 mounted on the sills 7. On its outboard end this shaft 26 has a tight pulley 28 and a loose pulley 29 mounted thereon and adapted to be driven by a belt 30 from any suitable source of power. On the timbers 6 below the pulleys 28 and 29 I mount two pairs of guide brackets 31 disposed to receive a pair of parallel sliding rods 32 connected at one end by a cross bar 33 which at its front end has a pin 34 that works in an elongated slot in the hand lever 35 pivoted to the side of the front timber 6. Belt shifting arms 36 are mounted on the rear slide rod 32 and are disposed to receive between them the belt 30 and to shift the latter from the tight to the loose pulley and vice versa. On the forward slide 32 I mount a spring cam 37 adapted to move under and yieldingly engage a hinged brake shoe 38 pivotally connected to a bracket 39 on one of the sills 7. The brake shoe is positioned under the tight pulley and by gravity will drop below and clear this pulley and its driving belt when working thereon. As the slides 32 are moved to shift the belt onto the loose pulley the spring cam 37 engages under and raises the brake shoe 38 sufficiently to bring it into frictional engagement with the tight pulley immediately after the belt has passed off from the latter onto the loose pulley. I thus utilize the tight pulley as the brake drum and apply the braking power at the point where the maximum effect is obtainable therefrom due to the various transmissions, so that the transfer can be stopped and held in any position with the least expenditure of energy.

The transfer follower 40, which is of any suitable type, is adapted to reciprocate into and out of the press box and carries with it on the side adjacent to the feed chute an ordinary shield 41 to close the latter when the follower is in the press box. The follower is also provided with bearing brackets 42 in which the lower ends of the pitmen 43 are pivoted, these pitmen being connected at their upper ends to pins 44, each made fast in any suitable manner to its respective chains 15 at corresponding points so as to be rotatable therewith and thereby to reciprocate the follower. The follower is also provided with guide rods 45 rigidly connected

thereto and working in guides 46 made fast to cross members 47 on the sills 7.

A vertical apron 48 is suitably mounted above the press box on the side opposite to the feed chute 3, see Fig. 7, this apron being suitably attached to a sill 7 and being adapted to stop and turn back into the press box the cotton that would otherwise be thrown over and beyond the press box by the feed mechanism which will now be described.

The feed mechanism comprises a large roll 50 and a small roll 51, both extending transversely across the lower portion of the feed chute and rotatably journaled in the side walls thereof. Each roll is preferably provided with four equi-distantly spaced longitudinal blades, the blades 52 on the roll 50 being wider than the blades 53 on the roll 51. As will be observed by reference to Fig. 7, the smaller roll 51 is set lower and in front of the larger roll 50 and works with its blades traveling in close proximity to and upwardly over a bottom concave 54 formed at the lower end of the feed chute. The two rolls are preferably set so that the circles circumscribed by their blades will intersect or closely approach the plane of the open end of the feed chute. A gear 55 fast on the shaft of roll 50 is driven by a chain 56 from an overhead sprocket 57 loose on the main driving shaft 58 of the feed mechanism and adapted to be coupled to the latter shaft by a clutch 59 (see Fig. 3) under control of a clutch shifting arm 60 on an overhead shaft 61 mounted to turn in bearings 62 on the rear sill 7 and having fast thereon a depending trip arm 63, the lower end of which is elongated and terminates in an outwardly flaring wedge tip 64 which is disposed in the path of a wedge block 65 on the adjacent end of the follower 40. Near its upper end, the trip arm 63 is provided with an out-turned arm 66 at right angles thereto and provided with an adjustable counterweight 67 which tends to rock the arm 63 into its full line position Fig. 3 with the clutch open, whereas the wedge block 65, during the travel of the follower above the press box will throw the trip arm and hold it in its dotted line position, Fig. 3, with the clutch thrown in. Power is transmitted to the roll 51 from the roll 50 by the mechanism shown in Fig. 8 comprising a sprocket gear 68 fast on the shaft of roll 50 which drives a chain 69 passing over a sprocket gear 70 fast on the shaft of the smaller roll 51, whence the chain passes about an idler sprocket 71 and returns under but not around the sprocket 68. By this arrangement the two rolls 50 and 51 have counter-directions of rotation, the roll 50 turning counter-clockwise while the roll 51 turns clockwise and the gearing is so designed that the blades of the two rolls will have substantially the same peripheral speeds, this

making it necessary for the smaller roll to have a higher number of revolutions per minute than the roll 50. This is provided for in the differential between the gears 68 and 70. The main driving shaft 58 for the feed mechanism derives its power from the pulley 72 driven from a belt 73 by any suitable source of power.

In operation, assuming that the press box is empty and that the follower is held at its extreme upper position, as seen in Fig. 1, by the engagement of the brake shoe 38 with the tight pulley 28, the tramper is started into operation by reversing the lever 35, thereby releasing the brake from the tight pulley 28 as the driving belt 30 is shifted thereonto from the loose pulley 29, whereupon the chains 15 are driven and the follower commences to descend. Meanwhile the wedge 65 on the follower will throw the clutch 59 on the feed shaft into mesh and the feeding rolls will be driven until the wedge 65 clears the trip arm 63 and the counterweight on the latter opens the clutch. This takes place as the follower enters the press box and the feed rolls are inactive during the travel of the follower in the press box which is caused by the action of the chains 15 driving the pitmen 43. As the follower descends with the chains the cotton is pressed until the point of attachment of the pitmen to the chains has passed under the lower sprockets 16, whereupon the upward travel of the pitmen will raise the follower until it rises out of the press box, whereupon the wedge 65 will again engage the arm 63 and throw in the clutch causing the feed mechanism to resume operation while the follower completes its up travel and again approaches the press box on its down travel. The drive to operate the tramper follower is continuous and is normally not interrupted until the bale has been pressed.

The action of the two feed rollers on the cotton which has accumulated in the lint slide and in the feed chute is such as to throw the cotton without breaking the bat through a path substantially illustrated by the arrow in Fig. 7, and it being obvious that the rolls when first started work with an accumulated mass of cotton the latter is thrown a greater distance than in the case of the normal feed of lint down the slide. Moreover, just as the feed rolls are stopped the last cotton is fed in close to the feed chute with the result that a practically uniform layer of cotton is distributed over the press box so that a uniform bale is produced with substantially even layers. As the tips of the blades 52 and 53 will have substantially the same peripheral speed and as they are spaced so as not to come in contact, it will be apparent there will be no tendency to break the bat but that the action of the

two sets of blades will be to throw the bat into the press box with a rapid feed in contrast-distinction to the slow feeding of the cotton bat by presser rolls. When the bale has been completed the lever 35 is reversed, thereby shifting the belt 30 from the tight to the loose pulley and applying the brake shoe 38 to the tight pulley. But little power is required to hold the tramper where the braking is done on the main drive shaft and by utilizing the tight pulley I avoid the provision of a special brake.

While I have shown the feed rolls as the ordinary wooden roll with the blades formed of angle metal strips attached thereto, it will be understood that any suitable type of rotatable support for the radially disposed and equi-distantly spaced blades 52 or 53 may be utilized. It should also be understood that I do not intend to limit myself to the exact position of the feed rolls 50 and 51 but have shown that from each I have derived the most satisfactory results.

This invention is not intended to be restricted in scope to the specific embodiments shown, but contemplates such modifications as come within the spirit and scope of the claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a press of the character described, a press box, a follower reciprocable thereinto, means to drive continuously during the baling operation the follower, a feed chute, reversely rotating bladed feeder elements disposed adjacent to the discharge end of the feed chute and rotatable in a direction to throw the material to be pressed into the press box, and automatic means to interrupt the rotation of said elements when the follower is in the press box.

2. In a press of the character described, the combination of a press box, a follower reciprocable thereinto, means to drive the follower continuously during the baling operation, a feed chute, an intermittent feed mechanism automatically controlled by the movements of the follower and comprising a pair of reversely driven rotatable bladed elements disposed in the lower portion of the discharge end of the feed chute, and means to drive said elements in a direction to throw material from the feed chute into and distribute it across the press box.

3. In a press of the character described, the combination with a continuously driven follower and a press box into which said follower is reciprocable, of an intermittent feed mechanism automatically controlled by the movements of the follower and comprising a feed chute into which the material is fed in a continuous bat and a pair of reversely driven rotatable bladed elements disposed in the lower portion of the discharge end of

the feed chute, and means to drive said elements in a direction to throw material in an unbroken bat from the feed chute across the press box, said elements being of different diameters with the upper element larger than and disposed farther in the feed chute than the smaller element.

4. In a press of the character described, a press box, a follower reciprocable therein, mechanism for continuously driving said follower during the pressing operation, a feed chute and feed mechanism intermittently operable and automatically controlled by the follower to operate when the latter is withdrawn from the press box, said feed mechanism comprising a pair of rotatable bladed elements disposed at the discharge end of the chute, said elements being of different diameters with the smaller element disposed near the bottom end of the discharge opening of the feed chute and adapted to rotate clockwise, and the larger element being disposed above and spaced from the smaller element and adapted to operate counter-clockwise, and suitable driving mechanism for driving said elements in their respective directions at differential speeds.

5. In a press of the character described, a press box, a follower reciprocable therein, mechanism for continuously driving said follower during the pressing operation, a feed chute and feed mechanism intermittently operable and automatically controlled by the follower to operate when the latter is withdrawn from the press box, said feed mechanism comprising a pair of rotatable bladed elements disposed at the discharge end of the chute, said elements being of different diameters with the smaller element disposed near the bottom end of the discharge opening of the feed chute and adapted to rotate clockwise, and the larger element being disposed above and spaced from the smaller element and adapted to operate counter-clockwise, and suitable driving mechanism for driving said elements in their respective directions at differential speeds which will produce substantially the same peripheral speeds for the blade edges.

6. In a press of the character described, a tramper mechanism comprising a main driving shaft with tight and loose pulleys thereon, speed reducing gearing driven by said tight pulley and adapted to operate the tramper, a driving belt adapted to engage one or the other of said pulleys, a brake shoe adapted to engage the tight pulley as a brake wheel and a belt shifter mechanism adapted simultaneously to force the brake shoe into engagement with the tight pulley as it shifts the belt therefrom onto the loose pulley.

7. In a press of the character described, a tramper mechanism, a main power shaft therefor, tight and loose pulleys thereon, speed reducing gearing driven by said tight pulley and adapted to operate the tramper, a driving belt, a sliding element to shift the belt from one to the other pulley, a brake shoe adapted to move into engagement with the tight pulley, as a brake wheel and a yieldable member on said sliding element adapted to force the brake shoe against the tight pulley as it shifts onto the loose pulley.

8. In a press of the character described, a press box, a follower, mechanism for reciprocating the follower, a feed chute and mechanism for feeding material from the chute into the press box comprising fast spinning spaced bladed elements adapted to throw the material across and distribute it in the press box.

9. In a cotton press, a press box, a follower, mechanism for reciprocating the follower, a feed chute and mechanism for feeding the cotton into the press box comprising spaced fast spinning reversely rotatable bladed rolls adapted to cooperate in throwing the cotton bat unbroken across the press box, and a stationary apron above the press box disposed to prevent the bat being thrown over the press and to cause that which engages it to fall back into and distribute itself over the press box.

In testimony whereof I affix my signature.

EUGENE MUNGER.

Witness:

NOMIE WELSH.