T. B. LEE.

COTTON COMPRESS.

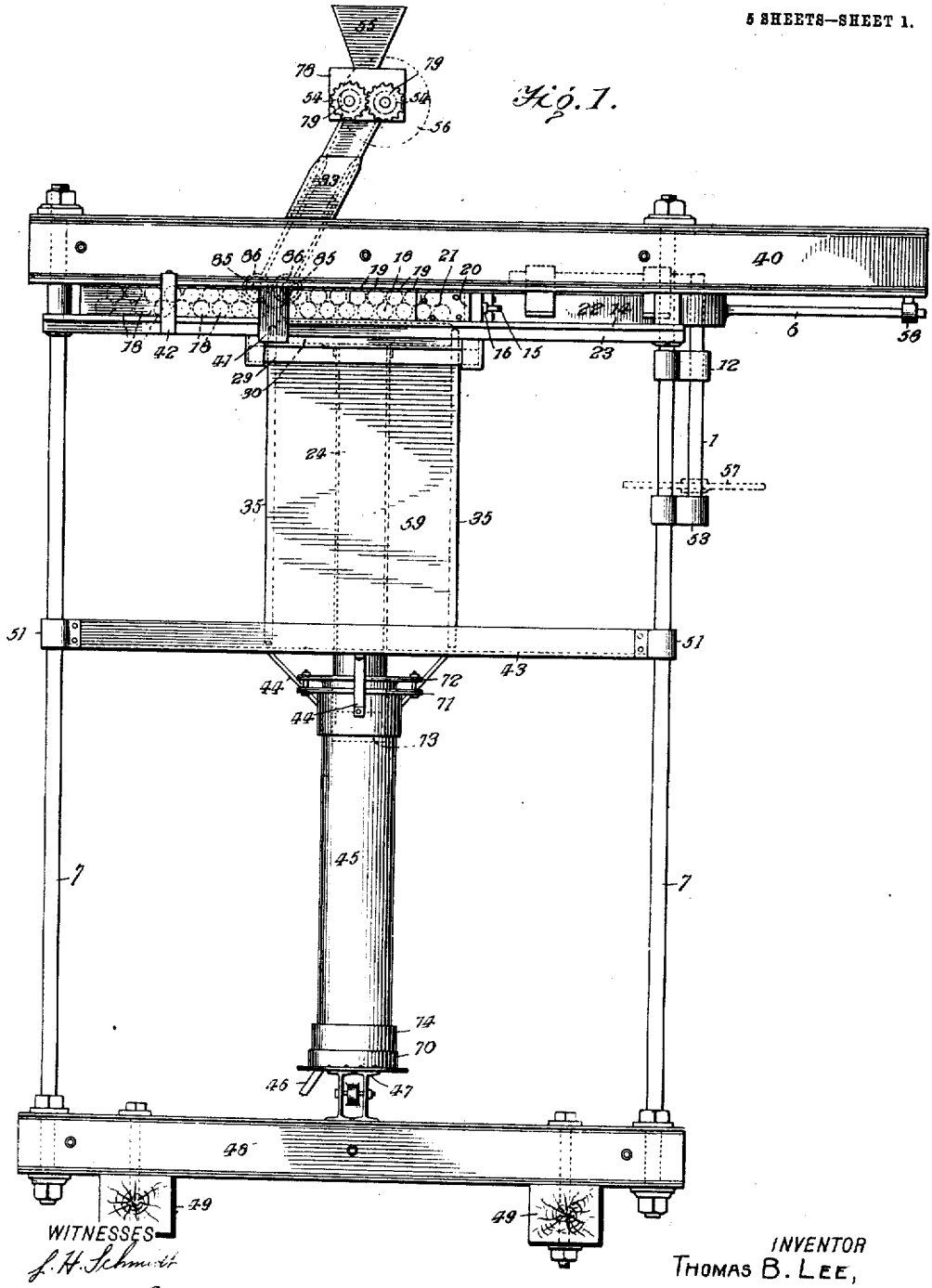
APPLICATION FILED NOV. 18, 1907.

902,976.

Patented Nov. 3, 1908.

5 SHEETS—SHEET 1.

Fig. 1.



INVENTOR

THOMAS B. LEE,

BY Munn & Co.

ATTORNEYS

THE NORRIS PETERS CO., WASHINGTON, D. C.

T. B. LEE.

COTTON COMPRESS.

APPLICATION FILED NOV. 18, 1907.

902,976.

Patented Nov. 3, 1908.

5 SHEETS—SHEET 2.

Fig. 2.

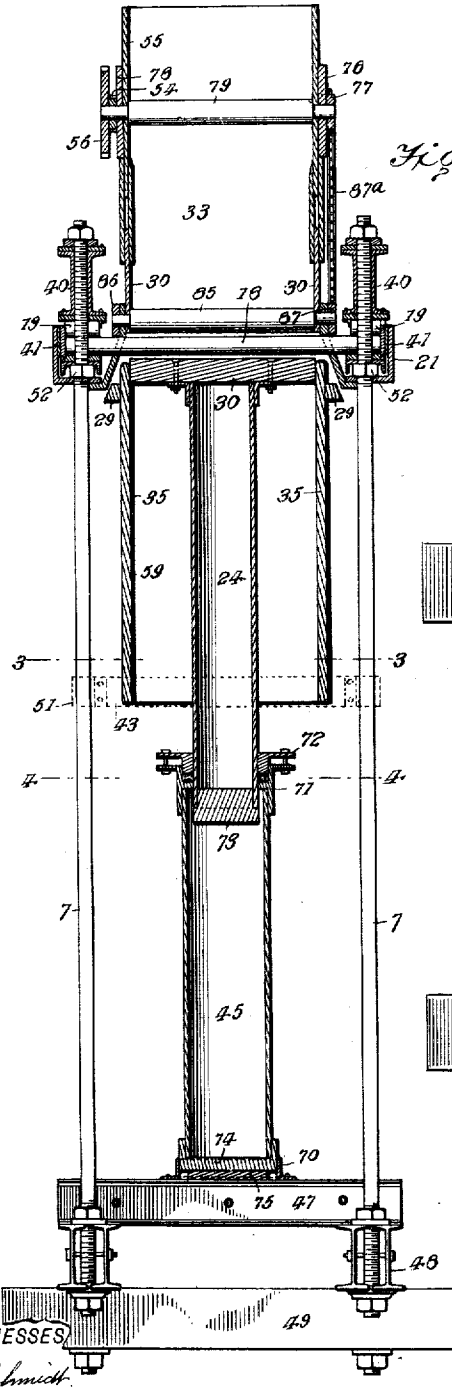
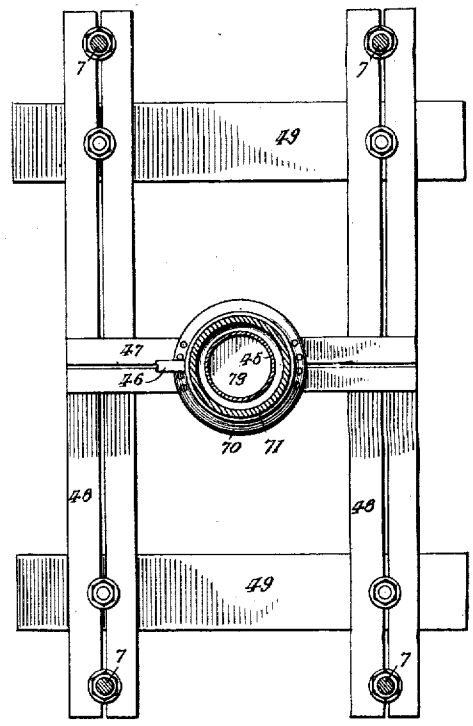


Fig. 4.



WITNESSES,

L. H. Schmidt.

Edw. W. Byrn.

INVENTOR

THOMAS B. LEE,

BY Munn & Co

ATTORNEYS

THE NORRIS PETERS CO., WASHINGTON, D. C.

T. B. LEE.

COTTON COMPRESS.

APPLICATION FILED NOV. 18, 1907.

902,976. Patented Nov. 3, 1908.

5 SHEETS—SHEET 3.

Fig. 3.

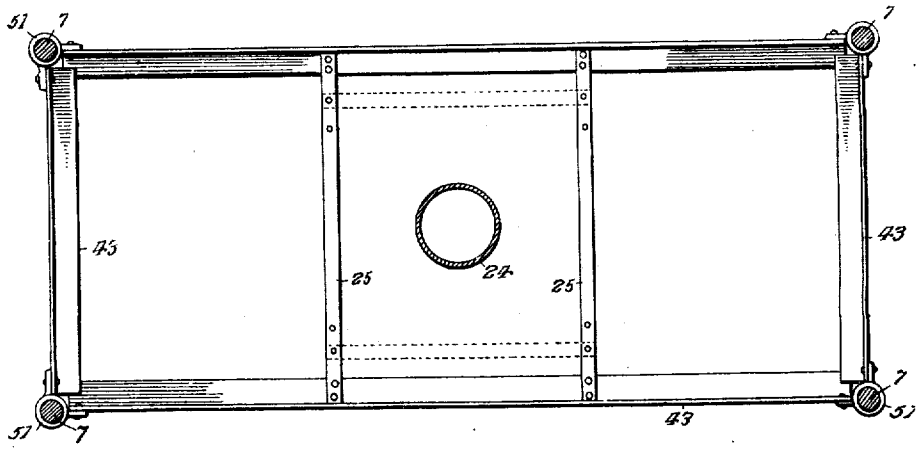


Fig. 7.

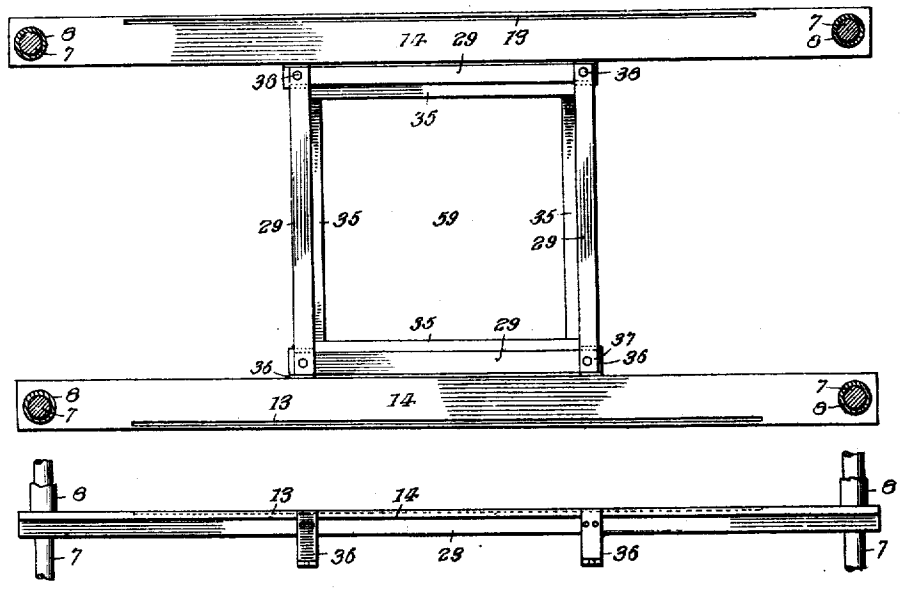


Fig. 8.

WITNESSES

J. H. Schmidt.

Edw. W. Byrn.

INVENTOR

THOMAS B. LEE,

BY Munn & Co.

ATTORNEYS

THE NORRIS PETERS CO., WASHINGTON, D. C.

T. B. LEE.

COTTON COMPRESS.

APPLICATION FILED NOV. 18, 1907.

902,976. **Patented Nov. 3, 1908.**

5 SHEETS—SHEET 4.

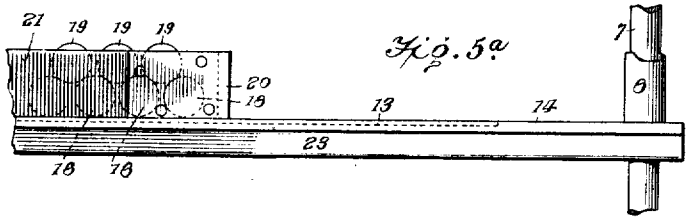


Fig. 5a.

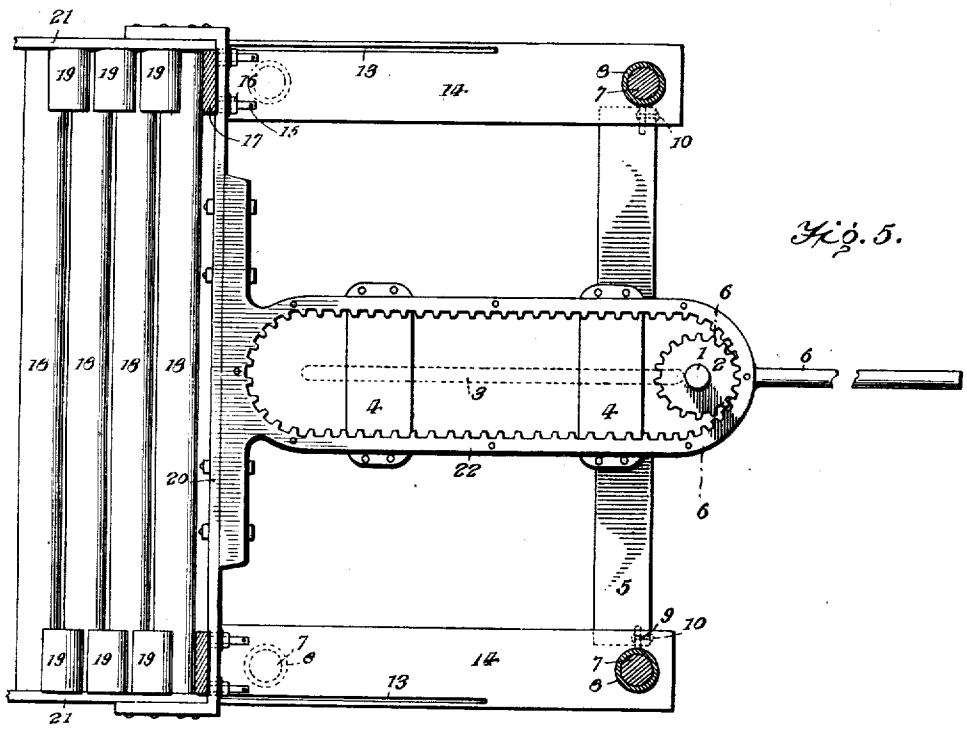


Fig. 5.

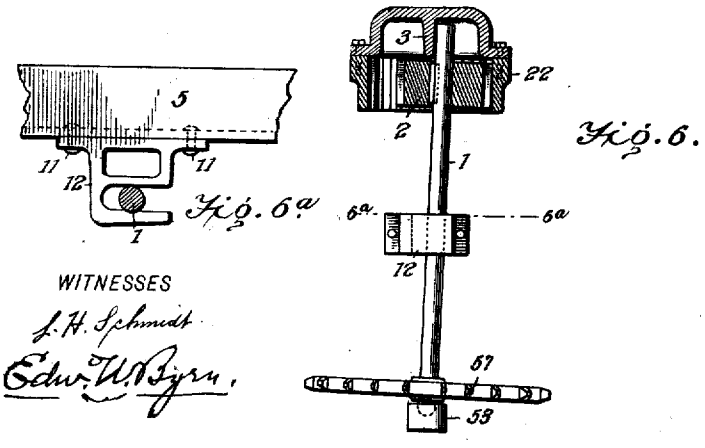


Fig. 6.

Fig. 6a.

WITNESSES

J. H. Schmidt

Edw. W. Byrn.

INVENTOR

THOMAS B. LEE,

BY Munn & Co.

ATTORNEYS

THE NORRIS PETERS CO., WASHINGTON, D.

T. B. LEE.

COTTON COMPRESS.

APPLICATION FILED NOV. 18, 1907.

902,976. **Patented Nov. 3, 1908.**

5 SHEETS—SHEET 5.

Fig. 9b

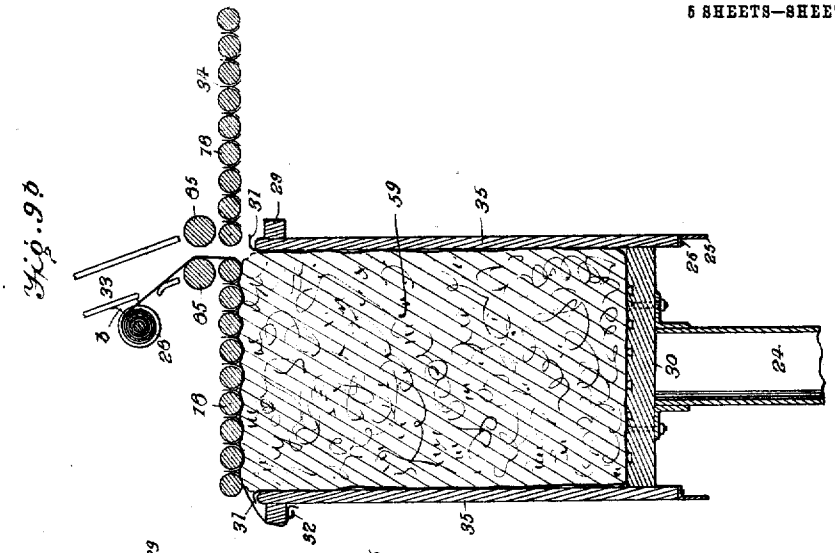


Fig. 9a

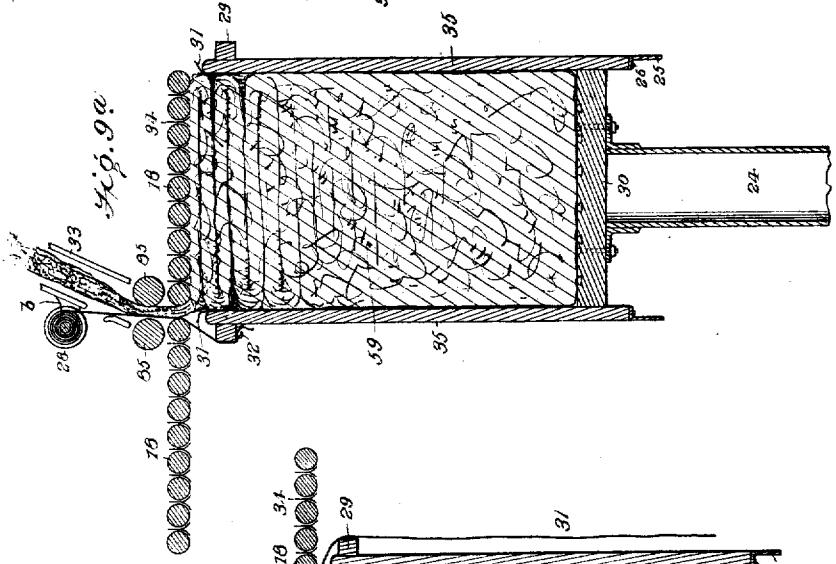
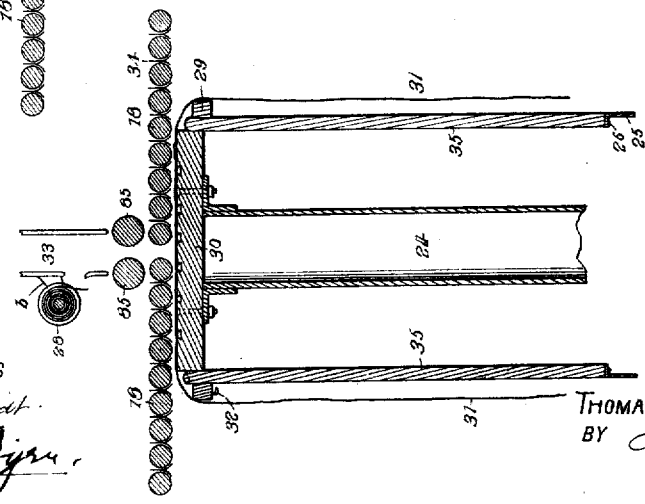


Fig. 9.



WITNESSES

L. H. Schmidt.

Edw. W. Byrn.

INVENTOR

THOMAS B. LEE,

BY Munn & Co.

ATTORNEYS

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

THOMAS B. LEE, OF CHARLOTTE, NORTH CAROLINA.

COTTON-COMPRESS.

No. 902,976. Specification of Letters Patent. Patented Nov. 3, 1908.

Application filed November 18, 1907. Serial No. 402,647.

To all whom it may concern:

Be it known that I, THOMAS B. LEE, a citizen of the United States, and a resident of Charlotte, in the county of Mecklenburg and State of North Carolina, have made certain new and useful Improvements in Cotton-Compresses, of which the following is a specification.

My invention relates to that class of cotton compresses in which a lap of cotton is fed through a set of reciprocating rollers moving horizontally over the upper open end of a press box and in which press box the lap is laid in alternating folds upon a yielding platen in the press box, which, as the press box is gradually filled, yields downwardly and which platen is mounted upon a subjacent hydraulic pressure apparatus for regulating the pressure on the cotton and compressing the same to the required density.

My invention is designed to provide a dense and uniform bale and to complete it before releasing any pressure. It is also designed to provide means for neatly and conveniently covering the bale with bagging and securely hooping the same with tie wires or bands. It is also further designed to provide a bale which can be sampled at any part of the same so as to show the character of the cotton in the entire bale, leaving no chance for false packing. My compress for the most parts is made of standard rolled shapes of iron or steel, which insures cheapness and rapidity of manufacture and the baling head is specially constructed for the purpose of eliminating friction and securing uniformity of motion, which insures a dense bale of uniform character and also the packing of a greater amount of material in a given space.

My invention consists in the novel combination and arrangement of parts for carrying out the above objects in a rapid and effective manner and with the least expenditure of power as hereinafter more fully described with reference to the drawing, in which—

Figure 1 is a side elevation. Fig. 2 a vertical transverse section. Fig. 3 a horizontal section on line 3—3 of Fig. 2, with the press box removed and its position indicated in dotted lines. Fig. 4 is a horizontal section on line 4—4 of Fig. 2. Fig. 5 is a top plan view on a larger scale showing the means for reciprocating the baling head. Fig. 5ª is a side view of one end of the baling head and its supporting rail. Fig. 6 is a vertical section on about line 6—6 of Fig. 5. Fig. 6ª is a sectional detail on line 6ª—6ª of Fig. 6. Fig. 7 is a plan view of the baling box and the upper plates 14 showing means for fastening the doors of the baling box. Fig. 8 is a side view of the supporting rail 23 on the side adjacent to the baling box, and Figs. 9, 9ª and 9ᵇ are sectional views through the baling head and the baling box, showing different stages of the formation of a bale and covering the same with the bagging.

Referring to Figs. 1 and 2, the frame of the press is composed of the upper and lower girders 40 and 48 connected by four vertical rods 7 and resting on foundation blocks 49. This frame supports the hydraulic cylinder 45 and its plunger or piston 24 having a piston head 73. On top of the piston is carried the platen 30 which plays in the press box vertically and receives directly the pressure of the cotton. The press box 59, see Figs. 2 and 7, is composed of four doors clamped together at the top by four bars 29 and supported at the bottom by angle bars 43, seen in Fig. 1, and 25, seen in Fig. 3. This press box receives the cotton to be compressed. Reciprocating horizontally above the open upper end of the press box is arranged the baling head. This consists of a number of packing rollers 18 and superposed friction rollers 19 inclosed by a rectangular frame 21. This frame slides in and is guided by V-shaped slots 13, see Figs. 5 and 7, in the upper surface of plates 14. These plates are supported by channel bars 23, see Fig. 1, the channel bars being in turn supported in position by the vertical rods 7. On the plates 14 roll the packing rollers 18. Over the packing rollers are the short spacing and friction rollers 19, seen in Figs. 1 and 5. The short friction rollers are arranged only at the ends as seen in Fig. 5, and between the packing rollers 18, and they serve to transmit pressure from the packing rollers to the underside of the girders 40 as seen in Fig. 1. The rollers are all of the same diameter and roll together in peripheral contact. As the pressure on the packing and friction rollers is constant the channel bar 23 is supported by tie pieces 42.

The packing rollers 18 and 19 are arranged loosely within the rectangular frame 21, without journals or journal bearings, as seen in Figs. 5 and 5ª, *i. e.* the rollers terminate inside the inner surfaces of the frame 21.

The two pair of rollers 85, 85, and 79, 79, are the compression rollers which feed the lap of cotton to the baling head below. Said rollers serve to support the feed tube 33 by means of collars on their journals. This feed tube is of a telescoping character, so as to permit of the elongation or shortening of the same as its lower end vibrates in connection with the baling head below. The compression rollers 85 move with the reciprocating frame 21, which incloses the packing rollers and forms the baling head. The bracket 41 is riveted to the frame 21 and carries the journal of rollers 85. The two lower compression rollers 85 move together with an equal velocity by intermeshing spur gears 86. The upper compression rollers 79 in like manner move together with an equal velocity by means of spur gears 54. The upper and lower compression rollers 85 and 79 also move together by means of a chain 87^a and sprocket wheels 87 and 77 as seen in Fig. 2. The upper compression rollers are driven by a sprocket wheel 56 from any suitable source of power. The upper compression rollers have their bearings in side plates 78 into which protrudes the lower end of the hopper 55, which receives the lap of cotton from the gin condenser.

The lower compression rollers 85 serve to compress the lap at the moment of passing through the packing rollers 18 and thus serve to expel the air at the time of passing through the packing rollers, so that the lap may enter the press box as dense as possible.

The frame 21 of the baling head is, see Figs. 5 and 6, reciprocated by the pinion 2 working in the parallel double rack 22. This pinion 2 is rigidly fixed to the upper end of a driving shaft 1, which is driven by the sprocket wheel 57. The driving shaft 1 has its upper end playing in the double channel formed by the longitudinal middle partition 3 in the detachable plate above the double rack and this end of the shaft is shifted laterally from one side of the rack to the other, causing the pinion 2 to engage with the rack on one side and actuate it in one direction and then shifting at the end of the partition 3 to the other side of the rack, engages the teeth on this side and returns the rack and its attached parts in the opposite direction. The driving shaft 1 has its lower end arranged upon a step bearing 53, seen in Fig. 6, which permits the said shaft to move laterally in shifting its upper end from one side to the other of the longitudinal partition 3 of the rack. At an intermediate point a stationary guide 12 embraces the shaft and has a slotted opening embracing the shaft as seen in Fig. 6^a, which permits the lateral shifting of said shaft.

Referring to Fig. 1, the pipe 46 is connected with the pump, which forces water into the ram 45 and thus drives the plunger 24, seen in Fig. 2, and forces the platen 30 upwardly against the incoming cotton and the pressure of the packing rollers. As soon as the press goes into action the pump is cut out and the water reacts against a gage, not shown, which is set to any pressure desired and the water escapes as the platen is driven downwardly by the accumulation of the cotton in the box.

In the lower portion of the feed tube 33, see Figs. 9, 9^a, 9^b, there is formed on one side an opening and beside the same is arranged a spool or a reel 28 having wound thereon a continuous length of bagging. This spool or reel is arranged in bearings on the spout and vibrates with it as seen at *b*. From this reel the bagging may be passed through the opening in the feed spout and be fed down between the rollers 85 and the two sets of packing rollers 18 on to the top of the cotton in the box.

In packing the bale, the bale box is formed by setting up the four doors 35, seen in Fig. 7, and clamping them together by means of the bars 29. The piston and platen are then run up under the packing rollers as in Fig. 9 and a section of the bale covering 31 is placed between the rollers and the platen. This covering is cut off in a length long enough to make the bottom cover and the two sides of the bale. The cotton lap, see Figs. 1 and 9, is then fed from the hopper 55 between the rollers 79, 79, and then through rollers 85, 85, down to the platen through the large middle opening between the rollers 18 in the baling head. In the meantime, the reciprocating mechanism of the baling head is put in motion and the cotton lap, devoid of air, is laid on the platen in regular alternating layers, which forces the platen to recede under the pressure to which the gage is set. As the platen goes down, the bagging or bale covering goes with it. As soon as the bale is packed as in Fig. 9^a, the cotton lap is cut off and the bagging which is on the reel 28 is unwound enough to reach the hook 32 and the packing rollers are then driven forwardly to the right and the bagging is passed between the rollers and the cotton as shown in Fig. 9^b, forming the top cover for the bale. The locking bars 29 for the baling box are then released and the detachable doors 35 are taken down and the remaining two sides of the bale covering are then put on and sewed together. The bale ties, hoops or wires are then inserted through the grooves in the lower platen 30 and in the spaces between the packing rollers 18 and after having been secured the pressure is released and the bale is taken out complete at such density as may be desired.

To prevent damp cotton from adhering to the packing rollers, I sometimes employ scrapers 34 as seen in Fig. 9, which are at-

tached to and move with the frame 21, bearing the rollers.

The double rack 22 when thrown to its outermost position, is steadied and guided by the horizontal stem 6 on the end of the same, which passes through and is guided by the stationary keeper 58 on the main frame. With reference to the value of this double rack as a means of laying the lap of cotton in the press box, I would state, that when a baling head is reciprocated by a crank, more cotton is packed at the sides of the box than in the center, because the travel of the baling head is slower when the crank is turning the dead center at the ends of the stroke and the feed of the lap being constant, it lays an excessive quantity of cotton at the ends of the stroke (in the sides of the box), and a relatively smaller quantity in the middle of the box. By means of my double rack the variable velocity of the baling head is done away with and the baling head is made to move at uniform speed through its entire travel in both directions, thus laying the lap with an absolutely uniform density throughout the cross section of the box.

I claim:

1. A compress for pressing fiber into bales, comprising a press box with an open upper end and a yielding platen, and a baling head reciprocating across the open upper end of the box, said baling head being composed of a rectangular inclosing frame, loose packing rollers having their ends terminating within the frames, and friction rollers arranged above the loose packing rollers and between the same, tracks for the frame to reciprocate on and parallel superposed tracks for sustaining the upward pressure of the friction rollers.

2. A compress for pressing fiber into bales, comprising a press box with an open upper end and a yielding platen, and a baling head reciprocating across the open upper end of the box, said baling head being composed of a rectangular inclosing frame, loose packing rollers, having their ends terminating within the frame and friction rollers arranged above the packing rollers and between the same, tracks for the frame to reciprocate on and parallel superposed tracks for sustaining the upward pressure of the rollers with a rolling friction, said friction rollers being made in short sections arranged between the packing rollers at the ends thereof and in peripheral contact therewith.

3. In a compress for pressing fiber into bales, the combination with the press box and reciprocating baling head carrying rollers; of a feed spout connected to and vibrating with the baling head, and a reel or spool journaled on the spout above the lower end for holding the bale covering wound thereon, and feeding the same through the baling head.

4. In a compress for pressing fiber into bales, the combination with the press box and reciprocating baling head carrying rollers; of a feed spout connected to and vibrating with the baling head, and having an opening in its side near the lower end and a reel or spool journaled on the spout above the said opening for holding the bale covering wound thereon, and feeding the same through the opening in the feed spout and the baling head, and compressing rollers journaled in the spout below the point of entry of the bale covering.

5. In a compress for pressing fiber into bales, the combination with the press box and reciprocating baling head carrying rollers, of a feed spout connected to and vibrating with the baling head, and a reel or spool journaled on the spout above the lower end for holding the bale covering wound thereon, and feeding the same through the baling head, and means for fastening the bale covering to the press box.

6. A compress for pressing fiber, comprising a press box, a reciprocating baling head having two series of packing rollers spaced apart in the middle, a lap spout connected to the baling head above the middle space and vibrating with the same and a reel or spool for the bale covering mounted on the spout and arranged to feed the bale covering from the lower end of the spout between the two series of packing rollers and lay said covering across the top of the press box.

7. A compress for pressing fiber, comprising a press box, a reciprocating baling head, a vibrating lap spout attached to and moving with the baling head, said spout being formed with a slot in one side near its lower end, and a reel or spool for the bale covering located above the slot and arranged to feed the bale covering through the same.

8. In a compress for pressing fiber into bales, the combination with the press box and a reciprocating baling head with rollers; of a frame carrying said rollers, a continuous double rack attached rigidly to the frame and an upright tilting shaft having a step bearing at its lower end and a pinion on its upper end engaging the rack teeth for shifting the shaft and pinion from one side of the rack to the other, and a horizontally extended stem rigidly fixed to the rack on the opposite side from the press box, and a stationary guide inclosing said stem.

THOMAS B. LEE.

Witnesses:

EATON LOVE SAUNDERS,

CHAS. A. TORRENCE.