No. 719,083. PATENTED JAN. 27, 1903.

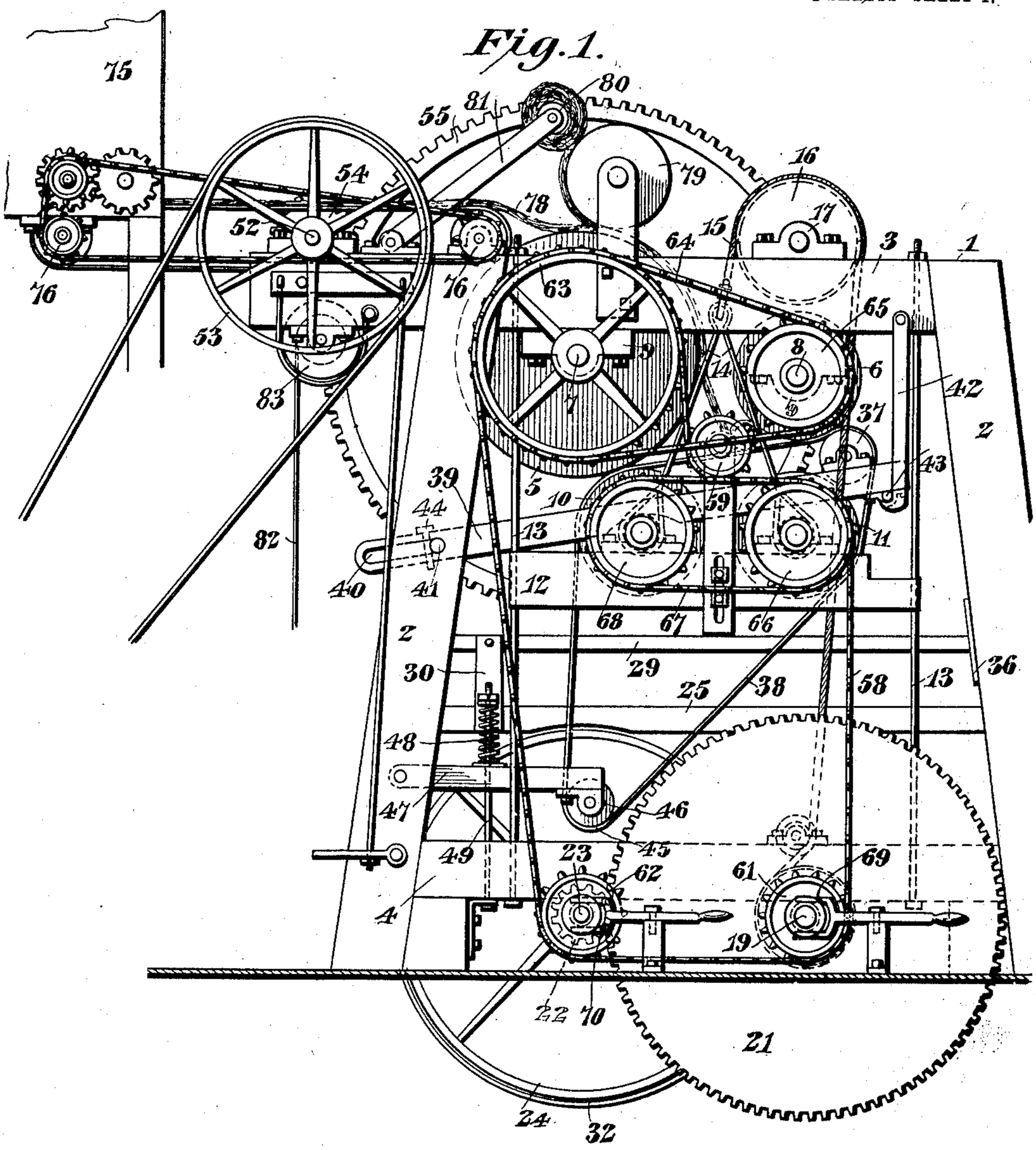
E. D. CARTER.

COTTON PRESS.

APPLICATION FILED MAR. 23, 1901.

NO MODEL. 4 SHEETS—SHEET 1.

Fig. 1.



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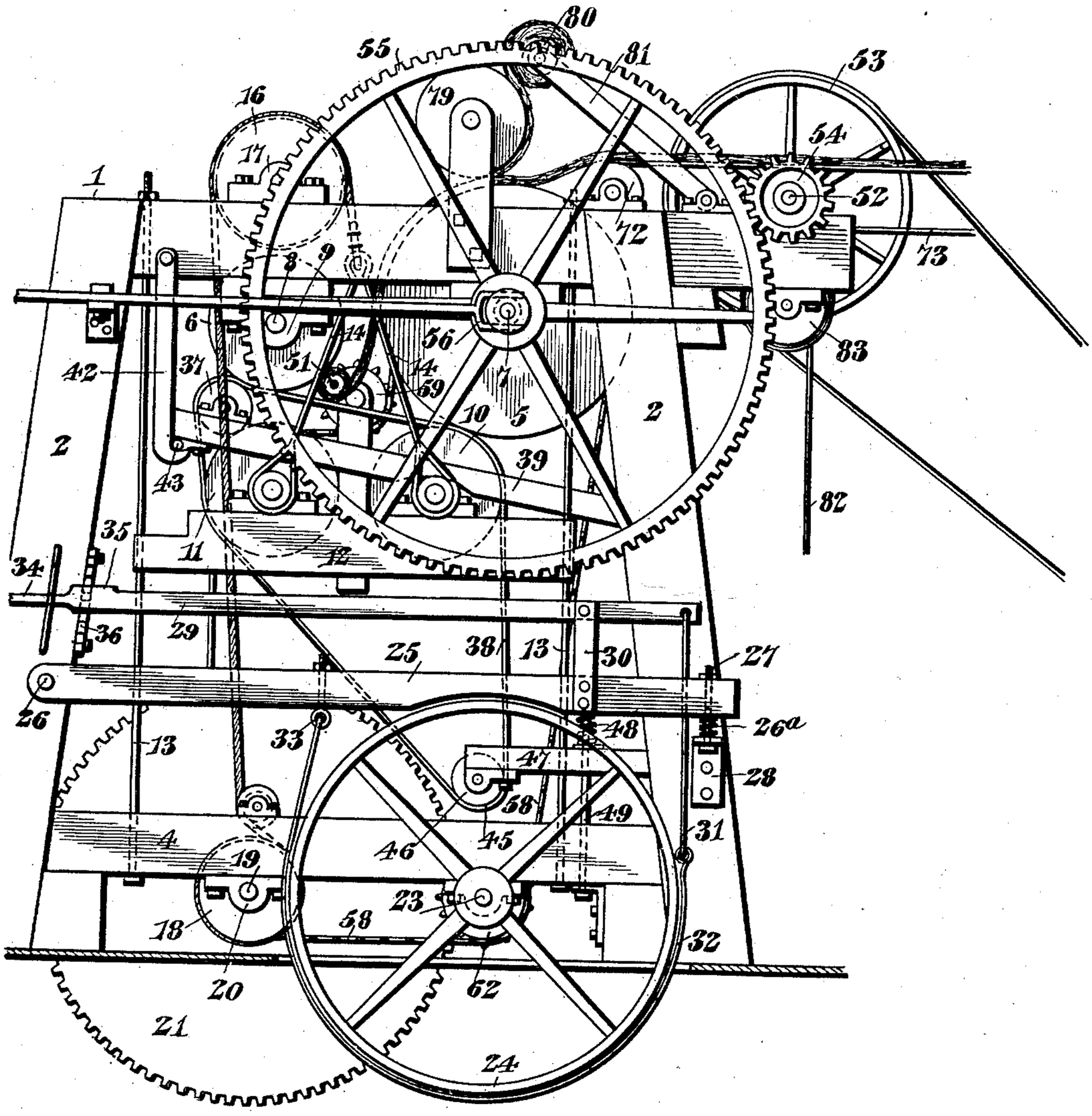
NO MODEL. 4 SHEETS—SHEET 2.

Fig. 2.



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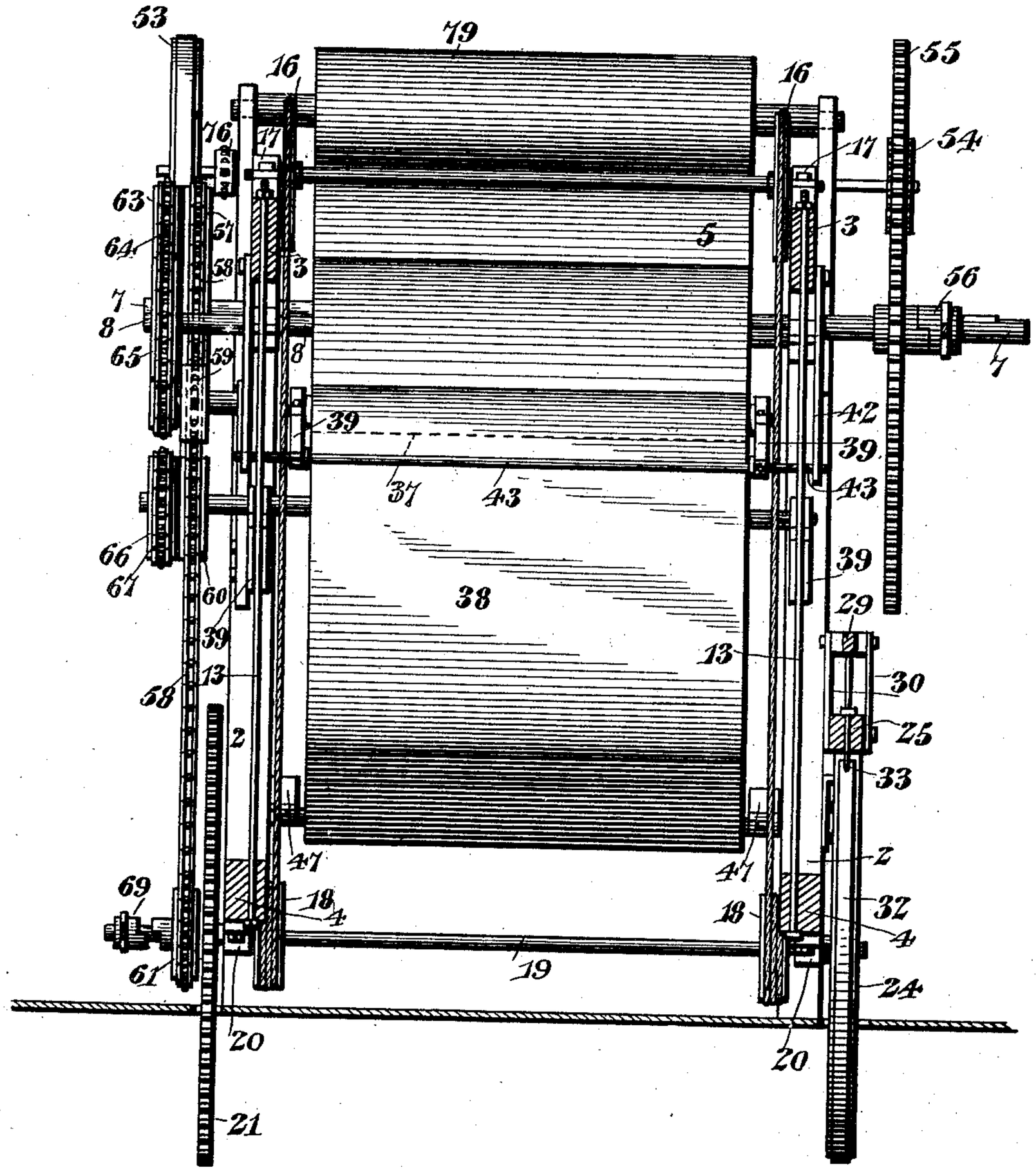
NO MODEL. 4 SHEETS—SHEET 3.

Fig. 3.



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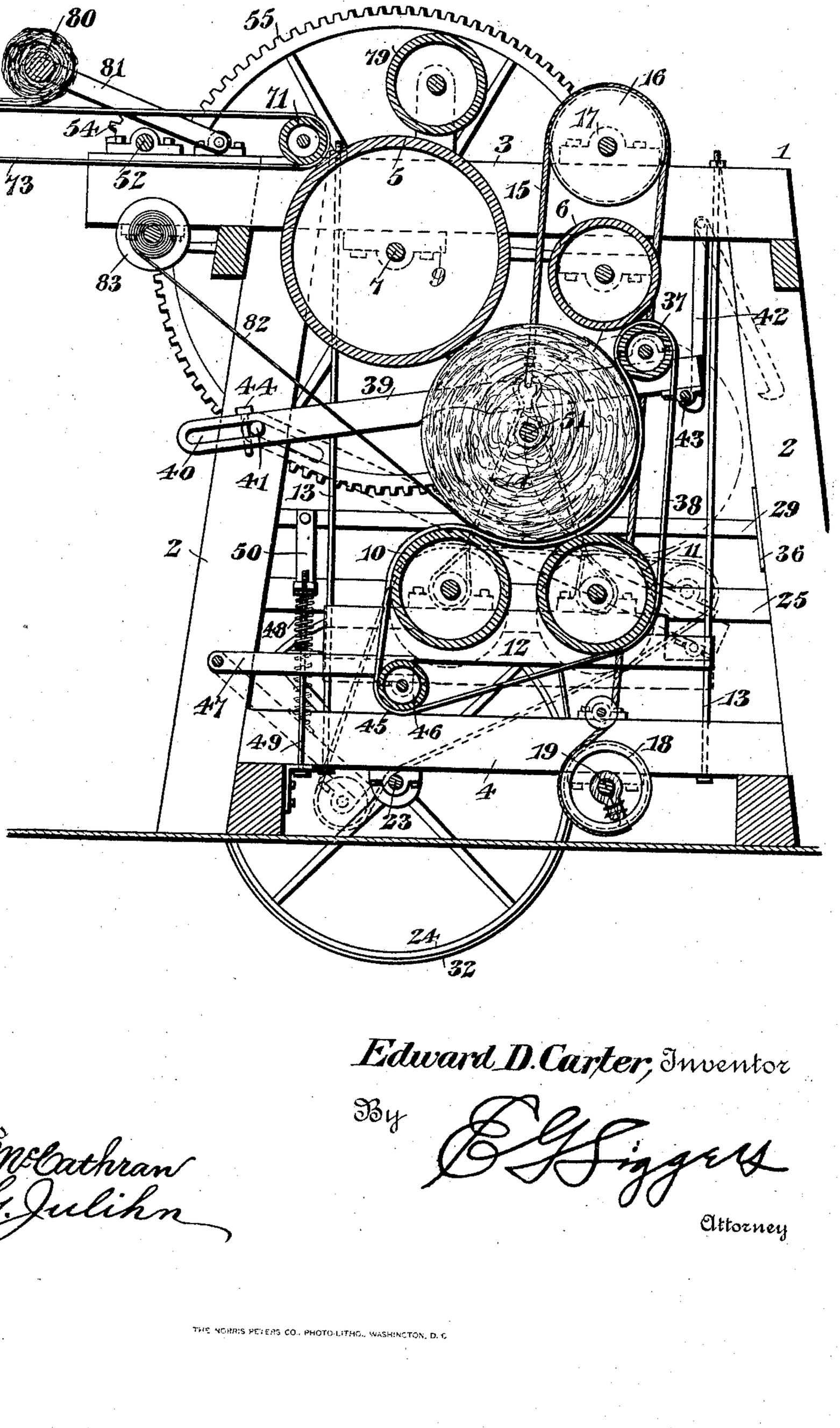
NO MODEL. 4 SHEETS—SHEET 4.

Fig. 4.



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UNITED STATES PATENT OFFICE.

EDWARD D. CARTER, OF BRENHAM, TEXAS.

COTTON-PRESS.

SPECIFICATION forming part of Letters Patent No. 719,083, dated January 27, 1903.

Application filed March 23, 1901. Serial No. 52,612. (No model.)

To all whom it may concern:

Be it known that I, EDWARD D. CARTER, a citizen of the United States, residing at Brenham, in the county of Washington and State of Texas, have invented a new and useful Cotton-Press, of which the following is a specification.

My present invention relates to improvements in presses for baling cotton, and more particularly to presses of the character employed in forming cylindrical bales from a bat or sheet of cotton received from the condenser.

In cotton-presses of the type specified it is ordinarily contemplated to stop the press and the feeding of cotton thereto during the brief interval required for the delivery of a completed bale; but many expedients have been resorted to for the purpose of rendering the press capable of disposing of a bat fed to the press without interruption—that is to say, without stopping the gins and condenser. The best-known mode of accomplishing the desired end and that most frequently resorted to is the duplication of the compressing mechanism and the provision of means for shifting the end of the bat to one of these mechanisms for the initiation of a new bale while the completed bale is being delivered from the other compressing mechanism. Such an expedient is obviously objectionable, for the reason that it practically necessitates the employment of a plurality of presses, which greatly increases both the initial cost of the plant and the expense necessarily involved in the operation thereof. It has therefore been suggested to employ a single compress equipped with what is known as an "accumulator," embodied, for instance, in an auxiliary core or roller, upon which the bat is accumulated during the interval of inactivity of the press required for the removal of the bale. While the bale is being removed, the accumulator receives the bat, and after the press is again in motion a new bale is initiated by a double bat formed by the sheets of cotton received from the condenser and from the accumulator. In this manner the feeding of the bat is made continuous and the center of the bale is formed from a bat of double thickness, which latter feature is advantageous, as it tends to prevent the formation of what is known as the "hard core" or "hard center," ordinarily due to the subsequent compression of the bale, and objectionable because the integrity of the individual fibers is endangered. It is along the line indicated that my present invention is an advance or development; and the object of the invention, in one aspect, is to improve the construction and operation of the accumulating mechanism, and, in another aspect, is to produce a novel form of compressing mechanism, which will insure the initiation of the bale under comparatively slight compression to insure a soft core or center, and the subsequent subjection of the bale to great pressure without necessity for the employment of hydraulic mechanism, and with the regulation of the compression constantly under the control of the operator. These, however, are only the primary objects of the invention, and many others will be hereinafter pointed out as the necessity for their accomplishment is developed in the succeeding description of the preferred embodiment of my press, which is illustrated in the accompanying drawings, and the novelty of which will be succinctly defined in the appended claims.

In said drawings, Figure 1 is a side elevation of my press complete, the parts being shown in the positions occupied during the initiation of the bale. Fig. 2 is a similar view of the opposite side of the press. Fig. 3 is a front elevation of the press, with certain of the parts shown in section for the purpose of more clearly disclosing the relation of the operative parts; and Fig. 4 is a central vertical section through the press, with the members in the positions they assume at the completion of the baling operation and during the winding of the bagging upon the bale, certain of the parts being shown in dotted lines in the positions they assume for the purpose of permitting the delivery of the completed bale from the press.

In said drawings, 1 indicates the frame of the press, said frame preferably comprising the uprights 2, the head-beams 3 at the head of the frame, and the foot-beams 4 at or adjacent to the bottom thereof. Within this frame are mounted a series of compression-rolls, certain of which are bodily movable toward and away from certain other rolls to

accommodate the increasing dimensions of the bale as it is being formed, and these rolls are so organized and arranged as to impose a minimum strain upon the frame when the bale is being subjected to great pressure—that is to say, I have aggrouped the parts in the manner to be described in order that counterstrains instead of being imposed upon different parts of the frame will be imposed upon the same beam. For instance, the main compression-roll 5 and the initial compression-roll 6 are provided with shafts 7 and 8, journaled in bearing-boxes 9, bolted or otherwise secured to the under sides of the head-beams 3 at opposite sides of the press, the main compression-roll 5 being disposed adjacent to the rear of the press and the initial roll 6 being disposed in advance of the main roll.

The rolls 5 and 6 are of different diameters, as shown, and below them are disposed what may be termed the "traveling" compression-rolls 10 and 11, the shafts of which are journaled in suitable bearings supported by a roller-carriage 12, guided in its vertical movement by the guide-rods 13, extending between the beams 3 and 4 of the frame. The roller-carriage 12 is designed to be gradually depressed as the diameter of the bale increases and is supported by hangers 14, suspended from cables 15, passed around head-sheaves 16, mounted in suitable bearings 17 upon the upper sides of the head-beams 3. It will thus be seen that the bale being subjected to compression will produce an upward strain against either or both of the rolls 5 and 6 and a downward strain upon the traveling compression-rolls 10 and 11, thus producing counterstrains against opposite walls of the head-beams 3, inasmuch as the pressure upon the rolls 5 and 6 is directed against the bottom of the beams 3 and a downward strain is exerted upon the top of the beams 3 by reason of the passage of the cables 15 around the sheaves mounted thereon. In this aspect of the invention the ends of the cables opposite the hangers 14 may be retained in any suitable manner; but I prefer to secure the lower ends of the cables 15 to drums 18, mounted upon a drum-shaft 19, journaled in suitable bearings 20 at the under sides of the foot-beams 4. At one end of the drum-shaft 19 is keyed or otherwise secured a comparatively large spur gear-wheel 21, meshing with a spur-pinion 22, fixed upon what may be termed a "brake-shaft" 23, which, like the shaft 19, is journaled in suitable bearings at the under sides of the foot-beams 4 and is provided upon one end, preferably at the side of the frame opposite the pinion 22, with a large brake-wheel 24. It will now be seen that as the brake-shaft is geared to the drum-shaft the retardation of the former will oppose a resistance to the rotation of the latter and will consequently oppose a like resistance to the depression of the roller-carriage 12 as the bale increases in size. I have therefore provided simple and efficient brake mechanism arranged to apply frictional resistance to the rotation of the brake-wheel 24 in order to effect the application of the desired pressure to the bale during its formation. This brake mechanism preferably comprehends a brake-beam 25, pivoted, as indicated at 26, to one of the uprights 2 at the front of the frame and supported at its opposite end for oscillation or vibration within the fixed limits by a spring or other reactive element 26ª, surrounding a guide-bolt 27, extending upwardly from a bracket 28, carried by the frame and passing through the beam 25, so that while the brake-beam is capable of being moved into contact with the brake-wheel 24 it will be instantly released by the spring 26 from engagement with said wheel as soon as the pressure upon the beam is removed. The brake-beam 25 is designed to be thrown to its retarding position by means of a brake-lever 29, fulcrumed upon a link 30, upstanding from the beam and having pivotal connection with the upper end of a link 31, connected to one end of the back-band 32, passed partially around the brake-wheel 24 and having connection at its opposite extremity with the brake-beam, as indicated at 33.

At its front extremity the brake-lever 29 is provided with a handle 34 and with a shaft 35 for engagement with a rack 36 to insure the retention of the brake-lever in any position to which it may be moved by the operator, so that any desired frictional resistance may be applied to the brake-wheel and may thus be opposed to the depression or recession of the rolls 10 and 11 under the pressure exerted by the expanding bale. Thus the operator by grasping the handle 34 and moving the brake-lever 29 to any given position may regulate with great nicety the compression of the bale and may, if desirable, increase or diminish the compression at various times during the formation or winding of the bale, so as to insure the preservation of the fibers in their original condition.

In addition to the four compression-rolls mentioned I also prefer to employ what may be termed a "front compression-roll and belt-support" 37. This roll is of comparatively small diameter and is normally located immediately adjacent to the initial compression-roll 6, but slightly in advance thereof, and, like the traveling rolls 10 and 11, is designed to be shifted bodily to various positions for the purpose of sustaining a compression-belt 38 in position to maintain the form of the bale or to permit said belt to assume a position which will facilitate the delivery of the bale from the press after its completion. The mounting of the roll 37 to facilitate the movement specified may be effected in a variety of ways; but a simple and convenient shiftable support is comprehended by a swinging frame comprising side members 39, supporting the roller 37 at their front ends and having their rear extremities formed with slots

40, designed for engagement with studs 41, projecting from the rear uprights 2 of the frame. In the normal position of the roller 37—that is to say, the position which said roller assumes during the formation of the bale—the front ends of the side bars 39 are sustained by swinging hooks 42, pivotally connected to the frame of the press and designed to engage under a cross-bar 43, connecting the bars 39, as shown in full lines in Fig. 4. In this position of the roller endwise movement of its supporting-frame is prevented by keys 44, extending across the slots 40 immediately behind the studs 41, located at the front ends of the slots, as shown in Fig. 4.

The compression-belt 38 is endless, and for the purpose of preventing slack therein and also for the purpose of applying an initial compression to the bale said belt at a point below the rolls 10 and 11 is formed with a bight 45, in which is located a tightening-roller 46, carried by a swinging frame 47, urged downwardly by a comparatively stout compression-spring 48, encircling a suitably-supported guide-rod 49 and bearing at its opposite end against the upper side of the frame 47 and the lower side of a bracket 50. The compression-spring 48 is of sufficient power to not only remove any slack which might otherwise accumulate in the belt, but also to oppose more or less resistance to the sagging of that portion of the belt opposed to the bale during its initial formation.

By reference to Fig. 2 of the drawings it will be seen that at the beginning of the baling operation the compression-belt 38 extends directly from the lower side of the initial compression-roll 6 to the upper side of the traveling roll 10 and that said belt is removed from contact with the traveling roll 11. This relation of the belt and the rolls is due to the provision of the front compression-roll 37, and it will be noted that in order to start the bale the bale-core 51 is laid upon the compression-belt 38 between the rolls 5 and 6, the movement of the belt toward the roll 6 carrying the core into contact therewith and causing the bale to be started between the initial roll 6 and the adjacent unsupported portion of the compression-belt acting as compressing members. It is during this portion of the baling operation that the spring 48 acts as the compressing mechanism, because it will appear that as the bale grows in diameter it is resisted only by the belt, the sagging of which between the rolls 6 and 10 is resisted only by the force of the spring 48. As the bale continues to expand, however, the belt is finally forced down into contact with the roller 11, and the bale becomes centered between the four rolls 5, 6, 10, and 11, the front roll 37 and that portion of the belt extending between the belt 37 and the roll 11 acting merely as a front guard. It is evident, however, that at this point the several rolls constitute the actual compression elements and that the compression-belt, while it does assist somewhat in the compressing operation, is utilized more particularly for the purpose of maintaining the form of the bale and for preventing the bat from following around either of the compression-rolls.

After the bale has become of sufficient size to bear directly against the rolls as distinct from an unsupported portion of the belt further expansion will necessitate the recession of certain of the rolls, and the degree of compression will be determined by the resistance opposed to such recession. It therefore follows that the compression of the bale may be regulated by means of the brake mechanism described. It may now be assumed that the bale has grown to considerable proportions and has forced the traveling rolls 10 and 11 down to the position indicated in Fig. 4 of the drawings. It will be noted that at such time and, in fact, shortly after the traveling rolls begin to recede the roll 6 ceases to perform its function as a compression-roll by reason of the fact that the bale extends into an extended bight of the compression-belt, which bight is formed and backed by the rolls 10, 11, and 37, which latter roll now becomes an active compression member in lieu of the roll 6, by means of which latter the bale is initiated in the manner described. Thus the bale is initially formed and compressed between a compression-roll and an unsupported portion of the belt, and after the formation of the soft core under light compression the bale recedes from the initial compression-roll and is compressed between a series of compression-rolls over certain of which the belt is running to prevent the bale from expanding out of shape during the application of the pressure, and while the position of the belt is maintained during the formation of the bale the bight in the belt is increased by the recession of the traveling rolls to accommodate the gradually-increasing diameter of the bale.

Having now seen in what manner the compression-rolls and bat are mounted and aggrouped, let us now consider the gearing employed for the purpose of driving the several rolls and for elevating and depressing the roller-carriage 12 for the purpose of restoring the rolls 10 and 11 to their initial position or for causing their descent when such movement is desired and is unobtainable by the weight of the bale.

At the rear ends of the head-beams 3 is supported a power-shaft 52, having a band-wheel 53, belted to a suitable source of power, and a pinion 54, meshing with a larger gear-wheel 55, mounted loosely upon the shaft 7 of the main compression-roll 5. The operation of the press is controlled by means of the clutch 56, mounted upon the shaft 7 and designed to be thrown into or out of engagement with the gear-wheel 55 for the purpose of connecting and disconnecting the press to or from the power-shaft. Upon the shaft 7, adjacent to the end thereof opposite the gear-wheel 55, is keyed a sprocket-wheel 57, over which is

passed a sprocket-chain 58, led around the under side of a tightener-sprocket 59, thence around a sprocket 60, mounted upon one end of the roll 11, thence around a loose sprocket 61 upon the drum-shaft 19, and finally around a similar loose sprocket 62 upon the brake-shaft 23.

As the sprocket-chain 58 is endless, it will be observed that rotary movement imparted to the main compression-roll 5 will be transmitted to the roll 11 and to the loose sprockets 61 and 62, and at the same time the elevation and depression of the roller-carriage 12 will be permitted without in any wise interrupting or otherwise interfering with the operation of the press. The main compression-roll 5 and the traveling compression-roll 11 are designed in turn to drive the initial compression-roll 6 and the other traveling roll 10. The shaft 7 is therefore provided with a second sprocket-wheel 63, geared by means of a sprocket-chain 64 to a sprocket 65 on the shaft 8, and the roll 11 is provided with a sprocket 66, geared by a sprocket-chain 67 to a sprocket-wheel 68 upon the shaft of the compression-roll 10. (See Figs. 1 and 3.) If now the clutch 56 is thrown into engagement with the gear-wheel 55, motion will be transmitted from the power-shaft to the main compression-roll and rotary movement in the same direction will be communicated to all of the compression-rolls, the movement of the belt 38, contacting with the oppositely-driven rolls 10 and 11, being depended upon to impart the necessary movement to the front compression-roll 37.

The drum-shaft 19 and the brake-shaft 23 are provided with clutches 69 and 70 for connecting the sprockets 61 and 62 to said shafts, it being evident from an examination of Figs. 1 and 3 of the drawings that the engagement of the sprocket 61 with the shaft 19 will cause the drums to be rotated in a direction to unwind the cables 15 from said drums and that the engagement of the sprocket 62 with the shaft 23 will cause the drums to be rotated in the reverse direction for the purpose of winding the cable, and thereby effecting the elevation of the roller-carriage 12. It should also be noted that by reason of the difference in the diameters of the gears 21 and 22 the drums will be unwound with considerable speed, but will be more slowly wound, for the reason that a greater application of power is required for this purpose than is necessary to permit the gravitation of the roller-carriage to its depressed position.

The foregoing description is complete so far as the actual compressing mechanism is concerned, and therefore before proceeding with a description of the manner in which the compression-rolls are reorganized to permit the delivery of the bale I shall describe the improvements in the retarding mechanism, which, as premised, constitute one of the objective points of the present invention. Immediately above the head-beams 3 and in close proximity to the periphery of the main compression-roll 5 I mount one of a pair of belt-rollers 71 and 72, the roller 72 being located a sufficient distance to the rear of the press to present the upper flight of a bat-conveyer 73, passed around said rolls directly under the bat-compressing rolls 74 of the condenser 75, the belt-rollers 71 and 72 being provided with terminal sprockets 76, (see Fig. 1,) driven from the operative mechanism of the condenser. The bat or sheet of cotton 78 precipitated from the condenser is conveyed to the main compression-roll 5 and is passed between said roll and an idle bat-forming roll 79, the bat extending thence around the roll 5 to the core 51.

Assuming now that the bale has been fully formed and is ready to receive the bagging, the bat being fed from the condenser must obviously be broken and must be accumulated in order to permit the continuation of the operation of the condenser while the bale is being removed from the press. For this purpose I provide an accumulating-roller 80, mounted between the free ends of a pair of swinging arms 81, which constitute a retarder-frame. This frame is of such length that in one position thereof the accumulating-roller 80 will be presented to the bat at a point immediately in advance of the compression-roll 74 of the condenser and in another position thereof will present the accumulated bat in contact with the idle bat-forming roller 79, the first-named position being shown in Fig. 4 and the other being clearly illustrated in Fig. 1. During the removal of the bale the bat is fed to and accumulated upon the roller 80, and as soon as the bale has been removed and the press restored to its initial position the retarding-frame 81 is swung to the position shown in Fig. 1, and the two bats, one from the condenser and one from the accumulating-roller 80, are fed in the form of a double bat between the rollers 5 and 79 to the core 51, a new bale being thus initiated with a bat of double thickness and under the mild compression exerted by the spring 48.

We must now go back to the completed bale for the purpose of ascertaining the manner in which the bagging was applied and the discharge of the bale effected while the bat was being accumulated in the manner specified. As soon as the bale had reached its size the bat was broken and fed to the accumulating-roller, as stated, and while the bale continued to rotate the bagging 82, carried by the bagging-spool 83, located at the rear of the frame, was inserted between the bale and the belt 38. The continued rotation of the bale obviously effects the winding of the bag thereon, and after the bagging operation is completed the clutch 56 is thrown back to disconnect the power mechanism from the several members of the press. The press being thus brought to a standstill and the parts being substantially in the positions shown in full lines in Fig. 4, the keys 44 are removed and the hooks 42 are swung back

out of engagement with the cross-bar 43 of the swinging frame 39. The latter being free to gravitate and to move endwise, the front compression-roll 37 will drop to the position shown in dotted lines in Fig. 4, the slack in the belt 38 being simultaneously taken up by the gravitation of the roller 46 and the traveling rolls 10 and 11 being likewise simultaneously depressed to their lowest positions by the entire release of the brake-beam 25 from the brake-wheel 24. The front guard, formed by the roller 37 and the front portion of the bight of the belt, being thus removed from an obstructing position in advance of the bale, the latter will move forward and discharge in a manner which will be understood by those skilled in the art. The frame 39 is now restored to its original position, and the clutch 70 is thrown into engagement with the loose sprocket 62 to cause the rewinding of the cables 15 upon the drums, and the consequent elevation of the traveling rolls 10 and 11, as soon as the press is again connected with the power mechanism by the throwing in of the clutch 56. Assuming that this has been done and that the rolls 37, 10, and 11 are restored to the positions indicated in Fig. 1, the accumulator is thrown over against the bat-forming rolls 79, and a new bale is initiated in the manner stated. This sequence of operation will clearly produce a bale having an exceedingly soft center or core, because during the initiation of the bale a bat of double thickness is used and is wound upon a core located between the initial compression-rolls and an unsupported portion of the compression-belt. In other words, the initiation of the bale is effected under a very slight compression and with a bat of great thickness, so that by the time the accumulated bat is removed from the accumulating-roll a soft core or bale center will have been produced and the unsupported portion of the compression-belt adjacent to the initial compression-roll will have dropped back against the traveling roll 11 and the further expansion of the bale will be opposed by the brake mechanism opposing the recession of the traveling rolls 10 and 11. Thus while the initiation of the bale is effected under a light compression and by the employment of a double bat the subsequent formation of the bale is accomplished by a bat of usual thickness and under the great compression necessary to the proper condensing of the fibrous mass.

In the claims I shall refer to the employment of a compression member against which a bale is initiated and a second compression member disposed in the path of the first-named member, but out of contact therewith, and by this language I desire to be understood as referring in the present embodiment of the invention to the compression-belt 38, which during the initiation of the bale is located out of contact with the compression-roll 11, which latter constitutes the second compression member referred to and is, as seen in Fig. 2, located in the path of the first compression member or belt, the separate means opposing the recession of said members being the spring-urged idler 46, resisting the slacking or sagging of the belt and the brake mechanism opposed to the recession of the roller-carriage 12. It is evident, however, that instead of employing compression members constructed and relatively disposed in the particular manner shown in the drawings the press might be otherwise organized so long as it embraces the thought of a compression member opposing only a slight resistance to the initial formation of the bale and designed as the bale is formed to move back against a second member, which will be opposed by a greater force, and will therefore effect a greater compression of the bale after the core of the latter has been formed under comparatively light pressure.

From the foregoing it will appear that I have produced a simple and effective cotton-press of the character specified; but while the present embodiment of the invention appears at this time to be preferable I do not limit myself to the structural details defined, but reserve the right to effect such changes, modifications, and variations thereof as may fall properly within the scope of the protection prayed.

What I claim is—

1. In a cotton-press for making cylindrical bales, the combination with a main compression-roll and an endless compression-belt, between which elements the bale is formed, of a support located within the belt in front of the main compression-roll and arranged to maintain its position during the formation of the bale, and a traveling compression-roll located within the belt under the bale to sustain the weight of the same, and mounted to recede downwardly away from the belt-support and the main compression-roll, whereby the increasing bight of the belt between the belt-support and the receding roll constitutes a support for one side of the bale as it forms.

2. In a cotton-press for making cylindrical bales, the combination with a main compression-roll and an endless compression-belt, between which elements the bale is formed, of a front compression-roll arranged to maintain its position during the formation of the bale, and a traveling compression-roll located within the belt under the bale to sustain the weight of the same, and mounted to recede downwardly away from the front compression-roll and the main compression-roll, said belt being sustained around and against the side of the bale in the interval between the front compression-roll and the traveling compression-roll during the recession of the latter.

3. In a cotton-press for making cylindrical bales, the combination with a main compression-roll and an endless compression-belt, between which elements the bale is formed, of a traveling roll located within the belt under

the bale to sustain the weight of the same, and capable of recession, and a belt-support located within the belt at a point directly above said traveling roll and arranged to maintain its position during the formation of the bale, whereby the increasing bight of the belt between the belt-support and the receding roll constitutes a support for one side of the bale as it forms.

4. In a cotton-press for making cylindrical bales, the combination with a main compression-roll and an endless belt, between which elements the bale is formed, of a pair of traveling rolls located in substantially the same horizontal plane within the belt and under the bale to sustain the weight of the same, and capable of recession, and means for sustaining a portion of the belt vertically around and against one side of the bale during the recession of the traveling rolls.

5. In a cotton-press for making cylindrical bales, the combination with a compression-roll and an endless compression-belt between which the bale is formed, of a pair of traveling rolls located within the belt under the bale to sustain the weight of the same and capable of recession, means opposing the recession of said rolls, and a support located within the belt at a point directly above one of the traveling rolls to sustain the belt in contact with one side of the bale, as well as with the bottom thereof.

6. In a cotton-press for making cylindrical bales, the combination with a compression-roll and an endless belt between which the bale is formed, of a pair of traveling compression-rolls located within the belt under the bale to sustain the weight of the same and capable of recession, and idle rolls located within the belt above and below the traveling compression-rolls, whereby the general location of the belt is retained, while the bight therein is enlarged to accommodate the increasing size of the bale.

7. In a cotton-press for making cylindrical bales, the combination with a compression-roll and a compression-belt between which the bale is formed, of a pair of traveling compression-rolls located within the belt under the bale to sustain the weight of the same and capable of recession as the bale increases in size, and an idler located in a plane above the traveling compression-rolls and at the front side of the press, said idler being mounted to maintain its position during the recession of the traveling rolls and located within the belt to compel the bight in the latter to expand under the lower side of the bale and around the front side thereof.

8. In a cotton-press for making cylindrical bales, the combination with a compression-roll and an endless compression-belt between which the bale is formed, of a pair of compression-rolls located within the belt under the bale to sustain the weight of the same, a carriage supporting said rolls in a manner to effect their recession in unison as the bale increases in size, a belt-support and an idler located within the belt above and below the carriage respectively, said idler being movable to accommodate the enlargement of the bight in the belt as the bale increases in size, means for yieldingly opposing the bodily movement of the idler, and means for resisting the movement of the carriage.

9. In a cotton-press for making cylindrical bales, the combination with a compression-roll and an endless compression-belt between which the bale is formed, of a pair of traveling compression-rolls located within the belt to sustain the weight of the bale and capable of recession, as the bale increases in size, a front compression-roll located within the belt above the traveling rolls and adapted to maintain its position during the recession of said traveling rolls, said front compression-roll being capable of removal from its normal position to permit the discharge of the completed bale.

10. In a cotton-press for making cylindrical bales, the combination with a compression-roll and an endless belt between which the bale is formed, of a pair of traveling rolls located within the belt to sustain the weight of the bale and capable of recession as the bale increases in size, a front compression-roll located within the belt above the pair of traveling rolls, a movable carriage for the traveling rolls, and a shiftable support for the front compression-roll.

11. In a cotton-press for making cylindrical bales, the combination with a compression-roll and an endless compression-belt between which the bale is formed, of a pair of traveling rolls located within the belt to sustain the weight of the bale and capable of recession, means opposing the recession of said rolls, a front compression-roll likewise located within the belt above the traveling rolls, a swinging support for the front compression-roll, and means for retaining the swinging support against movement.

12. In a cotton-press for making cylindrical bales, the combination with a compression-roll and an endless compression-belt between which the bale is formed, of traveling compression-rolls located within the belt under the bale to sustain the weight of the same, a carriage supporting the traveling rolls to compel their recession in unison, a cable supporting the carriage, a drum over which the cable is designed to be wound, and brake mechanism opposing the rotation of the drum.

13. In a cotton-press for making cylindrical bales, the combination with a compression-roll and an endless compression-belt between which the bale is formed, of a pair of traveling compression-rolls located within the belt under the bale to sustain the weight of the same, a traveling carriage supporting said rolls, means for elevating the carriage, and brake mechanism opposing the recession thereof.

14. In a cotton-press for making cylindrical

bales, the combination with a compression-roll and an endless compression-belt between which the bale is formed, of a pair of traveling compression-rolls located within the belt to sustain the weight of the bale, a vertically-movable carriage supporting said rolls, means for positively raising and lowering the carriage, said means being capable of operative disconnection from the carriage, and brake mechanism opposing resistance to the recession of the carriage when the latter is disengaged from its operating mechanism.

15. In a cotton-press for making cylindrical bales, the combination with a compression-roll and an endless compression-belt between which the bale is formed, of a pair of traveling compression-rolls located within the belt to sustain the weight of the bale, a carriage supporting said rolls, a cable supporting the carriage, a drum-shaft disposed to receive the cable, a brake-shaft, gearing intermediate of said shafts, brake mechanism carried by the brake-shaft, and means for applying power to the drum-shaft directly to effect the unwinding of the cable, or for applying said power to the drum-shaft through the medium of the brake-shaft for the purpose of winding the cable.

16. In a cotton-press for making cylindrical bales, the combination with a compression-roll and an endless compression-belt between which the bale is formed, of a pair of compression-rolls located within the belt to sustain the weight of the bale, a movable carriage supporting said rolls, a drum-shaft located at the bottom of the press, a sheave located at the top thereof, a cable connected to the carriage, passed over the sheave, and wound upon the drum, and brake mechanism opposing resistance to the rotation of the drum.

17. In a cotton-press for making cylindrical bales, the combination with a main compression-roll, and an endless compression-belt, of a pair of traveling compression-rolls located within the belt, an initial compression-roll, and a front compression-roll, said front compression-roll being located within the belt and designed to sustain the latter in effective relation to the initial compression-roll, whereby the initiation of the bale is effected between the initial compression-roll and an unbacked portion of the belt, the traveling rolls being disposed to support the bale after its initiation and capable of recession as the bale increases in size.

18. In a cotton-press for making cylindrical bales, the combination with a main compression-roll, and an endless compression-belt, of a pair of traveling compression-rolls located within the belt, an initial compression-roll, a front compression-roll, said front compression-roll being located within the belt and designed to sustain the latter in effective relation to the initial compression-roll, whereby the initiation of the bale is effected between the initial compression-roll and an unbacked portion of the belt, the traveling rolls being disposed to support the bale after its initiation and capable of recession as the bale increases in size, and means for effecting the temporary retention of the front compression-roll and for releasing said roll to permit its displacement when the discharge of the bale from the press is designed.

19. In a cotton-press for making cylindrical bales, the combination with the main compression-roll, and an endless compression-belt between which the bale is formed, of an initial compression-roll, and a pair of traveling rolls located within the belt and geared to the main compression-roll, said traveling rolls being mounted for downward recession as the bale increases in size and means for opposing a resistance to the recession of the traveling rolls, the initial compression-roll being located above the traveling rolls and opposite the belt to facilitate the initiation of the bale.

20. In a cotton-press for making cylindrical bales, the combination with a main compression-roll, and an endless compression-belt, of a pair of traveling compression-rolls located within the belt and geared together, an endless sprocket-chain geared to the main compression-roll and to one of the traveling rolls and designed to maintain an operative connection between the traveling rolls and the main roll without interfering with the recession of the traveling rolls, an initial roll geared to the main compression-roll, and a front compression-roll located within the belt in close proximity to the initial compression-roll.

21. In a cotton-press for making cylindrical bales, the combination with a frame comprising horizontal head-beams and foot-beams, of a main compression-roll, and an initial compression-roll carried in bearings upon the under sides of the head-beams, sheaves mounted in bearings upon the upper sides of the head-beams, an endless compression-belt, a carriage supporting traveling rolls, cables connected to the carriage and passed over the sheaves, and drums supported in bearings upon the under sides of the foot-beams and disposed to receive the cables.

22. In a cotton-press for making cylindrical bales, the combination with bale-forming mechanism comprehending a main compression-roll, of an endless bat-conveyer extending from the condenser to the main compression-roll and designed to convey the bat to the bale-forming mechanism, a bat-forming roll disposed adjacent to the main compression-roll, and an accumulating-roller and means for shifting said roller to a position upon the endless bat-conveyer, or against the bat-forming roll.

23. In a cotton-press, the combination with the main compression-roll, and a pair of traveling compression-rolls disposed under the bale to sustain the weight thereof, of an initial compression-roll disposed over the bale, and an endless belt having one run thereof

disposed above the traveling rolls and extended into operative proximity to the initial compression-roll to permit the initiation of the bale between the belt and the initial compression-roll prior to the compressing of the bale between the main compression-roll and the traveling rolls.

24. In a cotton-press, the combination with the main compression-roll, and a pair of traveling rolls disposed under the bale to sustain the weight thereof, of an initial compression-roll, an endless belt passed over the traveling rolls and extended into operative proximity to the initial compression-roll, and means located above the traveling rolls for sustaining the belt during the initiation of the bale, and also during the recession of the traveling rolls.

25. In a cotton-press for making cylindrical bales, the combination with a compression-roll and an endless compression-belt between which the bale is formed, of a pair of traveling compression-rolls located within the belt to sustain the weight of the bale and capable of recession as the bale increases in size, and a front compression-roll located within the belt above the traveling rolls and adapted to maintain its position during the recession of said traveling rolls.

26. In a cotton-press for making cylindrical bales, the combination with a compression-roll and an endless belt between which the bale is formed, of a pair of traveling compression-rolls located within the belt to sustain the weight of the bale and capable of recession as the bale increases in size, a front compression-roll located within the belt above the pair of traveling rolls, and a shiftable support for the front compression-roll.

27. In a cotton-press for making cylindrical bales, the combination with a compression-roll and an endless compression-belt between which the bale is formed, of a pair of traveling compression-rolls located within the belt to sustain the weight of the bale, a vertically-movable carriage supporting the rolls, and means for positively raising and lowering the carriage, said means being capable of operative disconnection from the carriage.

28. In a cotton-press for making cylindrical bales, the combination with the main compression-roll and an endless compression-belt, of a pair of traveling rolls located within the belt and geared together, and an endless sprocket-chain geared to the main compression-roll and to one of the traveling rolls and designed to maintain an operative connection between the traveling rolls and the main compression-roll without interfering with the recession of the traveling rolls.

29. In a cotton-press for making cylindrical bales, the combination with the main compression-roll and an endless compression-belt, between which elements the bale is formed, of a front compression-roll located within the belt in front of the main compression-roll and arranged to maintain its position during the formation of the bale, and a pair of traveling compression-rolls located within the belt under the bale to sustain the weight of the same and mounted to recede downwardly in unison away from the front compression-roll and the main compression-roll, whereby the increasing bight of the belt between the front compression-roll and the adjacent receding rolls constitutes a support for one side of the bale as it forms.

30. In a cotton-press for making cylindrical bales, the combination with a main compression-roll, of a pair of traveling compression-rolls to sustain the weight of the bale and capable of recession as the bale increases in size, a front compression-roll located above the pair of traveling rolls, and a shiftable support for said front compression-roll.

31. In a cotton-press for making cylindrical bales, the combination with a compression-roll and an endless belt between which the bale is formed, of a pair of traveling compression-rolls located within the belt to sustain the weight of the bale and capable of recession as the bale increases in size, a front compression-roll located above the pair of traveling rolls, and a shiftable support for the front compression-roll.

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

EDWARD D. CARTER.

Witnesses:

J. D. CAMPBELL,

LEWIS M. SECRETT.