No. 655,998. Patented Aug. 14, 1900.

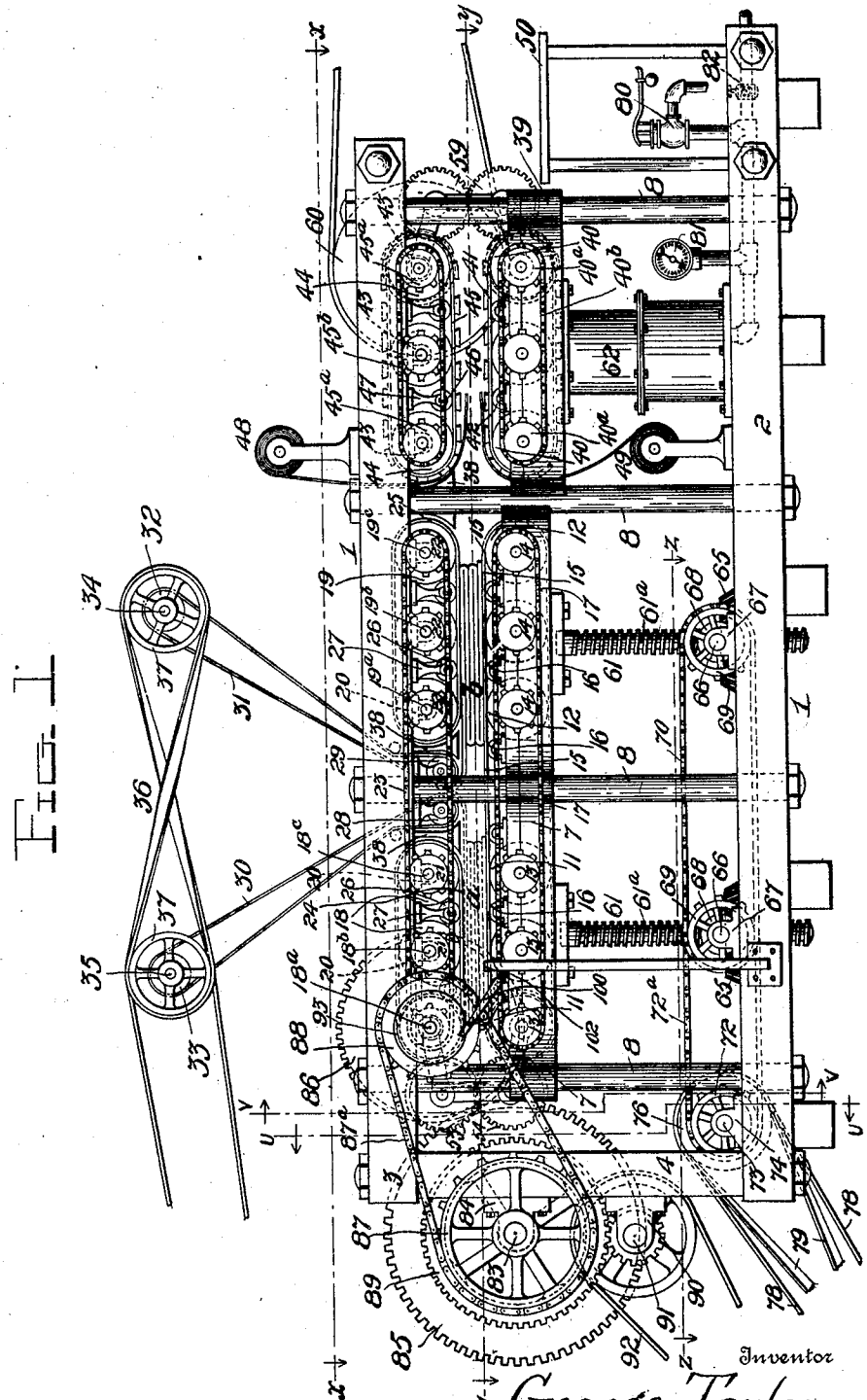
G. TAYLOR.

BALING PRESS.

(Application filed June 6, 1900.)

(No Model.) 7 Sheets—Sheet 1.

FIG. 1



Witnesses:
J. A. Gruesbauer Jr.
Benj. F. Cowl

Inventor
George Taylor.
by A. Bruesonteo
Attorneys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 655,998. Patented Aug. 14, 1900.

G. TAYLOR.

BALING PRESS.

(No Model.) (Application filed June 6, 1900.)

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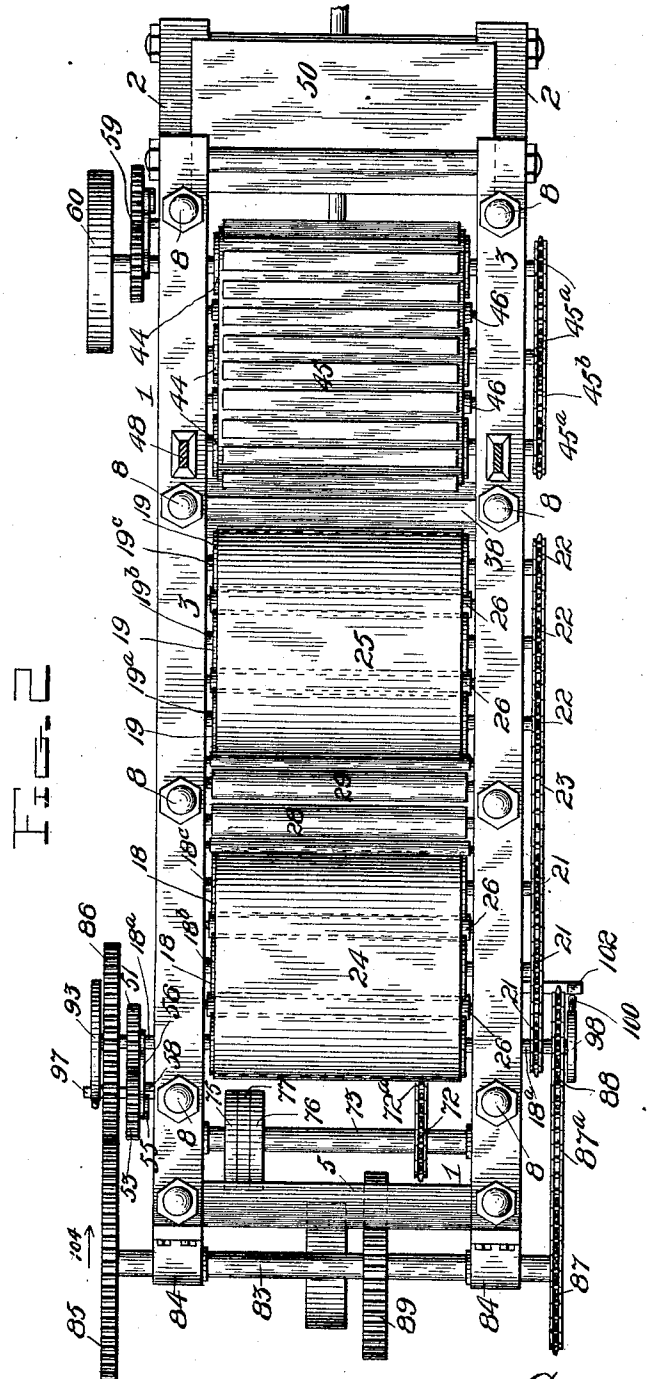


Fig. 2.

Witnesses:
J. A. Griesbauer Jr.
Benj. G. Cowle

Inventor
George Taylor
by H. B. Williamson & Co.
Attorneys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 655,998. Patented Aug. 14, 1900.

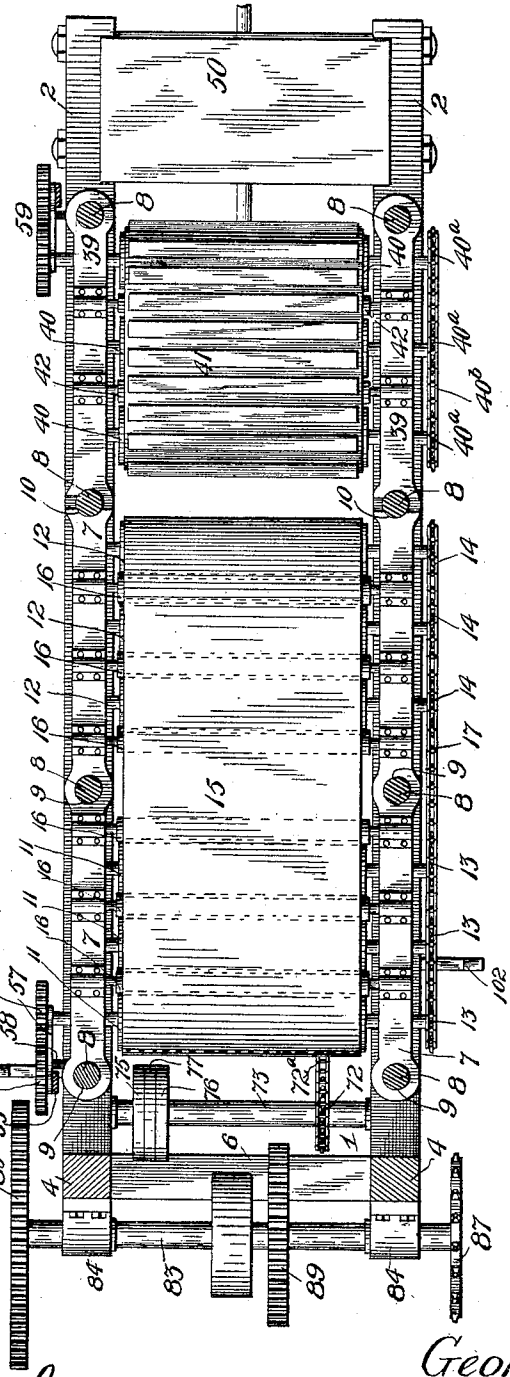
G. TAYLOR.

BALING PRESS.

(Application filed June 6, 1900.)

(No Model.) 7 Sheets—Sheet 3.

FIG. 7



Witnesses:
J. A. Griesbauer Jr.
Benj. F. Cook

Inventor
George Taylor
by A. R. Wilson & Co.
Attorneys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 655,998. Patented Aug. 14, 1900.

G. TAYLOR.

BALING PRESS.

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Fig. 4

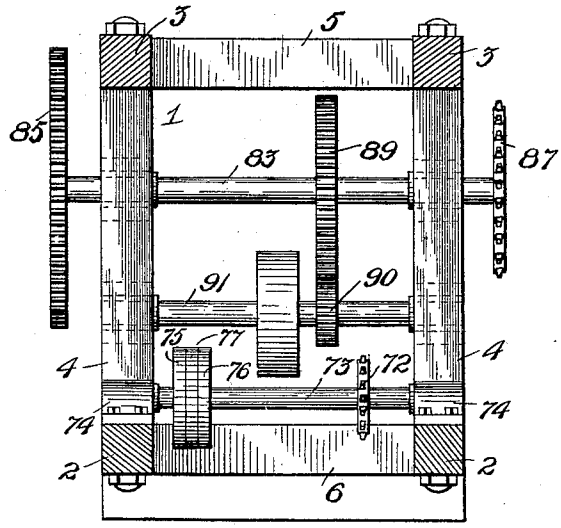
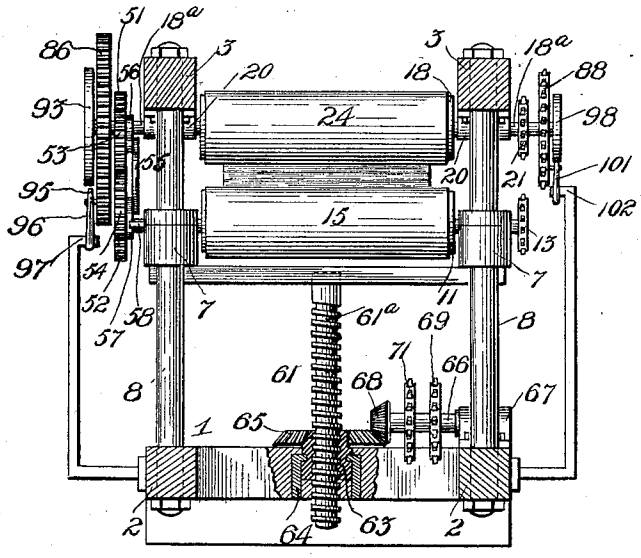


Fig. 5



Witnesses:
J. A. Griepenburg Jr.
Brift. Cowl

Inventor
George Taylor
by A. Bellinson & Co.
Attorneys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 655,998. Patented Aug. 14, 1900.

G. TAYLOR.

BALING PRESS.

(Application filed June 6, 1900.)

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Fig. 12.

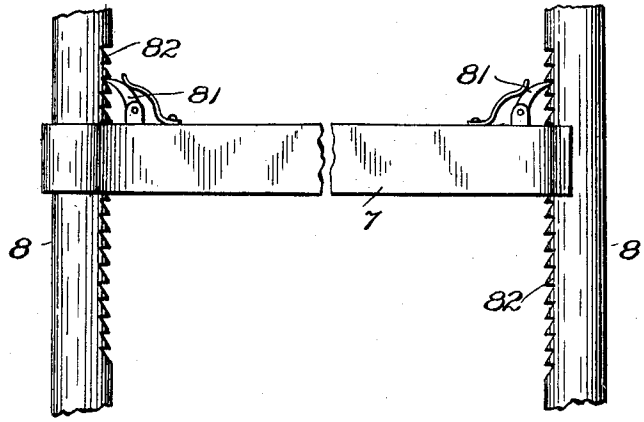
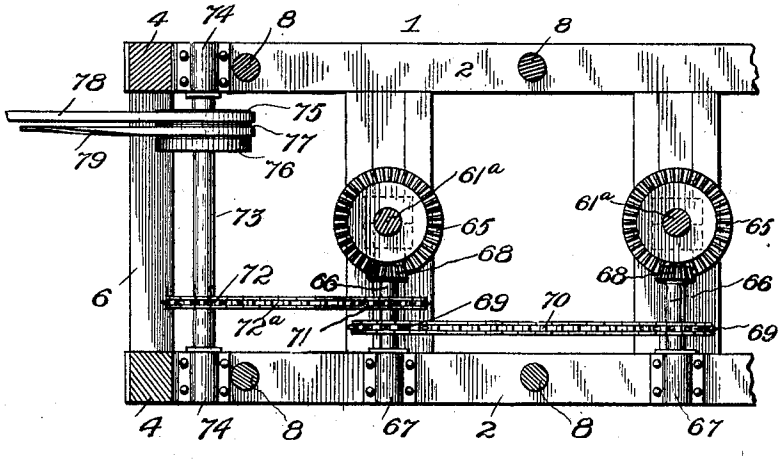


Fig. 6



Witnesses
J. A. Griesbauer Jr.
Benj. F. Bee.

Inventor
George Taylor
by A. H. Bluemson & Co.
Attorneys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 655,998. Patented Aug. 14, 1900.

G. TAYLOR.

BALING PRESS.

(No Model.) (Application filed June 6, 1900.)

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FIG. 11

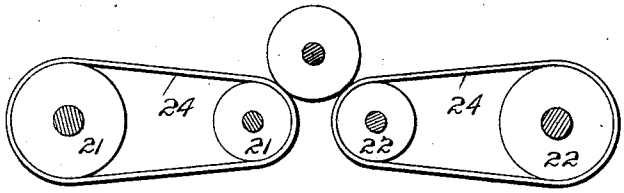
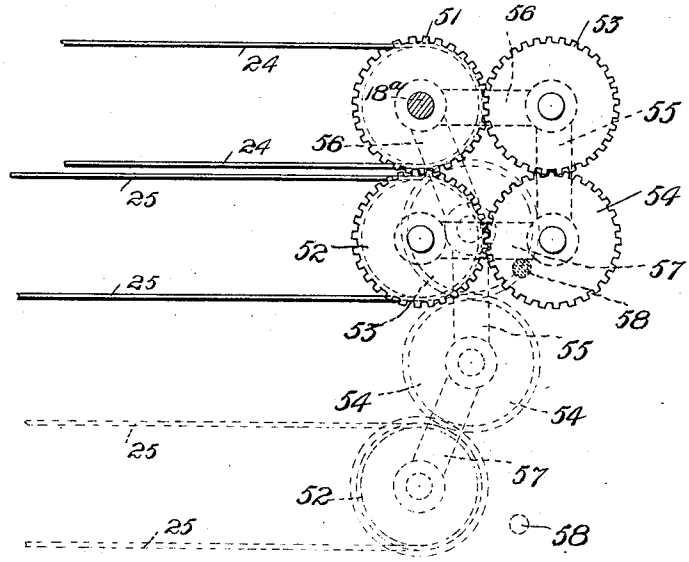


FIG. 7



Witnesses:
J. A. Griesbauer Jr.
Benj. F. Cowl

Inventor
George Taylor
by A. B. Williamson & Co.
Attorneys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 655,998. Patented Aug. 14, 1900.

G. TAYLOR.

BALING PRESS.

(No Model.) (Application filed June 6, 1900.)

7 Sheets—Sheet 7.

Fig. 8

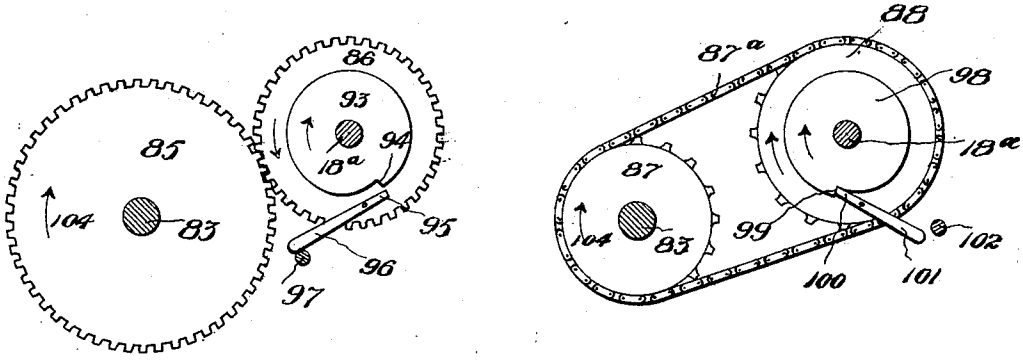


Fig. 9

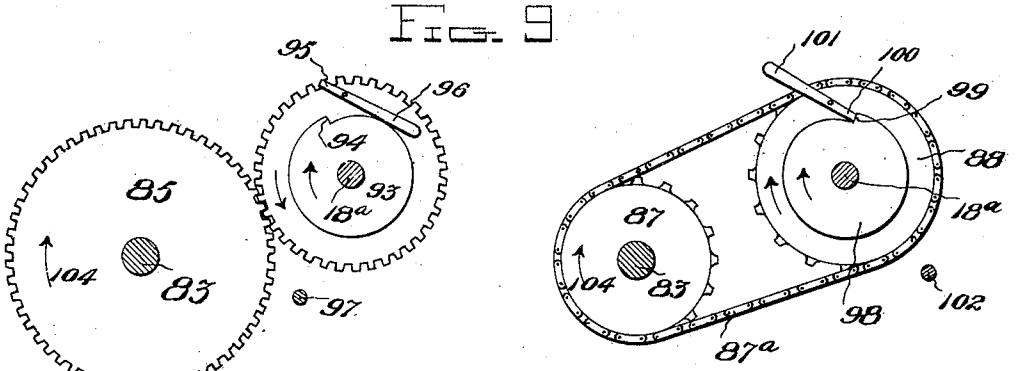
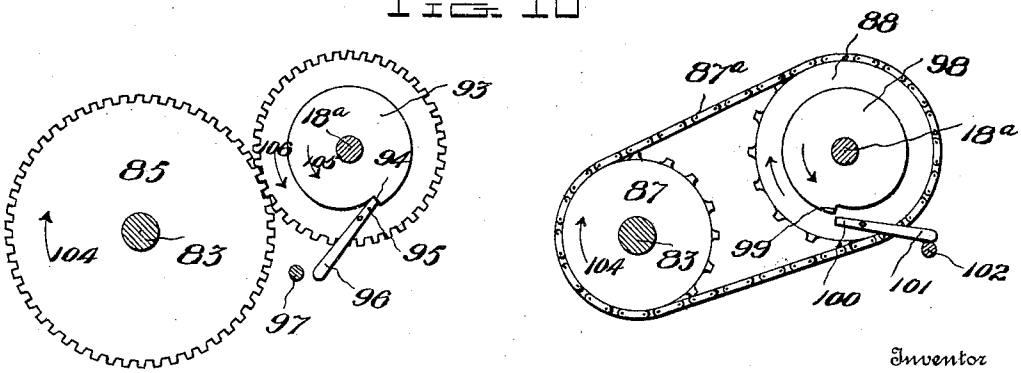


Fig. 10



Witnesses
J. A. Griesbauer Jr.
Benj. F. Bird

Inventor
George Taylor
by H. B. Williamson & Co.
Attorneys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

GEORGE TAYLOR, OF DALLAS, TEXAS.

BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 655,998, dated August 14, 1900.

Application filed June 6, 1900. Serial No. 19,242. (No model.)

To all whom it may concern:

Be it known that I, GEORGE TAYLOR, a citizen of the United States, residing at Dallas, in the county of Dallas and State of Texas, have invented certain new and useful Improvements in Baling-Presses; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention to be hereinafter described relates to presses primarily intended for baling cotton, and more particularly to such presses as form the cotton into a rectangular or what is generally termed a "square" bale.

In the present plan of handling cotton in the square bale more or less rubbing action is liable to occur between the fibers of the material being baled and the adjacent compressing-surfaces, thereby causing injury to the fiber and the production of an imperfect bale. Moreover, the plan generally adopted at the present time for handling cotton in the square bale is to pack and partially compress the cotton at the gin, after which it is shipped to a distant point and there further compressed into the proper or desired density.

It is the object of my present invention to obviate the difficulties inherent in the present plan of handling cotton in the square bale and to provide compression-surfaces movable in unison and carrying the bale between them, whereby all rubbing action of adjacent surfaces on the material of the bale is overcome, and, further, to form such square bale at the gin, so that the cotton coming direct from the gin may be formed into a compact square bale of requisite density without further and subsequent compression at a point remote from the gin.

The invention, generally speaking, consists in opposing surfaces, preferably in the form of aprons, though not necessarily limited thereto, movable in unison and between which the cotton is fed back and forth, preferably in the form of laps, to constitute a rectangular bale, suitable means being maintained for the requisite pressure on the cotton between the opposed surfaces. In the form of press selected for the embodiment of my invention I preferably construct the opposed surfaces between which the bale is formed as aprons, which may be of any approved or desired construction, and I feed the material between said aprons in the form of a lap, which as it is fed between the aprons is subjected to the action of feed or compression rolls, to thereby expel the air and reduce the elasticity of the cotton, so that as the latter is laid back and forth on the supporting surface or apron the requisite compactness and density of the bale may be secured and maintained by pressure of one surface or apron toward the other. In thus constructing the bale it will be noticed that I propose to move the bale by supporting it on a surface or apron, thereby obviating any rubbing action between the surfaces or aprons and the material of the bale.

The further feature of the invention consists in providing means whereby as the rectangular bale is completed it is moved under continuous compression onto a finishing or compressing section, where it may be submitted to a further compression, and adjacent such finishing-section I provide a device whereby a covering is fed with the bale as it moves onto the finishing-section and whereby the bale is properly covered and the covering secured while on said section. The purpose and general character of the means for transferring the bale from the bale-forming surfaces or aprons to the finishing-section and the construction of the bale-forming surfaces are such that the bale is under continuous compression during the time it is moved from the bale-forming surfaces or aprons to the said finishing-section and that thereafter the compression is continued until the bale is properly secured by the usual ties and the covering placed thereon.

With these general statements of the nature of my invention it is to be understood that the same further consists of the parts and combinations to be hereinafter described, and definitely pointed out in claims.

In the accompanying drawings, Figure 1 is a side elevation of my improved bale-press. Fig. 2 is a sectional view on line $x\,x$ of Fig. 1. Fig. 3 is a sectional view on line $y\,y$ of Fig. 1. Fig. 4 is a sectional view through line $u\,u$ of Fig. 1. Fig. 5 is a similar view through line $v\,v$ of Fig. 1. Fig. 6 is a sectional view on line $z\,z$ of Fig. 1. Fig. 7 is a

side elevation of the gearing employed for driving the compressing-aprons and maintaining a uniform movement of said aprons as they separate in the act of forming the bale, the full lines representing the portion of the gearing at the starting-point in the formation of the bale and the dotted lines representing the portion of the gearing at the finishing-point in the formation of the bale. Fig. 8 is a diagrammatic view of the reversing mechanism when the bale is at the left-hand side of the machine and just starting on its movement toward the right-hand side of the machine. Fig. 9 is a similar view illustrating the position of parts when the bale has reached the midway point. Fig. 10 is a similar view illustrating the position of parts when the bale has reached the right-hand side of the machine. Fig. 11 is a modified form of the means employed for initially compressing the cotton or forming it into a bat or web as it comes from the gin preparatory to being fed to the compressing-aprons and which I will hereinafter refer to as a "bat-former" for convenience of reference. Fig. 12 is a view of the means to be employed for preventing the tilting of the follower or table, when the same is operated by a hydraulic ram, due to the movement of the forming bale from one end of the follower or table to the other.

Referring to said drawings, 1 denotes the supporting-frame of a machine, which consists of the sills 2, the parallel beams 3, the post 4, and the upper and lower connecting-bars 5 and 6, respectively.

7 denotes a follower or table mounted to slide vertically upon guide-standards 8, which project through apertures 9 in said table. The rearmost set of guide-standards 8 engage recesses 10 in the rear end of the follower or table. The mechanism for moving the follower or table up and down will be hereinafter described.

11 and 12 denote two sets of rolls journaled in suitable bearings secured to the follower or table, and 13 and 14 denote sprocket-wheels fixed to the axes of these rolls. 15 denotes a compressing-apron, which is engaged with said rolls and has its upper run supported at points between the rolls, to prevent it from sagging, by antifriction rollers or idlers 16. This apron extends practically the full length of the follower or table.

17 denotes a sprocket-chain engaged with the two sets of sprocket-wheels 13 and 14.

18 and 19 denote two sets of rolls journaled in brackets 20, secured to the under side of the longitudinal beams 3, and have fixed to their axes 18^a 18^b 18^c and 19^a 19^b 19^c two sets of sprocket-wheels 21 and 22, which are engaged by a sprocket-chain 23.

24 and 25 denote forward and rear aprons, respectively, one for each upper set of rolls 18 and 19.

26 denotes antifriction or idle rollers journaled in brackets 27, secured to the under side of the beams 3 and serving to support the lower runs of the aprons 24 and 25 at points between the rolls 18 and 19.

Located between the two sets of upper rolls 18 and 19 is a bat-former which may consist of two rolls 28 and 29, which are driven by divergent belts 30 and 31, the adjacent runs of which move in the same direction. These belts are driven by pulleys 32 and 33, fixed to drive-shafts 34 and 35, which are driven by a cross-belt 36, engaging pulleys 37, fixed to said shafts. The cotton from the gin is fed between the divergent runs of the belts 30 and 31 and passed between the rolls 28 and 29, which are arranged sufficiently close together to compress the layers of cotton and feed the cotton to the lower apron or surface in proper condition to be baled.

Shields or guards 38, depending from the longitudinal beams 3, are located at the outer sides of the rolls 28 and 29, between said rolls and the innermost rolls of the upper set of rolls 18 and 19, for a purpose which will hereinafter appear.

Mechanism which will be hereinafter described is employed for moving the upper set of aprons and the lower apron in unison back and forth from the point *a* to the point *b*.

The operation of the parts thus far described is as follows: The cotton as it comes from the gin is conveyed between the contiguous runs of the constantly-moving belts 30 and 31, which feed the cotton in layers to the bat-forming rolls 28 and 29. It should be borne in mind that the upper run of the lower apron 15 at the starting of the machine will be in contact with the lower runs of the aprons 24 and 25, so that the partially-compressed layer or bat will be fed between the aprons 25 and 15 and be drawn from the point *a* to the point *b*. The direction of movement of the several aprons is now reversed by mechanism hereinafter described and the layer just compressed is moved from the point *b* to the point *a*, as shown in dotted lines in Fig. 1, the cotton in the meantime being fed by the rolls 28 and 29 onto the layer just previously laid. This operation is repeated until a bale of the proper size has been formed, it being understood that the downward movement of the table or follower is so timed with respect to the feed of the cotton that there will always be a sufficient pressure imparted to the layers of cotton as they are being folded one upon the other to expel the air therefrom, as well as break or destroy the elasticity of the fiber. In the movement of the aprons back and forth in the act of forming a bale there would be a tendency for the cotton to be caught in the spaces between the innermost rolls 18 and 19 and the rolls 28 and 29. By the provision of shields or guards 38 the bunching of the cotton at these points is entirely avoided. After the bale has been formed it is moved to the finishing-section of the press, which consists of a follower or table 39, which is mounted to slide vertically

upon the guide-standards 8 in a manner similar to the table or follower 7. This table or follower 39 has journaled to it rolls 40, engaged with which is an apron 41, preferably, though not necessarily, slatted, which is prevented from sagging at points between said rolls by idle rollers 42. Journaled in brackets 43 above the rolls 40 is a second set of rolls 44, which are provided with an apron 45, preferably slatted, which is supported between said rolls by rollers 46, journaled in brackets 47, secured to the under side of the longitudinal beams 3. The lower set of rolls 40 and the upper set of rolls 45 have fixed to their respective axes sprocket-wheels 40^a and 45^a, with which are engaged sprocket-chains 40^b and 45^b. The contiguous faces of these aprons are adapted to be moved in the same direction by mechanism hereinafter described.

48 and 49 denote, respectively, upper and lower cloth-reels. The ends of the cloth or cover adapted to be placed about the bale are inserted between the contiguous runs of the aprons 41 and 45 and as the bale is drawn rearward by said aprons the covering will likewise be drawn rearward, one piece covering the upper side and the other the lower side of the bale. After the bale has been fed between the two aprons it may be further pressed, if desired, and the binding-wires are passed under the bottom and around the bales between the slats on the belt and tied. The bale may now be led off onto a table 50, from which it is removed for storage or transportation.

In the lowering of the table or follower 7 in the act of forming the bale I provide novel means whereby the four sets of rolls 11 and 12 and 18 and 19 are uniformly driven. Referring more particularly to Figs. 2 and 7, it will be observed that the outer end of the axis of the forward roll of the upper set of rolls is provided with a toothed gear 51, while the axis of the forward roll of the lower set is provided with a similarly-toothed gear 52. 53 and 54 denote similarly-toothed gears, the former journaled in the upper end of the arm 55 and in mesh with the gear 51, while the latter is journaled in the lower end of the arm 55 and is in mesh with the gear 52 and the gear 53. The arm 55 is pivotally connected to the axes of the gears 51 and 52 by links 56 and 57. In the starting of the press in the act of forming the bale these gears are in the position shown in full lines in Fig. 7, and the gears 53 and 54 are prevented from sagging or swinging downward by a stop 58, which projects laterally from the side of the follower and engages the link 57. As the follower or table lowers the gears will straighten out, as shown in dotted lines in Fig. 7, the link 57 sliding over the stop 58, which projects from a stationary support connected to the frame. This arrangement of gears will impart a uniform movement to the aprons as they separate one from the other in the act of forming the bale and will cause the contiguous runs of said apron to move in the same direction. Similar mechanism (indicated by the numeral 59) is used on the finishing part or section of the press and operates in the same manner. This mechanism is driven by a band-wheel 60, secured to the axis of the rear upper roll of the finishing-section of the press.

Any suitable means may be employed for raising and lowering the followers or tables. Referring to Fig. 1, I have shown screws 61, located under the follower or table 7, and a hydraulic ram 62, located under the finishing follower or table. When a screw is employed, I engage with the screw 61^a thereof a nut 63, which is secured in bearings 64 and has fixed to its upper end a beveled wheel 65. Stud-shafts 66 are journaled in suitable bearings 67, secured to the sills of the frame, and are provided with beveled pinions 68, which engage the beveled wheel 65. Each of the stud-shafts 66 is provided with sprocket-wheels 69, which are connected together by a sprocket-chain 70. The forward stud-shaft is provided with a second sprocket-wheel 71, which is connected with a similar sprocket-wheel 72 by a sprocket-chain 72^a. The sprocket-wheel 72 is fixed to a drive-shaft 73, journaled in bearings 74, secured to the sills of the frame. This shaft 73 is provided with two fixed band-pulleys 75 and 76, between which is interposed a loose or idle band-pulley 77. 78 denotes a straight belt, and 79 a cross-belt. When the straight belt 78 is in engagement with the pulley 75, the cross-belt will be in engagement with the idle pulley 77 and the follower will be moved in one direction, and when the belts are shifted to engage the cross-belt 79 with the fixed pulley 76 and the straight belt 78 with the idle pulley 77 the follower will be moved in the opposite direction.

If desired, instead of using a screw-ram, which I have illustrated for raising and lowering the follower or table 7, I may employ the hydraulic rams 62, one of which I have illustrated, for raising and lowering the follower or table of the finishing-section of the press, or, if desired, I may use the screw-rams for moving the follower or table instead of the hydraulic rams. The hydraulic ram may be of any well-known or approved construction and is provided with a safety-valve 80, a pressure-indicator 81, and a controlling-cock 82.

When I use the hydraulic ram, I pump the cylinder thereof until it elevates the follower the desired height and set the safety-valve at a given point, so that the pressure caused by the forming of the various laps of cotton will surpass the pressure within the cylinder of the ram at which the safety-valve is set, thereby enabling me to subject the forming bale to any desired pressure by regulating the safety-valve to discharge or blow off at various points of pressure in the downward movement of the follower.

In the employment of hydraulic rams the

shifting of the bale from one end of the follower or table to the other would tend to tilt the follower or table, and to overcome this I provide said table or follower with spring-actuated dogs 81, which are adapted to engage rack-teeth 82, formed in the sides of the guide-standards 8. It is therefore evident that when the bale is moved from one end of the table to the other any tendency to lower that end upon which the bale is supported and elevate the other end is entirely overcome. When it is desired to elevate the follower or table, these spring-actuated dogs are disengaged by hand from their racks and power is applied to the ram for restoring the parts to their normal positions.

I will now proceed to describe the mechanism for reversing the direction of movement of the upper and lower sets of rolls of the press, whereby the contiguous runs of the aprons 15, 24, and 25 are moved back and forth in unison in the formation of the bale. This mechanism may be of any well-known or approved construction, but preferably consists of the parts shown in the accompanying drawings, particular reference being had to Figs. 8, 9, and 10, wherein the relative positions of the parts are illustrated in the three steps of the operation. 83 denotes a drive-shaft journaled in brackets 84, secured to the forward end posts 4 of the frame of the machine, and provided on its inner end with a large gear-wheel 85, which meshes with a gear-pinion 86, loosely journaled to the axis 18^a of the forward upper roll. The outer end of said shaft 83 is provided with a fixed sprocket-wheel 87, which is connected by a sprocket-chain 87^a to a sprocket-wheel 88, loosely journaled upon the outer end of the axis of the forward upper roll. 89 denotes a gear-wheel keyed to the shaft 83 and meshing with a gear-pinion 90, fixed to a power-shaft 91, driven by a belt 92. 93 denotes a disk fixed to the axis 18^a at its extreme inner end and provided with a tooth 94, which is adapted to be engaged by the end 95 of a weighted dog 96, pivoted to the wheel 86, and thus lock the wheel 86 to the axis 18^a. A trip-stud 97, suitably supported on the frame of the press, is arranged within the path of movement of the weighted end of the dog 96 to disengage the said dog from engagement with the tooth 94 of the disk. Fixed to the inner end of the axis 18^a is a second disk 98, provided with a tooth 99, which is adapted to be engaged by the end 100 of a weighted dog 101, pivoted to the sprocket-wheel 88, and when engaged with this tooth said dog locks the wheel 88 to the axis 18^a and causes them to turn in unison. 102 denotes a trip arranged within the path of movement of the weighted end of the dog 101. In operation, assuming the continuously-rotated shaft 83, which rotates in one direction, to be rotated in the direction indicated by the arrow 104, (shown in Figs. 2, 8, 9, and 10,) the layer of cotton being fed between the contiguous runs of the aprons 15 and 25 and the reversing mechanism in the position shown in Fig. 8, in which the dog 101 is in engagement with the teeth 99 of the disk 98 and the dog 96 has just been moved out of engagement with the tooth 94 of the disk 93, the complete rotation of the axis 18^a will move the aprons 15 and 25 to draw the web of cotton from the point *a* to the point *b*. Fig. 9 denotes the position of the reversing mechanism when the web has been moved just half the distance, and Fig. 10 denotes the position of the reversing mechanism when the disk 98 has completed a full revolution, at which instant the dog 101 comes in contact with the trip 102 and is released from the tooth 99. At the instant the dog 101 is released from its tooth 99 the dog 96 has ridden over or passed the trip 97 and its end 95 becomes engaged with the tooth 94 of the disk 93, as shown in Fig. 10, thus revolving said disk in the direction shown by the arrow 105 in Fig. 10, while the toothed gear 86 is revolving in the same direction shown by the arrow 106. This imparts a reverse movement to the aprons and moves the partially-formed bale from point *b* to the point *a*, where another fold is made. When the disk 93 makes a complete revolution by moving from the point shown in Fig. 10 to the point shown in Fig. 8, the weighted end of the dog 96 comes in contact with the trip 97, disengaging the dog from said disk, thus stopping the shaft 18^a, upon which the disk 98 is fastened, and allowing the dog 101 to engage the tooth 99 of the disk 98 and reverse the rotative movement of shaft 18^a, as shown at the right-hand side of Fig. 8, and thus also reverse the movement of the belts and surfaces through the mechanism already explained. While the disk 98 is being rotated by the dog 101, connected to the gear-wheel 88, the disk 93 and gear-wheel 86 are moving at the same speed, but in opposite directions, as shown at the left-hand side of Fig. 9, and of course the end 95 of the dog 96 would meet the tooth 94 at the instant the disk 93 and wheel 86 have completed one-half of a revolution; but by providing the dog with a weighted end the point 95 of the dog will be elevated, as shown at the left of Fig. 9, so as not to come in contact and interfere with the revolution of the disk 93 and gear-wheel 86 in their movement in opposite directions. This operation is repeated until the bale has been made the proper size preparatory to being moved upon the finishing-section of the press.

In Fig. 11 is shown an enlarged detail view of a modified form of bat-former which may be used instead of that form shown in Fig. 1.

From the foregoing description, taken in connection with the accompanying drawings, the construction, operation, and advantages of my invention will be readily understood without requiring an extended explanation. The device is extremely useful for the pur-

pose for which it is designed and may be placed upon the market at a comparatively small cost.

Various changes in the form, proportion, and minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

While I have disclosed the above specific form of devices as the present preferred form of my invention, it is to be understood that the said invention is not necessarily limited thereto, and when I refer to the "aprons" in the specification and claims I mean any form of surface adapted to support a bale and act as a compression-surface therefor.

It will be noticed in the operation of my device that the bale as it is being formed is supported upon and carried by one of the moving surfaces or aprons and that the opposite or what I may term the "compression" aprons bear on the opposite side or end of the bale and travel in unison with the lower surface or apron and with the bale, so that under all conditions of formation there is no rubbing action between any portion of the material of the bale and adjacent surface. As the bale is reciprocated back and forth and being carried by the lower supporting apron or surface the material passing between the compression-rolls is fed in superposed layers between the contiguous runs of the lower and upper aprons as the bale moves back and forth beneath such rolls, which constitute feeding devices. After the bale is completed, as will be understood from the construction and operation set forth, it is moved while still under compression onto the finishing-section, and such movement is brought about by causing the aprons between which the bale is formed to continue their movement in one direction, so as to carry the bale toward and between the compressing aprons or surfaces of the finishing-section. It is to be noted that the finishing-section is placed in such close proximity to the end of the series of compression-belts that the bale as it is fed by the compression aprons or surfaces toward the finishing-section is not released from compressive action, but the end of the bale as soon as it leaves the compressing surfaces or aprons between which it is formed is at once engaged by the traveling surfaces or aprons of the finishing-section, so that no opportunity is afforded for the entrance of air or the expansion of the bale, and the transference of the bale is thus carried on under continuous compression.

In order to provide for the continued movement of the bale from between the compression-aprons onto the finishing-section, it is simply necessary to remove one of the pins 97 or 102 so as the dog shall not be dropped from its holding-notch in the disk as the said dog passes the point where the pin is normally located—in other words, instead of tripping the dogs 96 or 101 to thereby reverse the movement of the aprons they are permitted and caused to retain their respective positions with respect to their adjacent disks to continue the movement of the aprons sufficient to carry the bale to the finishing-section, and such manipulation of the pins 97 or 102 and their adjacent dogs may be caused by any suitable mechanical devices or by hand, as will be evident.

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

1. In a baling-press, the combination with the follower or table and pressure-rolls journaled therein, of two sets of pressure-rolls journaled above the first-named rolls, an apron carried by the lower rolls, an apron carried by each set of upper rolls, means for feeding the material to be baled between the contiguous runs of the said aprons, and means for reciprocating the contiguous runs of the aprons in unison, substantially as set forth.

2. In a baling-press, the combination with the follower or table and pressure-rolls journaled therein, of two sets of pressure-rolls journaled above the first-named rolls, an apron carried by the lower rolls, an apron carried by each set of upper rolls, rollers located between the rolls and in engagement with the aprons, means for feeding the material to be baled between the two sets of upper rolls and between the contiguous runs of the said aprons, and means for reciprocating the contiguous runs of the aprons in unison, substantially as set forth.

3. In a baling-press, the combination with the follower or table and pressure-rolls journaled therein, of two sets of pressure-rolls journaled above the first-named rolls, bat-forming rolls journaled between the upper rolls, a hopper, an apron carried by each set of upper rolls, an apron carried by the lower rolls, means for feeding the material to be baled between the two sets of upper rolls and between the contiguous runs of said aprons, and means for reciprocating the contiguous runs of the aprons in unison, substantially as set forth.

4. In a baling-press, the combination with the follower or table and pressure-rolls journaled therein, of two sets of pressure-rolls journaled above the first-named rolls, an apron carried by the lower rolls, an apron carried by each set of upper rolls, means for feeding the material to be baled between the two sets of upper rolls and between the contiguous runs of the said aprons, means for reciprocating the contiguous runs of the aprons in unison, and means for lowering the follower or table proportionately with the forming bale, substantially as set forth.

5. In a baling-press, the combination with the main frame, of a follower or table, means for raising or lowering said follower or table, pressure-rolls journaled in said follower or table, two sets of pressure-rolls journaled above the first-named rolls, bat-forming rolls

journaled between the upper rolls, a hopper, an apron carried by each set of upper rolls, an apron carried by the lower set of rolls, and means for reciprocating the contiguous runs of the aprons in unison, substantially as set forth.

6. In a baling-press, the combination with the follower or table and pressure-rolls journaled therein, of two sets of pressure-rolls journaled above the first-named rolls, the two sets of upper rolls being spaced apart, bat-forming rolls journaled between the two sets of upper rolls, shields or guards located between the bat-forming rolls and the adjacent end rolls of the upper set of rolls, an apron carried by the lower pressure-rolls, an apron carried by each set of upper pressure-rolls, and means for reciprocating the contiguous runs of the aprons in unison, substantially as set forth.

7. In a baling-press, the combination with a suitably-mounted apron, of two aprons suitably mounted above the first-named apron and having their lower runs parallel with the upper run of the lower apron, and means for feeding the material to be pressed between the upper set of aprons and between the lower runs of the upper aprons and the upper run of the lower apron and means for reciprocating said aprons, substantially as set forth.

8. In a baling-press, the combination with a suitably-mounted apron, of two aprons suitably mounted above the first-named apron and having their lower runs parallel with the upper run of the lower apron, said upper aprons being spaced apart, and bat-forming rolls for feeding the material to be pressed between the upper set of aprons and between the lower runs of the upper aprons and the upper run of the lower apron and means for moving said aprons, substantially as set forth.

9. In a baling-press, the combination with the follower or table and pressure-rolls journaled therein and provided with sprocket-wheels, and chains connecting the sprocket-wheels, of two sets of pressure-rolls journaled above the first-named rolls and provided with sprocket-wheels, a sprocket-chain connecting said wheels, an apron carried by the lower pressure-rolls, an apron carried by each set of upper rolls, means for feeding the material between the contiguous runs of the aprons, means for lowering said follower or table, gear-wheels fixed to the axes of the forward upper and lower pressure-rolls, a second set of gear-wheels in mesh with the first set of gear-wheels and flexibly connected to the axes of the first-named set of gear-wheels and in mesh with each other, and means for rotating one of the axes of the first-named set of gear-wheels, substantially as set forth.

10. In a press, the combination of mechanism having opposing surfaces, means for reciprocating said opposing surfaces in unison and the same direction whereby a mass of material will be built up in layers between them, and means for controlling the movement of one of said mechanisms toward and away from the other.

11. In a baling-press, the combination with the frame and the guide-standards having rack-teeth, of a follower or table mounted to slide upon said guide-standards, means for supporting said follower or table, pressure-rolls carried by the follower or table, and automatic dogs carried by said follower or table and adapted to engage said rack-teeth and prevent the tilting of the follower or table, substantially as set forth.

12. In a baling-press, the combination with a drive-shaft and pressure-rolls, of reversing mechanism interposed between the drive-shaft and pressure-rolls, said mechanism comprising a gear-wheel and a sprocket-wheel fixed to the drive-shaft, a gear-wheel loosely fixed to one end of one of the pressure-rolls and in mesh with one of the first-named gear-wheels, a toothed disk fixed to the same end of said pressure-roll, a dog pivoted to the loosely-mounted gear-wheel and adapted to engage the tooth of said disk, a trip arranged within the path of movement of the outer end of said dog, a sprocket-wheel loosely mounted upon the other end of said pressure-roll, a toothed disk fixed to this end of said roll, a dog pivoted to said last-named sprocked-wheel, a trip arranged within the path of movement of said dog, and a sprocket-chain connecting the last-named sprocket-wheel and the first-named sprocket-wheel, substantially as and for the purpose set forth.

13. In a baling-press, the combination of opposed aprons, means for causing their contiguous surfaces to reciprocate in unison and in the same direction, and means to feed material between said aprons to form a bale.

14. In a baling-press the combination of a follower or table, an apron supported by said table, an apron opposed to said first-named apron, and means for reciprocating the opposing plies of the said aprons in unison to form a bale between them.

15. In a press, the combination of feeding devices for feeding the cotton to be baled, a support for receiving the cotton from the feeding devices, means for reciprocating said support beneath said feeding devices, and reciprocating compression-surfaces above said support and reciprocal in unison therewith.

16. In a press, the combination of feeding devices for feeding the cotton to be baled, a support for receiving the cotton from the feeding devices, means for reciprocating said support and the bale carried thereby beneath said feeding devices, reciprocating compression-surfaces above said support and reciprocal in unison therewith, and means for lowering the support during the formation of the bale.

17. In a press, the combination of feeding devices for feeding the cotton to be baled, an apron for receiving the cotton from the feeding devices, a plurality of aprons above the first-named apron, and means for reciprocat-

ing the contiguous runs of said aprons in unison.

18. In a press, the combination of feeding devices for feeding the material to be baled, an apron for receiving the cotton from the feeding devices, a plurality of aprons opposed to said first-named apron, rolls for supporting said aprons, and means for reciprocating the contiguous runs of said aprons in unison.

19. In a press, the combination of feeding devices for feeding the material to be baled, an apron for receiving the cotton from the feeding devices and for supporting the bale, a plurality of aprons opposed to said first-named apron, and means for moving the contiguous runs of said aprons in unison, said means comprising automatic reversing devices for changing the direction of movement at intervals.

20. In a press, the combination of a series of aprons having contiguous surfaces between which to form a bale, means for reciprocating said aprons in unison, a finishing-press adjacent one end of the series of aprons and provisions for transferring the bale from between the aprons and under continuous compression to the finishing-press.

21. In a press, the combination of feeding devices, aprons having opposed contiguous surfaces, means for reciprocating said contiguous surfaces in unison to form a bale, a finishing-press, and provisions for continuing the movement of the aprons in one direction to feed the bale under continuous compression to the finishing-press.

22. In a press, means for lapping material under compression to form a bale, a finishing-press, and means for moving the bale to the finishing-press said means holding it under continuous compression.

23. In a press, bale-forming mechanism and a bale-finishing mechanism, means for transferring the bale from the former to the latter, and devices for supporting the covering for said bale between said mechanisms whereby as the bale is transferred as specified the bagging will be caused to move with the bale.

24. In a press, bale-forming mechanism and bale-finishing mechanism, means for holding and transferring the bale under continuous compression from the former to the latter, and devices for supporting the covering for said bale whereby as the bale is transferred as specified the covering will be caused to move with said bale.

25. In a press, bale-forming mechanism and bale-finishing mechanism, and means for holding and transferring the bale under continuous compression from the former to the latter.

26. In a baling-press, the combination of aprons having opposed surfaces, one of said aprons being movable toward and away from the other and devices for controlling such movement, and means for causing said opposed surfaces to reciprocate in unison and in the same direction.

27. In a press, the combination with mechanism having opposing surfaces and means for reciprocating said surfaces in unison and in the same direction for building up a mass of material between them.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

GEORGE TAYLOR.

Witnesses:
M. A. ROSE,
N. G. TURNEY.