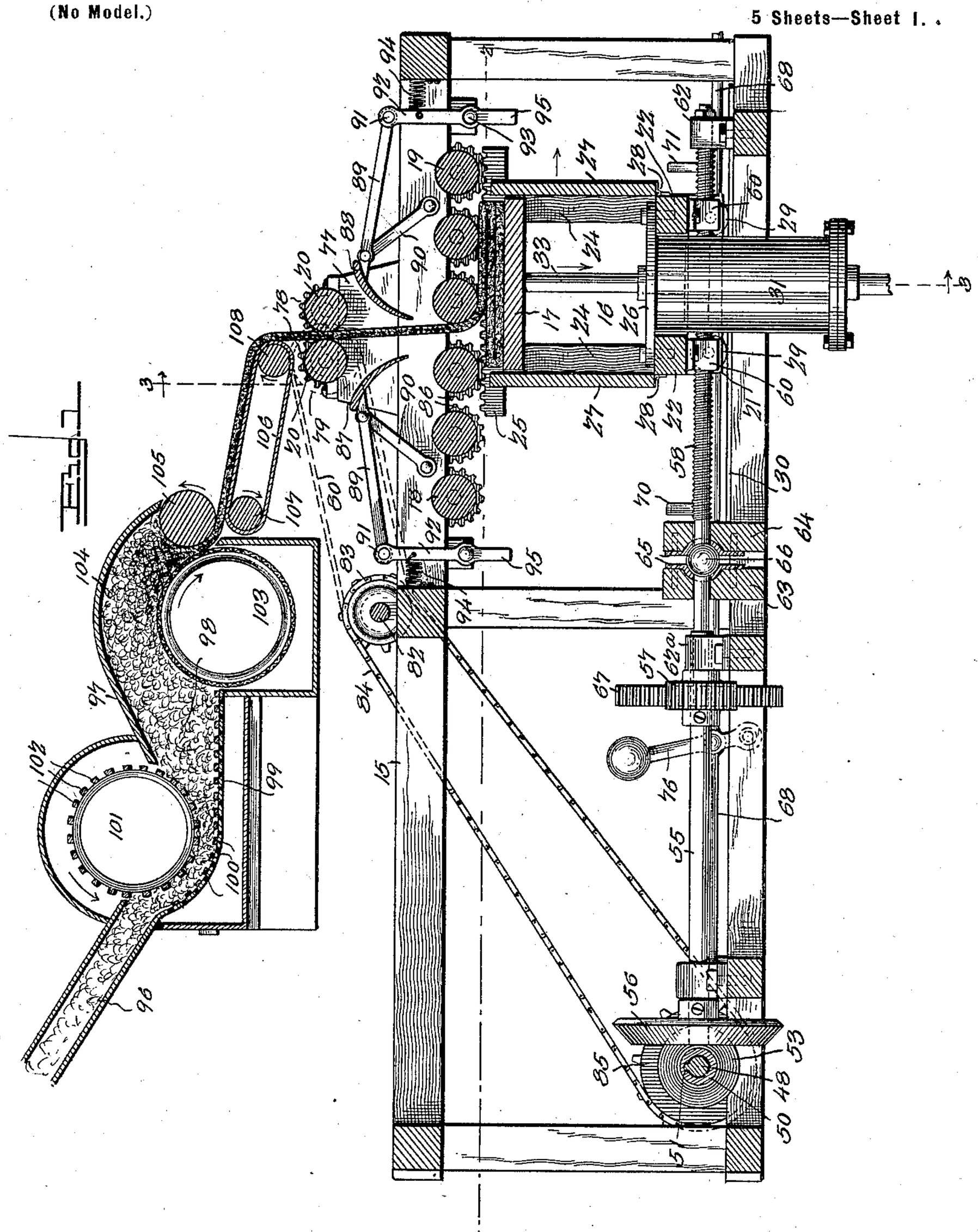
No. 652,383. Patented June 26, 1900.

W. T. CALTON.

COTTON PRESS.

(Application filed Nov. 13, 1899.)

(No Model.) 5 Sheets—Sheet 1.



Witnesses
E. F. Stewart.
H. J. Benhoff

William T. Calton Inventor
By his Attorneys,
C. A. Snow & Co.

No. 652,383. Patented June 26, 1900.

W. T. CALTON.

COTTON PRESS.

(Application filed Nov. 13, 1899.)

(No Model.) 5 Sheets—Sheet 2.

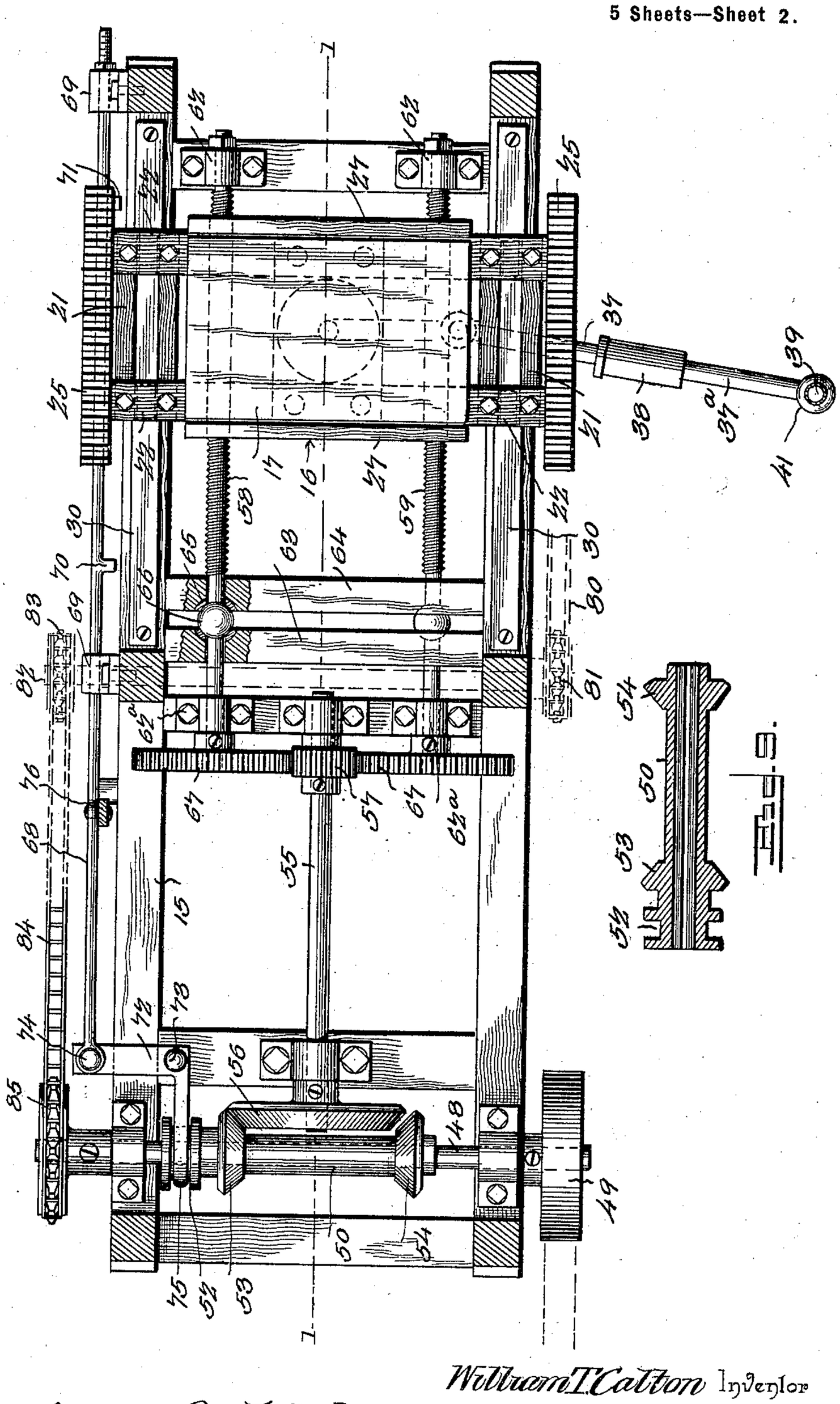


Fig. 2.

Fig. 5.

Witnesses
E. F. Stewart
H. J. Bernhard

William T. Calton Inventor
By Its Attorneys.
C. A. Snow & Co.

No. 652,383. Patented June 26, 1900.

W. T. CALTON.

COTTON PRESS.

(Application filed Nov. 13, 1899.)

(No Model.) 5 Sheets—Sheet 3.

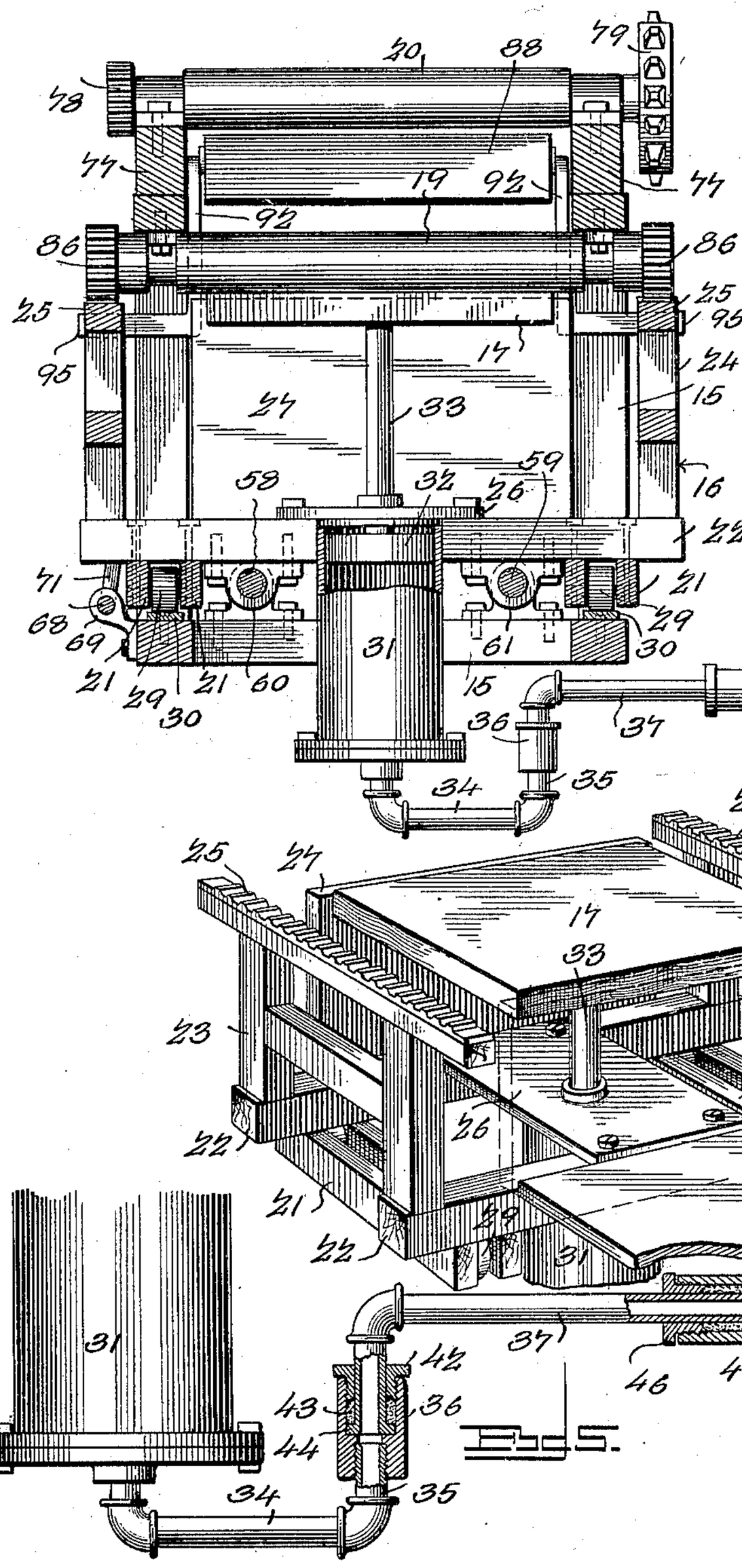


Fig. 3.

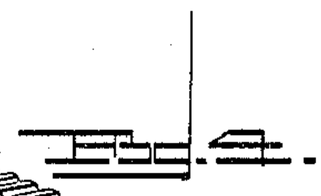


Fig. 4.

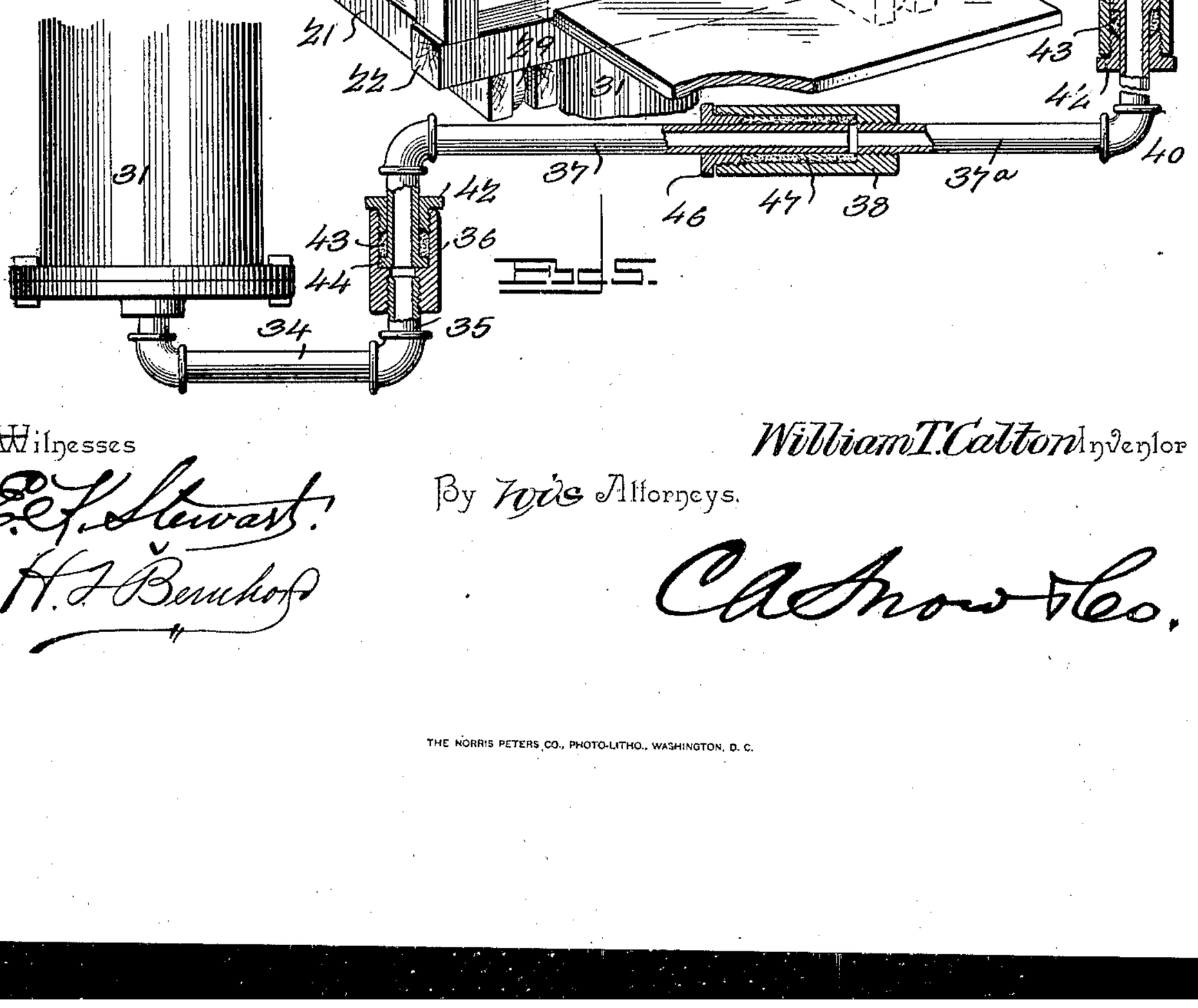


Fig. 5.

Witnesses
E. F. Stewart.
H. J. Benthos

William T. Calton Inventor
By Fyke Attorneys.
C. A. Snow & Co.

No. 652,383. Patented June 26, 1900.

W. T. CALTON.

COTTON PRESS.

(Application filed Nov. 13, 1899.)

(No Model.) 5 Sheets—Sheet 4.

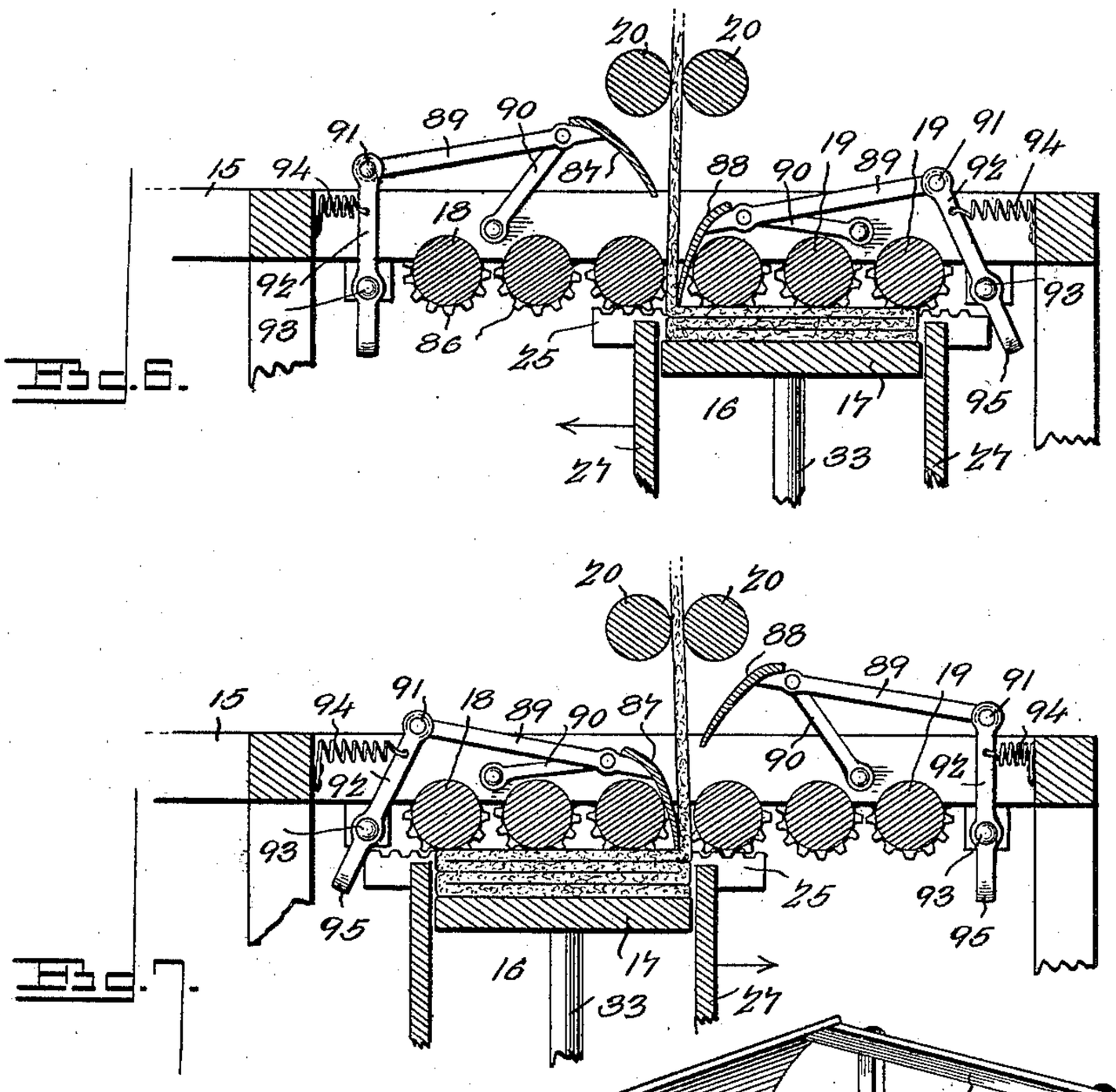


Fig. 6.

Fig. 7.

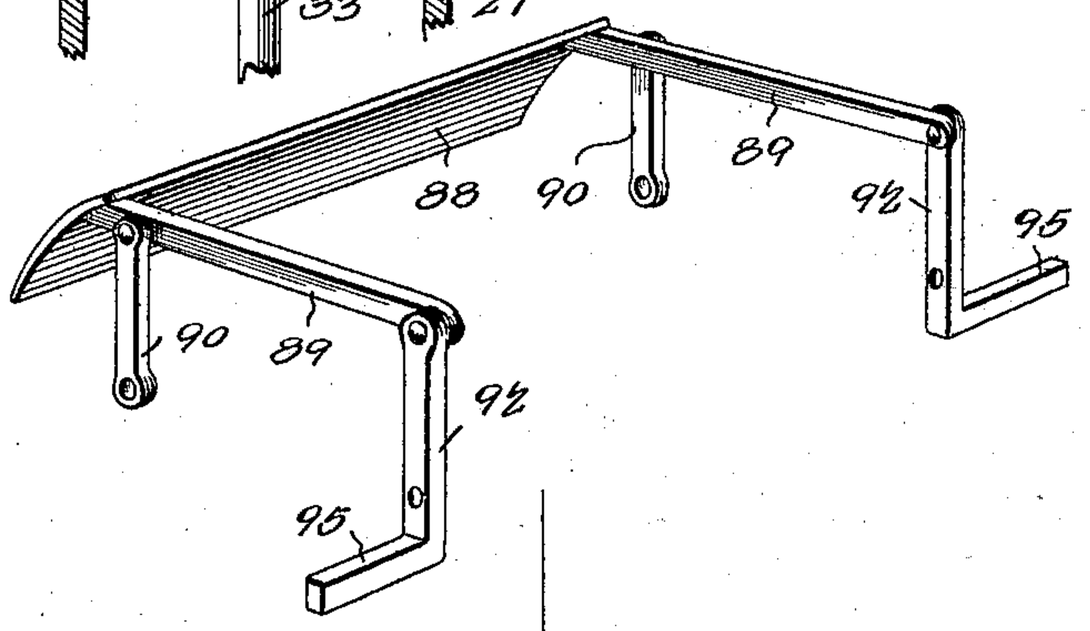


Fig. 8.

Witnesses
E. F. Stewart
H. J. Benchoff

William T. Calton Inventor
By His Attorneys,
Calton & Co.

No. 652,383.

Patented June 26, 1900.

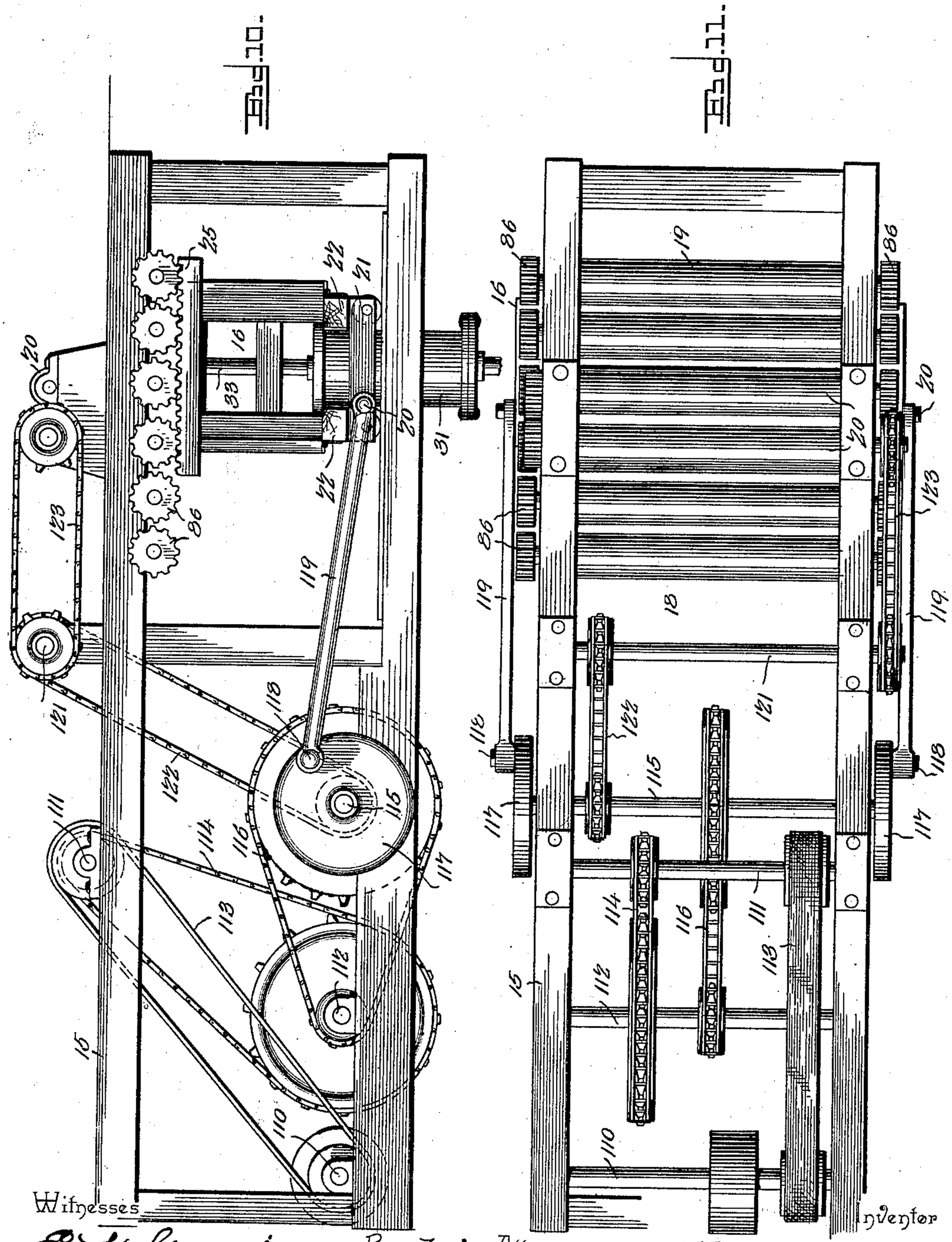
W. T. CALTON.

COTTON PRESS.

(Application filed Nov. 13, 1899.)

(No Model.)

5 Sheets—Sheet 5.



Witnesses

E. F. Stewart.

H. J. Benthoff

By Wm's Attorneys,

Inventor

William T. Calton

Calton & Co.

UNITED STATES PATENT OFFICE.

WILLIAM THOMAS CALTON, OF LATTIMORE, NORTH CAROLINA.

COTTON-PRESS.

SPECIFICATION forming part of Letters Patent No. 652,383, dated June 26, 1900.

Application filed November 13, 1899. Serial No. 736,815. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM THOMAS CALTON, a citizen of the United States, residing at Lattimore, in the county of Cleveland and State of North Carolina, have invented a new and useful Cotton-Compress, of which the following is a specification.

My invention relates to improvements in cotton-compresses of that class which are used in connection with lint-condensing and bat-forming devices to secure the formation of the lint-cotton into a bat previous to compressing the latter continuously into a bale.

One object of this invention is to compress a continuous bat of lint-cotton into the size of compressed or commercial bales at the ginnery where the cotton is ginned, thereby securing cheaper transportation and saving the cost of shipping the cotton to the large compresses and also saving the expense of unloading the cotton, recompressing, and reloading, and, furthermore, covering the cotton to better advantage and protecting the same from dirt and waste in handling. The cotton is delivered to the press from a condenser and batter mechanism in a smooth bat and is pressed in that condition into the bale, each layer as it comes from the condenser separately passing through and under smooth rollers that straighten out the fiber of the cotton instead of crumpling it, as in the common method, thereby improving the lint of the cotton. The cotton will open up to better advantage in the opening-room, because the cotton is in smooth layers across the bale. The ginning and baling of the cotton are effected at one operation without the aid of a man to do the packing, so that when the ginning is completed the cotton is baled, covered, and tied previous to its discharge from the press in a compressed and commercial bale.

A further object that I have in view is to provide an efficient and comparatively-simple construction of press mechanism by which the cotton-bat as it comes from the condenser may be arranged in layers and subjected to the necessary compression at one continuous operation for the production of cotton-bales of cubical shape having the contents in a compact condition.

A further object is to provide an improved bale-platen resisting or pressure mechanism operable in unison with the bat laying and folding mechanism and with the pressure-rolls for subjecting the embryonic bale to pressure from above and below, such improved mechanism being adapted to utilize the energy of a compressed motive fluid to attain the necessary pressure.

A further object is to provide means controllable by the pressure and resisting mechanism and working in coöperation with the bat-feeding devices to effect the folding or creasing of the continuous cotton-bat at regular and predetermined intervals, whereby the bat may be superposed in strata of uniform length and width and all the edges of the bale are brought into flush relation, to the end that the bale may present a uniform appearance on all sides thereof.

Further objects of the invention are to provide improved means for reducing the speed or travel of the carriage and pressure mechanism as compared with the speed of the prime motor, to provide for the maintenance of the pressure-fluid constantly in the movable element of the pressure mechanism notwithstanding the travel thereof, and to reduce the friction and wear on certain elements of the pressure mechanism.

With these ends in view the invention consists in the novel combination of mechanisms and in the peculiar construction, arrangement, and adaptation of the various parts for service, as will be hereinafter fully described and claimed.

To enable others to understand the invention, I have illustrated a preferred embodiment thereof in the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a vertical longitudinal sectional elevation through a cotton-compress of large capacity embodying my invention and showing a condenser and batter in operative relation thereto, the plane of section of the compress being indicated by the dotted line 1 1 of Fig. 2. Fig. 2 is a sectional plan view through the cotton-compress, taken in the plane of the dotted line 2 2 on Fig. 1, certain of the parts being indicated in dotted lines. Fig. 3 is a vertical transverse sectional elevation through the cotton-compress, taken in the plane of the dotted line 3 3 of Fig. 1 look-

ing in the direction of the arrow. Fig. 4 is an enlarged detail perspective view of the reciprocatory carriage adapted to sustain the bale-platen and the pressure mechanism which opposes or resists the downward travel of the said cotton-bale platen under the accumulation of the layers of the lint-cotton bat thereon. Fig. 5 is a detail sectional elevation of the pressure-cylinder and the means for constantly supplying a motive fluid to said cylinder without leakage and irrespective of the travel of the cylinder with the reciprocatory carriage. Figs. 6 and 7 are detail sectional elevations of parts of the press-frame, the two series of pressure-rolls, the bale-forming mechanism, and the bat folding or creasing mechanism, Fig. 6 illustrating the operative position of one bat folding and creasing mechanism and Fig. 7 representing the other bat folding and creasing mechanism. Fig. 8 is a detail perspective view of the devices forming a part of one bat folding and creasing mechanism. Fig. 9 is a detail longitudinal section through a shiftable tubular shaft which is driven by the main power-shaft of the machine. Figs. 10 and 11 are views in side elevation and plan, respectively, of another embodiment of the invention adapted to be utilized in the construction of presses of smaller capacity.

The same numerals of reference are used to indicate like and corresponding parts in each of the several figures of the drawings.

The press-frame 15 may be of any suitable construction to sustain the working mechanism of the press. Within this frame is slidably supported a reciprocatory carriage 16, in which is mounted a vertically-movable bale-platen 17. Above the limit of upward movement of this bale-platen are two series of pressure-rolls 18 19, which are mounted in the press-frame, so as to lie in the same horizontal plane, one set of pressure-rolls being on one side of the plane of feed of the cotton-bat to the bale-platen and the other set of pressure-rolls being on the opposite side of the plane of feed of said cotton-bat. The compress of my invention is used in connection with a lint-cotton condenser and batter mechanism, and between this condenser and the pressure-rolls of the compress is arranged a pair of bat-condensing rolls 20, the latter serving also to guide the cotton-bat between the inner members of the two sets of horizontally-disposed pressure-rolls 18 19.

The reciprocatory carriage which I employ in the construction of my cotton-compress is shown in detail by Fig. 4 of the drawings and also in Figs. 1 and 3. This carriage is of substantial construction to withstand the weight and pressure of the cotton-bale during its formation, and said carriage consists of the base-rails 21, the cross-rails 22, and the posts 23 24, all these parts being joined firmly together to produce a skeleton carriage, within which are arranged the bale-platen 17 and the pressure mechanism therefor. The posts 23 24 are disposed on opposite sides of the carriage and the press-frame, and said posts support the horizontal rack-bars 25, which are adapted to travel with the carriage, said rack-bars serving as the means for rotating the two sets of pressure-rolls 18 19. A supporting-plate 26 for the pressure-cylinder of the bale-platen is fastened securely to the cross-rails 22 of the slidable carriage, and the space between the platen and the cylinder-supporting plate is closed at the ends of the carriage by the doors 27, the latter being hinged at 28 to the cross-rails 22 of the carriage. These doors are adapted to be normally raised to the positions shown by Fig. 1, so as to form, in connection with the bale-platen, the baling-chamber of the press, said doors being held in their raised position by any suitable means. The base-rails 21 of the reciprocatory carriage support the carrying rollers or wheels 29, which are adapted to the track-rails 30 on the base-sills of the press-frame, and the carriage is thus mounted to travel within the press-frame with minimum frictional engagement therewith.

The carriage supports the pressure mechanism that is adapted to resist or oppose the downward movement of the bale-platen, and this pressure mechanism utilizes a motive fluid which is constantly supplied thereto so as to exert pressure in an upward direction on the bale-platen for the purpose of forcing said platen toward the pressure-rolls, whereby the platen and the pressure-rolls subject the cotton-bat as the layers thereof increase in number to the proper degree of compression in order to form a compact bale. This pressure mechanism includes a cylinder 31, which is secured firmly to the supporting-plate 26 and depends therefrom. Within this cylinder is fitted a piston 32, having its stem or rod 33 extended through a suitable opening in the supporting-plate, as shown by Fig. 4, the upper extremity of the piston stem or rod being fastened to the bale-platen in any suitable way.

The motive fluid to be supplied continuously to the pressure-cylinder may be in the form of steam, air, or water, and the pipe by which this fluid is supplied to the lower end of the pressure-cylinder is of sectional construction, so as to be equipped with a series of compensating joints which render the pipe flexible, so as to accommodate itself to the movement of the pressure-cylinder with the reciprocatory carriage. A horizontal length 34 of this pipe is coupled centrally to the lower end of the pressure-cylinder 31, and to the outer end of this branch of the pipe is united an elbow which connects a vertical branch pipe 35 with said horizontal length. This vertical branch of the pipe is in two sections, to one of which is firmly secured a coupling 36, in the open end of which is screwed a gland 42, thus forming a swiveled coupling in the vertical branch 35 of the pressure-pipe. Another horizontal length 37 37ª of the pressure-

pipe is connected with a member of the vertical branch 35 of said pipe by means of an elbow, and this secondary sectional length of horizontal pipe is connected by an elbow 40 with the vertically-disposed supply-pipe 39, the latter occupying a fixed position at one side of the press. A swiveled coupling 41 is between the elbow 40 and the supply-pipe 39, and the two swiveled couplings 36 41 in the vertical branches of the pressure-pipe are arranged to permit the free turning of the horizontal lengths of pipe 34 and 37 37ª, so as to operatively connect the pressure-cylinder with the supply-pipe at all points in the travel of said cylinder with the reciprocatory carriage. The vertical swiveled couplings 36 41 are united to a part of the vertical pipes by threaded joints, and in the open threaded ends of these couplings are screwed the glands 42, the latter serving to compress a packing 43 against an annular collar 44 on a member of the vertical branch or pipe, whereby each joint is constructed to permit of the free turning on a vertical axis of one part of the pipe with relation to the other part of the pipe, and at the same time endwise movement of the parts is restricted and the motive fluid is prevented from leaking. The horizontal sectional lengths of the pipe between the two vertical joints are connected slidably together to permit of automatic extension and contraction of the pipe without leakage of the motive fluid. The coupling 38 is screwed firmly to the branch or member 37ª, and in its open end is screwed the gland 46, which surrounds the member 37, the latter extending for a considerable distance into the elongated coupling 38. A packing 47 is interposed between the coupling, the pipe member 37, and the gland, so as to be compressed by the latter to make a fluid-tight joint around the pipe 37, whereby the latter may be capable of a limited sliding movement in the coupling without leakage of the motive fluid.

It is to be observed that the pressure-supply pipe 39 is in a fixed vertical position at one side of the press, that the carriage which supports the bale-cotton on the pressure-cylinder is reciprocatory in a rectilinear path within the press, and that the jointed and sectional lengths or branches connect the pressure-cylinder with this vertical fixed pipe 39. As the pressure-cylinder reciprocates with the carriage and passes the central position occupied by the pipe 39 the vertical joints permit the corresponding branches to turn, while the extensible horizonal length is drawn outward longitudinally when the carriage approaches the limit of its travel in either direction. The communication between the pressure-cylinder and the pressure-supply pipe thus remains continuous and unbroken throughout the travel of the carriage and without leakage of the motive fluid, and thus the pressure is maintained constantly in the cylinder and against the piston-head, so as to force the bale-platen in a direction toward the pressure-rolls, said bale-platen and the piston-head being yieldable under the cushion afforded by the motive fluid to the accumulation of the layers of cotton-bat within the baling-chamber afforded by the platen and the doors 27.

The main power-shaft of the press is indicated at 48 as journaled in suitable bearings at one end of the press-frame in a horizontal position transversely across the frame. This shaft is equipped with a driving-pulley 49, around which may pass a suitable belt (not shown) driven from a line-shaft or other suitable source of power. The reciprocatory carriage which supports the baling mechanism is designed to be propelled slowly and steadily beneath the two sets of pressure-rolls, and this carriage is moved back and forth below first one set and then the other of said pressure-rolls. To obtain the power necessary for the operation of the press, it is required that the shaft 48 shall be driven at comparatively-high speed; but as the carriage is to be moved slowly and back and forth below the pressure-rolls I have provided a novel form or type of reversible speed-reducing mechanism between the main power-shaft and the reciprocatory carriage. One element of the speed-reducing and reversible gearing is a shiftable tubular shaft 50, the length of which is less than that of the main power-shaft, so as to be fitted thereon between the bearings and to be capable of a limited sliding movement. This tubular shaft is connected at all times with the main power-shaft to rotate therewith by a key or spline at 51, which will insure the necessary adjustment of the tubular shaft and its rotation with the power-shaft. At one end this shiftable shaft is provided with collars forming an intermediate groove 52, adapted for the reception of a shifting lever, and said shaft is furthermore provided with the frictional driving-cones 53 54, which are fast with the shaft and arranged in reversed positions thereon, so as to face each other, said cones being spaced at a suitable distance one from the other to accommodate between themselves a driven cone on a horizontal counter-shaft 55. This counter-shaft is arranged longitudinally in the press-frame, so as to be journaled in suitable bearings and to take a position at right angles to the shafts 48 50. Said counter-shaft is provided at its front end with a friction-cone 56 and at its rear end with a spur gear-wheel 57, said cone being of large diameter as compared with the driving-cones and arranged between the latter so as to engage frictionally therewith alternately. The adjustment of the tubular shaft in one direction for the driving-cone 53 to engage frictionally with the driven cone 56 serves to rotate the shaft 55 in one direction and at a reduced speed as compared with the speed of the shaft 48; but the adjustment of the tubular shaft 50 in the opposite direction for the driving-cone 54 to engage frictionally with the

cone 56 drives the shaft 55 in the opposite direction and also at less speed than the shaft 48. This counter-shaft 55 serves to rotate the pressure-screws 58 59 at uniform speed through the medium of intermediate gearing which serves to still further reduce the speed of the press, so that while the screws are driven at uniform speed they will rotate at a considerably lower rate of speed than the shaft 55. These pressure-screws are arranged longitudinally of the press on opposite sides of the counter-shaft, said screws having threaded engagement with the traveling feed-nuts 60 61, which are made fast with the lower side of the carriage. The rear ends of the pressure-screws are journaled loosely in bearings 62 at the rear part of the press; but the front ends of the shafts protrude beyond the bearing 62^a, so as to receive the spur gear-wheels 67, which intermesh with the spur gear-pinion 57 on the counter-shaft, thus driving both of the screws from the counter-shaft and at uniform speed. To firmly hold the pressure-screws against endwise movement and permit the same to rotate freely with minimum friction within the press-frame, I employ an antifriction-bearing for each screw. A pair of cross-rails 63 64 are secured firmly to the press-frame beyond the limit of the travel of the carriage in a forward direction, and to the opposing faces of these rails are secured the pairs of concave wear-plates 65, said rails and wear-plates being perforated for the passage therethrough of the pressure-screws. Bearing-balls 66 are made fast with the pressure-screws and engage loosely with the wear-plates, so as to form a species of ball-bearing between the press-frame and the pressure-screws, said bearing-balls and the fixed wear-plates serving to take up the end thrust of the pressure-screws.

I have also provided mechanism for automatically shifting the position of the tubular shaft 50 as the carriage reaches its limit of travel in either direction for the purpose of connecting the frictional driving-gear to aumatically reverse the direction of rotation of the counter-shaft and the pressure-screws, so as to propel the carriage back and forth without requiring adjustment on the part of the attendant. A shipping-rod 68 is slidably confined for endwise movement in suitable fixed guides 69 on the frame, and this rod is provided with spaced trip-arms 70 71, which project outwardly from the rod and into the path of a part of the carriage, the latter adapted to engage with one or the other of the said arms as it reaches the limit of its movement in one direction or the other for the purpose of giving an endwise movement alternately in opposite directions to the shipping-rod. The bell-crank shipping-lever 72 is fulcrumed at 73 to a part of the press-frame, one end of said lever being connected pivotally at 74 to the shipping-rod and the other end of said lever having a fork 75 engaging loosely with the collar 52 of the tubular shaft 50.

I may employ a suitable tension device to hold the shipping-rod in position against displacement by the jarring of the press—such, for example, as the counterweighted lever 76, which is fulcrumed on the press-frame and is connected pivotally with the shipping-rod. (See Fig. 1.)

The bat condensing and feed rollers 20 are journaled for free rotation in bearing-blocks 77, so as to occupy positions immediately over the central rolls of the two sets of pressure-rolls 18 19, and are adapted to feed the condensed cotton-bat through a space between the two sets of rolls, as clearly shown by Figs. 1, 6, and 7. These condensing and feed rolls are intergeared directly together for rotation in opposite directions by the intermeshing gears 78, one of said rolls having the sprocket-wheel 79 (indicated by dotted lines in Fig. 1) on the end opposite to its gear 78. With this sprocket-gear 79 engages a sprocket-chain 80, also indicated by dotted lines in Fig. 1 and partly by dotted lines in Fig. 2, said sprocket-chain 80 engaging with a sprocket-wheel 81 on one end of the intermediate shaft 82. (See dotted lines in Fig. 2.) The intermediate shaft 82 is shown in full lines by Fig. 1 as journaled in bearings on the press-frame above the main driving-shaft 48, and the shaft 82 has a sprocket-gear 83 connected by an intermediate chain 84 to the sprocket-gear 85 on the main power-shaft 48, thus driving the bat condensing and feed rolls by gear connections with the main power-shaft and at reduced speed.

The pressure-rolls constituting the two sets 18 19 are spaced at suitable intervals one from the other, so as to be out of contact, and each roll is provided with spur gear-pinions 86 at the ends thereof, said gear-pinions adapted to mesh with the gear-racks 25 on the slidable carriage, so that the traveling carriage imparts the necessary rotary motion to the pressure-rolls.

I will now proceed to describe the bat creasing or folding mechanism, which consists of two independent vibratory plates 87 88, together with devices for automatically depressing the plates alternately as the carriage reciprocates to and fro below the two sets of pressure-rolls, said vibratory plates being alternately projected through the throat or space between the sets of pressure-rolls for the purpose of creasing and folding the cotton-bat at regular and predetermined intervals. Each vibratory plate is carried by a pair of arms 89, that is disposed over the pressure-rolls of one set, and this plate and its arms are connected by links 90 with the press-frame, so as to make the plate travel in an arc of a circle through the space between the two sets of rolls. The arms carrying each plate are connected pivotally at 91 with the upper ends of levers 92, which are hung or fulcrumed at 93 on suitable parts of the press-frame, said levers having their free ends disposed in the path of the carriage

or the racks 25 thereon. The levers are drawn to positions for raising the vibratory creasing-plate by means of springs 94, and, as shown by Fig. 8 of the drawings, each lever is provided with an inwardly-extending arm 95, extending into the path of the slidable rack on the carriage. It is to be understood that the cotton-bat is supplied continuously from the condenser to the press by the bat-rolls 20 and that the carriage reciprocates to move the bale-platen 17 below the pressure-rolls 18 19 alternately. As the carriage reaches the limit of its travel in one direction, as shown by Fig. 6, and before it begins the return movement in the direction indicated by the arrow in said figure the racks on the carriage strike against the levers 92, so as to move the latter against the tension of the springs 94, and thereby depress the creasing-plate 88, so as to bear forcibly against the cotton-bat for the purpose of forming a crease or fold therein. When the carriage travels in the direction of the arrow, the spring connected with the levers of the plate 88 serves to instantly return the parts to their normal position and thereby retract the plate 88 from the throat between the rolls. As the carriage moves from the rolls 19 to a position beneath the rolls 18 its racks strike against the levers 92 of the plate 87 at the period that the carriage reaches the limit of its travel beneath the rolls 18, as indicated by Fig. 7. At this period the levers 92 are moved against the tension of the spring 94, so as to depress the creasing-plate 87 into the throat between the two sets of rolls, and this creasing-plate is thus automatically brought into position for service to form the crease or fold in the continuous cotton-bat before the carriage begins itsreturn movement in the direction of the arrow in Fig. 7. As the carriage travels beneath the rolls the folding or creasing plates are maintained in their raised positions and on opposite sides of the path of feed of the cotton-bat; but as the carriage approaches its limit of travel in either direction one or the other of the creasing-plates is automatically and positively depressed into engagement with the cotton-bat for the purpose of forming the creases or folds therein at regular and predetermined intervals, whereby the layers of the cotton-bat are of uniform length and width, so that the edges of all the layers are flush to make the bale when completed of regular cubical form.

In Fig. 1 of the drawings I have illustrated one style of the condenser which I have invented for use in connection with the compress of large capacity herein shown and described; but no claim is made in this application for this condenser, because it will be made the subject-matter of a separate application.

The cotton from the gins is delivered to a condenser-flue 96, which discharges the lint-cotton to a condenser-casing 97, having the lint-flue 98 therein. The chamber of this condenser-casing has its bottom formed in part by a screen 99, which may be of perforated sheet metal or wire fabric, and this screen-bottom has a series of transverse lint-whipping strips 100 on its upper surface. A part of the screen-bottom is curved concentric with a revoluble whipping-cylinder 101, having a plurality of longitudinal whipping-strips 102 on its working surface, and this cylinder is rotated in the direction indicated by the arrow in Fig. 1 for the purpose of whipping the lint-cotton across the strips on the screen-bottom, whereby the cotton is freed from dust and dirt, which is free to pass through the screen, and the fibers of the cotton are straightened out instead of crumpling the cotton. A screened cylinder 103 is journaled in the casing at a point contiguous to the end of the screen-bottom, so as to receive the lint-cotton from the whipping-cylinder, and this screen-cylinder is rotated in a direction to discharge the lint-cotton against a roll 105, a hood 104 being arranged over the screen-cylinder to confine the lint-cotton in the passage 98. The roll 105 is driven in a direction to coact with the cylinder 103 for the purpose of preliminarily condensing the cotton into a bat and discharging the latter upon a conveyer-apron 106. Said apron is supported at one end by a roller 107, that lies below the roll 105, the other end of said apron passing around a roller 108, that is arranged over the bat-rollers 20 of the press to deliver the cotton-bat thereto.

The operation of the invention as thus far described is as follows: The cotton-bat from the condenser is delivered to the rolls 20, the carriage is reciprocated slowly below the sets of pressure-rolls 18 19, and the motive fluid is supplied to the pressure-cylinder, so as to raise the bale-platform 17 into close relation to or contact with the pressure-rolls. As the carriage moves below the set of rolls 19 in the direction of the arrow in Fig. 1 the rolls are rotated by the racks on the carriage, so as to draw the cotton-bat into the space between the platen and the rolls, thus subjecting the bat to compression. When the carriage reaches the limit of its travel below the rolls 19, the creasing-plate 88 is depressed to fold the bat and the shipping-rod 68 is actuated to move the tubular shaft 50 endwise, and thereby reverse the carriage. As the carriage travels in the opposite direction the rollers 19 compress the next layer of the cotton-bat upon the layers previously resting on the bale-platen, the creasing-plate 88 being automatically retracted, and the carriage now continues to travel, so as to move beneath the rolls 18, the cotton-bat being continuously laid upon the platen. When the carriage assumes the position below the rolls 18, the levers are actuated to depress the plate 87 to form a crease or fold in the bat and at the same time the shipping-rod is moved endwise to again reverse the driving mechanism for the carriage.

This operation is continued indefinitely until the desired quantity of the cotton shall have accumulated to complete the bale; but during the accumulation of layers the downward movement of the bale-platen is resisted by the compressed motive fluid in the pressure-cylinder, whereby the platen coacts with the rolls in exerting the pressure on the layers of the cotton-bat, so as to compact the latter into a compressed bale. Before beginning the operation it is my purpose to place a part of the bale-cover on the platen, and when the bale attains a proper size the exposed part thereof is covered by a suitable wrapper and the ties are adjusted, after which the outer door 27 is opened to permit the ejection of the bale at the rear end of the press. The platen may now be elevated and the operations heretofore described repeated.

The press shown by Figs. 10 and 11 of the drawings is modified somewhat in its construction by the substitution of a different type of speed-reducing mechanism for the reciprocation of the carriage; but while this press may or may not be used in connection with the condenser it embodies the essential features of the invention hereinbefore described—namely, the bat-rolls, the two series of pressure-rolls, the carriage, the pressure mechanism for the platen, and the bat folding or creasing mechanism—although for want of room and clearness of illustration I have omitted to illustrate the bat-rolls and the folding or creasing devices, as well as the sectional pipe for conveying the motive fluid to the pressure mechanism. In the embodiment shown the main power-shaft 110 is connected by a belt 113 to a speed-reducing shaft 111, and this last-named shaft has sprocket-gearing 114, with another speed-reducing shaft 112, all of said shafts being journaled in proper bearings on the frame. The crank-shaft 115 is connected by sprocket-gearing 116 to the shaft 112, and said shaft 115 is provided with the crank-disks 117. These disks carry the wrist-pins 118, to which are pivotally connected the pitmen 119, disposed on opposite sides of the press-frame and connected pivotally with the sides of the carriage at 120. An intermediate shaft 121 is journaled in bearings on the frame, and one end of this shaft has sprocket-gear connections 122 with the crank-shaft 115, while the other end of this intermediate shaft is connected by sprocket-gearing 123 to one of the pair of bat condensing and feed rolls. The operation of the press shown by Figs. 10 and 11 is essentially the same as the press heretofore described, and it is thought that the operation will be readily apparent.

Changes within the scope of the appended claims may be made in the form and proportion of some of the parts while their essential features are retained and the spirit of the invention is embodied. Hence I do not desire to be limited to the precise form of all the parts as shown, reserving the right to vary therefrom.

Having thus described the invention, what I claim is—

1. In a cotton-compress, the combination with a reciprocatory carriage, a bale-forming mechanism, and a bat-feeding mechanism, of levers disposed at the opposite limits of travel of the carriage, swinging supports connected with said levers and pivotally mounted for movement with relation to the path of feed of said bat, and creasing elements carried by said supports, substantially as described.

2. In a cotton-compress, the combination with a reciprocatory carriage, and a bat-feeding mechanism, of a platen and a pressure mechanism therefor mounted on the carriage, pressure-rolls in opposing relation to the platen, swinging supports equipped with bat-folding devices and pivotally mounted to move the latter into a feed throat or space between said rolls, and devices for alternately actuating the swinging supports, substantially as described.

3. In a cotton-press, the combination, with a reciprocatory carriage and a series of rolls in fixed bearings, and engaged and rotated by said reciprocatory carriage, of screw-shafts in fixed bearings, to reciprocate said carriage, a counter-shaft geared to said screw-shafts, a power-shaft, reversing-gears connecting said power-shaft to said counter-shaft, an actuating-rod, operable by the carriage, at the limits of the strokes of the latter, and a weighted rock-arm pivoted at a fixed point, and connected to said actuating-rod, substantially as described.

4. In a cotton-compress, the combination with a reciprocatory carriage having a feed-nut, of pressure-screws provided with bearing-balls and connected with said feed-nut, bearings in fixed relation to and in engagement with said bearing-balls to take up the end thrust of said screws, and means for rotating the pressure-screws, substantially as described.

5. In a cotton-press, the combination, with a series of compressing-rolls in fixed bearings, and spaced at the center of the series to form a feed-throat, a reciprocating carriage forming a bale-chamber, having a platen and actuating means therefor, and also engaged with and adapted to rotate the compression-rolls, and the bat-creasing devices, operable in the feed-throat in the series of compression-rolls, and means to cause said creasing devices to operate in the feed-throat, substantially as described.

6. The combination, in a cotton-press, of a series of compressing-rolls, spaced at the center of the series to form a feed-throat, a reciprocatory carriage, for the purpose set forth, pivoted bat-creasing devices, operable in the throat of the series of compression-

rolls, rock-arms, disposed in the path of the carriage and operated thereby, and links connecting said rock-arms to said pivoted batcreasing devices, to cause the latter to operate in the feed-throat, substantially as and for the purpose set forth.

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

WILLIAM THOMAS CALTON.

Witnesses:
JOHN S. WRAY,
F. L. HOYLE.