

(No Model.)

6 Sheets—Sheet 1.

P. K. CROWELL.

PORTABLE COMBINED COTTON GIN AND PRESS.

No. 580,333.

Patented Apr. 6, 1897.

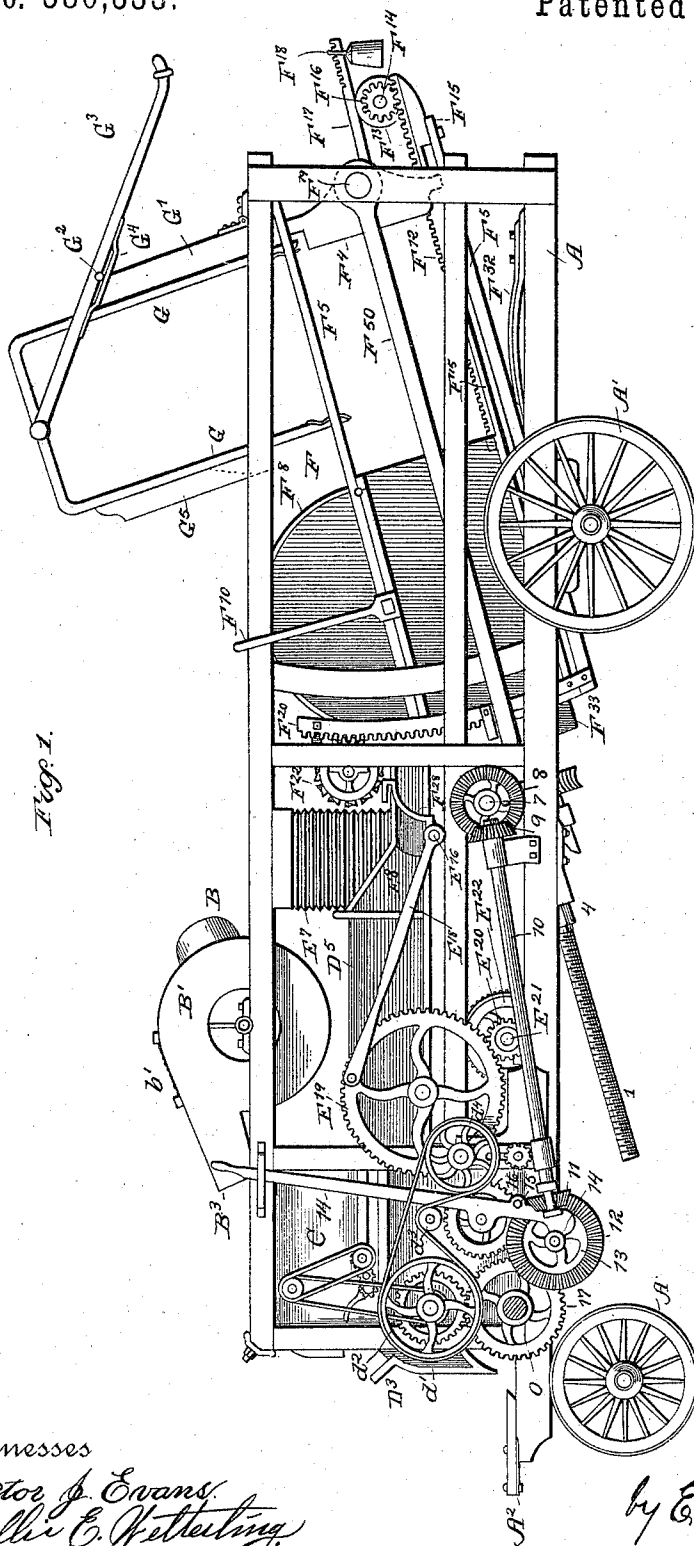


Fig. 1.

Witnesses

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(No Model.)

6 Sheets—Sheet 2.

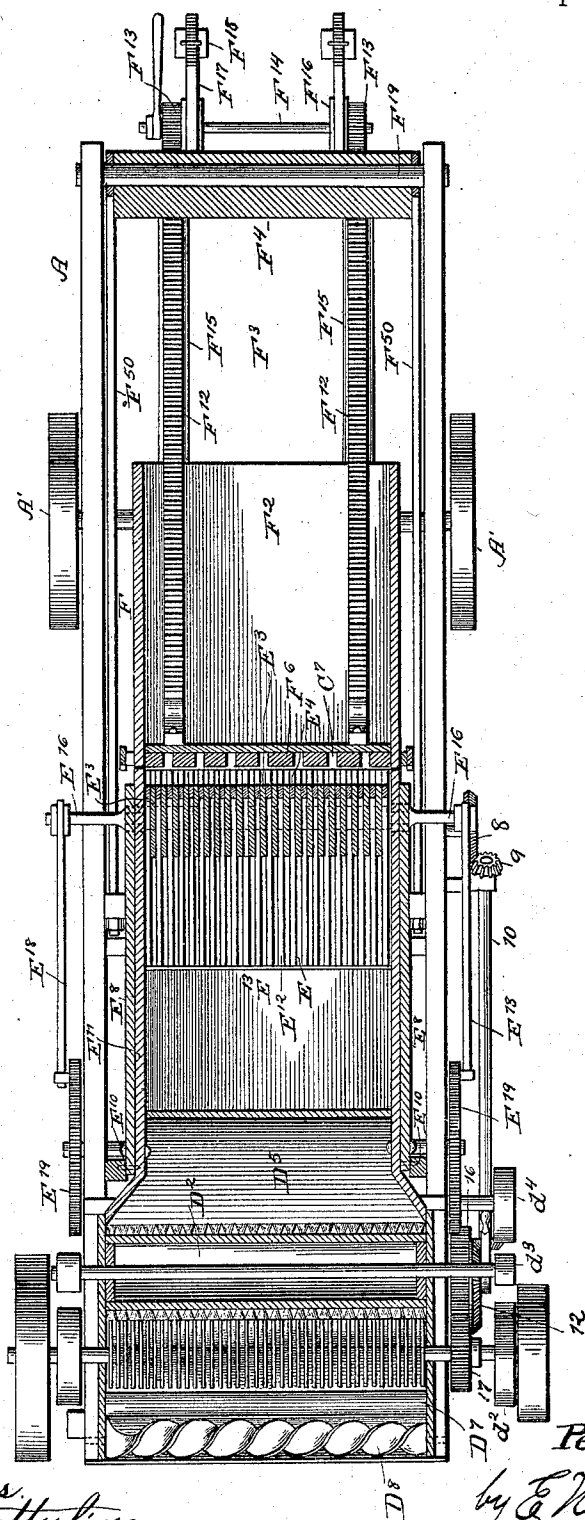
P. K. CROWELL.

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Fig. 2.



Witnesses

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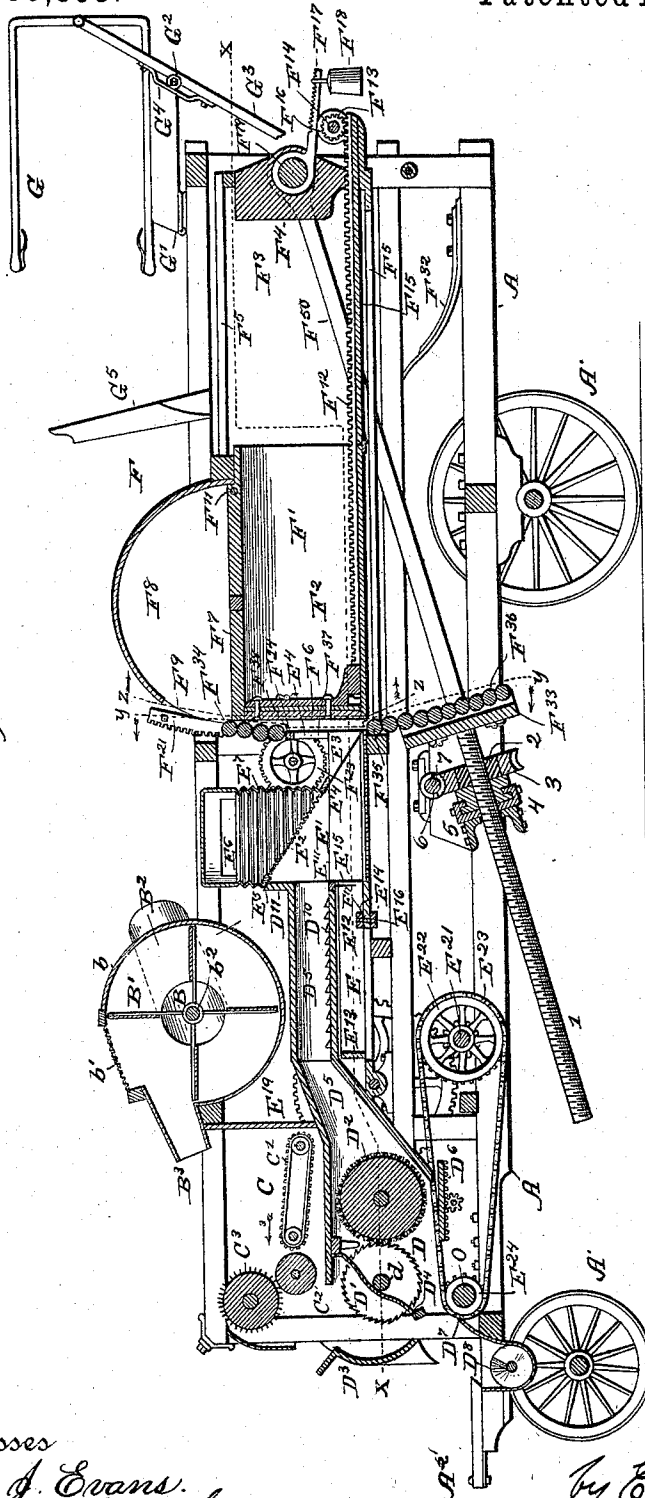
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P. K. CROWELL.
PORTABLE COMBINED COTTON GIN AND PRESS.

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Fig. 3.



Witnesses
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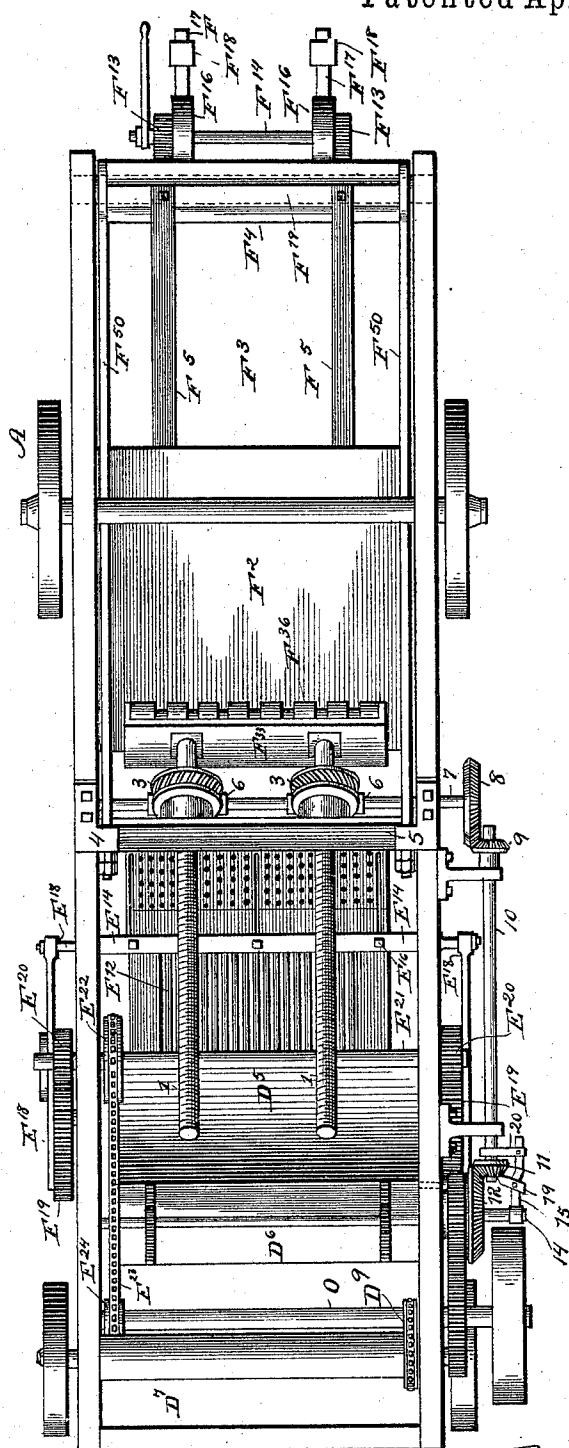
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P. K. CROWELL.
PORTABLE COMBINED COTTON GIN AND PRESS.

No. 580,333.

Patented Apr. 6, 1897.

Fig. 4.



Witnesses

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P. K. CROWELL.

PORTABLE COMBINED COTTON GIN AND PRESS.

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Fig. 5.

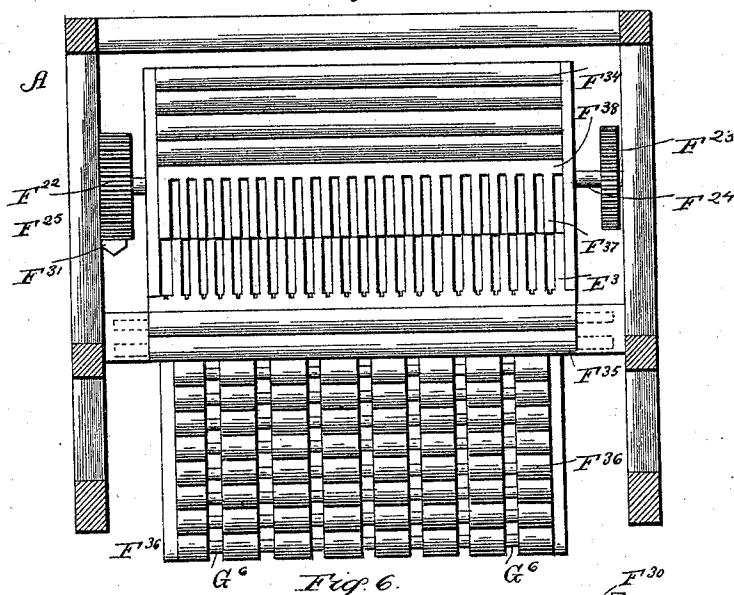
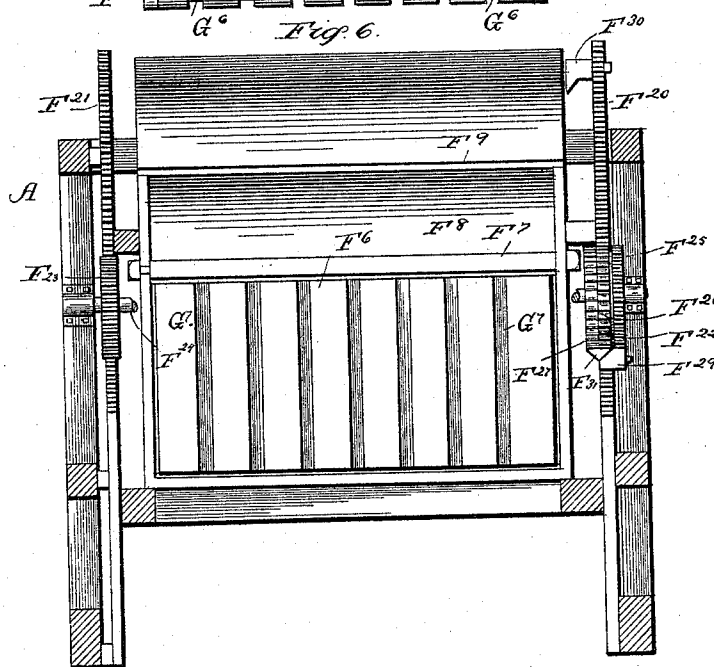


Fig. 6.



Witnesses

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6 Sheets—Sheet 6.

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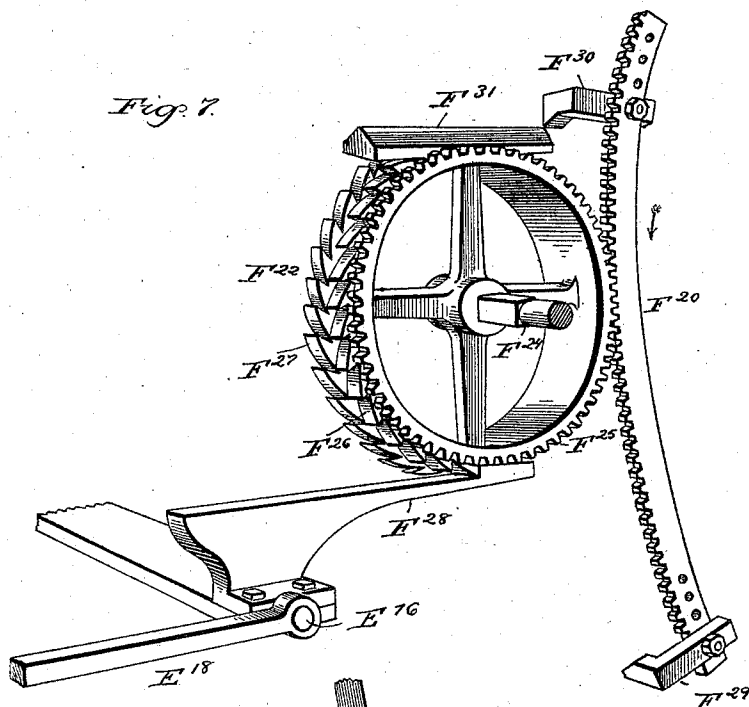


Fig. 8.

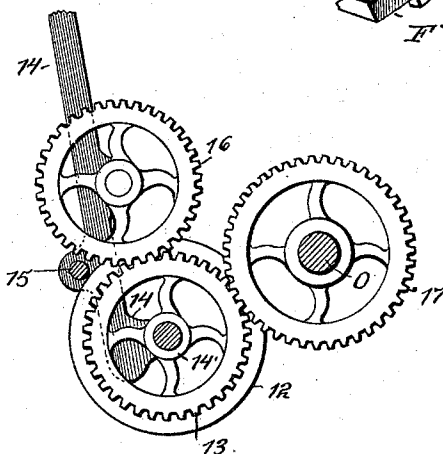
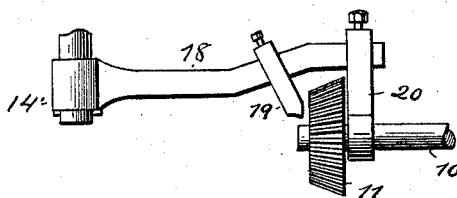


Fig. 9.



Witnesses

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UNITED STATES PATENT OFFICE.

PEARL K. CROWELL, OF CHATTANOOGA, TENNESSEE, ASSIGNOR OF ONE-THIRD TO ELIZA C. MORISON, OF WASHINGTON, DISTRICT OF COLUMBIA.

PORTABLE COMBINED COTTON GIN AND PRESS.

SPECIFICATION forming part of Letters Patent No. 580,333, dated April 6, 1897.

Application filed January 25, 1897. Serial No. 620,587. (No model.)

To all whom it may concern:

Be it known that I, PEARL K. CROWELL, a citizen of the United States, residing at Chattanooga, in the county of Hamilton and State of Tennessee, have invented certain new and useful Improvements in a Portable Combined Cotton Gin and Press; and I do hereby 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.

My invention relates to improvements in machines for treating cotton, and particularly to improvements in that class of machines which are adapted to the baling of cotton; and it consists in the improved portable combined cotton gin and press, the construction and arrangement of which will hereinafter be fully described, and particularly pointed out in the claims.

The great need of the South for the development of its cotton industries is the bringing into vogue of a method for effecting the ginning and baling of cotton which will impart to that industry the spirit of economy, both as to time expended and labor employed, which prevails in other successful enterprises of the present day. It is necessary, in other words, to devise means for marketing cotton with the same skill in the employment of mechanical devices and in the omission of useless steps or procedures which has been so strikingly illustrated in the conception and development of machines for harvesting and threshing grain.

One great source of unnecessary expenditure in the marketing of cotton arises from the present custom of hauling the loose cotton after it has been picked to some central point where a cotton-gin is stationed. The cost of cotton-gins constructed and operated according to present plans is so great that each cotton-raiser is not able to own and operate a cotton-gin. It has been found indeed that gins of the prevailing style and pattern cannot be profitably operated without being so located as to command a yearly custom of on the average three hundred bales. As many cotton-raisers produce only a few bales of cotton a year, and as even moderately large plantations produce not more than fifty bales

a year, it is thus necessary for raisers of cotton to haul their cotton considerable distances in order to have it ginned. The loss involved by this carriage, while not amounting to so much in single instances, aggregates over the entire country an immense sum, which forms a large percentage of the cost of cotton-raising. Even on plantations of such size that the owners thereof own their own gin the cost of hauling the cotton as it is picked to a centrally-located ginnery is a considerable item in the total expense.

The object of my invention is to provide a machine which will gin as well as press cotton into bales, which will be so simple in construction that ordinary plantation-hands can operate the same, and which will be so inexpensive both as to initial cost and as to the expense of operating the same that it can be widely introduced throughout the South and used by every cotton-raiser. I further aim to produce a portable combined cotton gin and press mounted in a compact manner in a single machine-frame upon ordinary wheels, so that it will no longer be necessary to carry loose cotton long distances to a cotton-ginnery where the cotton may be ginned and pressed into what are known as "plantation-bales," but the gin and press can itself be brought to the cotton-field and form the cotton into bales at the place where it has been picked.

In accomplishing the object of my invention I mount upon ordinary wagon-wheels a framework, which by practical test I have found need not be more than sixteen feet in length, in which are arranged a cotton-elevator, a cotton-feeder, a gin with doffing-brush and discharge-chute, a cotton-packer, a cotton-press, and mechanism for arranging for the tying of the completed bales of cotton and the removal of such bales from the press. The cotton conveyer, feeder, and gin which I employ are of ordinary and well-known construction; but the cotton-packer, the cotton-press, and the arrangement of all the separate mechanisms into a single machine, so that the machine is adapted to receive loose cotton in the condition in which it is found when freshly picked and collected in wagons or pens and to discharge this same cotton ginned,

cleaned, and pressed into compact bales, are novel and form the essence of my invention. I also use in connection with my machine a seed-conveyer for the seed which falls from the gin-breast, discharging such seed into a suitable receptacle.

My invention is fully illustrated in the drawings which accompany and form a part of this specification, in which the same reference letters and numerals refer to the same or corresponding parts, and in which—

Figure 1 is a side elevation of my improved press. Fig. 2 is a sectional top plan view of the same, taken on the line $x x$, Fig. 3. Fig. 3 is a vertical section of the machine, showing the interior mechanism of the press. Fig. 4 is a bottom plan view of the press. Fig. 5 is a central vertical transverse section of the machine, taken on the line $y y$, Fig. 3, and looking toward the front of the machine. Fig. 6 is a corresponding section taken on the line $z z$, Fig. 3, looking toward the rear of the machine. Fig. 7 is a detail view of a portion of the mechanism for imparting an oscillatory movement to the baling-chamber of the press. Fig. 8 is a detail view of the gearing of the reversing mechanism for operating the follower of the press. Fig. 9 is a detail view of the mechanism used to shift the position of the shaft 10.

Machine parts.—Referring to the drawings, A represents the machine-frame. This frame is rectangular in form, as shown, and is preferably made of wood combined with steel, so as to secure the requisite strength and at the same time to be light and easily portable. The frame is mounted upon ordinary wagon-wheels A'. Wheels of special construction may, however, be used, if desired. To the front of the machine is attached a wagon-tongue or other coupling A², of any ordinary construction, so that provision is thereby made for the machine being hauled to any desired place. In this framework are supported the cotton-elevator B, the cotton-feeder C, the cotton-gin D, the packer E, the press F, and the mechanisms for operating the same, and the tie-holder G. These parts will now be described in detail.

Cotton-conveyer.—The conveyer or elevator B is mounted in a machine-frame on the top of the machine near the front end of the same, and consists of a suction-fan B', a telescopic intake flue or chute B², and a discharge opening or spout B³. The casing b of the suction-fan B is vented by the wire-mesh portion b' . Rotation is imparted to the fan-shaft b^2 by a belt connection (not shown in the drawings) of such shaft with the gin-shaft d . The telescopic intake flue or pipe B² is of such length as to enable me to elevate the cotton from a wagon standing by my machine or from a pen or inclosure beside which my machine is drawn up. The distance which I am thus able to carry cotton is sufficient for all practical purposes, so that in this manner I

am enabled to convey seed-cotton directly into my machine. The discharge-chute B³ of the cotton-elevator discharges the cotton into the cotton-feeder C.

Cotton-feeder.—The cotton-feeder C consists of the endless belt C', mounted upon suitable rolls and caused to rotate in the direction of the arrow, Fig. 3, the idle-roller C², and the picker-roller C³. The mechanism by the action of which rotation is imparted to the endless belt C', the idle-roller C², and the picker-roller C³ is shown in elevation in Fig. 1, and consists of an ordinary belt-and-gear connection. Power is obtained, as shown, from the gin-shaft d . The cotton is conveyed by the action of the feeder between the picker-roller C³ and the curved portion of the frame, in close proximity to which the picker-roller operates. The cotton falls from thence into the cotton-gin D.

Cotton-gin.—The cotton-gin D is of any ordinary well-known construction, and consists of a gang of gin-saws D', a doffing-brush D², a gin-breast D³, gin-ribs D⁴, and suitable operative mechanism therefor. This mechanism is shown in elevation in Fig. 1, and consists in a gearing connection of the gin-shaft d with the main power-shaft O of the machine, and of a belt connection of the doffing-brush shaft with a belt-wheel keyed to the gin-shaft d . The belt d' , which affords this connection, passes over the belt-wheel d^2 , the doffing-brush wheel d^3 , and the idle-wheel d^4 . By the use of this idle-wheel the belt is kept constantly tight and the doffing-brush rotated positively. The cotton which is ginned from the seed by the action of the gin is blown into the discharge-chute D⁵ by the air-current caused by the operation of the doffing-brush. A mote-board D⁶, controlled in position by the rack and pinion shown, serves to separate the motes from the lint. The cotton-seed which is discharged from the gin-breast falls into the conveyer-trough D⁷ and is thence conveyed by the action of the spiral screw D⁸ to a suitable point of discharge, where it can be collected in receptacles provided therefor. The spiral conveyer is operated by the sprocket connection D⁹ with the main power-shaft of the machine, which is shown in Fig. 4. The cotton after being ginned is passed through the discharge-chute D⁵, a portion of the bottom of which is formed of slats D¹⁰ to permit the escape of dirt into the packer E, which I will next describe.

Cotton-packer.—The mechanism which I term a "cotton-packer" serves the same function in my machine as condensers do in other machines of like character. It is in fact a form of condenser, but it differs so greatly from ordinary condensers both in construction and operation that the term "condenser" does not appropriately describe the same. My cotton-packer serves to permit the dust to be removed from the cotton and forms the loose tufts or fibers of cotton into a loose bat,

but both the cleaning of the cotton and the formation of the bat are accomplished by entirely new methods.

The packer-chamber E' is located in the center of the machine. At one end it is in communication with the discharge-chute D⁵, through which the cotton fiber is blown by the doffing-brush, while at the other end it opens into the baling-chamber of the cotton-press. In form it is a triangular chamber extending across the entire machine, having inclosed sides and having a perforated bottom, in which, for a reason which will be hereinafter set forth, grooves extending lengthwise of the machine are formed. The perforations in the bottom cause a downward air-current in the packer-chamber, which collects the cotton in the front end of the bottom of the chamber and prevents clogging of the wire-mesh portion E² of the inclined side of the chamber. The bottom of the chamber E' may be made of wood, but is preferably made of metal. The inclined face of the packer-chamber is that which is toward the baling-chamber of the press. It is formed in part of a section of perforated wire mesh E² and in part of a gate E³, which permits the passage of the cotton from the packer-chamber to the baling-chamber of the press. The gate E³ is formed of a series of triangularly-shaped fingers. These fingers are fastened at their top to a supporting-framework E⁴, extending transversely of the press and fastened to the side casing of the packer-chamber and are spaced on their support so as to be about half an inch apart. When in the position in which they are shown in Fig. 3, the fingers of the gate E³ substantially close the opening leading into the baling-chamber of the press. They rest against the bottom of the packer-chamber, and as the loose fibers of cotton tend naturally to arrange themselves across the machine, and as they are formed into a bat which is usually four or five inches in width and of the ordinary thickness of a bat, there is no tendency for the fibers to escape from the packer-chamber through the openings between the fingers which form the gate. It is necessary, however, to provide means for opening the gate, so as to permit the removal of the bats of cotton from the packer-chamber. This I accomplish in my present machine by pivoting the gate-support, so as to permit the gate to rise and fall. The mechanism by which this is accomplished is as follows: I have stated that the inclined side of the packer-chamber is formed partly by the gate proper and partly by perforated wire-cloth. The perforated wire-cloth is attached at one end to the support E⁴ for the gate E³ and at the other end to a strip E⁵, which is fastened at its ends to the outer casing of the packer-chamber. The air and dust which are blown by the action of the doffing-brush D² through the wire-mesh section E² escape from the machine through flue-openings E⁶, formed in the machine-frame on either side of the ma-

chine. Plaited canvas E⁷ serves to connect the openings E⁶ with the wire-cloth E² and prevents discharge of air and dust at other than the desired points, while serving to let the gate rise and fall. An upright extension D¹¹ of the discharge-chute prevents escape of air and dust at the rear of the packer-chamber and forms a portion of the back casing of this chamber. The side casing of the packer-chamber, to which the supporting-plates E⁴ and E⁵ are attached, is shown in plan in Fig. 2 at E⁸, and one side of same is shown in elevation in Fig. 1. It will be seen that this outer casing conforms in shape to the shape of the packer-chamber, but that a portion of it is extended backward to the framework of the machine and is pivoted thereto at E¹⁰. In this manner provision is made for allowing the gate E³ to rise and fall. It is necessary, however, to provide means for closing the sides of the packer-chamber during the upward movement of the gate and the casement thereto attached. This I accomplish by the use of an inner side casing E¹¹, which may be and preferably is an extension of the sides of the discharge-chute D⁵, and which extends upward to about the level of the bottom of the discharge-chute.

The mechanism which I employ to form the loose cotton into bats and to remove the successive bats of cotton from the packer-chamber is as follows: I have stated that the floor of the packer-chamber is formed with grooves which extend lengthwise of the machine. The floor of the packer-chamber extends behind the chamber proper sufficiently far to form a support for the cotton-packer E¹². The packer is formed of a series of fingers which are rectangular in form and which are longer than the bottom proper of the packer-chamber. The packer in its movement moves forward and back across the bottom of the packer-chamber. When withdrawn from the chamber, it is entirely outside of the same, so that the front edges of the fingers which form the packer constitute a portion of the casing of the chamber. When, however, the packer is at the other extremity of its reciprocal movement, the front ends of the packer-fingers advance beyond the gate and project into the baling-chamber. The reason for this arrangement will be hereinafter stated. The fingers forming the packer are fastened together at their rear ends by the back board E¹³ and near their front ends by the bottom transverse board E¹⁴. They move in the grooves formed in the bottom of the chamber, not so much for the guide afforded thereby as to insure the expulsion of all the cotton from the packer-chamber. Card pins or fingers E¹⁵ are attached to the end of the discharge-chute D⁵ and project between the fingers of the packer, so as to free the same from particles of cotton which may have gathered between the fingers.

I have found it essential to secure the proper operation of my packer to use for the fingers

or blades composing the same pieces of wood or other material which are webbed or solid, preferably rectangular, and of such a length that when advanced in their front position they constitute to all practical purposes a floor upon which the incoming cotton will fall and from which it will be discharged in the reciprocating movement of the packer by the action of the carding-fingers. No opportunity is thus afforded for the cotton to collect behind the packer.

It may be here stated, though it will be hereinafter more fully set forth, that the rise of the packer-gate is occasioned by the forward movement of the packer and the consequent pressure thereagainst of the cotton collected within the packer-chamber, which is by the action of the packer formed into a bat and forced into the baling-chamber.

It may be further stated that the fingers of the packer project in their forward movement so far beyond the gate of the packer-chamber that they free the cotton from the gate and allow the gate to fall before the backward movement of the packer commences.

The mechanism for reciprocating the packer is as follows: Beneath the floor of the packer-chamber extends a shaft E^{16} , which is connected by suitable pins E^{17} with the transverse board E^{14} . Suitable slots are provided in the bottom of the packer-chamber to permit the reciprocal movement of these pins. The ends of the shaft E^{16} are rounded to form supports adapted to receive the ends of the connecting-rods E^{18} , which are connected at their other ends by wrist-pins to gear-wheels E^{19} . The gear-wheels E^{19} mesh with gear-wheels E^{20} , which are keyed to the shaft E^{21} . To this shaft is also keyed the sprocket-wheel E^{22} , over which runs the sprocket-chain E^{23} . This sprocket-chain also runs over the sprocket-wheel E^{24} , which is mounted on the main power-shaft of the machine. Reciprocating movement of the packer will thus follow rotation of the power-shaft.

The cotton, after being ginned and formed into a bat, is forced by the action of the packer into the baling-chamber of the cotton-press.

I will now proceed to describe the cotton-press.

Cotton-press.—The cotton-press which forms a part of my machine consists, essentially, of a vertically-oscillatory baling-chamber; a head-block therein normally at the front opening of the baling-chamber, but adapted to be caused, by the pressure of the cotton which is received within the baling-chamber, to be forced backward to the rear of said chamber; a worm-driven follower adapted to enter the baling-chamber and compress the cotton therein into the form of a bale; mechanism for operating the various parts, and a bale-tier adapted to place ties around the completed bale.

The baling-chamber of my press is represented in the drawings by reference-letter F' . It consists of an inclosed chamber F^2 and an

inclosure F^3 behind the same, having an end block F^4 and side sustaining-rods F^5 , but not having inclosed sides. The side sustaining-rods F^5 extend the entire length of the baling-chamber and are sufficiently strong to withstand the pressure of the baling operation. The reason I have found it unnecessary to inclose the entire baling-chamber arises from the natural strength of the cotton fibers when gathered together in the form of a bale according to the method which I employ. The bats of cotton which are delivered into the baling-chamber from the packer-chamber are laid across the surface of the head-block F^6 in regular layers. The cotton of itself has a tendency to remain in the form in which it is laid in the inclosed portion of the baling-chamber, and, assisted, as this tendency is, by a constant pressure exerted against the surface of the bale, there is no displacement of the layers of cotton, which are gradually pushed back so as to occupy the uninclosed portion of the baling-chamber. That portion of the bale remains in the same form which was given it in the inclosed portion of the baling-chamber even when the bale is being compressed by the action of the worm-driven follower. An opportunity for end expansion of the bale is, however, thus given.

A further advantage which arises from the employment of a baling-chamber whose rear end is uninclosed is found in the ease with which ties may be applied to the bale and the bale removed from the press.

The inclosed portion F^2 of the baling-chamber is of a cross-section corresponding to the size of the bale which it is desired to form. Its sides and bottom are immovable, but its top is formed by a pivoted flap F^7 , which forms the bottom of a semicircular chamber F^8 , into which cotton may be forced through the opening F^9 , formed in the front end of the same. The pivoted flap F^7 is reversed in position by the action of the hand-wrench F^{10} , which is shown in Fig. 1 of the drawings, and which is on the outside of the chamber F^8 . I have found it necessary to use a gudgeon or locking-rod F^{11} to hold the pivoted flap F^7 in position during the formation of the bale. The use which is made of the semicircular chamber F^8 will be hereinafter stated.

The head-block F^6 is of such a size as to fit snugly within the inclosed portion of the baling-chamber. It is strongly made and its rear side is formed so as to lock with the correspondingly-formed front surface of the end block F^4 . In its face are formed grooves G^7 , adapted to receive the bale-ties. Provision is also made in the ordinary manner for securing thereto a portion of the bagging which is to go around the completed bale. The movement of the head-block F^6 backward through the baling-chamber is effected solely by the pressure of the cotton upon its surface, and is therefore automatic. It is necessary, however, to provide means for regulating the backward movement of the head-block, so

that the cotton which is received within the baling-chamber may have a uniform density imparted thereto. The mechanism by which this is accomplished is as follows: To the end of the head-block F^6 are attached two rack-bars F^{12} , which are of sufficient length to extend backward so that the rear ends thereof will mesh with pinions F^{13} , keyed to the transverse shaft F^{14} , when the head-block is in its forward position, and which are guided partly by the bottom of the inclosed portion of the baling-chamber upon which they rest and partly by the longitudinal guides F^{15} . On the shafts F^{14} , to which the gear-wheels F^{18} are geared, are friction-wheels F^{16} . Against the upper surface of the friction-wheels F^{16} rest the pivoted weighted arms F^{17} . The backward movement of the head-block F^6 can thus be accomplished only by the overcoming of the friction exerted by the weighted levers F^{17} . This can be varied as desired by adjusting the weights F^{18} , and can be made to correspond with any desired compression of the cotton received within the baling-chamber. It is not my purpose, however, to compress the cotton as it is forced within the baling-chamber to a great degree, although by different adjustment of the escapement mechanism I can vary the density to which the cotton is herein compressed within wide limits.

The oscillatory movement of the baling-chamber is effected in the following manner: The baling-chamber is pivoted in the machine-frame by a shaft F^{19} , which passes through the end block F^4 . At the front of the baling-chamber, on either side thereof, are secured curved rack-bars F^{20} and F^{21} , with which engage, respectively, the toothed gear-wheel F^{22} and the idle rack-pinion F^{23} . Both gear and pinion are mounted upon the transverse shaft F^{24} . The power which serves to impart oscillatory movement to the baling-chamber is applied through the toothed wheel F^{22} , but I have found it advisable to use the rack-bar F^{21} and gear-wheel F^{23} in order to make a more solid construction. I have said that the toothed wheel F^{22} is mounted upon the transverse shaft F^{24} . The portion of said shaft upon which it is mounted is, however, unlike the remainder of the shaft, squared, so as to permit the toothed wheel F^{22} to be slid along the same for a short distance. The toothed wheel F^{22} , as shown more particularly in Fig. 7, is formed with a geared portion F^{25} and with toothed portions F^{26} and F^{27} . The geared portion F^{25} of the toothed wheel engages with the teeth of the rack-bar F^{20} , so that the toothed wheel by the direction of its rotation determines the direction of the oscillatory movement of the baling-chamber. With the toothed portions F^{26} and F^{27} of the toothed wheel F^{22} engages the end of the spring-strike F^{28} . The strike F^{28} is bolted to the end of the shaft E^{16} , to which is attached the connecting-rod E^{13} , by means of which the packer is reciprocated. With each movement of the connecting-rod E^{13} a correspond-

ing movement is thus given to the strike F^{28} . The spring end of the strike F^{28} is notched, so that it will engage either in coming or going with one set of teeth F^{26} or F^{27} . Its width is such as to prevent its engaging with more than one set of teeth at a time, and the set of teeth with which it engages is determined by the position of the wheel F^{22} on its shaft. As the sets of teeth F^{26} and F^{27} are cut in different directions, it follows that the direction of rotation of the wheel F^{22} , and thereby the direction of oscillatory movement of the baling-chamber, is determined by the set of teeth with which the spring-strike F^{28} engages. The position of the wheel F^{22} on its shaft is regulated automatically, in the regular reciprocatory movement of the baling-chamber, by the action of cams F^{29} and F^{30} (which are adjustably held in position on the rack-bar F^{20}) upon the double-faced cam F^{31} . The cam F^{31} is secured to the periphery of the toothed wheel F^{22} . The cams F^{29} and F^{30} are faced in different directions, so that when they strike the double-faced cam F^{31} the cam F^{31} and the wheel F^{22} , to which it is secured, are thrown in opposite directions. In Fig. 7 the rack-bar F^{20} is shown moving downward in the direction of the arrow. When this downward motion has proceeded sufficiently far to cause the cam F^{30} to come in contact with the cam F^{31} , the toothed wheel F^{22} will be moved to one side into such position that the spring-driver F^{28} will operate upon the teeth F^{27} instead of the teeth F^{26} , with which it is shown in engagement. A reversal in direction of rotation of the toothed wheel F^{22} and a reversal in direction of oscillatory movement of the baling-chamber will thereby be caused. The parts are so adjusted that when the rack-bar F^{20} has reached the extreme of its upward movement the cam F^{29} will engage with the cam F^{31} and a reverse operation take place. The oscillatory movement thus provided for the baling-chamber is sufficient to cause the face of the head-block to reciprocate across the gate of the packer-chamber.

The oscillatory movement of the baling-chamber relative to the packer-gate is only about one-third the length of the gate-opening, so that the bats of cotton forced from the packer-chamber by the packer are arranged successively across the face of the head-block or the bale which is being formed and lap upon each other. A series of layers of cotton are thus formed which together constitute the completed bale. The sides of the baling-chamber prevent the edges of the bale from getting ragged and keep the form of the bale perfect.

Provision has to be made for holding the cotton in the baling-chamber in position during the reciprocatory movement of the baling-chamber past the packer-gate. It is necessary, in other words, to provide an end casing for the baling-chamber which will act throughout the movement of the same. When the baling-chamber is in its upright position,

it is, as shown in Fig. 3, in line with the machine-frame, or so that the packer discharges against the bottom of the head-block. When the baling-chamber is in its lowest stage of reciprocatory movement, the packer must discharge against the top of the head-block. Provision must also be made for preventing escape of cotton while the baling-chamber is being lowered against the action of the upwardly-pressing springs F^{32} into position for the forward advance of the follower F^{33} . I accordingly make use of a set of idle-rolls F^{34} above the packer-gate, a set of idle-rolls F^{35} below the packer-gate, and a series of rolls F^{36} across the face of the follower. These rolls are adapted to permit the requisite oscillatory movement of the baling-chamber with a minimum of frictional loss caused by the pressure of the cotton thereagainst. The idle-rollers F^{34} do not extend, however, to the packer-gate itself, for it is necessary to provide for the upward movement of the gate. I accordingly secure to a transverse rod F^{38} a series of pendent fingers F^{37} , between which the fingers of the gate itself pass during the upward movement of the same. The forward end of the packer advances sufficiently far into the baling-chamber to free the gate from the cotton which is ejected through the gate-opening and to permit the gate to fall to its lower position before the backward movement of the packer commences.

When the operation of the machine has proceeded to a point where the baling-chamber is filled with cotton compressed to the density determined by the adjustment of the escapement mechanism, it becomes necessary to lower the baling-chamber, so that it will be in position before the follower, and to provide means for securing the forward movement of the follower and the compression of the bale. I provide for the downward movement of the baling-chamber by manually changing the adjustment of the cam F^{30} and pushing the toothed wheel F^{22} out of engagement with the striker F^{28} . The baling-chamber will now fall, but its descent will be regulated by the upward pressure of the springs F^{32} . The action of the packer need not be interrupted, except momentarily, for it can discharge the cotton into the semicircular chamber F^8 , and this discharge can continue to take place during the entire operation of the follower. The face of the follower is formed with grooves G^6 , adapted to receive the ties, and provision is also made for holding thereto a portion of the bagging which surrounds the completed bale.

The forward movement of the follower is brought about in the following manner: To the rear end of the follower are secured the twin screws 1, which pass through nuts 2 within the worm-wheels 3. The worm-wheels 3 are held in position relative to the cross-beams 4 by double-locking nuts 5, constructed in the ordinary and well-known manner. With the worm-wheels 3 engage worms 6,

which worms are mounted upon the transverse shaft 7. The transverse shaft 7 has mounted thereon the bevel-gear 8, which meshes with the beveled pinion 9, mounted on shaft 10. On its other end the shaft 10 has mounted thereon a beveled pinion 11, which engages with the beveled gear-wheel 12. The beveled gear-wheel 12 has formed integral therewith the gear-wheel 13 and is journaled in bearings 14', formed in the curved lower end of the handle 14. The handle 14 is pivoted to the machine-frame at 15 and is also formed with bearings for the gear-wheel 16, which constantly meshes with gear-wheel 13. With the operating-handle 14 in the position shown in Fig. 1 of the drawings the gear-wheel 13 meshes with the pinion 17 on the main power-shaft O of the machine. Power is thus imparted to force the follower F^{33} forward and form a bale. Reverse motion to the follower is caused by reversing the position of the lever 14, thereby throwing the gears 17 and 13 out of mesh with each other and establishing a gearing connection between the gears 17, 16, and 13. There is an intermediate position of the lever 14 in which the entire follower mechanism is out of gear with the main power-shaft. In order to enable the movement of the hand-lever 14 to have its proper effect, it is necessary to provide means for retaining the beveled gear 11 in mesh with the beveled gear 12 during the movement of such gear which must necessarily accompany the movement of the lever-arm 14. This is accomplished by making the shaft 10 movable longitudinally in its bearings and mounting the gear 9 on a squared portion of the shaft and by attaching to that portion 14' of the lever-arm 14 which forms a bearing for the gear 12 an arm 18, which is provided with fingers 19 and 20, holding between them the gear 11. Movement of the handle 14 is therefore followed by a corresponding shifting in position of the shaft 10. In order to provide for the pressure of the compressing operation, I make use of stay-rods F^{30} , which extend from the end block F^4 to the transverse beams 4. These stay-rods bear the entire strain of the compressing operation.

After the bale has been formed it is necessary to provide ties to hold the same in a compressed condition after removal from the press and to provide means for applying the ties.

The bale-tier which I employ in my present machine is the same as that which is described in United States Letters Patent No. 256,429, granted to me on April 11, 1882. The mechanism for raising and lowering the tier which I now employ is, however, new in my present machine.

At the top of the framework at the rear end of the machine there are pivotally mounted stanchions G' , to the upper end of which is attached a rod G^2 , which runs across the machine. The bale-tier G is pivotally attached to the stanchions or guards G' by means of the hand-lever G^3 , to the under side of which

is secured strap G⁴. The strap G⁴ holds between the inner surface of the same and the under surface of the lever G³ the cross-rod G², so that a sliding pivotal connection is thus formed, which in its practical operation allows the bale-tie G to be lowered into such position that the bale-ties can be readily applied to the bale. An inclined guide G⁵ holds the bale-tie in proper position during the application of the same. By the use of the pivoted stanchion G', I am enabled to throw the bale-tie out of the way while a bale is being formed. This position of the bale-tie is shown in Fig. 3 of the drawings, while in Fig. 1 the bale-tie is shown in readiness to be lowered into position to permit the application of ties to the bale. Grooves G⁶ and G⁷ are formed in the face of the follower F^{3b} and the head-block F⁶, respectively, in order to permit the application of the bale-ties to the bale.

Operation of machine.—The operation of my machine is as follows: My machine is drawn directly to the cotton which is intended to be ginned and pressed. The loose cotton is there sucked into my machine by the action of the exhaust-fan of the cotton-elevator B. As the intake-pipe of the conveyer is telescopic, I am enabled to draw cotton for a considerable distance. The cotton which is sucked into the machine is delivered to the action of the feeder C and is by that discharged within the breast of the gin D. The cotton is here ginned in the ordinary manner, the cotton fiber being torn from the seed and blown by the action of the air-current caused by the revolution of the doffing-brush into the packer-chamber E', it being freed from a portion of the dirt carried therewith while passing over the slatted portion D¹⁰ of the bottom of the discharge-chute. The seed falls into the conveyer-trough D⁷ and is carried by the action of the spiral conveyer D⁸ to a suitable point of discharge, where it may be collected in bags or other receptacles. The cotton which is in the packer-chamber is cleaned by the action of the air-current caused by the operation of the doffing-brush, the dirt and other impurities passing through the wire mesh E² and out through the side openings or vents E⁶. The cleaning thus effected is more thorough than that effected by the ordinary condenser, as the cotton is cleaned uniformly, the under side of the bat as systematically as the upper side. The cotton is now formed into a bat by the action of the packer E¹² and is discharged from the packer-chamber under the packer-gate E³, the gate rising to permit the expulsion of the cotton and falling again between the fingers of the packer before the backward movement of the packer commences. The packer carries the bat of cotton sufficiently far within the baling-chamber to prevent the end expansion of the cotton already gathered therein to interfere with the falling of the packer-gate. The cotton is delivered against the face of the head-block

F⁶, and successive bats of cotton are distributed across the surface of the head-block in regular series, the bats lapping upon each other, so that layers of cotton are formed within the baling-chamber and the cotton gathered therein uniformly packed. As the progress of the bale continues the head-block F⁶ is forced backward by the pressure of the cotton at a speed regulated by the setting of the escapement mechanism, and when the baling-chamber is entirely filled with cotton fits against the face of the end block F⁴. Although a portion of the baling-chamber is uninclosed, there is no tendency for the cotton forming that portion of the bale to fall out of place on account of the layer formation of the same. When the baling-chamber is completely filled with cotton, it is lowered into position for the forward advance of the follower, and by a throw of the hand-lever 14 the mechanism for driving the follower forward is put into operation and a compressed bale formed. The ties may now be put around the complete bale, the bale removed from the press, and the follower brought back to its original position. While the compressing operation is taking place ginning of the cotton need not be interrupted, for the bats of cotton formed by the action of the packer may be delivered into the semicircular adjunctive chamber F⁸. When the bales have been completed and removed from the press and the baling-chamber raised into its ordinary position, the cotton which is gathered within the semicircular chamber may be forced into the main baling-chamber by simply turning the pivoted bottom F⁷. This should take place before the head-block F⁶ is advanced by the action of the lever on the escapement-shaft E¹⁴ and the normal operation of the machine commences.

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

1. The combination with a chamber having an inlet-opening, a discharge-opening and a movable gate closing the same, of a packer adapted to reciprocate across said chamber in line with said gate, said packer being formed so as to constitute a floor upon which incoming cotton will collect, and means for reciprocating said packer, whereby cotton collected within said chamber will be gathered together, forced against and raise said gate, and be ejected from the chamber, substantially as described.

2. The combination with a chamber having an inlet-opening, a discharge-opening, and a vertically-movable gate composed of slats or fingers closing the same, said gate being formed with an inwardly-extending upwardly-inclined portion, of a packer formed of fingers or bars which constitute a floor upon which incoming cotton will collect, and means for reciprocating said packer across said chamber in line with said gate, whereby cotton collected within said chamber will be gathered together, forced against and raise

said gate and be ejected from said chamber, substantially as described.

3. The combination with a chamber having a perforated bottom, an inlet-opening, a discharge-opening, a vertically-movable gate formed with an inwardly-extending upwardly-inclined portion closing the same, and means for producing an air-current to carry cotton into said chamber, of a packer adapted to reciprocate across said chamber in line with said gate, and means for reciprocating said packer, whereby cotton collected within said chamber will be gathered together, forced against and raise said gate and be ejected from said chamber, substantially as described.

4. The combination with a chamber having an inlet-opening, a discharge-opening, and a vertically-movable gate composed of slats or fingers closing the same, said gate being formed with an inwardly-extending upwardly-inclined portion, of a packer formed of rectangular fingers or bars, of length greater than the length of the chamber, said fingers or bars constituting a floor upon which incoming cotton will collect, and means for reciprocating said packer across said chamber in line with said gate, substantially as described.

5. The combination with a chamber having an inlet-opening, a discharge-opening, a vertically-movable gate formed with an inwardly-inclined upwardly-extending portion, means for producing an air-current to carry cotton into said chamber, and means for collecting loose cotton in the bottom of said chamber, of a packer adapted to reciprocate across said chamber in line with said gate, and means for reciprocating said packer, whereby cotton collected within said chamber will be gathered together, forced against and raise said gate, and be ejected from said chamber, substantially as described.

6. The combination with a chamber having an inlet-opening, a discharge-opening, a vertically-movable gate composed of slats or fingers closing the same, said gate being formed with an inwardly-extending upwardly-inclined portion, and a bottom having longitudinal grooves therein, of a packer formed of fingers or bars fitting in said grooves, said fingers or bars constituting a floor upon which incoming cotton will collect, and means for reciprocating said packer across said chamber in line with said gate, whereby cotton collected within said chamber will be gathered together, forced against and raise said gate, and be ejected from said chamber, substantially as described.

7. The combination with a chamber having an inlet-opening, a discharge-opening, a vertically-movable gate composed of slats or fingers closing the same, said gate being formed with an inwardly-extending upwardly-inclined portion, and a perforated bottom having longitudinal grooves therein, of a packer formed of fingers or bars fitting in said

grooves, said fingers or bars constituting a floor upon which incoming cotton will collect, and means for reciprocating said packer across said chamber in line with said gate, whereby cotton collected within said chamber will be gathered together, forced against and raise said gate, and be ejected from said chamber, substantially as described.

8. The combination with a chamber having an inlet-opening, a discharge-opening, a vertically-movable gate composed of slats or fingers closing the same, said gate being formed with an inwardly-extending upwardly-inclined portion, and a bottom having longitudinal slots therein, of a packer formed of rectangular fingers or bars, and adapted to reciprocate across said bottom in line with said gate, said fingers or bars constituting a floor upon which incoming cotton will collect, a shaft extending beneath said chamber, connection between said shaft and said packer, and means for reciprocating said shaft, whereby cotton collected within said chamber is gathered together, forced against said gate, and expelled through said opening, substantially as described.

9. The combination with a chamber having an inlet-opening, a discharge-opening, vertically-movable side casings, a vertically-movable gate attached thereto, said gate closing said discharge-opening, and inner stationary side casings, of a packer adapted to reciprocate across said chamber in line with said gate, and means for reciprocating said packer, whereby cotton collected within said chamber will be gathered together, forced against and raise said gate, and be ejected from said chamber, substantially as described.

10. The combination with a chamber having an inlet-opening, a discharge-opening, pivotally-mounted side casings, a vertically-movable gate attached to said side casings and closing said discharge-opening, and inner stationary side casings, of a packer adapted to reciprocate across said chamber in line with said gate, and means for reciprocating said packer, whereby cotton collected within said chamber will be gathered together, forced against and raise said gate, and be ejected from said chamber, substantially as described.

11. The combination with a chamber having an inlet-opening, a guarded air-outlet opening, a cotton-discharge opening, a vertically-movable gate closing said discharge-opening, a perforated bottom, and means for producing an air-current to introduce cotton within said chamber, of a packer adapted to reciprocate across said chamber in line with said gate, and means for reciprocating said packer, whereby cotton collected within said chamber will be gathered together, forced against and raise said gate, and be ejected from said chamber, substantially as described.

12. The combination with a chamber having an inlet-opening, a cotton-discharge

opening, an inclined vertically-movable top composed in part of a perforated portion and in part of a gate closing said discharge-opening, a perforated bottom, and means for producing an air-current to introduce cotton within said chamber, of a packer adapted to reciprocate across said chamber in line with said gate, and means for reciprocating said packer, whereby cotton collected within said chamber will be gathered together, forced against and raise said gate, and be ejected from said chamber, substantially as described.

13. The combination with a chamber having an inlet-opening, a cotton-discharge opening, an inclined vertically-movable top composed in part of a perforated portion and in part of a gate closing said discharge-opening, a casing provided with air-outlet openings, an air-tight connection between said perforated portion and said outlet-openings, and means for producing an air-current to introduce cotton within said chamber, of a packer adapted to reciprocate across said chamber in line with said gate, and means for reciprocating said packer, whereby cotton collected within said chamber will be gathered together, forced against and raise said gate, and be ejected from said chamber, substantially as described.

14. The combination with a chamber having an inlet-opening, a cotton-discharge opening, an inclined vertically-movable top composed in part of a perforated portion and in part of a gate closing said discharge-opening, a casing provided with air-outlet openings, an air-tight flexible connection between said wire-meshed portion and said outlet-openings, and means for producing an air-current to introduce cotton within said chamber, of a packer adapted to reciprocate across said chamber in line with said gate, and means for reciprocating said packer, whereby cotton collected within said chamber will be gathered together, forced against and raise said gate, and be ejected from said chamber, substantially as described.

15. The combination with a triangular chamber having an inlet-opening in its upper side, a cotton-discharge opening at the apex of its inclined side and bottom, an inclined side formed in part of a perforated portion and in part of a gate closing said discharge-opening, a perforated bottom, and means for producing an air-current to introduce cotton within said chamber, of a packer adapted to reciprocate across said bottom in line with said gate, and means for reciprocating said packer, substantially as described.

16. The combination with a triangular chamber having an inlet-opening in its upper side, a flume leading to said opening, a cotton-discharge opening at the apex of its inclined side and bottom, an inclined side formed in part of a wire-meshed portion and in part of a gate closing said discharge-opening, said gate being formed of slats or bars

and being provided with an inwardly-extending upwardly-inclined portion, a perforated bottom, and means for producing an air-current to introduce cotton within said chamber, of a packer composed of solid rectangular fingers adapted to reciprocate across said chamber in line with said gate, carding-fingers projecting from said chute between the fingers of said packer, and means for reciprocating said packer, substantially as described.

17. The combination with a chamber having an inlet-opening, a discharge-opening, and a vertically-movable gate composed of slats or fingers closing the same, said gate being formed with an inwardly-extending upwardly-inclined portion, of a packer formed of webbed fingers or bars, means for preventing clogging of cotton between said fingers or bars, and means for reciprocating said packer across said chamber in line with said gate, whereby cotton collected within said chamber will be gathered together, forced against and raise said gate, and be ejected from said chamber, substantially as described.

18. In a press for baling cotton or other fibrous materials, the combination with a head-block or follower, and means for permitting the same to recede when the pressure of cotton against the surface thereof reaches a predetermined limit, of means for placing in layers across the face thereof successive distinct lapping bats of cotton, each of which is of width less than that of said head-block or follower so that several bats are necessary to form one complete layer, substantially as described.

19. In a press for baling cotton or other fibrous materials, the combination with a head-block or follower, and escapement mechanism for automatically permitting the same to recede when the pressure of cotton against the surface thereof reaches a predetermined limit, of means for placing in layers across the face thereof successive distinct lapping bats of cotton, each of which is of width less than that of said head-block or follower so that several bats are necessary to form one complete layer, substantially as described.

20. In a press for baling cotton or other fibrous materials, the combination with means for forming loose cotton into independent bats of width less than that of the head-block or follower so that several bats are necessary to form one complete layer, of a head-block or follower, means for permitting the same to recede when the pressure of cotton against the surface thereof reaches a predetermined limit, and means for moving the same forward and back across the surface of said bat-forming mechanism, whereby said bats will be lapped one upon another to constitute layers which will lie across the face of said head-block or follower, substantially as described.

21. In a press for baling cotton or other fibrous materials, the combination with means for forming loose cotton into independent

bats of width less than that of the head-block or follower so that several bats are necessary to form one complete layer, of a head-block or follower, means for permitting the same to recede when the pressure of cotton against the surface thereof reaches a predetermined limit, and means for oscillating the same across the surface of said bat-forming mechanism, whereby said bats will be lapped one upon another to constitute layers which will lie across the face of said head-block or follower, substantially as described.

22. In a press for baling cotton or other fibrous materials, the combination with means for forming loose cotton into independent bats of width less than that of the head-block or follower so that several bats are necessary to form one complete layer, of a head-block or follower, pivotal support therefor, means for permitting the same to recede when the pressure of cotton reaches a predetermined limit, and means for oscillating the same across the surface of said bat-forming mechanism, whereby said bats will be lapped one upon another to constitute layers which will lie across the face of said head-block or follower, substantially as described.

23. In a press for baling cotton or other fibrous materials, the combination with means for forming loose cotton into independent bats, of a pivotally-mounted baling-chamber, a head-block or follower within the same, means for permitting said head-block to recede when the pressure of cotton against the surface thereof reaches a predetermined limit, and means for oscillating said baling-chamber, whereby the bats of cotton formed by said bat-forming mechanism will be placed in layers across the surface of said head-block or follower within said baling-chamber, substantially as described.

24. In a press for baling cotton or other fibrous materials, the combination with a packer-chamber, a packer-gate and a packer for forming loose cotton into bats and expelling the same beneath said packer-gate, of a pivotally-mounted baling-chamber, means for causing the same to oscillate across said packer-gate, a head-block or follower within said baling-chamber, means for permitting the same to recede when the pressure of cotton against the surface thereof reaches a predetermined limit, and means for preventing escape of cotton from the front of said baling-chamber during the movement thereof, substantially as described.

25. In a press for baling cotton or other fibrous materials, the combination with a packer-chamber, a packer-gate composed of a series of independent fingers, and a packer composed of a series of independent fingers, of a pivotally-mounted baling-chamber, a head-block or follower within the same, means for permitting said head-block to recede when the pressure of cotton against the surface thereof reaches a predetermined limit, the pendent fingers F^{37} , and rolls F^{34} and F^{35} for

preventing displacement of the end of the bale of cotton being formed, and means for oscillating said baling-chamber across said packer-gate, substantially as described.

26. In a press for baling cotton or other fibrous materials, the combination with a baling-chamber, pivotal support therefor, and curved rack-bars on the front end of said baling-chamber, of pinions engaging said rack-bars, and means for imparting reverse motion to said pinions and thereby oscillating said baling-chamber, substantially as described.

27. In a press for baling cotton or other fibrous materials, the combination with a baling-chamber, pivotal support therefor, and curved rack-bars on the front end thereof, of a gearing-pinion and the toothed wheel F^{22} engaging said rack-bars, the strike F^{28} , the cams F^{29} and F^{30} , and means for reciprocating said strike and thereby oscillating said baling-chamber, substantially as described.

28. In a press for baling cotton or other fibrous materials, the combination with a baling-chamber having an inclosed portion and an uninclosed rear portion, a head-block within the same, and means for permitting said head-block to recede when the pressure of cotton against the surface thereof reaches a predetermined limit, of means for placing in layers across the face of said follower successive distinct lapping bats of cotton, substantially as described.

29. In a press for baling cotton or other fibrous materials, the combination with a baling-chamber having its front portion inclosed and its rear portion uninclosed, a head-block within the same, means for permitting the same to recede when the pressure of cotton against the surface thereof reaches a predetermined limit, and an end block against which said head-block presses when in its rearward position, of a means for placing in layers across the face of said follower successive distinct lapping bats of cotton, substantially as described.

30. In a press for baling cotton or other fibrous materials, the combination with a baling-chamber, an adjunctive chamber having a cotton-inlet opening in line with said baling-chamber, and means for transferring cotton from said adjunctive chamber to said baling-chamber, of means for delivering cotton alternately into said baling-chamber and said adjunctive chamber, substantially as described.

31. In a press for baling cotton or other fibrous materials, the combination with a baling-chamber, a semicircular adjunctive chamber, having a cotton-inlet opening, secured to one side of said baling-chamber, and a pivoted bottom for said adjunctive chamber which forms also a side of said baling-chamber, of means for delivering cotton alternately into said baling-chamber and said adjunctive chamber, substantially as described.

32. In a press for baling cotton or other fibrous materials, the combination with a

source of cotton-supply, of a baling-chamber adapted to move backward and forward in front of the same, means for operating said baling-chamber, a follower stationed below the level of said source of cotton-supply, operative mechanism therefor, an adjunctive chamber having a cotton-inlet opening secured to said baling-chamber on the side thereof which passes last out of line with said source of cotton-supply, means for lowering said baling-chamber into line with said follower, and means for discharging the contents of said adjunctive chamber into said baling-chamber, whereby the cotton issuing from said source of cotton-supply during the operation of the follower will be received within said adjunctive chamber and afterward discharged into said baling-chamber, substantially as described.

33. In a press for baling cotton or other fibrous materials, the combination with a source of cotton-supply, of a baling-chamber adapted to move backward and forward in front of the same, means for operating said baling-chamber, a follower stationed below the level of said source of cotton-supply, operative mechanism therefor, a semicircular adjunctive chamber having a cotton-inlet opening secured to one side of said baling-chamber, a pivoted bottom for said adjunctive chamber which forms also a side of said baling-chamber, and means for lowering said baling-chamber into line with said follower, substantially as described.

34. In a press for baling cotton or other fibrous materials, the combination with source of cotton-supply, of a pivotally-mounted baling-chamber adapted to oscillate across the same, means for oscillating said baling-chamber, a semicircular adjunctive chamber having a cotton-inlet opening secured to one side of said baling-chamber, a pivoted bottom for said adjunctive chamber which forms also a side of said baling-chamber, a follower stationed below the level of said source of cotton-supply, operative mechanism therefor, and means for lowering said baling-chamber into line with said follower, substantially as described.

35. In a press for baling cotton and other fibrous materials, the combination with a source of cotton-supply, of a pivotally-mounted baling-chamber adapted to oscillate across the same, means for oscillating said baling-chamber, a semicircular adjunctive chamber having a cotton-inlet opening secured to one side of said baling-chamber, a pivoted bottom therefor which forms also a side of said baling-chamber, a follower stationed below the level of said source of cotton-supply, operative mechanism therefor, means for lowering said baling-chamber into line with said follower, and means for preventing escape of cotton from said baling-chamber during the oscillating movement thereof, substantially as described.

36. In a press for baling cotton and other

fibrous materials, the combination with a source of cotton-supply, of a pivotally-mounted baling-chamber adapted to oscillate across the same, means for oscillating said baling-chamber, a semicircular adjunctive chamber having a cotton-inlet opening secured to one side of said baling-chamber, a pivoted bottom therefor which forms also a side of said baling-chamber, a follower stationed below the level of said source of cotton-supply, operative mechanism therefor, means for lowering said baling-chamber into line with said follower, the rolls F³⁴, F³⁵, and rollers F³⁶ journaled on the face of the follower for preventing escape of cotton during the pivotal movement of the baling-chamber, substantially as described.

37. In a press for baling cotton and other fibrous materials, the combination with a source of cotton-supply, of a pivotally-mounted baling-chamber adapted to oscillate across the same, means for oscillating said baling-chamber, a semicircular adjunctive chamber having a cotton-inlet opening secured to one side of said baling-chamber, a pivoted bottom for said adjunctive chamber which forms also a side of said baling-chamber, a follower stationed below the level of said source of cotton-supply, means for lowering said baling-chamber into line with said follower, twin screws projecting from the back of said follower, worm-wheels having centrally-screw-threaded portions through which said screws pass, worms for operating said worm-wheels, and means for driving said worms in reverse directions, substantially as described.

38. In a press for baling cotton and other fibrous materials, the combination with a source of cotton-supply, of a pivotally-mounted baling-chamber adapted to oscillate across the same, means for oscillating said baling-chamber, a semicircular adjunctive chamber having a cotton-inlet opening secured to one side of said baling-chamber, a pivoted bottom to said adjunctive chamber which forms also a side of said baling-chamber, a follower stationed below the level of said source of cotton-supply, operative mechanism therefor, means for lowering said baling-chamber into line with said follower, and springs pressing against the bottom of said baling-chamber, substantially as described.

39. In a press for baling cotton or other fibrous materials, the combination with a packer-chamber having cotton inlet and discharge openings, a packer-gate closing said discharge-opening, a reciprocating packer and means for operating the same, of a pivotally-mounted baling-chamber adapted to oscillate across the face of said packer, means for oscillating the same, a semicircular adjunctive chamber, having a cotton-inlet opening, secured to one side of said baling-chamber, a pivoted bottom therefor which serves also as one side of said baling-chamber, a follower stationed below the level of said packer, operative mechanism therefor, and means for

lowering said baling-chamber into line with said follower, substantially as described.

40. The combination with a shaft having a gearing-pinion rigidly mounted on one end thereof and a gearing-pinion slidably mounted on the other end thereof, of a pivoted arm-bearing, a gear-wheel meshing with said rigidly-mounted pinion and having secured thereto fingers engaging opposite sides of said rigidly-mounted pinion, whereby movement of said pivoted bar will move said shaft correspondingly, and cause said slidably-mounted pinion to move upon said shaft, substantially as described.

41. The combination with the machine-frame A having journaled therein the cotton-

elevator B, the cotton-feeder C, the gin D, the packer E, the follower F³³, and operative mechanism therefor, of the oscillating baling-chamber F, pivotal support therefor, curved rack-bars attached to the front end thereof, a gear-wheel and the toothed wheel F²² engaging said rack-bars, and means for imparting reverse motion to said toothed wheel F²² and thereby operating said baling-chamber, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

PEARL K. CROWELL.

Witnesses:

LOUIS M. MARBLE,

NELLIE E. WETTERLING.