No. 715,787. Patented Dec. 16, 1902.

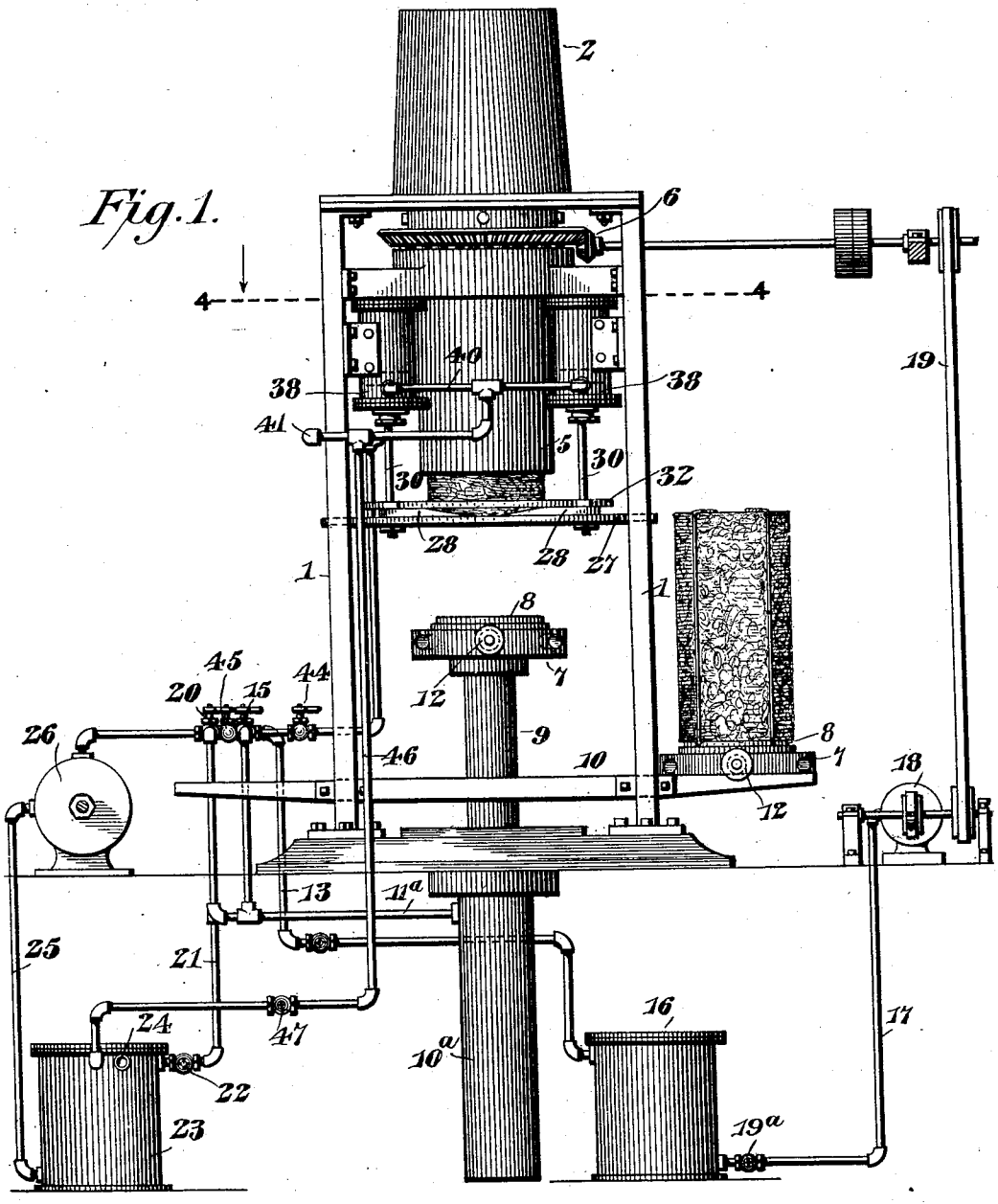
T. J. GRIFFIN.

COTTON COMPRESS.

(Application filed Mar. 26, 1900.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1.



Witnesses
Jas. K. McCutchan.
D. T. Williamson.

Thomas J. Griffin
Inventor
By
E. G. Siggers
Attorney

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

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(No Model.) 3 Sheets—Sheet 2.

Fig. 2.

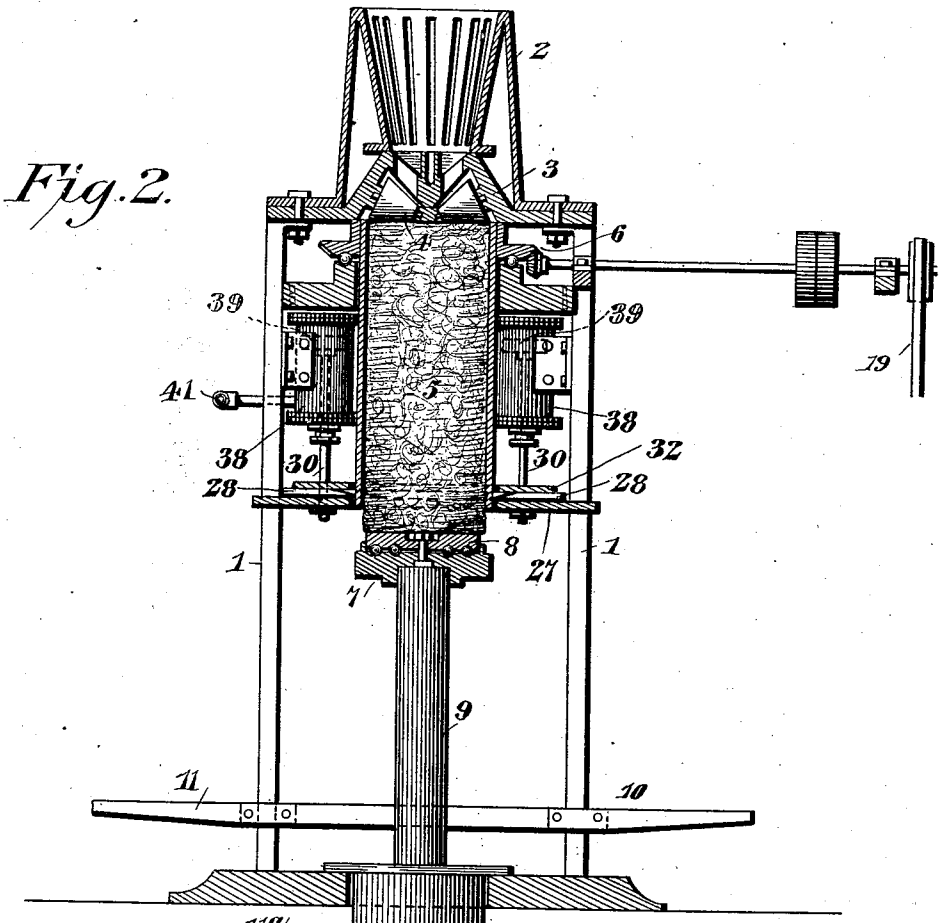
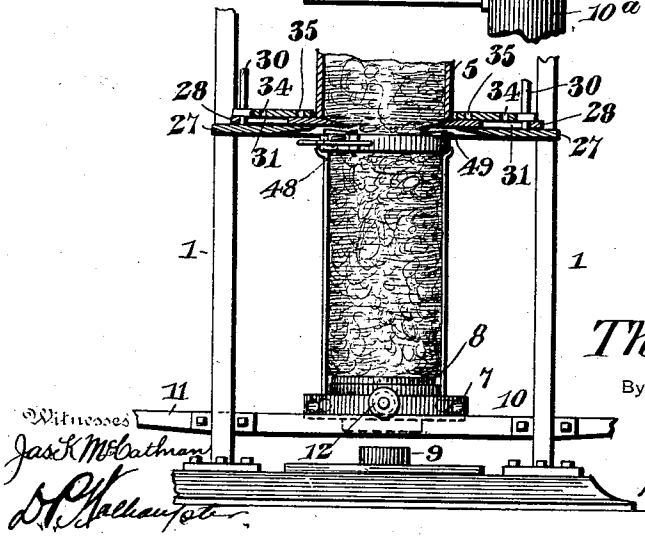


Fig. 3.



Witnesses
Jas. K. McCathran
D. P. Gallaugher

Thomas J. Griffin
Inventor
By
E. G. Siggers
Attorney

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

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(No Model.) 3 Sheets—Sheet 3.

Fig. 4.

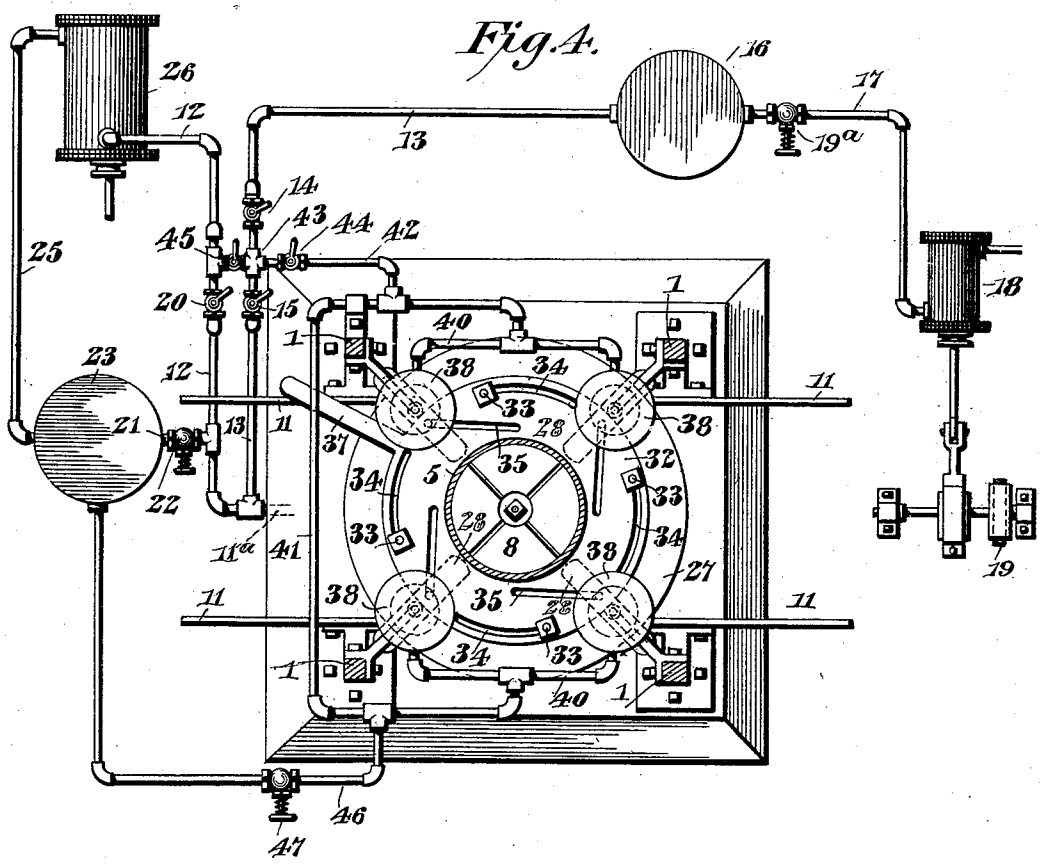
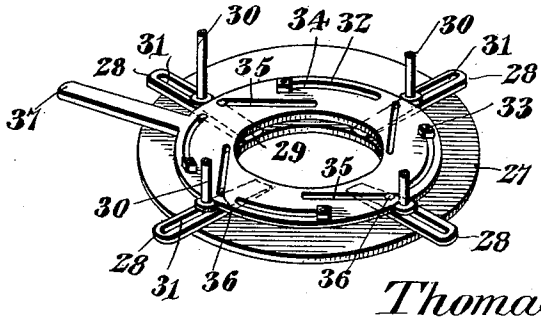


Fig. 5.



Witnesses

Jas. K. McCathran

D. P. Holland

Thomas J. Griffin
Inventor

By E. G. Siggers
Attorney

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

UNITED STATES PATENT OFFICE.

THOMAS J. GRIFFIN, OF GALVESTON, TEXAS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO PLANTERS COMPRESS COMPANY, A CORPORATION OF MAINE.

COTTON-COMPRESS.

SPECIFICATION forming part of Letters Patent No. 715,787, dated December 16, 1902.

Application filed March 26, 1900. Serial No. 10,243. (No model.)

To all whom it may concern:

Be it known that I, THOMAS J. GRIFFIN, a citizen of the United States, residing at Galveston, in the county of Galveston and State of Texas, have invented a new and useful Cotton-Compress, of which the following is a specification.

This invention relates to cotton-compresses of the type which are designed for forming cylindrical or round bales by building up a column of the fiber from highly-compressed layers or bats spirally laid endwise of the column, and has special reference to the cutting mechanism for severing the full-grown bale from the remaining column of compressed material.

To this end the invention contemplates an improved cutting mechanism and a novel arrangement thereof with reference to the working parts of the press, whereby such cutting mechanism will provide positive and reliable means for severing the full-grown or completed bale from the remaining column of compressed material and yieldingly supporting the said remaining column of compressed material under pressure to permit the baling operation to continue until the main receding follower can be set to an operative position with relation to the new forming bale. In other words, the invention contemplates bale-cutting means acting in the capacity of an auxiliary pressure mechanism for temporarily sustaining under pressure and yieldingly supporting the column of the material constituting a portion of the new forming bale.

The invention also contemplates individual means for automatically controlling the cutting mechanism for actuating the cutting-knives thereof as well as adjusting the same to its initial position from the point where it may have receded with the new forming bale.

With these and other objects in view, which will readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts illustrated and claimed.

The leading feature of the invention, involving the yielding support under pressure of the cutting mechanism, is necessarily susceptible to a wide range of modification without departing from the spirit or scope of the invention; but the preferred embodiment of the improvement is shown in the accompanying drawings, in which—

Figure 1 is a side elevation of a cotton-compress equipped with the present invention and showing the cutting mechanism receding with a new forming bale while the completed or full-grown bale is being disposed of. Fig. 2 is a vertical longitudinal section of the parts, showing the cutting mechanism in its initial position when the main receding follower is in position to resist under pressure the downward thrust or growth of the column of compressed material. Fig. 3 is a detail sectional view showing the main cutting mechanism actuated to sever a full-grown bale from the remaining column of compressed material and illustrating the relative position of the bale-holding device on the receding follower for holding and binding the completed bale until the same can be tied and sacked. Fig. 4 is a horizontal sectional view on the line 4 4 of Fig. 1, showing all of the piping forming a part of the pressure mechanism associated with the bale-cutter or cutting mechanism. Fig. 5 is a detail perspective view of the cutting mechanism proper, involving a plurality of cutting-knives for severing the bale from the remaining column of material and also providing a temporary follower-support for the latter.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

Inasmuch as the present invention relates particularly to the bale-cutting mechanism and the means for yieldingly supporting the same under pressure against and beneath the column of compressed material constituting a part of the new forming bale, the specific construction of the parts is unimportant; but for illustrative purposes there is shown in the drawings the same type of press as illustrated in my companion applications, Case A, Serial No. 10,241, filed March 26, 1900, and Case B, Serial No. 10,242, filed March 26, 1900. This type of cotton-compress provides for

forming a cylindrical bale by endwise pressure and spiral wrappings of the layers or cotton bats.

Referring particularly to the drawings, the numeral 1 designates the upright supporting stand or frame of the press, upon the upper end of which is mounted the hopper 2 for holding a bulk or supply of cotton in a loose condition. Immediately below the lower outlet end of the hopper 2 is supported the pressure folding or compressing device 3, essentially comprising a plurality of obliquely-mounted conical feed-rollers 4. The said pressure folding or compressing device 3 is arranged in a fixed horizontal plane and operates in the same manner and for the same purpose as the similar device disclosed in my aforesaid applications. The said pressure folding or compressing device 3 constitutes a rigid abutment to resist the endwise thrust of the compressed column of material within the baling-chamber 5, which is arranged in an upright position within the top portion of the press stand or frame. The baling-chamber 5 is open at both ends to respectively receive a supply of cotton and to permit of the downward feeding of the compressed column or bale, and in the operation of the press the necessary feeding-in of the cotton at the upper end of the chamber 4 is accomplished by providing a relative rotation between the pressure folding or compressing device 3 and the said baling-chamber 5, as fully explained in the said other applications; but for illustrative purposes the baling chamber or cylinder 5 is shown as the rotating or revoluble member, motion being communicated thereto through the medium of suitable drive-gearing 6.

The fixed position of the pressure folding or compressing device 3 over the upper receiving end of the baling-chamber 5 secures great density or compression of the column of cotton in the direction of its length and prevents expansion of the material endwise at the upper end of the baling-chamber. The endwise expansion of the cylindrical column of compressed material in the other direction is resisted by the receding follower 7, arranged to work beneath the open lower end of the baling-chamber. The receding follower 7 is preferably provided with a revoluble table 8, which provides a supporting-bed for the lower end of the bale and permits of the free rotation of the latter to insure the spiral wrapping of the bat or layers at the upper end of the column of material, and the said receding follower 7 is detachably fitted at the upper end of the plunger 9 of the main pressure mechanism for the bale. The detachable connection of the receding follower 7 with the upper end of the plunger 9 permits the latter, when the follower reaches its lower limit of movement with a full grown bale thereon, to descend or recede out of engagement with the follower 7, so that the latter with the bale thereon may be moved out onto the delivery-platform 10, mounted within the lower portion of the press stand or frame and usually consisting of a pair of oppositely-arranged supporting-tracks 11, which receive thereon the traveler wheels or rollers 12, fitted to the follower 7, whereby the same may be readily shifted upon the supporting-rails 11 at one side of the plane of the plunger 9. When a follower with a completed bale has been thus shifted out onto the delivery-platform 11—11, a previously inactive or new follower is fitted over the plunger 9, which is then thrust back to an active position with relation to the new forming bale, so that the continuous operation of baling may be proceeded with without stopping the feeding of the press. This continuous operation of baling is substantially the same as that fully set forth in my aforesaid application, Case B, Serial No. 10,242, and the main pressure mechanism for the receding followers may also be the same as set forth in the said application; but referring in brief to this pressure mechanism it will be noted that the vertical movable plunger 9 works in the pressure-cylinder 10^a, arranged at and below the base of the press and having connected therewith, contiguous to its upper end, the combined supply and exhaust pipe 11^a, which supply and exhaust pipe has connected therewith the liquid and air supply pipes 12 and 13, respectively. The air-supply pipe 13 has fitted thereto a pair of spaced cut-off or controlling valves 14 and 15 and is connected with an air-reservoir 16, having a pipe connection 17 with an air-pump 18, which may be continuously driven by means of a suitable belt connection 19 with the drive-gearing 6 for the revoluble baling-chamber, and to provide for properly regulating the pressure of the air delivered from the pump 18 the pipe 17 has fitted thereto a pressure-regulating valve 19^a, which can be set to open at any predetermined pressure. The liquid-supply pipe is also provided with a cut-off or controlling cock 20 and has coupled thereto a branch pipe 21, having fitted thereto a pressure-regulating valve 22, connected with the liquid-reservoir 23. This liquid-reservoir 23 is preferably provided with an air-vent 24, which permits of the escape of such air as may be discharged therein, and has a suction-pipe connection 25 with a pump 26, which forces water or equivalent liquid under pressure into the liquid-supply pipe 12.

The described piping, in connection with the plunger 9 and the pressure-cylinder 10^a, comprises a complete pressure mechanism for the receding follower set forth in my aforesaid application, Case B, Serial No. 10,242, and is manipulated in the manner described in said application to provide for quickly thrusting the plunger, with a new follower thereon, upward to an operative position with relation to the new forming bale by air-pressure, and subsequently introducing the liquid into the pressure-cylinder to provide for

the necessary resistance of the receding movement of the plunger and the new forming bale supported thereby.

As stated, the present invention relates particularly to the cutting mechanism for severing a bale when full grown or completed from the remaining column of compressed material, and in the carrying out of the invention the cutting mechanism preferably is supported entirely independent of the receding follower, so that when a completed bale has been moved out of the way with its supporting-follower the cutting mechanism will provide a temporary receding follower-support for the new forming bale until a new follower can be thrust into operative position by the plunger 9 of the main pressure mechanism. The said cutting mechanism is therefore preferably arranged to work at and contiguous to the lower open end of the baling-chamber 5, and while this cutting mechanism is necessarily susceptible to a wide range of modification one form of the same is illustrated in the drawings. This form of cutting mechanism is shown in detail in Fig. 5 of the drawings and simply consists of a circular supporting-base or ring 27, which slidably supports thereon a circular series of radially-disposed cutting-knives 28, having at their inner ends sharpened blade portions 29, adapted to be thrust inwardly toward the center of the supporting-base or ring 27 to provide for severing a completed bale from the remaining column of compressed material and to support such column until a new follower can be placed in position. The radially-disposed cutting-knives 29 are guided in any suitable manner in their reciprocatory movement and may be conveniently held to a movement in a fixed plane upon the supporting-base or ring 27 by having the piston-rods 30, projecting through the longitudinally-disposed guide-slots 31, formed in the shank portions of the said knives. There are preferably the same number of piston-rods 30 as there are sliding cutting-knives, and said rods are bolted or otherwise suitably secured at their lower ends to the supporting-base or ring 27 to provide for the support of the entire cutting mechanism and the bodily movement thereof with the piston-rods. To provide for sliding the cutting-knives inward and outward, there is preferably employed an adjusting-ring 32, arranged above the knives and held to a circular movement upon the supporting-base by the retaining-bolts 33, extending through the segmental slots 34 in the adjusting-ring and secured in the base, and said adjusting-ring is furthel provided with a plurality of inclined or cam slots 35, which receive the studs or pins 36, projecting from the sliding knives 28.

The circularly-movable adjusting-ring 32 has projected from one side thereof an operating handle or lever 37, which is manipulated by the operator to impart movement in either direction to the ring, according to whether the knives are to be thrown in or out of action. The inclined or oblique disposition of the slots 35 necessarily causes the circular movement of the ring 32 to impart a sliding or reciprocatory movement to the knives 28 and will also prevent accidental displacement or loosening of the knives from their adjusted positions.

The series of piston-rods 30, which sustain or support the cutting mechanism just described, are associated with a plurality of auxiliary pressure-cylinders 38, which are grouped about the baling-chamber 5 within the press stand or frame and are preferably supported in stationary positions, said auxiliary pressure-cylinders being conveniently fastened to brackets which may be bolted to contiguous portions of the stand or frame. Each piston-rod 30 has fitted to the upper end thereof a piston or piston-head 39, working within an auxiliary piston-rod 30, associated therewith, and all of said auxiliary cylinders have connected therewith contiguous to their lower ends combined supply and exhaust pipes 40, which are connected with a common distributing-pipe 41. The common distributing-pipe 41 has a supply-pipe connection 42 with the air-supply pipe 13 and also with the liquid-supply pipe 12 through the medium of a coupling 43 upon the air-supply pipe 13. At one side of the coupling 43 the supply-pipe connection 42 is fitted with a cut-off cock 44, and at the opposite side of said coupling, between the latter and the liquid-pipe 12, the pipe connection 42 is provided with a second cut-off cock 45, controlling the supply of liquid to the supply-pipe connection 42, and thence to the auxiliary pressure-cylinders 38 for the cutting mechanism.

The common distributing-pipe 41 for the auxiliary pressure-cylinders of the cutting mechanism has also connected therewith a discharge-pipe 46, leading to the liquid-reservoir 23 and having fitted thereto a pressure-regulating valve 47, which may be set to open at any predetermined pressure, according to the pressure which is to be maintained in the auxiliary pressure-cylinders.

In the normal position of parts the auxiliary pressure-cylinders 38 are charged with water or equivalent liquid beneath the pistons 39, thereby holding the cutting mechanism in its elevated position with the knives 28 thereof disposed in the horizontal plane of the lower open end of the baling-chamber 5. When a bale has reached its full growth exterior to the baling-chamber, the operator grasps the handle or lever 37 and swings the same in one direction, thereby causing the knives 28 to be thrust inwardly into the column of compressed material, which by its rotation in the form of press described insures a complete severance of the full-grown bale from the remaining column of compressed material. At this point the operator actuates the bale-holding device 48,

which is carried by the follower and is of the same construction and operates in the same manner as the device set forth in my aforesaid application, Case A, No. 10,241. The blades 49 of this holding device are thrust directly beneath the knives 28 of the main cutting mechanism, and thereby take hold of the upper end of the completed bale, so as to hold the same in its compressed condition and permit of its removal onto the delivery-platform, ready for being tied and sacked in the usual manner. (See Fig. 3.) After the cutting mechanism has been actuated in the manner described to sever the completed bale and the latter is removed out of the way the knives of the cutting mechanism will remain beneath the lower end of the remaining column of compressed material and will therefore serve as a temporary follower-support therefor, and as the new bale continues to form the entire cutting mechanism sustaining such new forming bale will recede under pressure and will cause the liquid in the auxiliary cylinders 38 to be forced through the discharge-pipe 46 and past the pressure-regulating valve 47. During this period a new follower can be placed upon the plunger 9 and the latter thrust back to its operative position beneath the new forming bale, and when this is done in the manner set forth in my other applications the operator grasps the handle or lever 37 and removes the same in the opposite direction to withdraw the knives 38 from beneath the new forming bale. It is then necessary to return the cutting mechanism to the initial position. (Shown in Fig. 2.) This may be accomplished with rapidity by closing the valves 15 and 45 and opening the valves 14 and 44, whereby the compressed air may pass through the pipes 42, 41, and 40 into the auxiliary pressure-cylinders beneath the pistons therein. After air has been thus admitted to elevate the pistons 39 the valves 14 and 20 are closed and the valve 45 opened, so that water or equivalent liquid may be pumped into the auxiliary cylinders. After this the valves 44 and 45 are closed, so that the supply of air and water may be utilized in the usual way with the main pressure mechanism.

While the specific form of cutting mechanism herein described is preferably supported and operated in the manner set forth, it will be understood that said cutting mechanism *per se* may be used in other relation without departing from the invention.

From the foregoing it is thought that the construction, operation, and many advantages of the herein-described improvements will be readily apparent to those familiar with the art without further description, and it will be understood that various changes in the size, shape, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

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

1. In a compress for fibrous material, the combination with means for forming a cylindrical column of compressed material by endwise pressure, of bodily-movable mechanism having means for severing a completed bale from the remaining column of compressed material and for temporarily supporting the latter at one end, of a pressure mechanism having piston-rod connections with said cutting mechanism.

2. In a compress for fibrous material, the combination with means for forming a cylindrical column of compressed material by endwise pressure, of a cutting mechanism having means for severing a completed bale from the remaining column of compressed material and for temporarily supporting the latter at one end, of pressure mechanism having movable connections with said cutting mechanism.

3. In a compress for fibrous material, the combination with means for forming a cylindrical column of compressed material by endwise pressure, of a bodily-movable cutting mechanism having means for severing the completed bale from the remaining column of compressed material, and a pressure mechanism including a pressure-cylinder and movable piston having a rod connection with the cutting mechanism, substantially as described.

4. In a compress for fibrous material, the combination with means for forming a cylindrical column of compressed material by endwise pressure, of a bodily-movable mechanism having means for severing a completed bale from the remaining column of compressed material, and the pressure mechanism including a plurality of auxiliary pressure-cylinders and pistons, the latter having rod connections with the cutting mechanism.

5. In a compress for fibrous material, the combination with the baling-chamber and means for compressing the material into one end thereof, of a bodily-movable cutting mechanism, having a receding movement with reference to the baling-chamber, and provided with cutters adapted to work inwardly beneath said chamber, a series of auxiliary pressure-cylinders, pistons working within said cylinders and having rod connections with said cutting mechanism, and pressure-supplying means having common pipe connections with all of the auxiliary cylinders, substantially as described.

6. In a compress for fibrous material the combination with the baling-chamber and means for compressing material into one end thereof, of a receding cutting mechanism independent of the follower and having a supporting-base and a plurality of cutters arranged on the base and adapted to work beneath the baling-chamber, a pressure mechanism including a plurality of pressure-sup-

ply cylinders and pisions working in the cylinders and having rod connections with said supporting-base of the cutting mechanism.

7. In a compress for fibrous material, the combination with means for forming a column of compressed material by endwise pressure, of a fluid-pressure system containing a cylinder and a plunger adapted to support the column; a cutting mechanism having means for severing a completed bale from the column; one or more cylinders with pistons therein connected with the cutting mechanism; pipe connections therefrom to the fluid-pressure system; and valves whereby the fluid under pressure may be admitted alternately to the plunger and to the pistons supporting the cutting mechanism.

8. In a compress for fibrous material, the combination with means for forming a column of compressed material by endwise pressure, of a fluid-pressure system containing a cylinder and a plunger adapted to support the column; a cutting mechanism having means for severing a completed bale from the column; one or more cylinders with pistons therein connected with the cutting mechanism; pipe connections therefrom to the fluid-pressure system; valves to cut off the plunger and the pistons supporting the cutting mechanism from the pressure system; and one or more pressure-relief valves for the discharge of fluid from the cylinders.

9. In a compress for fibrous material, the combination with means for forming a column of compressed material by endwise pressure, of a fluid-pressure system containing a cylinder and a plunger adapted to support the column; a cutting mechanism having means for severing a completed bale from the column; one or more cylinders with pistons therein connected with the cutting mechanism; pipe connections therefrom to the fluid-pressure system; valves to cut off the plunger and the pistons supporting the cutting mechanism from the pressure system; a pressure-relief valve for the plunger-cylinder; and a separate pressure-relief valve for the cylinders of the cutting mechanism.

10. In a compress for fibrous material, the combination with means for forming a column of compressed material by endwise pressure, of a fluid-pressure system containing a cylinder and a plunger adapted to support the column, a cutting mechanism having means for severing a completed bale from the column; means for supplying to the cylinder air and water successively under pressure; valves in said supply means; and a pressure-relief valve for the discharge of fluid from the cylinder.

11. In a compress for fibrous material, the combination with means for forming a column of compressed material by endwise pressure, of a cutting mechanism having means for severing a completed bale from the column; one or more cylinders with pistons therein connected with the cutting mechanism; means to supply air under pressure to said cylinders; means to supply water under pressure to said cylinders; valves in said supply means; and one or more pressure-relief valves adapted to discharge fluid from said cylinders.

12. In a compress for fibrous material, the combination with a compression-chamber having means for compressing material therein and having an opening for discharge of the compressed material therefrom, of a plurality of independently-operative receding supports for the compressed material at the place of its discharge; a fluid-pressure system common to the said supports; and means for admitting pressure to said supports independently, after their recession, to return them to their initial positions.

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

THOMAS J. GRIFFIN.

Witnesses:
JOHN H. SIGGERS,
EDWIN E. VROOMAN.