

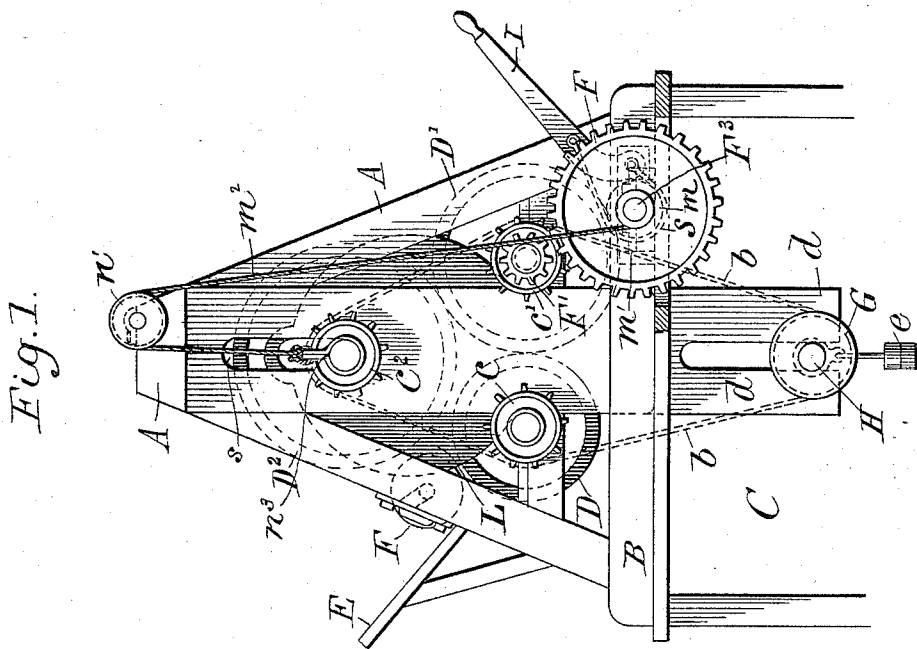
(No Model.)

2 Sheets—Sheet 1.

C. BANISTER,
COTTON PRESS.

No. 579,335.

Patented Mar. 23, 1897.



Witnesses:
Thos H Libbey
A. W. Parkins

Inventor:
Charles Banister,
By
Pierce & Goldborough
attorneys

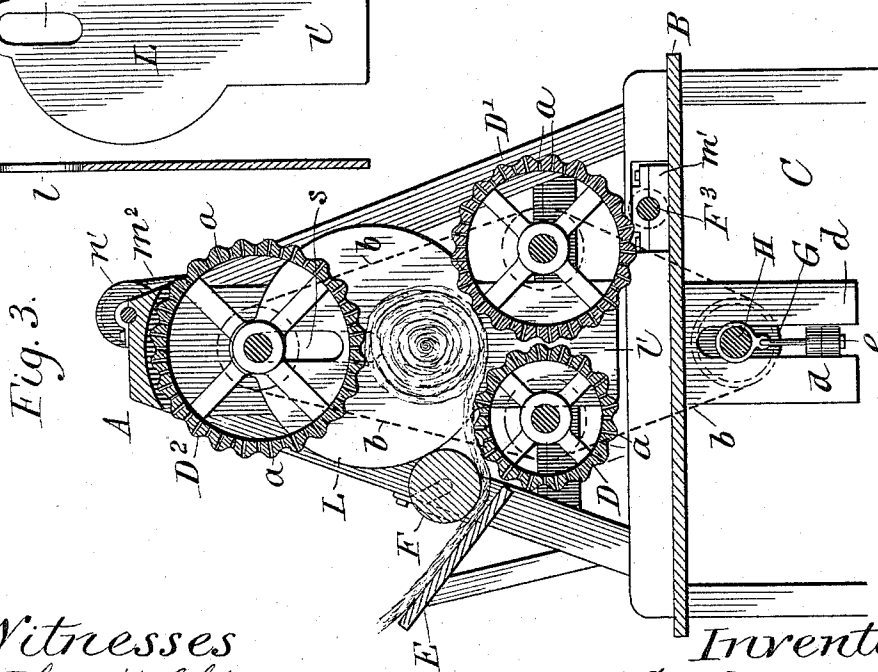
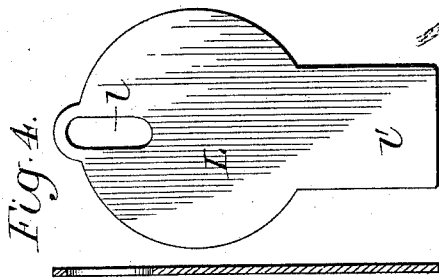
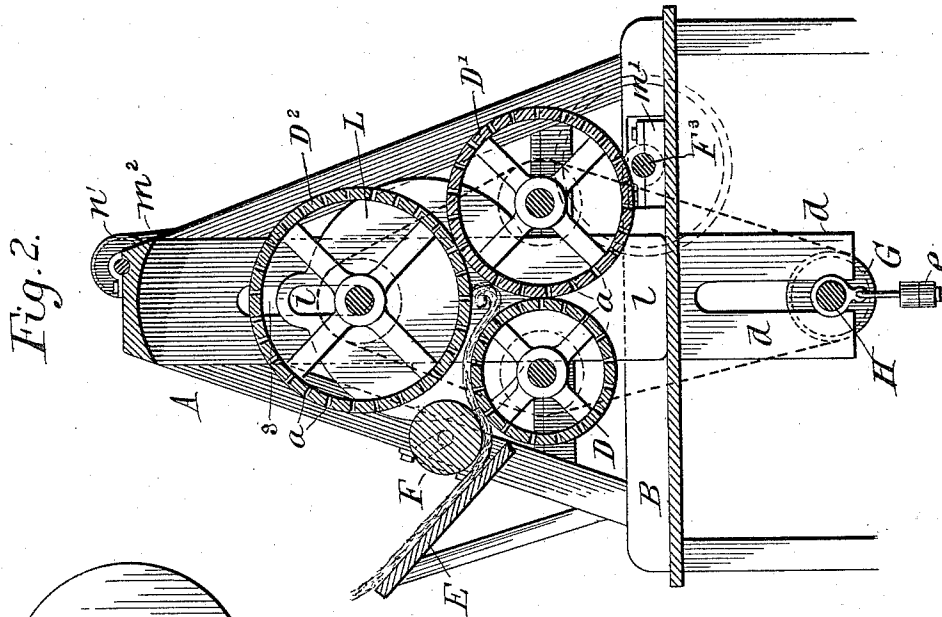
(No. Model.)

2 Sheets—Sheet 2.

C. BANISTER.
COTTON PRESS.

No. 579,335.

Patented Mar. 23, 1897.



Witnesses
Thad H. Libbey
A. W. Parkins.

Inventor.
Charles Banister;
By
Reuben & Goldborough
Attorneys

UNITED STATES PATENT OFFICE.

CHARLES BANISTER, OF WACO, TEXAS.

COTTON-PRESS.

SPECIFICATION forming part of Letters Patent No. 579,335, dated March 23, 1897.

Application filed March 6, 1895. Serial No. 540,754. (No model.)

To all whom it may concern:

Be it known that I, CHARLES BANISTER, a citizen of the United States, residing at Waco, in the county of McLennan and State of Texas, have invented certain new and useful Improvements in Cotton-Presses; 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.

In a patent granted to me on the 22d day of January, 1895, No. 532,749, I have shown, described, and claimed an improved roller cotton-press embodying, among other features, a roller-bed consisting of a plurality of rollers in conjunction with an overlying pressure roll or cylinder, between which and the roller-bed the bale is formed by winding up the bat, as it comes from the gin-condenser, in the form of a roll. A distinguishing feature of the patented construction is that the "roll-bale," as I will term it, is formed without the use of a core, the arrangement of the overlying pressure-cylinder relative to the second roller of the bed at the beginning of the bale-forming operation being such that the incoming bat is given a curl at its forward edge that serves as a center upon which the outer layers of the bale are successively wound. In the construction sought to be protected herein I preserve this and other characteristic features of the previously-patented invention, including the same general relation of the top pressure-roll to the roller-bed, and the present invention consists, mainly, in an improved specific manner of mounting said rollers and proportioning them relatively to one another, so as to produce the same general effect as in the former construction in an improved and more efficient manner.

The improvement is illustrated in the accompanying drawings, forming part of this specification, wherein—

Figure 1 represents an end elevation of the press illustrated in my former patent with the present additional improvements applied thereto. Fig. 2 is a vertical section taken transversely through the rolls of the press, the parts being in position to begin the bale-forming operation. Fig. 3 is a view similar to that of the second figure, the parts being in the positions they occupy at or about the

termination of the operation; and Fig. 4 contains an elevation and vertical sectional view of one of the heads covering the space between the rollers at the sides of the frame.

Similar letters of reference indicate the same parts throughout the several views.

Referring to the drawings, A indicates the framework of the press, which may be of any preferred construction and be mounted, as usual, upon the gin-floor B, above the basement C, or in any other manner. Within the side members of the frame a plurality of rollers D D' are mounted in fixed bearings, said rollers constituting the bed of the press. Above these rollers, in elongated bearings, so as to permit of an up-and-down vertical movement of the same, is mounted the roller D², and this roller, in conjunction with the lower rollers D D' of the bed, constitute the bale-making elements of the press.

As shown in Fig. 2, the rollers may have a comparatively smooth periphery, although they should not be too smooth to lack the requisite friction to cause them to carry the bat forward from one to the other. In practice in order to insure this result I usually corrugate the rollers longitudinally, as illustrated in Fig. 3, or in lieu thereof or in addition thereto I provide the shell of the rollers with perforations *a*, extending into the open interior. These perforations engage the small projecting fabric of the bat pressed into them by the roller action, and thus increase the frictional contact between the rollers and the bat. A further and important function of the perforations is that they permit the air that is present in the bat to be forced out by reason of the compressive action of the rollers, thereby facilitating the baling operation.

The rollers D and D' are located just out of contact with each other, and the former is located at the termination of a chute or inclined platform E, that receives the bat from the condenser and directs it downward so as to enter the press between said roller and an idle or feed roller F, that is journaled loosely in oblique or inclined elongated bearings in the frame. As above described, the roller D² is mounted in elongated bearings in the side pieces of the frame and is located in a vertical plane midway between the vertical planes of the rollers D and D'. These three rollers

are rotated by a sprocket-chain *b*, whose links engage the teeth of driving gears or sprockets *c*, *c'*, and *c''*, fixed on the ends of the shafts of the rollers *D*, *D'*, and *D''*, respectively. In practice I prefer to use these driving-sprockets on each end of the roller-shafts, and in such case would of course employ a chain belt for each train of gears. In order to permit the top roller *D''* to rise while being driven by the chain or chains, I pass the latter around a slack take-up roller *G*, which is mounted upon a shaft *H*, having a capacity for vertical movement between guides *d*, suitable weights *e* being hung on the shaft for the purpose of keeping the chain or chains taut and for applying additional weight to the upper roller *D''*, so as to render its compressive action more effectual.

For the purpose of giving to the forward edge of the bat that initial fold or curl necessary to the successive winding of the outer layers in the form of a roll, the upper movable roller is mounted so that in its lowered position at the beginning of the bale-forming operation it will occupy a position preferably touching, or at least in such close proximity to, the second roller *D'* of the bed as to prevent the passage of the bat between the same, its relative position to the first of the bed-rollers being at the same time such as to leave an open throat or way for the entrance of the bat into the space inclosed by the two rollers.

As thus far described the construction and operation of the press is the same as that of the form of apparatus shown in my former patent, and I will now proceed to describe the features wherein the present construction is differentiated from that patent.

In the former construction, as will be noted from the drawings of the patent, the rollers constituting the bale-forming elements were of uniform diameter and those constituting the bed of the press were located in the same horizontal plane. In such proportion and arrangement of rollers it was necessary to mount the upper roller in bearings that were inclined obliquely to the planes of the rollers in the bed, so that in the position it occupied at the commencement of the baling process it would stand relatively to the bed-rollers, as above described. This gave to the upper roller necessarily an oblique or sidewise bodily movement as it ascended with the increasing diameter of the bale. In the present improvement I do away with this bodily sidewise movement of the upper roller and mount the same in straight vertically-elongated bearings or slots *s* in the end pieces of the frame, said slots being located in a plane midway between the vertical planes of the rollers *D* *D'* of the bed, and so that the upper roller retains the same relation to the planes of the lower rollers throughout its vertical movement, and in order to preserve the same relative initial position of the roller *D''* to the first and second rollers of the bed as

in the patent I set the second roller *D'* a little higher than the roller *D*, accomplishing this preferably by so proportioning the diameter of the second roller to that of the first that its upperside will be horizontally slightly above the periphery of the roller *D*. With this arrangement it will be obvious that, as the roller *D''* occupies a vertical plane midway between that of the lower rollers, it will in its lowered position be nearer to the periphery of the roller *D'* than to that of the first roller, thus providing for the free entrance of the bat into the bale-forming space between the rollers and confining it therein.

The capacity of the triangular space between the three rollers existing at the beginning of the bale-forming operation and the width of the throatway for the entrance of the bat thereinto may be varied by properly proportioning the size of the upper roller to that of the bed-roller and especially to that of the second of said rollers *D'*. I therefore, in order to secure the proper space and width of throatway, preferably make the upper roller *D''* of greater diameter than the roller *D'*, with which it more immediately cooperates in starting to form the bale, and I particularly prefer to construct the top roller of such relative size to the others, as above described, for the reason that incidentally it enables me to obtain the differential speed of peripheral rotation described and claimed in my former patent without the employment of the train of graduated gears specifically illustrated therein and permits the use of ordinary gears or sprocket-wheels of uniform size.

In Fig. 4, *L* denotes one of the head semibraced in my former patent. The construction of these heads in the present improvement is the same as before, excepting that the slot *l* in the upper part, through which the shaft of the roller *D''* passes, is not made oblique or inclined, but is straight and coincident with the slot *s* in the frame ends.

The construction being as above described, the operation, generally speaking, is substantially like that of my former patented construction. On entering the press the bat passes between the feed-roller *F* and the first roller *D* of the bed and is carried by the latter forward into contact with the roller *D'*, as shown in Fig. 2, and the relatively higher position of the latter to the surface of the former forms an abutment obstructing the further passage of the bat and together with the cooperating top roller serving to more effectually give that curl to the forward edge of the bat which is essential to the proper formation of the bale than would be the case were the top sides of the two bed-rollers in the same horizontal plane, as in the old arrangement. As the operation continues the increasing diameter of the bale causes the upper roller *D''* to rise; but in so doing it does not, as in the former construction, move obliquely with relation to the vertical plane of

the lower rollers or change its point of impact on the roll relative to that of the others, but retains its central position above the axis of the bale throughout its movement. When the bale is completed, it becomes necessary to raise the upper roller in order to remove it. This may be effected in any preferred manner or by any mechanism effectual for that purpose. I show herein one of the mechanisms illustrated and described in my former patent, as follows: The sprocket-wheel *c'* on the shaft of the roller *D'* has just outside of it a gear-pinion *F'*, and on the shaft *F³*, that carries the winding-drums *m*, is a gear-wheel *F*, said shaft being mounted in movable bearings *m'*. From the winding-drums *m* cords or chains *m²* pass over pulleys *n'* at the top of the frame and thence extend downward and connect to hangers *n³* on the ends of the upper roller-shaft. When the winding-drums are clutched to the shaft (which may be done by any suitable clutch mechanism operated by a handle *l*) and the shaft rotated by the press-gearing, the cords *m²* are wound on the drums and the roller *D²* is thereby elevated, so that the bale may be removed. After the removal of the bale the roller *D²* is permitted to return to its original position by unclutching the winding-drums, and the operation of forming a new bale begins and proceeds precisely as before described.

Although I have defined in the above description the vertical plane of the top roller as midway between the planes of the bed-rollers, I do not mean thereby to state that it must be exactly midway between said bed-rollers, but only that it must be at some plane intermediate between those of the rollers *D* and *D'*, and while I have described the gears for driving the several rollers as of uniform size I do not purpose to limit the present improvement to the use of gears of exactly uniform size, but contemplate the use of any form of gears or train of gearing that will impart to the rollers a substantially uniform axial rotation and at the same time give them the differential peripheral rotation above described.

Having thus described my invention, what I claim is—

1. In a cotton-baling roller-press, the combination of two lower rollers, the periphery of the second of said rollers projecting slightly above that of the first, and an upper movable roller, said upper roller being mounted in

straight guides located in a plane substantially coinciding with that of the proximate surfaces of the lower rollers; whereby, when the upper roller is in its lowered position, it will leave a throat or way for the passage of the material between it and the first lower roller, and will rest in such proximity to the second of the lower rollers as to prevent the further passage of the material and be guided so as to maintain a constant lateral relation to the planes of the lower rollers throughout its vertical movement; substantially as described.

2. In a cotton-baling roller-press, the combination of two lower rollers, the second of said lower rollers being of greater diameter than the first, and an upper movable roller said upper roller being mounted in straight guides located in a vertical plane substantially coinciding with the proximate surface of the lower rollers whereby, when the upper roller is in its lowered position, it will leave a throat or way for the passage of the material between it and the first of the lower rollers, and will be in such proximity to the second of said lower rollers as to prevent the further passage of the material and be guided so as to maintain a constant lateral relation to the planes of the lower rollers throughout its vertical movement; substantially as described.

3. In a cotton-baling roller-press, the combination of two lower rollers, the second of said lower rollers being of greater diameter than the first, and an upper movable roller said upper roller being mounted in straight guides located in a vertical plane substantially coinciding with the proximate surface of the lower rollers and being of greater diameter than the second of said rollers; whereby, when the upper roller is in its lowered position, it will leave a throat or way for the passage of the material between it and the first lower roller, and will be in such proximity to the second of the lower rollers as to prevent the further passage of the material and be guided so as to maintain a constant lateral relation to the planes of the lower rollers throughout its vertical movement; substantially as described.

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

CHARLES BANISTER.

Witnesses:

W. A. CASSEDAY,
JOE M. VAUGHAN.