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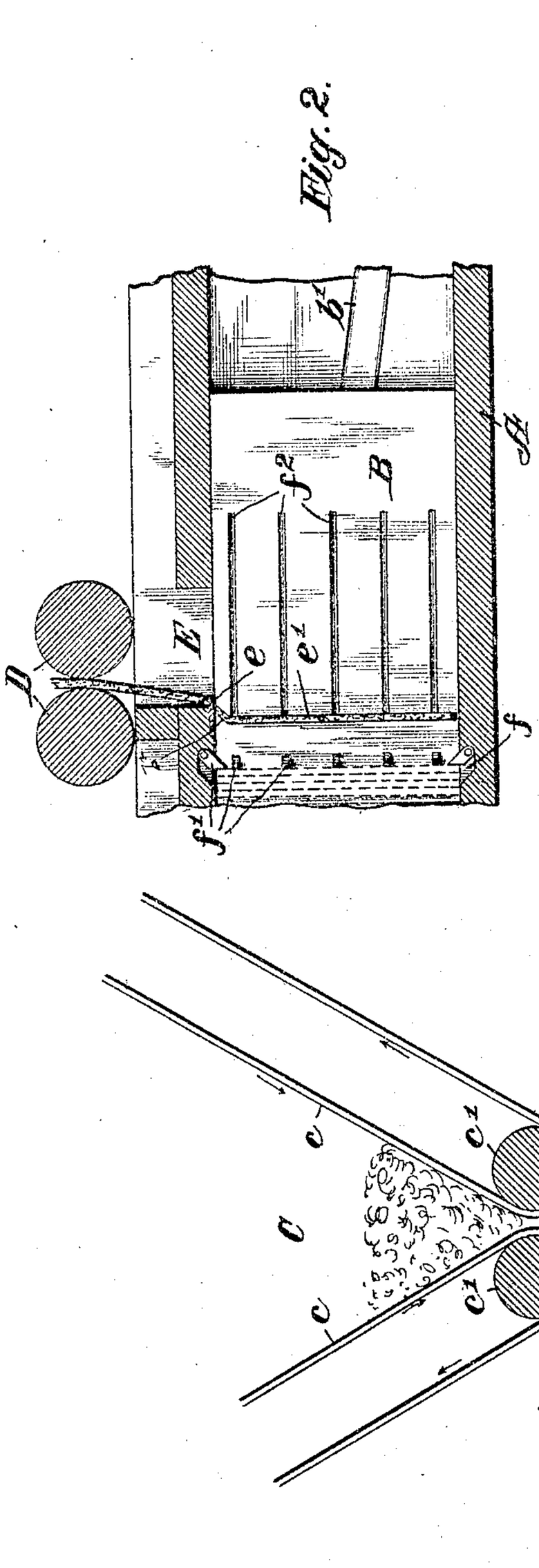
A. D. THOMAS.

COTTON PRESS.

APPLICATION FILED JUNE 27, 1904.

NO MODEL.



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UNITED STATES PATENT OFFICE.

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COTTON-PRESS.

SPECIFICATION forming part of Letters Patent No. 775,481, dated November 22, 1904.

Application filed June 27, 1904. Serial No. 214,297. (No model.)

To all whom it may concern:

Be it known that I, ABNER D. THOMAS, a citizen of the United States, residing at Little Rock, in the county of Pulaski and State of Arkansas, have invented certain new and useful Improvements in Cotton-Presses, of which the following is a specification.

The invention to be hereinafter described relates to cotton-presses, and more particularly that type adapted for production of what is generally termed the "square bale."

For the economical baling of cotton at the present day it is essential to produce a bale of the desired density in the original operation without subjecting it to the action of a compress, and attempts have been made at such production. As heretofore produced, a square bale has been formed of a continuous web or bat of cotton folded back and forward on itself, and then such bale compressed to the desired density. It is evident that such folding of the bat or web and then subjecting it to compression has a tendency to buckle or upset the fibers at the folding-point, the fibers at such point being therefore more or less injured besides giving to the bale on the line of the fold an increased bulk.

It is the general object of the present invention to overcome such defects thus generally stated and to provide a baling-press wherein the cotton in the form of a bat or web may be arranged in separate layers one upon the other without the objectionable fold present in the old form of bale.

In carrying out the general features of the present invention the bat or web, as it is fed from a suitable hopper, is pulled apart or severed into lengths equal to the cross-sectional area of the bale, and these separated portions of the bat or web are laid one upon the other and successively compressed, so that as a finished bale the product presents a series of layers separate with respect to each other, yet superimposed and pressed together, so that such layers may be taken separately and individually from the bale or a bunch of said layers may be so taken and transferred to the cotton-mill machinery rapidly, cheaply, and without the necessity of pulling apart the continuous bat or web of the old form of the bale.

In carrying out the invention any suitable form of baling-press may be employed, in which provision shall be made for pulling apart the bat or web and feeding such pulled-apart portions intermittently or successively in front of the compressing mechanism.

As an illustration of one form of baling-press embodying my invention, I have shown in the drawings a simple form of plunger-press, wherein provision is made for separating the bat or web in the manner hereinbefore explained and feeding such separate portions successively or intermittently in front of the compressing-plunger, all as will be hereinafter fully explained and more definitely pointed out in the claims, it being understood that the invention is not limited with respect to the particular type of press employed.

In the drawings, Figure 1 represents a sectional side elevation of sufficient of a plunger-press of a usual type to illustrate and make clear the application of the present invention thereto. Fig. 2 is a detail showing the plunger in advancing position and pulling apart a section of the bat or web.

In the drawings, A designates any usual form of baling-box, the construction of which may be suitable to receive the reciprocating plunger B, driven from any suitable source of power, as the shaft B′, through the crank *b* and pitman *b′*, as well understood by those skilled in the art.

Disposed above the baling-box A is any suitable form of hopper C, produced by the divergent belts *c c* and into which cotton or other fibrous material may be discharged from any suitable source of supply—as, for instance, the usual gin, condenser, or condensers—which being well understood requires no further elucidation. The belts *c c*, traveling in the direction of the arrows, Fig. 1, carry the fibrous material between the revolving rolls *c′ c′*, where such material is compressed and further condensed.

Disposed beneath the rolls c' c' are the straightening and compression rolls D D, which are intermittently driven by any suitable form of device—as, for instance, the belt D′ and pulley D^2, operated through the pinion D^3, having engagement with the teeth D^4 on the wheel D^5, partly about its periphery. From this construction it will be evident that as the wheel D^5, which may be designated a "segment-gear," revolves intermittent rotary motion will, through the means described, be transmitted to the rolls D D. It is preferable that the rolls D D be driven at a somewhat faster speed than the rolls c' c', as thereby the fibrous material is drawn and straightened as it passes between said rolls.

The wall of the baling-box is provided with an opening E, through which the material is fed into the baling-box at the front of the plunger B. To the wall of the opening E, as at e, there is secured a separating device, preferably in the form of a sharp or serrated edge, so that as the plunger B moves on its compression-stroke to the left in Fig. 1 it engages the projecting end e' of the lap or web, which thereupon moves with the plunger against a separating device at e. At this time the rolls D D are stationary, so that the plunger in moving the section e' of the web or lap against the separating device pulls the same apart or separates it from the main portion of the web or bat which is at such time held by the rolls D D.

In order that there may be no liability of the separated section of the bat or lap falling in a heap to the bottom of the baling-box, the upper edge b^2 of the plunger B is preferably cut away or beveled, so that the end projecting fibers of the separated section, as shown more clearly in Fig. 2, will rest upon and be sustained by the plunger in its upright position, and thus moved directly upon the preceding layers F.

The casing of the baling-box is preferably provided with recesses f, in which are pivoted dogs or sustaining devices f', which engage the upright sections of the bat or web and hold them in the position to which they have been compressed by the plunger. In order that the plunger may not be engaged by the dogs as it moves backward after compression, I preferably provide the plunger with a series of grooves f^2, into which the dogs may project without interfering with the backward movement of the plunger.

It has not been deemed necessary to illustrate in this connection the yielding abutment against which the separate layers of cotton or other fibrous material are compressed, as it forms no part of the present invention and is very well understood by those skilled in the art.

From the construction described it will be evident that while the plunger is in its backward position, as shown in Fig. 1, the bat or web is delivered to the baling-box by the rapidly-revolving pressure-rolls D, and as the plunger moves into engagement with the section of the bat or web thus fed into the baling-box it moves such section against the separating device e, and the pressure-rolls D being at this time stationary the lower section of the web or bat is pulled apart on the line of the separating device from the main portion of the web or bat. Continued movement of the plunger carries the separated section e' into engagement with the already-compressed layers F, where it is held in its compressed position by the dogs f'. Thus it will be seen that the essentials of the present invention comprise means for feeding a web or bat into a baling-box, which web or bat is not folded in a continuous web, but is separated from the main portion of the web or bat being fed to the machine, and in such separated condition it is compressed in the formation of a bale comprised of separated or individual sections of material. Furthermore, the separating device does not cut or otherwise injure the fiber when it pulls it apart in separating the section from the main portion of the web.

While I have shown and described an ordinary plunger-press as embodying one form of my invention, it is to be understood that the invention is applicable to other forms of press, and the details and arrangement of parts may be varied within the scope of my invention.

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

1. In a cotton-press, the combination of a baling-box, means for intermittently delivering a web or bat into said box, compression devices and means for pulling apart the delivered portion of the web from the main portion thereof and compressing the same into a bale formed of separate and independent layers.

2. In a cotton-press, the combination of a baling-box, means for intermittently delivering a bat or web into said box, compression devices, and means coacting with said compression devices for pulling apart the delivered portion of the web or bat from the main portion in the formation of a bale composed of separate layers.

3. In a cotton-press, the combination of a baling-box, means for intermittently feeding a web or bat into said box, a plunger and separating devices acting in connection with the plunger for separating the delivered portion of the web or bat from the main portion thereof, in the formation of a bale formed of separated layers.

4. In a cotton-press, the combination of a baling-box, compression-rollers for delivering

material in the form of a web or bat into said box, means for intermittently operating said compression-rollers, compression devices and separating devices for separating the web or bat into separate sections.

5. In a cotton-press, the combination of a baling-box, rollers for intermittently introducing the material in the form of a web or bat into said box, a plunger, a separating device, against which the web or bat is moved by the plunger in pulling apart the lower section thereof from the main portion and means for maintaining such separated portion in upright position.

6. In a cotton-press, the combination of a baling-box, means for intermittently feeding material in the form of a web or bat into said box, compression devices for compressing material in the form of a bale, separating devices for separating the material into sections, and means for holding the material in compressed condition in said box.

7. In a cotton-press, the combination of a baling-box, devices for intermittently feeding material in the form of a web or bat into said box, compression devices, separating devices for pulling apart the web or bat into independent sections, and means for holding the compressed sections in the bale-box after compression.

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

ABNER D. THOMAS.

Witnesses:

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