

E. MOTZ.
COTTON BALING MACHINE.

(Application filed Nov. 6, 1901.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

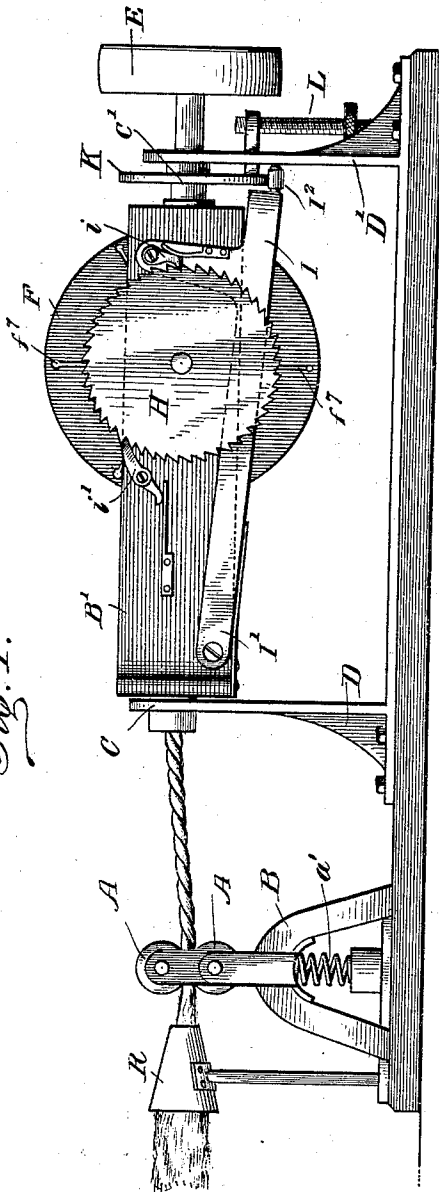
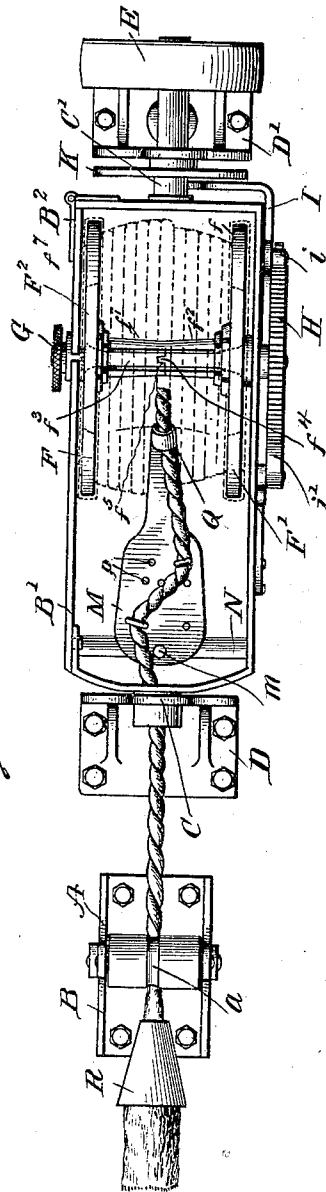


Fig. 2.



WITNESSES:

Fenton & Belt,
Albert Hopkins

INVENTOR

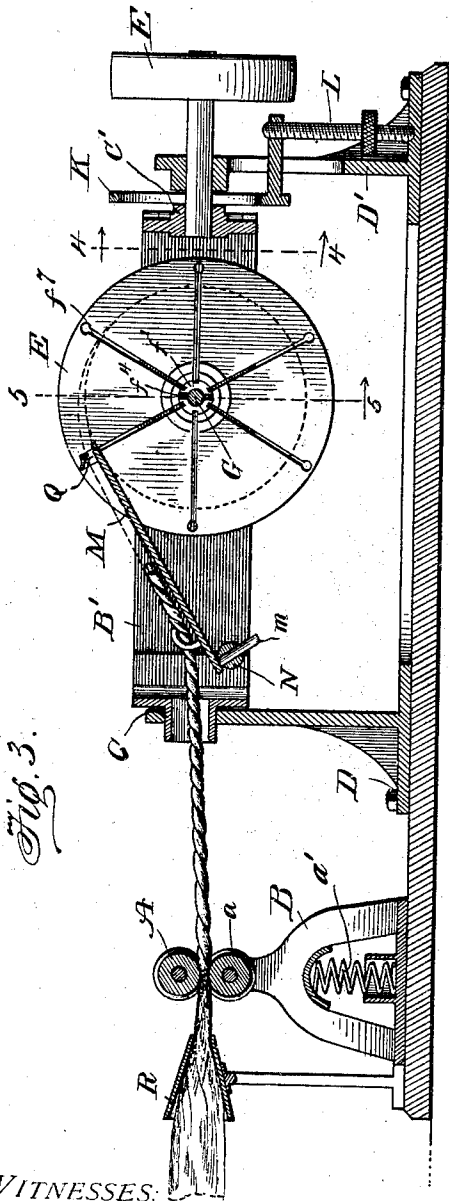
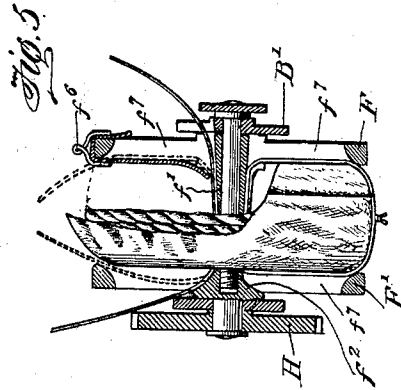
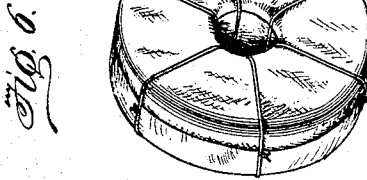
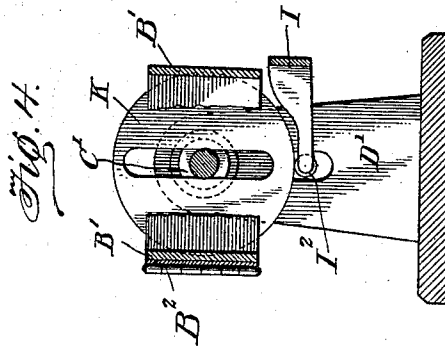
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2 Sheets—Sheet 2.



WITNESSES:

Anton Bell

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UNITED STATES PATENT OFFICE.

EMANUEL MOTZ, OF JEFFERSON, SOUTH CAROLINA.

COTTON-BALING MACHINE.

SPECIFICATION forming part of Letters Patent No. 696,743, dated April 1, 1902.

Application filed November 6, 1901. Serial No. 81,305. (No model.)

To all whom it may concern:

Be it known that I, EMANUEL MOTZ, a citizen of the United States, residing at Jefferson, in the county of Chesterfield, State of South Carolina, have invented certain new and useful Improvements in Cotton-Baling Machines, of which the following is a description, reference being had to the accompanying drawings and to the letters and figures of reference marked thereon.

My invention relates to cotton-baling machines adapted to form a compact highly-compressed bale of the general type known as the "round" bale; and it is the object of my invention to produce a machine capable of being operated by comparatively small power, such as is commonly used on plantations and simple and inexpensive in construction, adapted to take the cotton-bat as it comes from the condenser of the gin and to form directly from it a bale occupying the least possible space and ready to be put directly upon the market, thus avoiding the necessity of transportation of the ginned cotton in bulk from the gin to the compress.

My invention consists in the machine hereinafter described, by which the cotton-bat as it comes from the condenser is twisted to form a firm compressed strand, and this twisted strand is wound under tension upon a shaft into the form of a round bale, which is intended to be tied before its removal from the machine.

In the drawings, Figure 1 is a longitudinal elevation of the machine. Fig. 2 is a plan of the machine. Fig. 3 is a longitudinal sectional view of the complete machine. Fig. 4 is a cross-sectional view on line 4 4 of Fig. 3 looking to the rear. Fig. 5 is a cross-sectional view on line 5 5 of Fig. 3 looking toward the front end of the machine, and Fig. 6 is a perspective view of the bale.

In the drawings, A A are a pair of loose rollers, each having centrally of its length a groove *a*. One of these rollers, preferably the lower roller, as shown, is movable relative to the other, the two being pressed together by a spring *a'* or other equivalent means. These rollers are mounted in a sup-

port B, which is fixed relative to the other parts of the machine.

B' is a twisting and reeling frame, which for the purposes of this application I term a "fier-frame." This frame is journaled at C C' in fixed supports D and D'. The journal C is made hollow and is in line with the grooves *a* of the rollers A A. The journal C' is extended through the bearing and carries a pulley E, by which power is applied. If preferred, the pulley may be carried by the journal C, in which case this journal will be made sufficiently long to carry the pulley.

Journaled in the fier-frame is a reel F, which is arranged to be driven as the fier-frame is rotated on its journals C C' by mechanism which will be hereinafter described. One side B' of the fier-frame is preferably hinged at B², and the reel is preferably made in two parts, one part F', comprising the head *f* and a portion *f*² of the shaft, being journaled in the main portion of the fier-frame, and the other part F², comprising the head *f'* and the portion *f*³ of the shaft, being journaled in the hinged side B' of the fier-frame. The shaft portions *f*² and *f*³ are preferably provided with interlocking teeth *f*⁴ *f*⁵, and the parts of the reel are secured together by a screw G, which passes through the shaft portions *f*² and *f*³ and screws into a nut in the main part of the fier-frame, this screw serving also when in place to hold the hinged side B' of the fier-frame in closed position.

On the shaft portion *f*² is arranged a toothed wheel H, and the main portion of the fier-frame carries a spring-pressed lever I, pivoted at one end I' and having its other end so bent as to engage a fixed cam K. The lever I carries a spring-pawl *i*, arranged to engage the teeth of the wheel H, so as to rotate it and with it the reel F when the lever is moved in one direction. A holdback-pawl *i'* is pivoted to the main portion of the fier-frame, so as to engage the teeth of the wheel H to prevent it from backward movement.

The cam K is preferably slotted to fit the journal C' and is vertically adjustable by means of a screw L.

The end of the lever I is preferably pro-

vided with a roller I² to contact with the cam K.

As the flier-frame is rotated on its journals C C', the end of the lever I will be thrown
5 away from the line of the axis of the flier and by means of its pawl i causes the wheel H, and with it the reel F, to rotate.

If preferred, the head f of the reel may be provided with teeth and the separate wheel
10 H dispensed with.

Between the journal C of the flier-frame and the reel is placed a tension and guiding device M. This device, as shown, consists of a plate having a pivot m, fitting a hole n in
15 a cross-bar N, pivotally supported in the sides of the flier-frame and also provided with a series of holes to receive tension-pins p. The plate is provided at its end with a guide Q, which may conveniently be formed by bending
20 up portions of the metal of the plate to form a circular orifice. The tension and guiding device is thus adapted to turn on both a horizontal and vertical pivot.

In front of the rollers A A, I preferably arrange a funnel R to receive the cotton-bat as
25 it comes from the gin and guide it to the rollers. The groove in the rollers insures the twist being formed at the middle of the bat.

In starting the machine into operation a
30 portion of the bat is drawn through between the rollers A A and twisted by hand. The twist is passed through the hollow journal C and between the tension-pins on the plate M and through the guide-orifice of the plate,
35 and finally secured to the shaft of the reel. The machine is then started, and as the flier-frame rotates the bat is twisted between the rollers and the tension device and wound on the reel, the winding of the twist serving to
40 draw the bat through the rollers. The plate M by reason of its vertical and horizontal pivotal movement distributes the twisted cotton evenly on the reel.

Before starting the machine the bale-covering material should be placed in position
45 on the reel. All that is necessary for this purpose will be two pieces of burlap or other material of circular or rectangular shape with a hole cut in the center of each, so that it can
50 be slipped over the shaft of one of the shaft portions of the parts of the reel, the pieces being held during the operation of the machine by hooks f⁶ near the outer edges of the reel-heads.

The reel-heads are preferably each provided
55 with radial slots f⁷, preferably six in number, and the shaft portions with corresponding grooves to receive the bale-ties, which are preferably of wire. As soon as sufficient of
60 the twisted cotton is wound on the reel to make a bale of the desired size the machine is stopped, the covering material unhooked and brought over, and the bale-ties are then brought over and united.

65 The degree of twist is regulated by the rela-

tive speed of rotation of the reel by shifting the position of the cam K, and the compactness of the bale will depend upon the degree of twist and upon the tension under which the twisted strand is wound on the reel, it
70 being essential only that the strand be twisted sufficiently hard to permit of the action on it of the tension device without injury.

The bale formed on my machine possesses all the advantages over the ordinary com-
75 pressed bale which are possessed by the round bale now on the market as regards compactness and as regards the readiness with which it may be opened at the mill, and by reason of the simple and inexpensive construction
80 of the machine and the small power required to operate it my invention enables the cotton planter at small expense and without the necessity for increasing the power usually
85 employed on a plantation to make a bale having all the merit of the compressed bale now made only by machinery, both expensive in itself and requiring high power to operate it.

Having thus described my invention, what I claim, and desire to secure by Letters Pat-
90 ent, is—

1. In an apparatus for baling cotton, the combination of a flier-frame having a hollow journal, and having one of its sides hinged, a
95 separable reel having one of its parts journaled in the main part of the flier-frame and its other part journaled in the hinged side, and means for holding the parts of the reel together, and a tension device within the flier-frame; substantially as described.

2. In an apparatus for baling cotton, the combination of a flier-frame, a reel journaled in the flier-frame, and provided with a toothed wheel, a lever pivoted on the flier-frame
105 and carrying a pawl arranged to engage the toothed wheel and adjustable means for causing the movement of the lever on its pivot as the flier-frame rotates; substantially as described.

3. In an apparatus for baling cotton, the
110 combination of a flier-frame, having one of its sides hinged, a reel comprising two parts, each consisting of a reel-head and a portion of the shaft, one of said parts being journaled in the main portion of the flier-frame, and the
115 other journaled in the hinged side, and means for securing the parts of the reel together; substantially as described.

4. In an apparatus for baling cotton, the
120 combination of a flier-frame having one of its sides hinged, a reel comprising two parts, each consisting of a reel-head and a portion of the shaft, one of said parts being journaled in the main portion of the flier-frame and provided with means for rotating it, and the other jour-
125 naled in the hinged side, and means for securing the parts of the reel together; substantially as described.

5. In an apparatus for baling cotton, the combination of a flier-frame, having one of its
130

sides hinged, a reel comprising two parts, each consisting of a reel-head and a portion of the shaft, one of said parts being journaled in the main portion of the flier-frame and provided
5 with means for rotating it, comprising a toothed wheel, a lever carrying a pawl and pivoted on the main portion of the flier-frame, and adjustable means for moving the lever, and the other journaled in the hinged side,

and means for securing the parts of the reel together; substantially as described.

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

EMANUEL MOTZ.

Witnesses:

FRANK D. BLACKSTONE,
A. P. GREELEY.