(No Model.) 2 Sheets—Sheet 1.

T. F. DUNN.

Machine for Making Cotton Batting.

No. 240,980. **Patented May 3, 1881.**

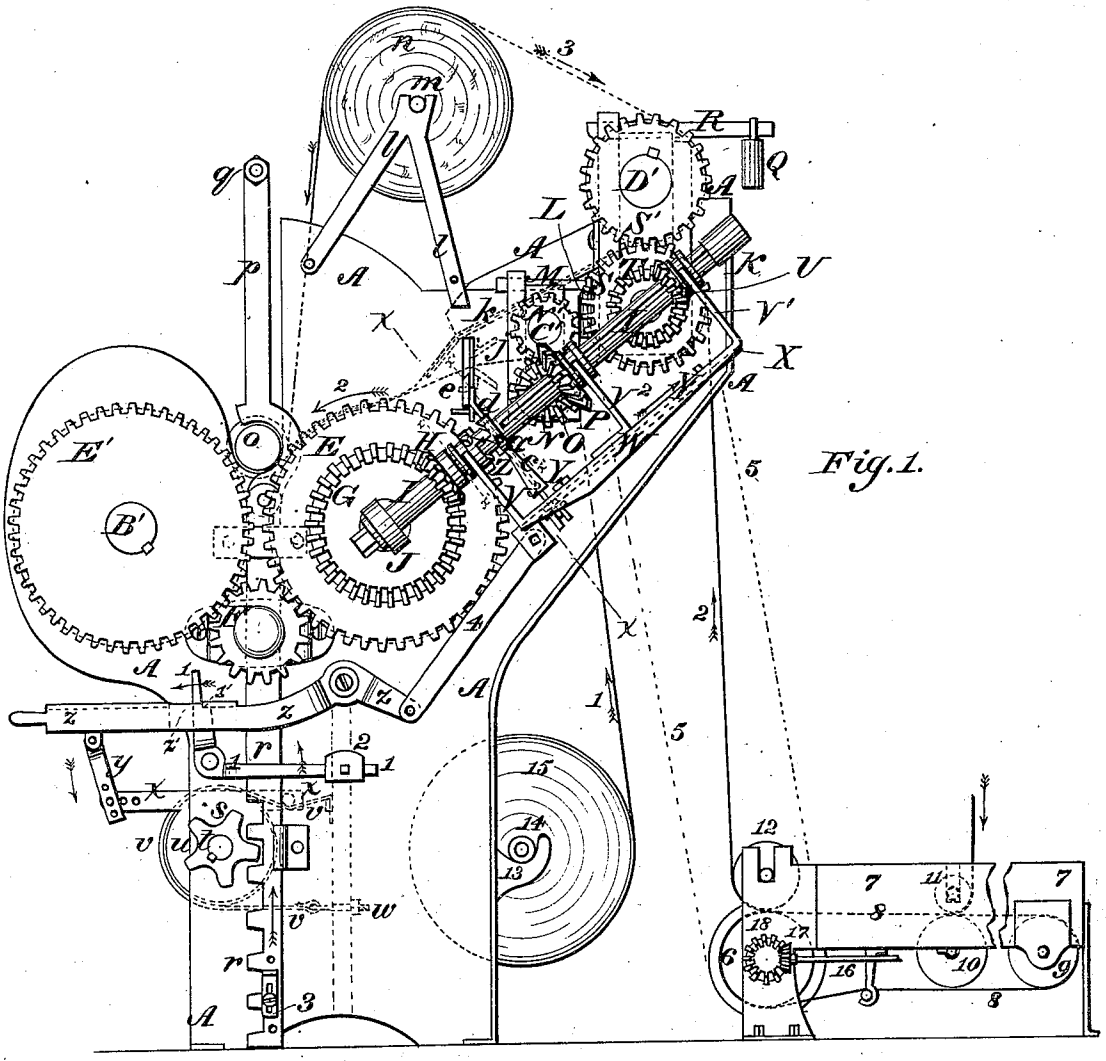


Fig. 1.

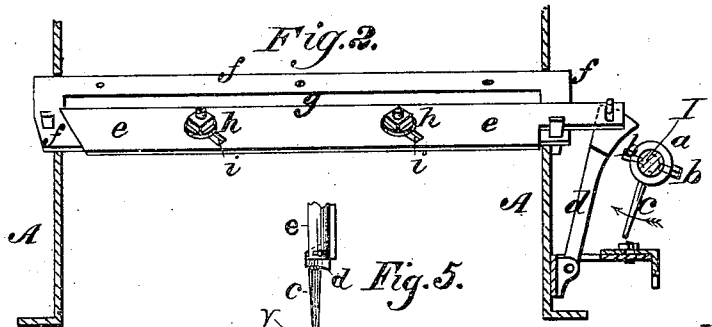


Fig. 2.

Fig. 5.

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(No Model.) 2 Sheets—Sheet 2.

T. F. DUNN.

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Fig. 3.

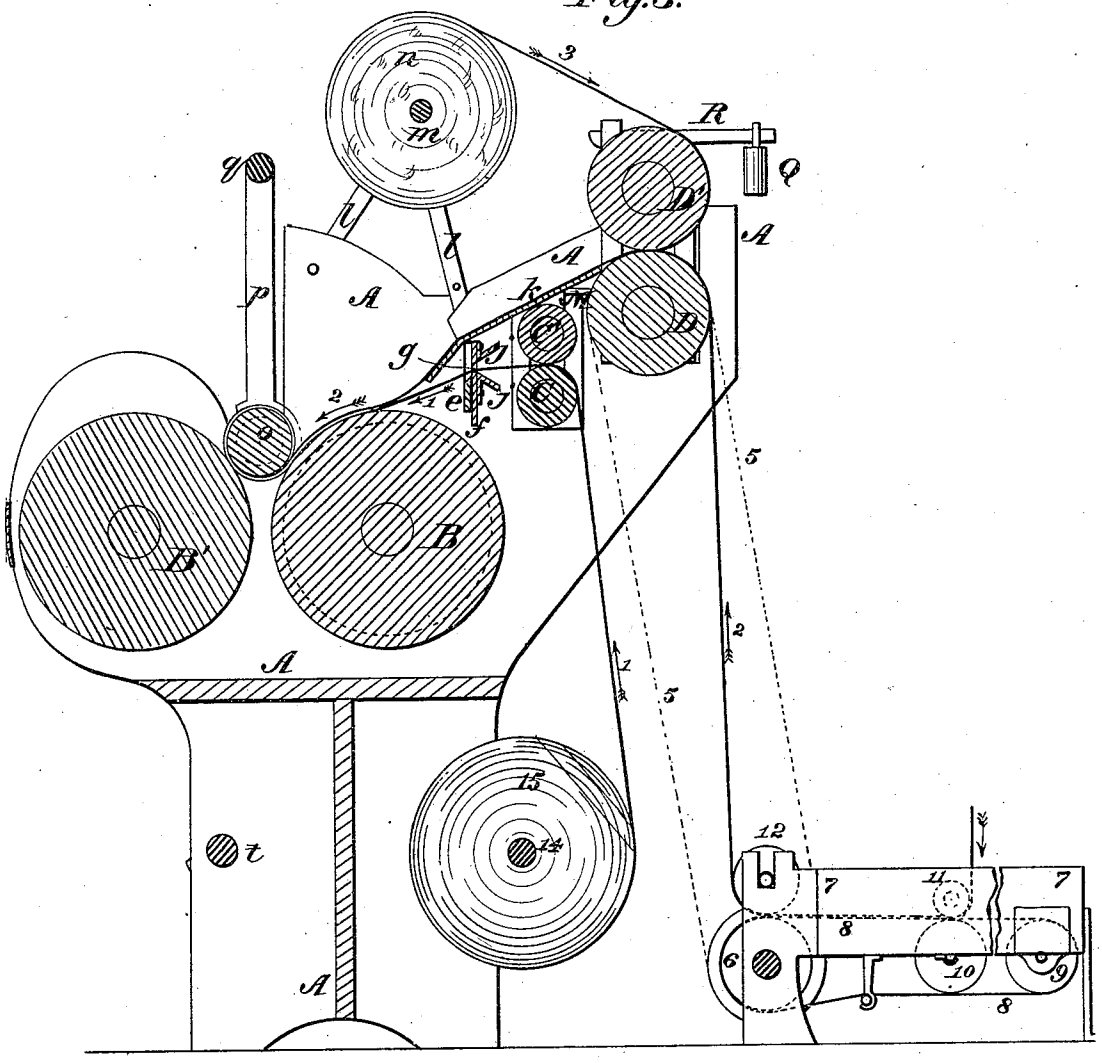
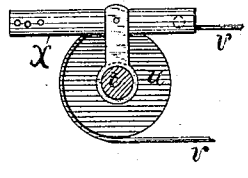


Fig. 4.



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UNITED STATES PATENT OFFICE.

THOMAS F. DUNN, OF SACCARAPPA, MAINE.

MACHINE FOR MAKING COTTON-BATTING.

SPECIFICATION forming part of Letters Patent No. 240,980, dated May 3, 1881.

Application filed June 30, 1880. (No model.)

To all whom it may concern:

Be it known that I, THOMAS F. DUNN, of Saccarappa, in the county of Cumberland and State of Maine, have invented a new and useful Improvement in Machines for Making Cotton-Batting, of which the following is a specification.

Figure 1, Sheet 1, is a side elevation of the improvement. Fig. 2, Sheet 1, is a sectional view taken through the line *x x*, Fig. 1. Fig. 3, Sheet 2, is a sectional side elevation. Fig. 4 is a detail side elevation, showing the bar *x* resting upon the brake-strap *v* and connected with the shaft *t*, so as to turn on it. Fig. 5 is a detail plan view, showing the clutches Z *a* closed on shaft I, and with the radial arm *c* of the clutch *a* striking against the bar *d*.

Similar letters of reference indicate corresponding parts.

The object of this invention is to furnish machines for making cotton-batting so constructed as to receive the cotton from two or more carding-machines, press it into batting, and roll it into a lap or roll, with paper or other suitable material interposed between the layers of batting.

A represents the frame of the machine, to which are pivoted three pairs of rollers, B B′, C C′, and D D′. The rollers B B′ are placed in the same horizontal plane and parallel with each other, but not in contact. To one of the journals of the roller B are attached a fast and a loose pulley, as indicated by the dotted lines in Figs. 1 and 3, to receive the driving-belt.

To the journals of the rollers B B′, at the other side of the machine, are attached large gear-wheels E E′, the teeth of which mesh into the teeth of a small intermediate gear-wheel, F, pivoted to the frame A of the machine, so that the rollers B B′ will be revolved in the same direction and at the same velocity.

To the gear-wheel E or to the journal of the roller B is attached a bevel-gear wheel, G, the teeth of which mesh into the teeth of the bevel-gear wheel H, attached to the shaft I. The lower end of the shaft I revolves in an eye or bearing in the outer end of a pin, J, which is inserted in a hole in the end of the journal of the roller B, and has a ring-groove around its inner end to receive the end of a set-screw passing in through the side of the said journal, so as to hold the said pin J in place, while allowing the journal of the roller B to revolve freely upon it. The upper end of the shaft I revolves in bearings in a bracket, K, attached to the upper rear corner of the frame A.

The rollers C C′ are placed the one directly above the other, and their journals revolve in bearings in the frame A. The roller C′ rests upon the roller C, and is held down upon it with any desired pressure by weights L suspended from the ends of levers M, which rest upon the upper half-bearing of the upper roller, C′, and the other ends of which are pivoted to projections of the frame A.

To the journals of the rollers C C′ are attached gear-wheels N N′, the teeth of which mesh into each other, so that the adjacent faces of the rollers C C′ will move in the same direction and at the same velocity.

To the journal of the roller C is attached a beveled-gear wheel, O, the teeth of which mesh into the teeth of the beveled-gear wheel P, placed upon the shaft I and connected with it by a key and groove, so that the said gear-wheel can slide upon the shaft I, but will be carried with the said shaft in its revolution.

The rollers D D′ are placed a little higher than the rollers C C′, and the one directly above the other, and their journals revolve in bearings in the upper rear part of the frame A. The roller D′ is held down upon the roller D with any desired pressure by the weights Q suspended from the ends of the levers R, which rest upon the upper half-bearings of the roller D′. The other ends of the levers R are pivoted to projections of the frame A.

To the journals of the rollers D D′ are attached gear-wheels S S′, the teeth of which mesh into each other, so that the adjacent faces of the rollers D D′ will move in the same direction and at the same velocity.

To the journal of the roller D is attached a beveled-gear wheel, T, the teeth of which mesh into the teeth of the beveled-gear wheel U, placed upon the shaft I and connected with it by a key and groove, so that it can slide upon the shaft I, but will be carried with the shaft in its revolution.

Upon the hubs of the beveled-gear wheels U P are formed ring-grooves to receive the forked ends of the arms V′ V², the other ends of which are rigidly connected with the bar or plate W. The bar or plate W rests and slides upon the

plate X, which is firmly attached to the frame A, or to brackets attached to the said frame, so that the beveled-gear wheels U P can be thrown into and out of gear with the beveled-gear wheels T O at the same time by moving the bar or plate W upon the plate X. The movement of the bar or plate W upon the plate X is limited and kept in a straight line by pins or bolts Y, attached to the plate X, and which pass through short slots in the said bar or plate W.

To the lower end of the bar or plate W is attached an arm, V^3, which projects parallel with the arms V^2 V', and has its outer end forked to fit into a ring-groove in the hub of the clutch Z, placed upon the shaft I and connected with it by a groove and key, so that it can slide upon the shaft I, but will be carried around with and by the said shaft in its revolution. With this construction, when the bar or plate W is moved upward to throw the beveled-gear wheels U P out of gear, the clutch Z is thrown into gear with the clutch *a*, placed upon the shaft I and connected with it by set-screws *b*, which pass through the said clutch and enter a ring-groove in the shaft I, so that the clutch *a* will turn freely upon the shaft I, but cannot slide upon it.

To one side of the clutch *a* is rigidly attached a radial arm, *c*, which hangs downward, except when the clutch *a* is in gear with and revolved by the clutch Z, as shown in Fig. 5 of the drawings. When the clutch *a* is revolved the end of the arm *c* strikes against and pushes inward a bar, *d*, which is hinged at its inner end to the frame A. The upper end of the bar *d*, or a point formed upon or attached to the said upper end, is bent forward and passes through a slot formed in the end of the knife *e*, which rests against and slides along the forward side of the lower part of the slotted knife *f*. The knife *e* is made to rise as it moves forward, so as to cut the material passing through the slot *g* of the knife *f*, against the edge of the said knife *f*, at the the upper side of the slot *g*, by the bolts *h*, attached to the said knife *f*, and which pass through inclined slots *i* in the said knife *e*.

To the rear side of the knife *f*, at the sides of its slots *g*, are attached, or upon it are formed, flaring flanges *j*, to form a trumpet to guide the material into and through the slot of the knife *f* and lessen the friction of the material against the said knife.

Above the knives *e f* and the roller C′ is placed an apron, *k*, to serve as a guide to the material coming through the rollers D D′, to prevent the said material from coming in contact with the said roller and knives and guide it to the roller B.

To the top of the frame A, above and a little in the rear of the roller B, are attached two V-shaped brackets, *l*, having notches in their upper ends to receive and serve as bearings for the rod *m*, to carry a roll or lap, *n*.

In the space between the rollers B B′ is placed a small roller, *o*, to receive the batting, which roller has journals upon its ends to enter notches in the sides of the bars *p*. The upper ends of the bars *p* are connected by a cross-bar, *q*, and their lower ends are pivoted to the upper ends of the rack-bars *r*, which slide up and down in keepers attached to the frame A.

Upon the forward edges of the bars *r* are formed teeth, which mesh into the teeth of gear-wheels *s* attached to the ends of the shaft *t*. The shaft *t* revolves in bearings in the frame A, and to it is attached a pulley, *u*, around which passes a brake-strap, *v*, as shown in Fig. 4 of the drawings. One end of the brake-strap *v* is clamped to the frame A, and its other end is attached to the loop of a bolt, *w*, which passes through a bar or plate of the frame A, and has a nut screwed upon its other end, so that the brake-strap *v* can be tightened and loosened, as may be required.

x is a bar, upon the lower side of the middle part of which is formed an arm or disk, which rides upon and is pivoted to the shaft *t*. The inner part of the bar *x* is bent inward to form a crank-arm, or has a crank-arm attached to it, which rests upon the upper part of the brake-strap *v*. The outer end of the bar *x* is pivoted to the lower end of the connecting-bar *y*, the upper end of which is pivoted to the outer end of the lever *z*.

Several holes are formed in the bars *x y* to receive the pivoting pin or bolt, so that they can be adjusted as required.

The lever *z* is pivoted near its inner end to the frame A, and its middle part is slotted at *z′* to receive the upper arm of the bent lever 1, which is pivoted at its angle to the frame A. The upper arm of the lever 1 has a shoulder, 1′, formed upon it, to receive and support the lever *z* when applying the brake, and is held up by a weight, 2, suspended from its inner arm. With this construction, as the material is wound upon the roller *o* the said roller rises as the roll or lap increases in size, and raises the rack-bars *r* until the stop 3, attached to the lower part of one of the rack-bars *r*, strikes and raises the weighted arm of the lever 1, withdrawing the shoulder of the said lever from the lever *z*, which allows the outer end of the lever *z* to drop and withdraws the brake from the shaft *t*, allowing the rack-bars *r* to descend by their own weight.

To the inner end of the lever *z* is pivoted the lower end of a connecting-bar, 4, the upper end of which is pivoted to the lower end of the plate W, so that the dropping of the outer end of the lever *z* will throw the gear-wheels P U out of gear to stop the rollers C C′ and D D′, and will throw the clutch Z into gear with the clutch *a* to operate the knife *e*.

The base of the stop 3 is slotted to receive the fastening-screw, and several holes are formed in the rack-bar *r* to receive the said fastening-screw, so that the said stop 3 can be adjusted to form rolls or laps of any desired size.

To a journal of the roller D is attached a

pulley, around which passes a band, 5. The band 5 also passes around a pulley attached to a journal of the roller 6, which revolves in bearings attached to the end of a box, 7. Around the roller 6 passes an endless apron, 8, which passes around a roller, 9, pivoted to the other end of the said box 7. The box 7 is designed to receive the cotton from a carding-machine, which cotton falls upon the endless apron 8 and is pressed between two rollers, 10 11, pivoted to the box 7 above and below the upper part of the endless apron 8. Several sets of rollers, 10 11, can be pivoted to the box 7, so that cotton can be received from two or more carding-machines when thick batting is to be made. The cotton receives a further pressure from a roller, 12, pivoted to the box 7, or to slotted standards attached to the said box 7, so that the roller will be directly over the roller 6.

To the rear lower part of the frame A are attached brackets 13, to receive a rod, 14, one or both ends of which are pointed, so that it can be readily passed through a roll, 15, of paper. The paper from the roll 15 is passed between the rollers C C′, through the trumpet *j*, between the knives *e f*, over the roller B, and is wound upon the roller *o*, as indicated by arrows 1. The cotton from the rollers 6 12 passes between the rollers D D′, over the apron *k*, over the roller B, and is wound upon the roller *o* with the paper, as indicated by arrows 2, so that the paper and batting will form alternate layers in the roll or lap.

When very thick batting is required, batting from a roll or lap, *n*, may be passed between the rollers D D′, as indicated by arrows 3, and wound upon the roller *o* with the cotton from the rollers 6 12; or the batting from the roll *n* may be led directly to the roller *o* and wound upon it in connection with the cotton from the rollers 6 12.

When a roll or lap of the desired size has been formed, the tripping of the lever *z* stops the rollers C C′ D D′, and the cotton is torn off or cut at the lower edge of the apron *k;* but at the same time the continued advance of the rollers B B′ draws the paper through the rollers C C′ a few inches before the knife *e* is operated to cut off the said paper. This allows the end of the paper to project upon the roll a little beyond the end of the batting, so that the end of the paper can be pasted down to cover and protect the end of the batting. The reason that the cotton is more easily torn at the edge of the apron than elsewhere is because at that point it is entirely unsupported. The completed roll or lap is removed, and the roller *o* is withdrawn and replaced upon the rollers B B′ to receive another roll or lap.

The carding-machines are driven from the roller 6 by means of the shaft 16 and the beveled-gear wheels 17 18, so that the feeders and the carding-machines will stop and start with the rollers C C′ D D′.

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

1. In a machine for making cotton-batting, the combination, with the sliding plate W, the pressure-rollers C C′ D D′, the shaft I, and the knife *e f*, of the sliding clutch Z, the rotating clutch *a*, having radial arm *c*, and the hinged bar *d*, and mechanism for connecting and operating all of said parts, substantially as herein shown and described, whereby the paper will be cut a little later than the batting, as set forth.

2. In a machine for making cotton-batting, the combination, with the rack-bars *r*, having adjustable stop 3, the sliding plate W, and mechanism for operating the same, the pressure-rollers, and mechanism for throwing them into and out of gear, of the lever *z*, having a longitudinal slot, *z′*, in its longer arm, the bent lever 1, having a weight, 2, at one end and a shoulder, 1′, at the other, and the connecting-bar 4, substantially as herein shown and described, whereby the pressure-rollers are stopped automatically when the roll of batting has reached the desired size, as set forth.

3. In a machine for making cotton-batting, the combination, with the lever *z*, having longitudinal slot, the bent lever 1, having a shoulder on one end and a weight on the other, the rack-bars *r*, the gear-wheels *s*, and the shaft *t*, having pulley *u*, of the brake-strap *v*, the brake-bar *x*, having crank-arm, and the connecting-bar *y*, substantially as herein shown and described, whereby the rack-bars *r* are released when the pressure-rollers are thrown out of gear, as set forth.

THOMAS F. DUNN.

Witnesses:
HENRY BLATCHFORD,
GEO. H. WINSLOW.