

(No Model.)

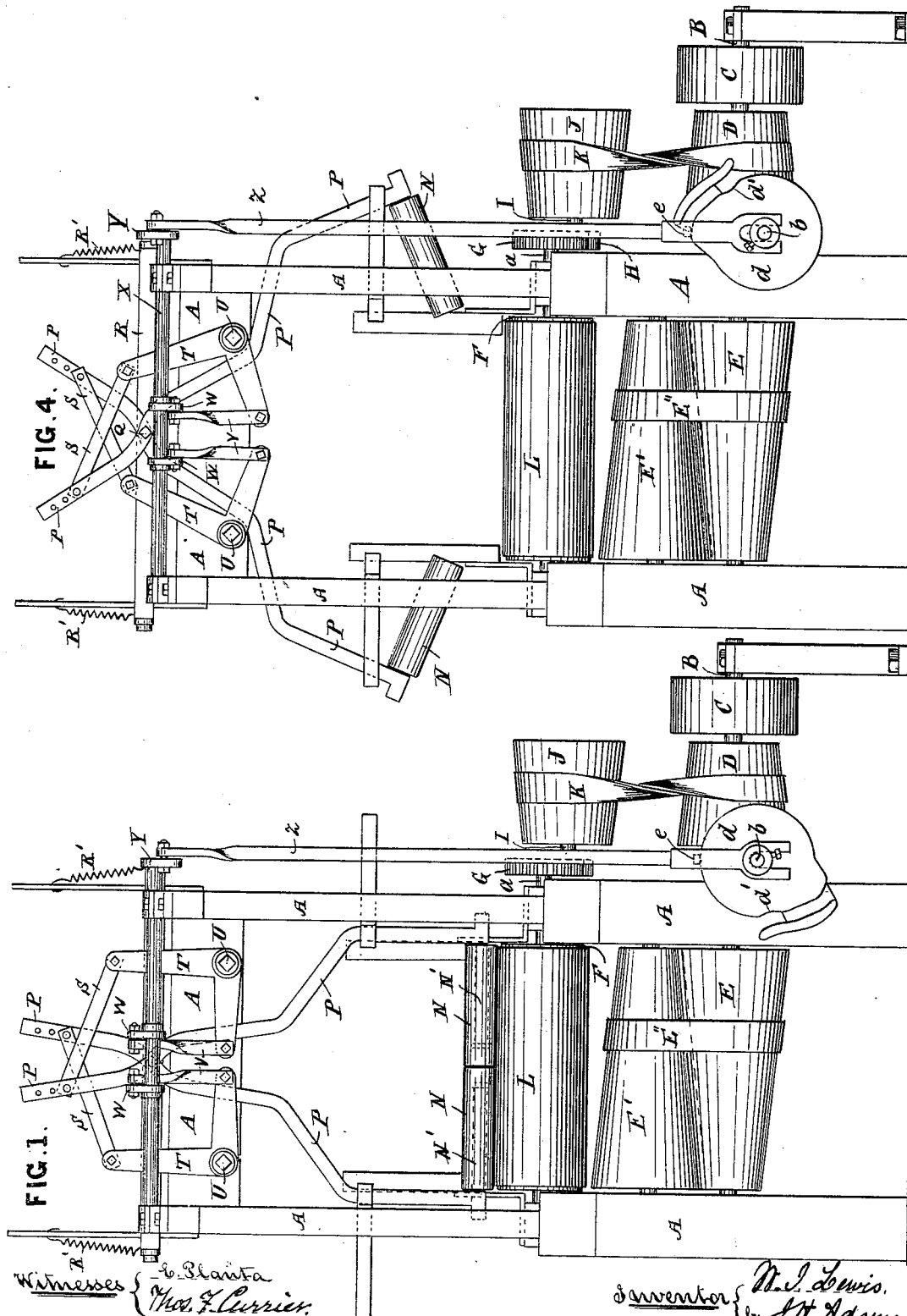
2 Sheets—Sheet 1.

W. I. LEWIS.

COTTON BATTING MACHINE.

No. 386,143.

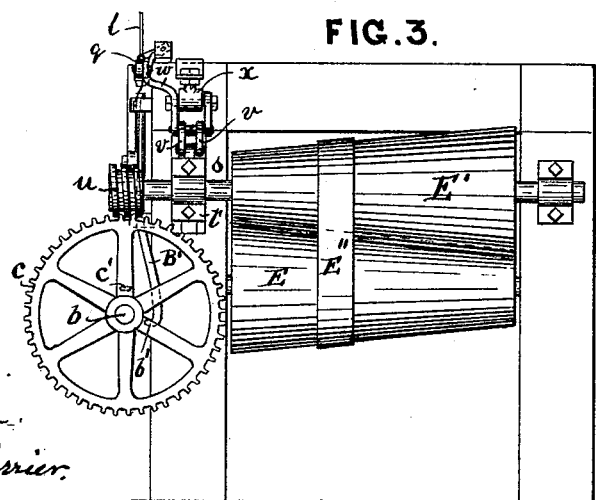
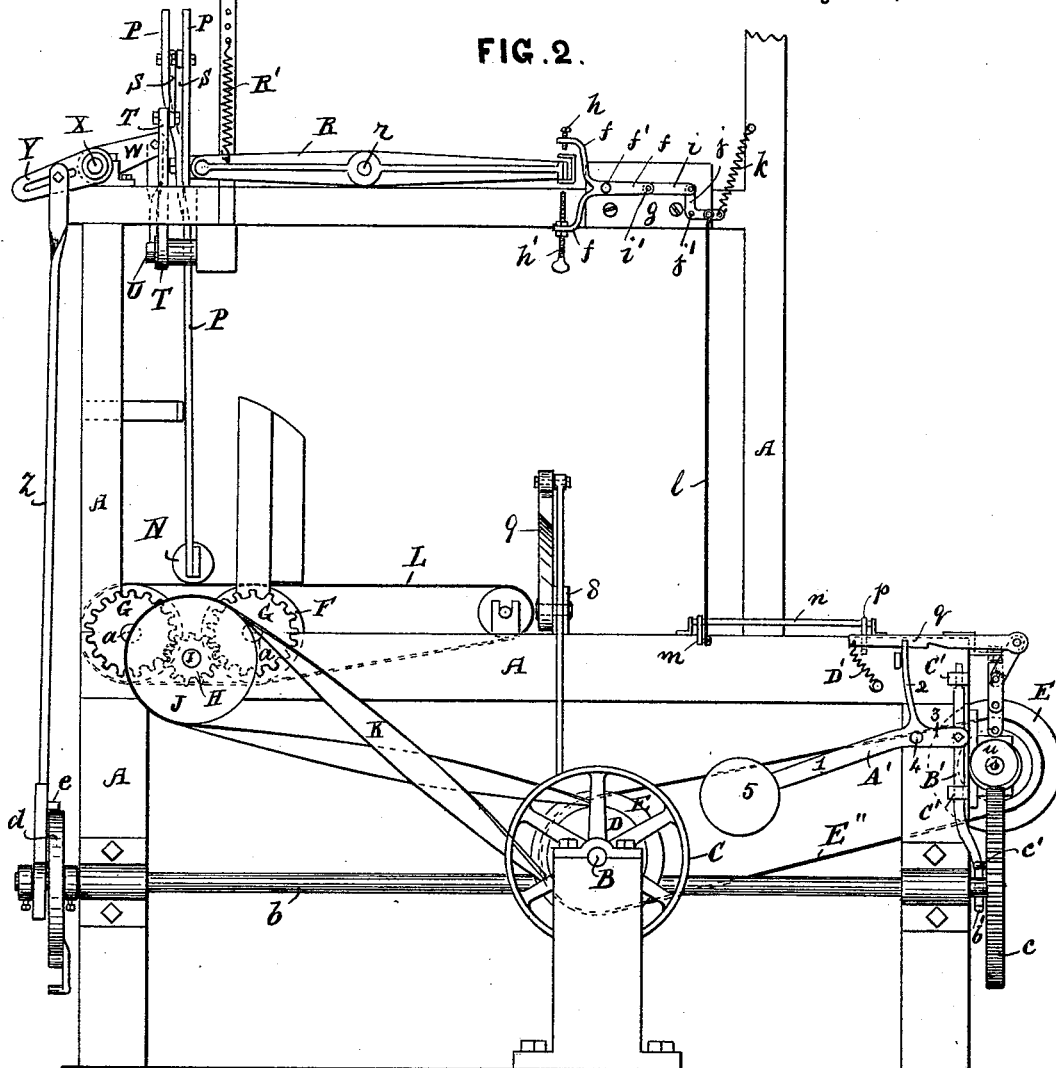
Patented July 17, 1888.



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Witnesses.
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UNITED STATES PATENT OFFICE.

WILLARD I. LEWIS, OF WALPOLE, MASSACHUSETTS.

COTTON-BATTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 386,143, dated July 17, 1888.

Application filed February 14, 1887. Serial No. 227,596. (No model.)

To all whom it may concern:

Be it known that I, WILLARD I. LEWIS, a citizen of the United States, residing at Walpole, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Cotton-Batting Machines, of which the following is a specification.

My invention relates to that class of cotton-batting machines in which the several operations of winding, measuring, and cutting, papering, and delivering rolls of cotton-batting are successively and automatically effected.

The invention refers particularly to that part of the cotton-batting machine which winds, measures, and delivers the roll of cotton-batting as it passes from the feed apron or roller, the object of my invention being to produce a machine for the rolling, measuring, and delivering of rolls of cotton-batting automatically and without the operation of a direct motive power to the rollers by the process of feeding the cotton-batting from the feed apron or rollers, as hereinafter fully described.

The invention comprises two winding-rollers supported and mounted loosely upon studs secured to levers which are pivoted to a tilting frame, and the upper ends of said levers are connected by bars or rods to the upper arms of bell-crank levers, the lower arms of which are connected by cranks and arms to a shaft, the outer end of which is also fitted with an arm or crank to which one end of a rod is secured, the other end thereof being provided with a pin that rides upon a cam, so that when said cam is at its highest point the arms carrying the rollers will be thrown open and the roll of batting discharged therefrom, and as the cam revolves the levers descend by their own weight upon the cotton-batting delivered from the feed apron or roller and the winding-rollers carried by said levers nip it between their two ends, whereby the batting thus held by the ends of the rollers and impinging upon their circumferences winds automatically by the progressive movement of the batting as it is carried along by the apron underneath, thereby revolving the loose rollers on the studs with a motion equal to its own.

The invention further comprises means for stopping and starting the cam-shaft automati-

cally through the rocking frame, as hereinafter described.

Referring to the accompanying drawings, Figure 1 is a front elevation of a cotton-batting machine embodying my invention. Fig. 2 is a side view of the same, and Fig. 3 a rear view of part of the same. Fig. 4 is a front view with the rollers in the position for discharging the roll of cotton-batting.

A represents the frame of the machine.

B is a shaft mounted in suitable bearings and carrying a pulley, C, to which motion is communicated by a belt from any convenient source. The shaft B also carries two cone-drums, D E, placed the one on the inside and the other outside of the frame A.

F F are feed-rollers, the shafts *a* of which are mounted in suitable bearings on the frame A, and on one end of these shafts are mounted cog-wheels G G, that are in gear with a pinion, H, on shaft I, which latter also carries a cone-drum, J, driven by belt K from cone-drum D.

L is a wide belt that passes over the feed-rollers F F and around a small roller, M, mounted in suitable bearings on the frame A. (See Fig. 2.)

N N are winding-rollers mounted loosely upon studs N' N', secured to levers P P, which latter are fulcrumed on a common pivot, Q, to the front bar of a tilting frame, R. Said bar, being mounted in bearings in the forward end of tilting frame R, allows rolls N N and levers P P to operate always in the same plane as frame R tilts. The upper ends or smaller arms of the levers P P are provided with a series of holes for the attachment of one end of bars or rods S, the other ends of said bars being secured to the upper arms of bell crank levers T, fulcrumed at U to the frame A. The lower arms of the bell-cranks T T are connected by means of rods or bars V V to arms or cranks W W on a shaft, X, mounted in suitable bearings on the top of the frame A. The shaft X is also provided at one end with an arm or crank, Y, to which is connected a rod or bar, *z*, the lower end of which is formed with a recess to fit over a shaft, *b*, secured in suitable bearings on the side of the frame A. On the rear end of the shaft *b* is a worm-wheel, *e*, and at its front end is a cam, *d*, upon which cam a pin, *e*, on the bar *z* rides, so that when the pin

e is at its lowest point the winding-rollers N N will rest upon the belt or apron L, as shown in Fig. 1, and when the cam comes round so as to raise the pin *e* the rod *z* will cause the levers and the winding-rollers to assume the position shown in Fig. 4.

The tilting frame R is mounted at or about its center on a shaft, *r*, secured in suitable bearings on the top of frame A, so that as the front end is raised or lowered the rear end will have an opposite movement; and R' R' are springs to assist in raising the forward end of said frame.

f is a bifurcated lever fulcrumed at *f'* to a plate, *g*, secured to the frame A. The two prongs of this lever are each provided with a set-screw, *h h'*, one above, the other below, the rear end of the tilting frame R, as shown in Fig. 2. The other arm of lever *f* is secured by an elbow-joint, *i'*, to a link, *i*, the other end of which is connected to a bell-crank lever, *j*, fulcrumed at *j'* to the plate *g*. To the other arm of the bell-crank lever *j* is connected one end of a spring, *k*, the other end of which is secured to the frame A. This spring is to assist in keeping the bell-crank lever *j* in its normal position.

l is a rod secured at its upper end to the outer arm of the bell crank lever *j* and at its lower end to an arm, *m*, on a rocking bar, *n*, which is mounted in suitable bearings on the frame A, and is also provided with a hooked arm, *p*, that passes under a notched bar, *q*.

s is a shaft at the rear of the machine, Fig. 3, and is mounted at one end in a fixed bearing and at the other end in a sliding bearing, *t*. Upon the shaft *s* is mounted a cone-drum, E', that is driven from the cone-drum E by means of a belt, E'', and also a worm, *u*, that can be thrown in and out of gear with the worm-wheel *c* on shaft *b*.

The upper end of the sliding bearing *t* is provided with a lug, to which, by means of links *v*, is attached one end of a lever, *w*, fulcrumed on a block, *x*, secured to the frame A, the other end of the lever *w* being pivoted to the notched bar *q*.

A' is a weighted lever having three arms, 1 2 3, and fulcrumed to the frame at 4. The arm 1 is provided with a weight, 5. The arm 2 passes up by the side of the notched bar *q*, and is provided with a pin or projection for engaging with the notch in the bar *q*. The arm 3 is pivoted to a sliding bar, B', supported in suitable guides, C', and provided at its lower end with a hook, *b'*, with which a pin, *c'*, on the worm-wheel *c* comes in contact at every revolution of the shaft *b*.

D' is a spring to assist in keeping the bar *q* down and in its normal position.

The operation is as follows: The cotton-batting having been fed onto the apron or belt L and nipped by the loose rollers N N is wound thereon by the progressive movement of the batting as it is carried along by the apron underneath, when the pin *c'* on worm-wheel *c* comes in contact with the hook *b'* on slide B',

drawing the arm 3 of lever A' down and the arm 2 back, so that the pin on its upper end will enter the notch on the bar *q*, by which time the pin *c'* has passed the hook *b'*, thereby leaving the slide B' free. The weight 5 then causes the arm 1 to fall, and as the arm 2 is brought forward it takes with it the bar *q*, which, through lever *w* and links *v*, draws up the sliding bearing *t*, and thereby throws the worm *u* out of gear with wheel *c*, thereby stopping the shaft *b*. While the shaft *b* is stopped, the batting has been winding upon the rolls, and when it has increased sufficiently in thickness to raise the front end of the rocking frame R, so that its rear end will press upon the set-screw *h'* in the furcated lever *f*, and thereby depress the same, thus breaking the elbow-joint and dead-center *i'*, then the spring *k* draws up the end of the bell-crank lever *j*, to which the rod *l* is connected, which in turn draws up the arm *m* on rocking bar *n* and causes the arm *p* to raise the bar *q*, so that the notch is above the pin or projection on the arm 2 of lever A'. The bar *q*, being free, allows the sliding bearing *t* to fall by its own weight, thereby throwing the worm *u* into gear with the wheel *c*. The worm *u* and wheel *c*, being thus again thrown into gear, cause the shaft *b* to revolve, and when the batting has been all wound upon the rollers F F the cam *d* raises the pin *e*, which, through rod *z*, moves the arm or crank Y up, thereby causing the shaft X to be partly rotated and the arms or cranks W to be depressed, which, through bars V, cause one end of the bell-crank levers T T to be depressed, while their upper ends are thrown toward each other, and through bars S S cause the upper ends of the levers P P to be forced apart, thereby drawing the loose rollers N N out of the roll of batting. There is a short rest to allow the roll of batting to fall clear. Then the pin *e* will again descend on the face of the cam, and the weight of the levers P will cause them to fall into their normal position, and a slight depression, *d'*, on the cam *d* insures their being brought down to nip the batting next to be wound.

As the levers P P fall by their own weight and as they are pivoted to the front of the rocking frame R, when they fall they carry with them that part of said frame R, thereby causing the rear end to rise and strike against the set-screw *h* on the furcated lever *f*, thereby again setting the elbow-joint *i'* at dead-center. The batting is cut off by means of shears or cutters 8 and 9, the operating mechanism of which need not be here described, as it is shown and described in a separate application, Serial No. 151,379, filed December 29, 1884.

What I claim as my invention is—

1. The combination, with the winding-rollers, of levers having a laterally-swinging movement and provided at their lower ends with studs on which said rollers are loosely mounted, a vertically-moving frame on which said levers are pivoted, and means for swinging

said levers toward and from each other, substantially as described.

2. The combination, with a moving support for the batting, of the winding-rollers N N, the levers P P, having studs on which said winding-rollers are loosely mounted, and a vertically-movable frame on which said levers are pivoted, substantially as described.

3. The combination, with the feed-rollers F, means for actuating said rollers, and an apron, L, of the winding-rollers N N, the levers P P, provided with studs N' N', on which said winding-rollers are loosely mounted, so as to revolve freely with the progressive movement of the batting, and a vertically-movable frame on which said levers are pivoted, substantially as described.

4. The combination, with the winding-rollers N N, of the levers P P, provided with studs on which said rollers are loosely mounted, and a tilting frame, R, having a front bar to which said levers are fulcrumed, substantially as described.

5. The combination, with the winding-rollers N N, levers P P, and tilting frame R, of the bifurcated lever *f*, having set-screws *h h'*, the link *i*, bell-crank lever *j*, and spring *k*, substantially as described.

6. The combination of the winding-rollers N N, levers P P, tilting frame R, lever *f*, having set-screws *h h'*, link *i*, bell-crank lever *j*, spring *k*, rod *l*, rocking bar *n*, having arms *m p*, latch *q*, lever *w*, links *v v*, sliding box *t*, three-armed lever A', sliding bar B', having hook *b'*, cam shaft *b*, having a gear, *c*, provided with pins *c'*, the worm *u*, and its driving devices, substantially as described.

7. The combination, with the winding-rollers N N, levers P P, tilting frame R, cam-shaft *b*, and devices for actuating said cam-shaft, of mechanism intermediate said tilting frame and cam shaft, whereby the movement of the said frame occasioned by the upward pressure of the completed bat serves to throw the cam-shaft into action, substantially as described.

8. The combination, with the winding-rollers N N, levers P P, and tilting frame R, of the bifurcated lever *f*, link *i*, bell-crank *j*, spring *k*, rod *l*, rocking bar *n*, having arms *m p*, latch *q*, three-armed lever A', having pawl 2, lever *w*, links *v v*, and sliding box *t*, whereby the latch *q* is lifted and released from the pawl 2 and the sliding box *t* permitted to descend, substantially as described.

9. The combination of the cam-shaft *b*, having a worm-gear, *c*, provided with a pin, *c'*, the sliding bar B', provided with hook *b'*, the weighted three-armed lever A', having pawl 2, the latch *q*, the lever *w*, links *v v*, sliding box *t*, worm *u*, and the carrying-shaft of said worm, substantially as described.

10. The combination of the winding-rollers N N and the levers P P with the cam-shaft *b*, having cam *d*, the rod *z*, having pin *e*, the arm Y, shaft X, having arms W W, the connecting-rods V V, bell-cranks T T, and connecting-rods S S, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLARD I. LEWIS.

Witnesses:

J. H. ADAMS,

E. PLANTA.