

(No Model.)

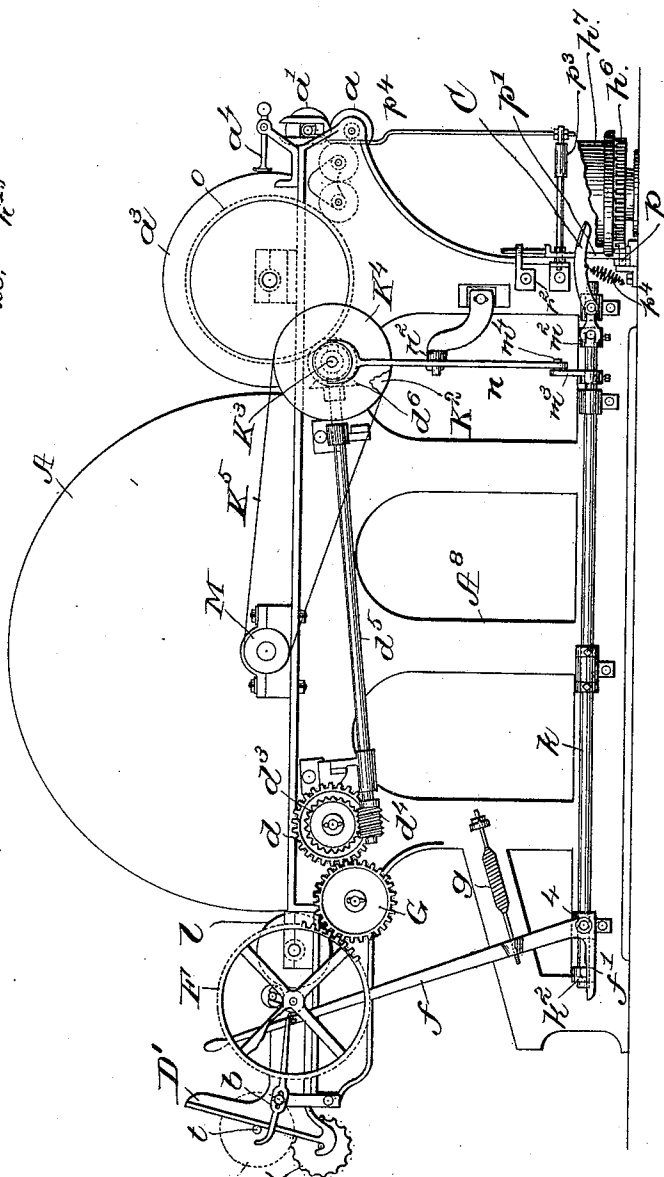
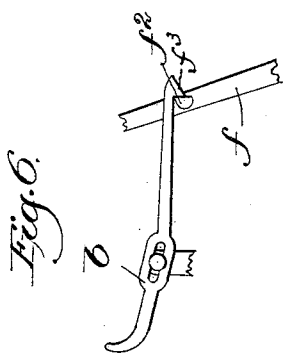
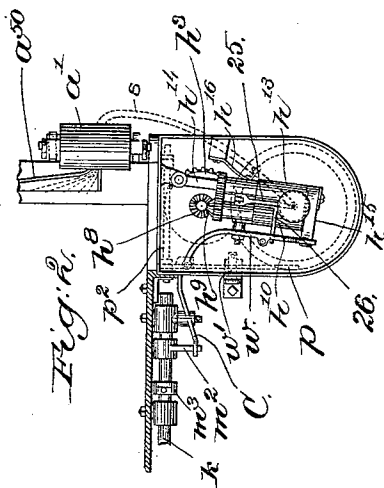
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J. T. MEATS.

STOPPING MECHANISM FOR CARDING MACHINES.

No. 461,171.

Patented Oct. 13, 1891.



Witnesses.
Fred S. Guenlee
Lucas W. Guenlee

Invent m.
John T. Meats.
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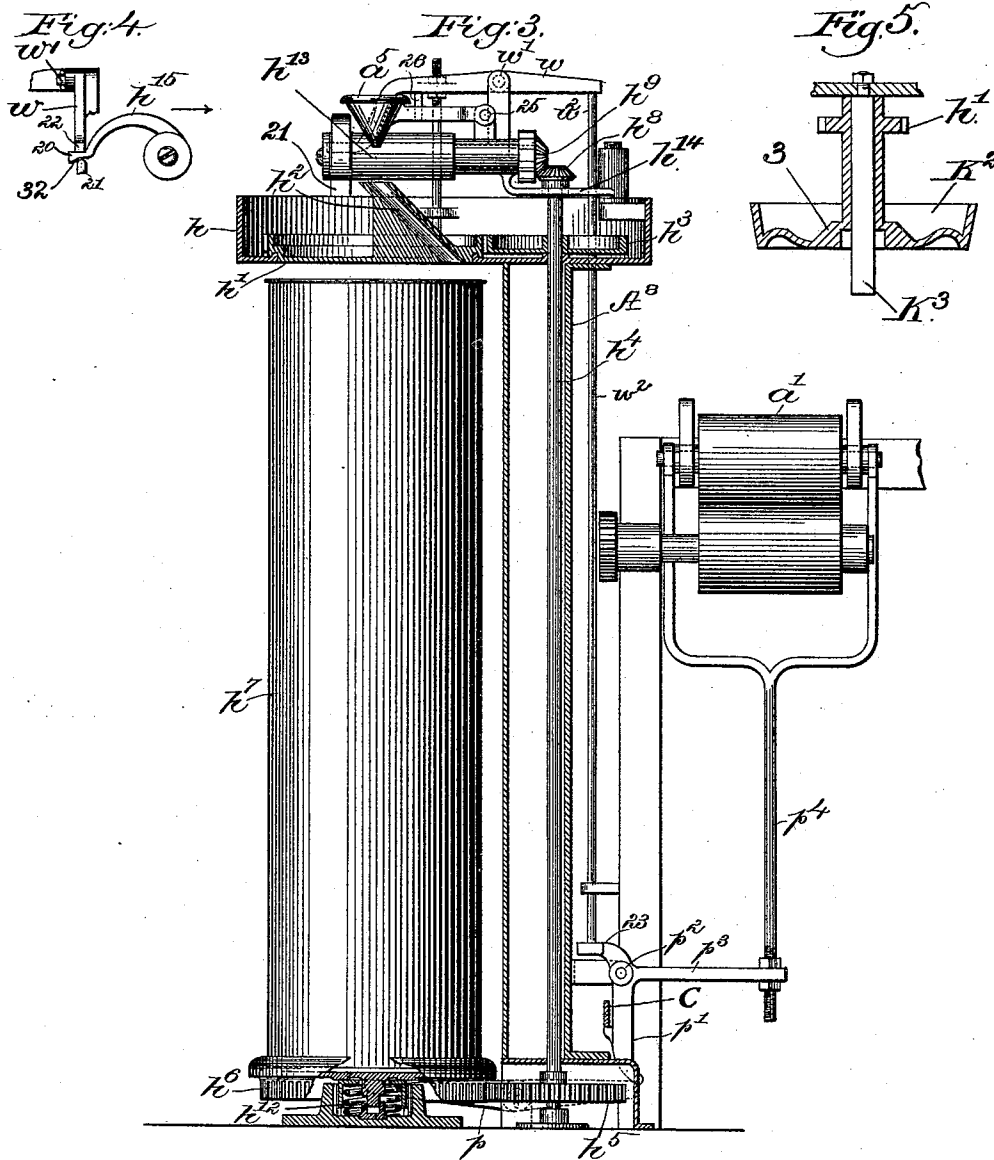
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STOPPING MECHANISM FOR CARDING MACHINES.

No. 461,171.

Patented Oct. 13, 1891



Witnesses.

Fred S. Grunleaf.
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Inventor.

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UNITED STATES PATENT OFFICE.

JOHN T. MEATS, OF TAUNTON, MASSACHUSETTS.

STOPPING MECHANISM FOR CARDING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 461,171, dated October 13, 1891.

Application filed August 6, 1891. Serial No. 401,817. (No model.)

To all whom it may concern:

Be it known that I, JOHN T. MEATS, of Taunton, county of Bristol, State of Massachusetts, have invented an Improvement in Stopping Mechanism for Carding-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

It is customary in connection with carding-machines to employ coilers for forming the film removed from the doffer into slivers and coiling the same into cans; but in the use of the coiler in connection with a carding-machine very considerable waste results, due chiefly to the following causes: Sometimes the cans are filled too full, at other times the coiler-rolls become clogged and fail to deliver the sliver into the can, and sometimes the calender-rolls leading the sliver from the machine to the coiler become clogged.

In accordance with my invention I have provided a carding-machine having a co-operative coiler with stop-motion devices, whereby the feeding mechanism for the card, the calender-rolls, and the doffing mechanism, either or all, may be stopped whenever the coiler-can becomes filled beyond the extent desired; or whenever the coiler-rolls become wound or clogged with sliver and fail to deliver the sliver into the can; or when, from any cause, the cotton accumulates on the top of the coiler-rolls, instead of passing between them; or when the calender-rolls between the doffing mechanism of the card and the coiler-rolls become clogged and fail to operate properly. For instance, when the coiler-can is filled to the extent desired, should the attendant not be present to remove it and put another in its place the can will become so full that the pressure of the fiber against the under side of the coiler-head fails to permit the sliver to flow into the can, and as the coiler-rolls continue to revolve or the head continues to deliver the sliver to the coiler an amount of material is wasted in proportion to the time allowed to elapse before the proper conditions are re-established and a new can is supplied. To overcome this chance of waste the can-table is so arranged that when a certain predetermined pressure is brought upon it, due to the crowding of the cotton into the top of the can,

it will yield sufficiently in a downward direction to effect the unlatching of a spring-actuated lever, which results in throwing out of gear the clutch for driving the feeding and doffing mechanism, thus stopping their operation. This same result may be accomplished by so constructing the coiler-head plate that it may yield in an upward direction; but in practice it has been found simpler and better to obtain the necessary motion through the bottom plate or "can-table," as it is commonly called. Again, when the coiler-rolls become wound or clogged with sliver and fail to deliver sliver into the can, which is liable to be the case for some time without attracting the attention of the attendant or operator, a certain amount of waste is made and undue strain is brought upon the working parts of the coiler-head. To prevent this waste and undue strain, I have hinged the support for one of the coiler-rolls, so that when a certain predetermined thickness of cotton is interposed between them the hinged or movable roll, held in place by spring-pressure, moves away and by suitable mechanism effects the unlatching of the lever, as before referred to, to throw out of gear the clutch which drives the feeding and doffing mechanism, thus preventing further waste. Again, when from any cause the cotton accumulates on the top of the coiler-rolls, instead of passing between them, a trumpet or guide is caused to lift by the pressure of material underneath it, and by means of a finger attached to the guide itself is made to act upon a stop-lever to unlatch the same lever provided for in the former case. Again, when the calender-roll of the card becomes clogged the upper roll is permitted to rise and effect the unlatching of the lever referred to to throw the stop-motion into action.

I have shown my invention as applied to a carding-machine substantially such as represented in United States Patent No. 457,354, August 11, 1891.

Figure 1 of the drawings, in side elevation, represents a sufficient portion of a carding-machine with my improvements added to enable my invention to be understood, the coiler being omitted as well as most of the can. Fig. 2 is a top or plan view of the parts of the coiler and can broken away from Fig. 1. Fig. 3 is a view, partially in elevation and

partially in section, of the coiler apparatus removed and enlarged. Figs. 4 and 5 are details to be referred to, and Fig. 6 shows the lever *b* and part of the hand-lever *f*.

5 The frame-work of the carding-machine, the card-clothed cylinder A, the lap-feeding roll E', the licker-in I, the gear F, fast on the lower feed-roll, the lap D, (shown by dotted lines,) the lap-roll *t*, its guide D', the inter-
10 mediate toothed gear G, the toothed gear *d* for rotating it, the said gear having an attached worm-gear *d*³, engaged by a worm *d*⁴ on the shaft *d*⁵, having at its inner end a beveled gear *d*⁶, (shown by dotted lines in Fig. 1,) which in
15 practice is engaged by a beveled gear 3 at the interior of the part K² (see Fig. 5) of the friction-pulley loosely mounted upon a stud K³, projecting from one side of the frame-work, the
20 hub of the said pulley being extended and provided with a pinion *h*', the pulley K⁴ co-operating with the friction-pulley K², the part K⁴ receiving about it the belt K⁵, driven from the pulley M on the shaft of the positively-rotated cylinder A, the gear O on the shaft
25 of the doffer, said gear being shown by dotted lines, Fig. 1, the doffer-comb, the lever *b*, adapted to be struck by the lap-roll shaft when the lap is exhausted, the said lever having a projection, as *f*³, (see Fig. 6,) to engage
30 a lug or projection *f*² on the hand-lever *f*, pivoted at 4 and having an arm *f*', the spring *g* to normally move the upper end of the said lever toward the cylinder A, the rock-shaft *k*, having the projecting fingers *k*² and *m*², pin
35 *m*⁴, and forked lever *n* are and may be all substantially as in United States Patent No. 457,354, wherein provision is made for stopping the carding-machine when the lap is exhausted from the lap-roll.

40 As provided for in the said patent, whenever the lap becomes exhausted from the lap-roll *t* the latter contacts with the controlling-lever *b* and lifts its hooked end from engagement with the projection *f*² of the lever
45 *f*, causing the spring *g* to move said lever and rock the shaft *k*, so that the pin *m*⁴, carried by the finger *m*³, will move the lever *n*, pivoted at *n*², and effect the release of the clutch-pulleys K⁴ K², which at once arrests the rota-
50 tion of the doffer and feeding mechanism.

The rolls *a* *a'* may be assumed to be the usual calendar-rolls belonging to the carding-machine, the fleece removed from the doffer *a*³ by the usual comb *a*⁴ being collected in the
55 usual guide *a*⁵⁰ and carried through between the calendar-rolls.

The sliver *s* (shown by dotted lines in Fig. 2) is herein represented as being carried laterally out from the carding-machine to and
60 through the trumpet *a*⁵, forming part of the usual coiler.

The coiler proper is not of my invention, but is of ordinary construction, and is composed, essentially, of the flanged plate *h*, attached in some suitable manner to a part of
65 the frame-work A³ of the carding-machine, a gear-plate *h*', having an inclined sliver-guide

*h*², a gear *h*³ to rotate the gear *h*', shaft *h*⁴, carrying the said gear, a pinion *h*⁵ at the lower end of the said shaft, it engaging and
70 rotating the gear-plate *h*⁶ on which the lower end of the can *h*⁷ rests, a beveled gear *h*⁸ on the upper end of the said shaft *h*⁴, and a beveled gear *h*⁹ on the shaft of one of the coiler-rolls *h*¹⁰.

75 In accordance with my invention the can *h*⁷ is supported on a spiral spring *h*¹² in such manner that when the mass of coiled sliver in the can is more than the can should receive, so that sliver accumulates in the can
80 between its top and the under side of the rotating gear having the sliver-guide *h*², then the can is pushed downward vertically, so that it acts upon the inner end of a can-lever *p*, as best shown in Fig. 3, and causes the opposite
85 end of the said lever (represented by dotted lines) to act against the lower end of a latch *p*', connected to a rock-shaft *p*², moving the said latch, so that a shoulder thereon is withdrawn from below and so as to release a lever
90 C, enabling the spring *p*⁴ to depress said lever and cause it through the pin *m*² to turn the rock-shaft *k* in the direction to move the lever *n* and effect the unclutching of the doffing and feeding mechanism. Again, this
95 rock-shaft *p*², at some distance from the latch-lever *p*', has an arm *p*³, connected by a rod *p*⁴ with the journals of the uppermost calendar-roll *a*', so that should the calendar-rolls become clogged by an undue mass of sliver
100 passing between them the upper calendar-roll by rising will cause the said latch to release the lever C.

Again, I have shown the second coiler-roll *h*¹³ (see Figs. 2 and 3) as having its bearings
105 in a pivoted frame *h*¹⁴, the outer end of the journal of the said roll *h*¹³ having an arm *h*¹⁵, (shown detached in Fig. 4,) and provided with a rest 20 and with an incline or cam 32, which rests on a foot 21, extended from the plate *h*.
110 The roll *h*¹³ is kept normally pressed toward the roll *h*¹⁰ by a suitable spring *h*¹⁶. (See Fig. 2.)

The coiler-roll lever *w*, pivoted at *w*', has a projection 22, which bears upon the rest 20
115 of the arm *h*¹⁵, and the rear end of the lever *w* bears upon a rod *w*², suitably guided, the lower end of the rod resting upon a projection 23, connected to the rock-shaft *p*² and to the latch *p*'.
120

When for any reason the sliver winds about the coiler-rolls *h*¹⁰ or *h*¹³ or the material becomes bunched between the said rolls, so that the sliver is not being properly fed, then the pressure of the accumulated sliver or fibrous
125 material between the said rolls overcomes the pressure of the spring *h*¹⁶ and moves the arm *h*¹⁵ in the direction of the arrow, Fig. 4, causing the incline 32, resting on the fixed portion 21 of the frame-work, to be lifted, which lifts
130 the inner end of the lever *w*, causing its opposite end to push down on the projection 23, the rod *w*², and cause the latch *p*' to be turned to release the lever C.

Again, I have pivoted the arm carrying the trumpet a^5 at 25 (see Fig. 3) and have provided the said arm with a projection 26, which projection, should the sliver or cotton accumulate on the top of the coiler-rolls instead of passing between them, so as to cause the trumpet to rise or to be lifted, will act upon the lever w , turn it, as before described, and cause it, through the rod w^2 and arm 23, to release the latch p' . The releasing of the latch through either of these trains of mechanism will effect the stopping of the rotation of the doffer and also of the shaft d^5 and the gear F on the shaft of the lap-feeding mechanism referred to.

This invention is not limited to the exact form of friction or clutch pulley shown; but instead I may use any other usual or suitable form of clutch-pulley. Nor is this invention to be limited to the exact form of latch herein represented, which is operated to release the lever C when the machine should be stopped; nor to the exact form of lever C, its operating spring, and the connections between the said lever and clutch-pulley; nor to the special form of gearing intermediate the said clutch-pulley and the said lap-feeding mechanism, as instead I may employ any usual or suitable equivalent devices, as prior to my invention I am not aware that any means whatever have been provided for stopping the doffer and feeding mechanism from the calender or coiler rolls or from the trumpet, or by reason of undue accumulation of sliver in the can of the coiling mechanism.

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

1. In a carding-machine, the following instrumentalities, viz: a rotating card-cylinder, a card-doffer, means to rotate the said doffer, a coiler mechanism, including a spring-supported can, a latch, means, including a lever normally out of contact with said can, to move said latch when the can is unduly full, and devices intermediate the said latch and the driving mechanism for the doffer to stop the rotation of the latter when the said latch is released, substantially as described.

2. In a carding-machine, the following instrumentalities, viz: a rotating card-cylinder, feeding mechanism, a clutch-pulley, a shaft and gear actuated by the said pulley to operate the said feeding mechanism, a doffer, gearing actuated by the said clutch-pulley to rotate the said doffer, a coiler mechanism, including a can, a latch, means to move it when the can is unduly full, and devices intermediate the said latch and the said clutch-pulley to stop its rotation and the rotation of the doffer and of the feeding mechanism when the said latch is released, substantially as described.

3. In a carding-machine, the following instrumentalities, viz: a doffer, a clutch-pulley to rotate it, the calender-rolls, a latch, devices between the said calender-rolls and the said latch, and devices intermediate the said clutch-pulley and latch and controlled by the

said latch, whereby upon the movement of the latch due to undue thickness of fiber between the calender-rolls the said latch is operated to effect the release of the clutch-pulley to stop the rotation of the doffer, substantially as described.

4. In a carding-machine, the following instrumentalities, viz: a doffer, a clutch-pulley to rotate it, the calender-rolls, a latch, devices between the said calender-rolls and the said latch, and devices intermediate the said clutch-pulley and latch and controlled by the said latch, whereby upon the movement of the latch due to undue thickness of fiber between the calender-rolls the said latch is operated to effect the release of the clutch-pulley to stop the rotation of the doffer and feeding mechanism, and gearing between the said clutch-pulley and the said feeding mechanism, whereby when the latch is turned, as described, the feeding of the lap will also be arrested, substantially as described.

5. The coiler-rolls, a movable bearing for one of them, means to normally keep the said rolls pressed one toward the other, a rotating doffer, a clutch-pulley, means actuated by it to rotate the doffer, a latch, devices between it and the said clutch-pulley to effect the release of the latter, and devices between the said coiler-rolls and the said latch to actuate the latter to stop the rotation of the doffer whenever an undue quantity of sliver or material gets between the coiler-rolls, substantially as described.

6. The coiler-rolls, one of which is made movable toward and from the other, the arm or finger h^{15} , and the coiler-lever, combined with the latch and the rod w^2 to actuate it, as and for the purpose set forth.

7. The coiler-rolls, one of which is movable toward and from the other, and the trumpet, combined with the coiler-lever connected to said movable roll, the rod w^2 between the lever and latch, and the latch provided with a projection upon which said rod w^2 normally rests, to operate substantially as described.

8. The combination, with the doffing mechanism of a carding-cylinder and the coiling mechanism containing a pair of coiling-rolls, of a stop-motion mechanism, including a latch and a clutch-pulley, and connecting actuating means to effect the stopping of the rotation of the doffer when the sliver is unduly accumulated between the coiler-rolls, substantially as described.

9. The combination, with a doffer of a carding-machine and the calender-rolls thereof, of a stop-motion mechanism, including a latch and a clutch-pulley, and devices intermediate the calender-rolls and the latch and between the latch and the clutch-pulley, whereby an undue increase in thickness of sliver between the calender-rolls effects the stopping of the rotation of the doffer, substantially as described.

10. The coiling mechanism, including a pair of rolls, one of which is made adjustable with

relation to the other, and feeding mechanism
to feed a lap to a card-cylinder, a clutch-pul-
ley, devices operated by the said clutch-pul-
ley to actuate the feeding mechanism, a stop-
5 motion mechanism, including a latch, and de-
vices intermediate the said coiler-rolls and
the latch and between the said latch and the
said clutch-pulley to effect the stopping of
the lap-feeding mechanism when an excessive

amount of sliver gets between the coiler-rolls, to
substantially as set forth.

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

JOHN T. MEATS.

Witnesses:

HENRY I. COPELAND,
CHAS. L. HANDFORD.