

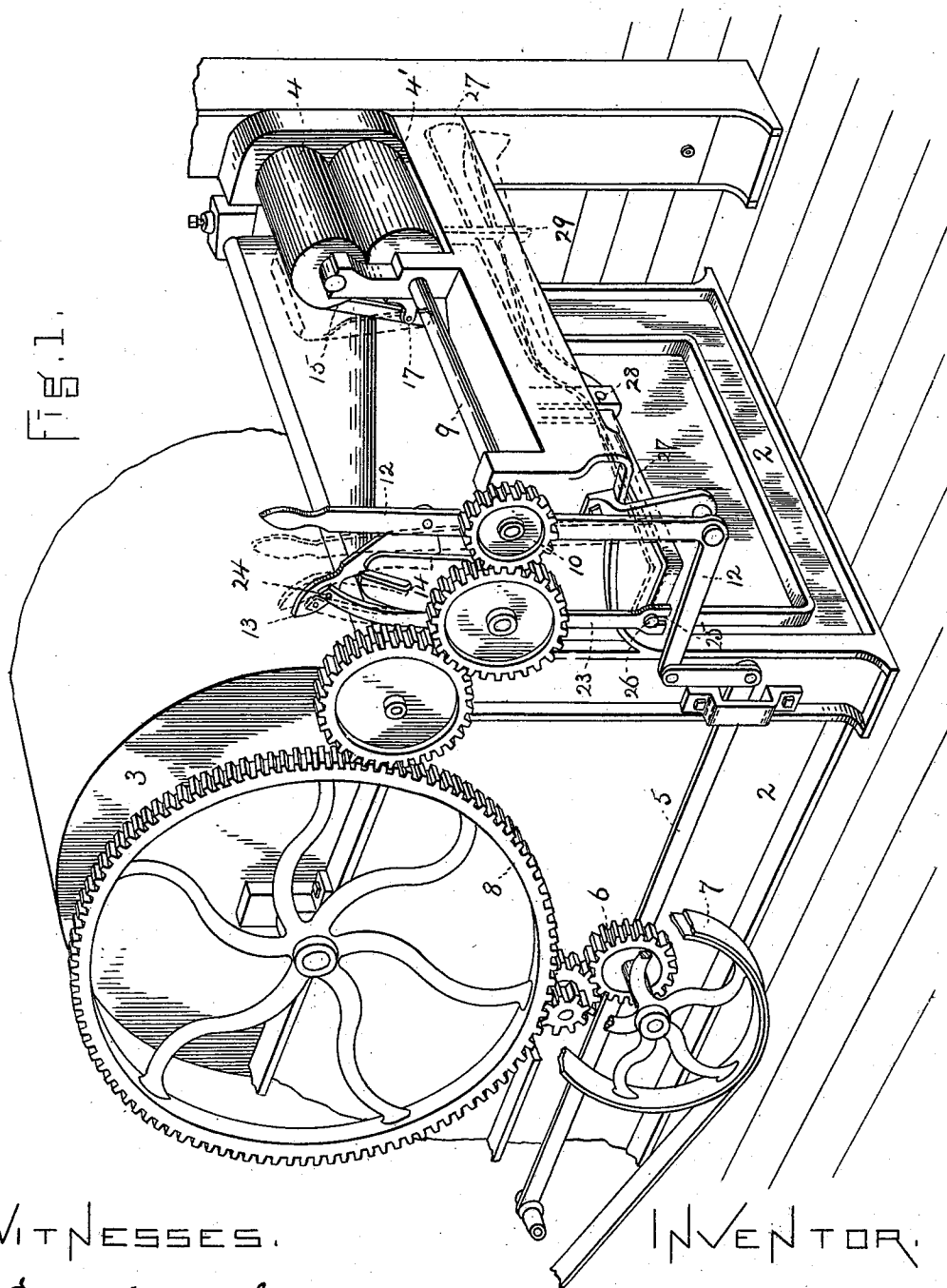
(No Model.)

2 Sheets—Sheet 1.

H. T. SPENCER.
STOP MOTION FOR CARDING ENGINES.

No. 533,093.

Patented Jan. 29, 1895.



WITNESSES.

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(No Model.)

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Fig. 2.

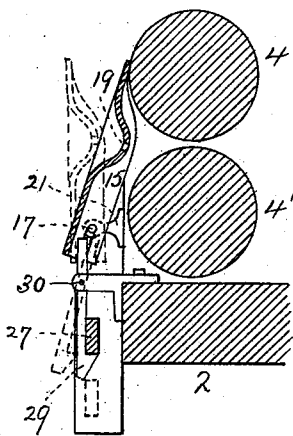


Fig. 3.

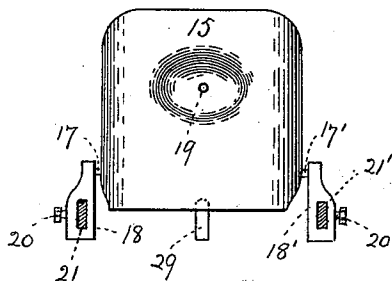
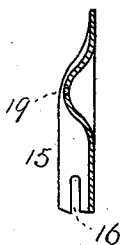


Fig. 4.



Fig. 5.



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UNITED STATES PATENT OFFICE.

HENRY T. SPENCER, OF BIDDEFORD, MAINE.

STOP-MOTION FOR CARDING-ENGINES.

SPECIFICATION forming part of Letters Patent No. 533,093, dated January 29, 1895.

Application filed August 23, 1893. Serial No. 483,809. (No model.)

To all whom it may concern:

Be it known that I, HENRY T. SPENCER, a citizen of the United States, residing at Biddeford, in the county of York and State of Maine, have invented certain new and useful Improvements in Stop-Motions for Carding-Engines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to figures of reference marked thereon, which form a part of this specification.

This invention relates to apparatus for automatically causing the stoppage of carding-engines whenever the web or sliver deviates from the proper weight, by becoming either too light or too heavy, the ultimate object being to produce uniform yarn and obviate the necessity of frequent doublings and drawings.

One feature of my invention consists of a rocker-plate. This plate is naturally balanced to cause it to assume an upright position whenever the web deviates from the proper weight, and said rocker-plate thereby serves to actuate certain mechanism to stop the doffer. So long as the web of a proper weight continues to pass through said rocker-plate the latter is held in an oblique position resting against the upper calender roll.

Another feature consists in placing said rocker-plate directly back of the calender-rolls, or between the doffer and the draw-box delivery. By placing this plate in proximity to the calender rolls it is made to serve the purpose of a clearer and thereby performs another duty by preventing fibers from sticking or adhering to the top roll and maintains the roll in a smooth polished condition.

The drawings herewith presented represent in Figure 1 a perspective view of a carding-engine, in part, showing the application of my invention thereto. Fig. 2 is an enlarged sectional view of the balanced or rocker plate and calender rolls. Fig. 3 is a front elevation of said plate and certain adjacent parts. Fig. 4 is a top edge of said plate. Fig. 5 is a vertical cross-section of the same.

In said drawings, Fig. 1, I have shown a fragmentary view of a carding-engine with the frame at 2, the doffer at 3 and the calen-

der rolls at 4, 4', as usual, together with stop mechanisms composed of a drop bar 5, which carries a gear 6 upon a shaft common with the driving pulley 7. Said gear is adapted to engage one of a train of gears serving to operate the doffer. The main gear 8 co-operates with a second train which revolves the calender shaft 9, the latter being fitted with the roll 4', at one end, and at the opposite extremity with the gear 10. As will be seen, the gear 6 is adapted to engage with or be disengaged from the doffer train and thus start or stop the doffer. In the present instance the rise and fall of the drop-bar is effected by means of a rocker-lever 12 united by a link to the free end of the drop-bar. Said lever is kept in a fixed position to uphold the drop-bar by means of a short handle bar or locking lever 13 which rests upon a stop 14 affixed to the stand or engine frame.

The above parts are those in common use but are necessarily described in order to fully explain the action of my device when in operation as a stop for carding-engines.

As before premised the operation of the carding-engine under my invention is to be controlled solely by the weight of the web or sliver produced. So long as this is normal, so long does the doffer continue to operate. If too light or too heavy, the mechanism performs its duty and the doffer is stopped. To carry out my invention I have applied directly back of the calender rolls, or between the doffer and the draw-box delivery, a rocker-plate 15, and it is formed with slots 16 which engage lateral trunnions 17, 17'. See Fig. 3. This plate is weighted to cause it naturally to assume an upright or vertical position, except when compelled to remain in an oblique position due to the friction caused by the passage of the web therethrough. To cause this plate 15 to assume an upright position as shown in the broken lines at certain times as will be hereinafter explained, I have thickened or added material to that portion below the points of support so that the lower portion will counterbalance the upper and the plate will always stand in an upright position, unless compelled to assume an inclined position due to the passage of the web. Said trunnions 17, 17' form part of brackets 18, 18' adjustably secured to the frame. The upper

central portion of the plate is pierced at 19 and depressed to make the front surface concave, or cone-shaped about said aperture, in order to gather the web from the card and more easily compress and pass the same through the plate to the calender rolls. The position of the plate when no web is passing is vertical as shown in dotted lines. Usually or when the carding-engine is in operation the said plate 15 is inclined forward as shown in Fig. 2, and when so positioned the web or sliver is presumably of proper weight; while the friction of the continuously passing web is sufficient to hold the plate against the upper roll. Should any imperfection exist then the plate falls back away from said roll and in assuming a vertical position actuates mechanism to stop the doffer. If the web or sliver runs light, lack of fiber decreases the friction and the plate again assumes an upright position. Conversely, should the sliver run heavy, the rocker-plate 15 becomes choked and the sliver breaks between said plate and the calender rolls, when the rocker plate assumes the same position (an upright one) as when the web was too light. The same action takes place should bunches or improper accumulations in the web occur, since the tendency of the plate is always to assume the vertical or away from the rolls. Adjustment of the rocker plate for difference in weight of the web is effected by means of the brackets 18, 18' which are adjustably mounted and held by set screws 20 upon the arms 21 shown in cross section in Fig. 3—that is, since the arms 21 are horizontal, the brackets are to move in a horizontal plane toward or from the calender rolls. Hence moving the points of support for the rocker-plate toward or from said rolls renders the rocker-plate less or more sensitive in its action. In other words, the less inclined from the vertical the less friction it requires to maintain its place against the upper roll. The position of the plate in proximity to the calender rolls permits it to bear upon and rest against the top roll, thus serving as a clearer and maintaining both calenders in a polished condition while it prevents the sliver from sticking to them.

As will be seen by reference to Fig. 5, the slots 16 are open in order to enable the plate to be removed in case it is so desired for any cause whatever. In order to interconnect said rocker-plate with the stop-motion of the doffer and prevent operation of the latter whenever the sliver deviates from the normal, as hereinbefore premised, I provide a vertical tripping-rod 23, said rod being curved at the top, (see Fig. 1,) and pivotally united at 24 to the locking-lever 13, while its lower extremity is formed with a slot 25 adapted to engage a pin 26 fitted on one end of a long bar 27 termed a balance weight. This latter is pivoted at 28 beneath the engine frame, while its opposite free and weighted end is normally held upraised by aid of a latch 29 pivoted at 30 to

the frame and having its upper end within the path of movement of the rocker-plate 15. The tripping-rod 23 is slotted at its lower end in order to enable said rod to be raised by hand if desired. In this way the stop-motion of the doffer can be actuated and the doffer brought to a standstill while the position of the rocker-plate and its operating mechanism remain undisturbed.

In operation the above described elements act as follows: Presume that some defect has occurred in the sliver and has allowed the plate 15 to assume the position indicated in broken lines, other elements likewise influenced are also indicated in broken lines. See Figs. 1 and 2. When the rocker-plate falls backward or away from the rods, the latch 29 is tripped, since the upper end is overlapped by the plate. See Fig. 3. Upon tripping the latch the hooked extremity is disengaged from the balance weight 27 which consequently drops. Such movement of the weight releases the locking-lever 13 by causing the tripping-rod to rise and lift the end of this lever, with the result of permitting the rocking-lever 12 to swing forward, while the drop bar 5 descends and the gear 6 is disengaged from the doffer train. In mending up, the web is picked up by the operator, rolled between the hands, thrust into the opening in the rocker-plate and then drawn through sufficiently to enable the web to be seized by the calender rolls. During this act and until the web has commenced to pass through the rolls said rocker-plate is held in contact with said rolls.

The prominent features of this invention consist in arranging a rocker-plate for the passage therethrough of web or sliver, directly back of the calender rolls, and further, in adapting said plate to act as a clearer for said rolls, by having it rest or bear against the upper roll. In this way the defective web or sliver is interrupted immediately upon formation and the subsequent and hitherto necessary steps of doubling and drawing are obviated. My invention insures uniform yarn from the start.

What I claim is—

1. In combination with the calender rolls of a carding-engine, a normally upright, counter-balanced rocker-plate apertured to allow passage of the web therethrough, and pivoted between its upper and lower ends, said plate resting, when in operation, against a calender roll and thus serving as a clearer therefor, of stop-mechanism, and a latch interconnecting said mechanism with the said rocker-plate, substantially as described.

2. In a carding engine, the combination with a doffer, a pair of calender rolls, and a normally upright, counter-balanced rocker-plate back of said rolls, and apertured for the passage of the web, of a balance weight, a latch which supports said weight and is operated by the said rocker-plate, and stop-

mechanism devices brought into action by the movement of said balance weight and controlling the doffer, substantially as set forth.

3. In carding-engines, the combination
5 with the stop-mechanism for the doffer, a balance weight, and a latch for upholding the latter, of a normally upright, counterbalanced rocker plate apertured to permit passage of the web, said rocker-plate being removably
10 mounted upon trunnions or pivots and serving to disengage the said latch from the balance weight when the sliver breaks or runs too light, substantially as described.

4. In carding-engines, the combination
15 with a stop-mechanism for the doffer, balance weight, and a latch for upholding the latter, of a normally upright, counterbalanced rocker-plate apertured to permit passage of the web, said rocker-plate being mounted upon trun-
20 nions or pivots and adapted to disengage the latch from the balance weight when the sliver breaks or runs too light, and said trunnions or pivots being horizontally adjustable so that the degree of inclination of said rocker-plate
25 by the friction of the web or sliver may be varied, to make the stop-motion more or less sensitive, substantially as described.

5. In carding engines, a doffer, the calender

rolls, the apertured rocker-plate arranged, when in operation, to rest against one of said
30 rolls, and a latch which engages said plate, combined with a balance weight upheld by said latch, an operating lever, its locking-lever, and means connected with the operating lever to stop the doffer upon movement of
35 the said operating lever, substantially as described.

6. In a carding engine, the combination with the doffer and the calender rolls geared thereto, of the normally upright, counter-bal-
40 anced apertured plate 19 pivoted between its ends and arranged adjacent to said rolls, pins or trunnions on which said plate is pivotally and removably mounted, the balance weight
45 27, the latch 29 for holding the said balance weight elevated, said latch being operated by said rocker plate, and a stop-motion mechanism for the doffer connected with said balance weight.

In testimony whereof I affix my signature 50
in presence of two witnesses.

HENRY T. SPENCER.

Witnesses:

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FRANCIS C. STANWOOD.