

(No Model.)

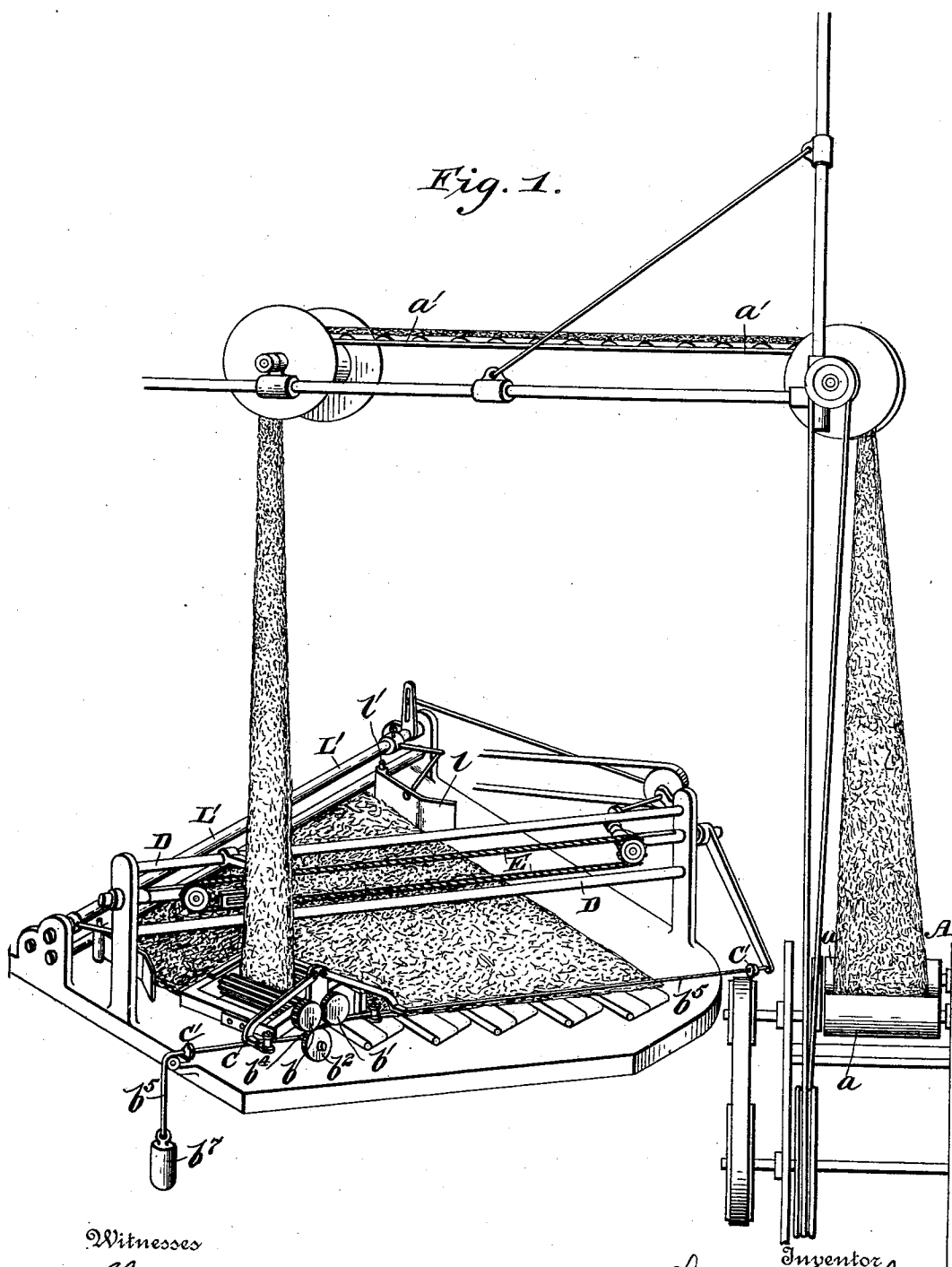
2 Sheets—Sheet 1.

T. KERSHAW.

FEEDING DEVICE FOR CARDING MACHINES.

No. 512,443.

Patented Jan. 9, 1894.



Witnesses

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FIG. 2.

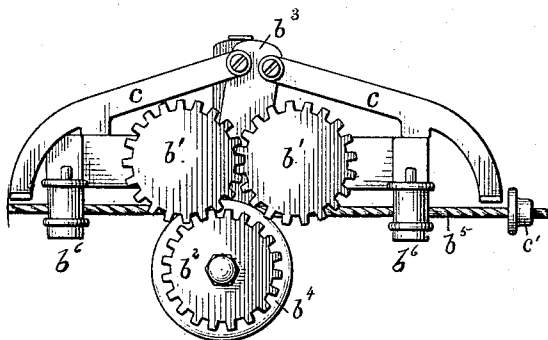


FIG. 3.

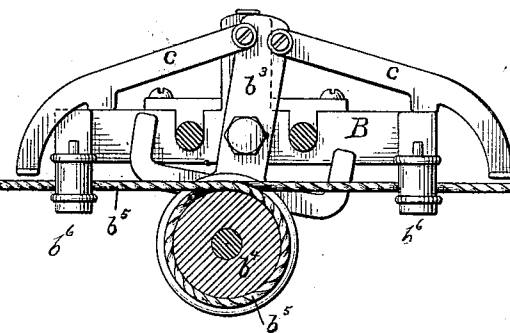


FIG. 4.

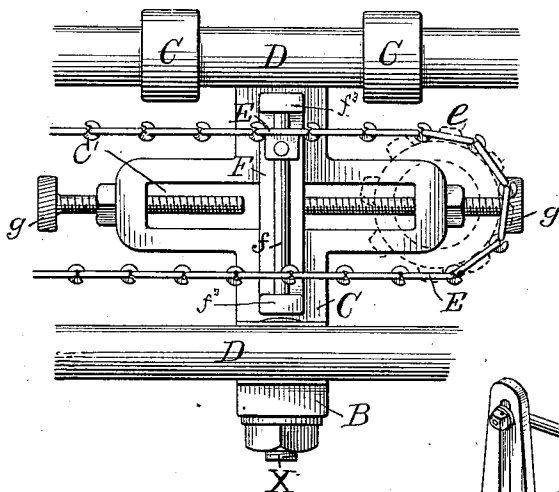


FIG. 5.

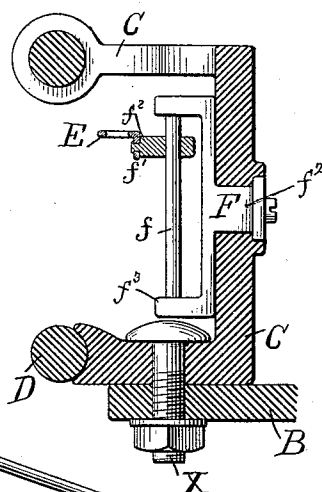
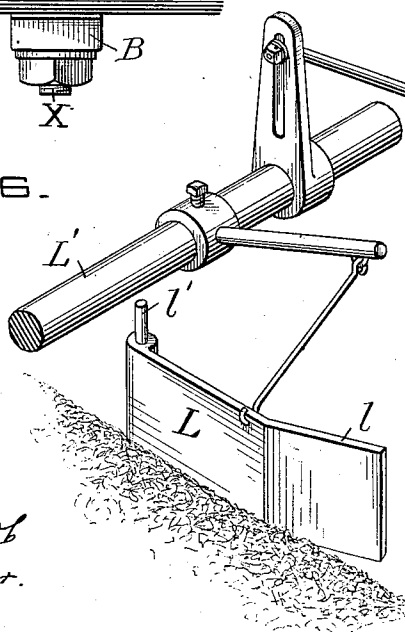


FIG. 6.



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FEEDING DEVICE FOR CARDING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 512,443, dated January 9, 1894.

Application filed December 23, 1892. Serial No. 456,148. (No model.)

To all whom it may concern:

Be it known that I, THOMAS KERSHAW, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Feeding Devices for Carding-Machines; and I do 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 the letters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in feeding devices for the second breaker and finisher of carding machines and has for its object, the provision of an improved construction in various parts of the feeding device, whereby an even delivery of the web or roving is made on all parts of the feed table, an even delivery to the card cylinder is secured and perfection in the outside strand of the web is attained, so that the entire web can be spun into yarn without the waste upon the sides which is necessitated by all of the feeding devices now in use, so far as I am aware.

My invention contemplates improvements in the form of web which is delivered to the feeding device, improvements in the position and manner of mounting the feed or traverse rolls, improvements in the manner of gearing and operating said rolls, improvements in the mechanism for connecting the traveling frame with the chain or belt, the provision of means for the accurate adjustment of the distance which the traverse rolls move and the provision of means for controlling the delivery of the proper quantity of stock to both sides of the feed apron.

The invention will be understood from the following detail description and will be finally pointed out in the claims.

In the accompanying drawings Figure 1, is a perspective view showing parts of the two carding machines (second breaker and finisher) with my feeding device attached. Fig. 2, is an elevation of the traverse rolls mounted in the frame carrying same. Fig. 3, is an elevation of the traverse rolls and frame with the gear wheels removed from the rolls. Fig. 4, is an elevation of the slide device which

connects the traveling casting with the driving chain or belt showing a sprocket wheel in dotted lines to avoid obscuring the view of the traveling casting. Fig. 5, is a vertical section of Fig. 4. Fig. 6, is a detail view showing a flaring reciprocating guide attached to each side of the feed table.

Similar letters of reference indicate corresponding parts in all the figures where they occur.

I have not deemed it necessary to illustrate more than the immediately adjoining portions of the carding device with which my improvement is intended to co-operate.

A, is a portion of the first carding machine from which the web is taken in a flat condition, it being doffed upon a traverse apron attached thereto; from this traverse apron the flat stock passes between the draw rolls *a, a*, which press it into a condition of sufficient strength to carry it over the overhead rigging *a', a'*. The web after leaving the overhead rigging is carried directly down to the traverse rolls *b, b*, which are set horizontally and deliver the untwisted web directly upon the feed table without its being twisted or turned from a direct line. The traverse rolls are mounted in a frame which is adjustably secured upon a traveling casting C, which rides upon the guides D, D. The roll frame B, is pivoted to the traveling casting C, by means of a single bolt X, as shown in Fig. 5, so that the position of the traverse rolls can readily be shifted to bring their axes at any desired angle to the face of the carding cylinder of the second machine. The guide bars D, D, afford a double bearing, one at top and the other at the bottom for the traveling casting. These bars are set at an angle of about forty five degrees more or less from the face line of the card cylinders. The traverse rolls are set in such a position as to be at, or nearly at, a right angle to the face of the carding cylinder, and this position can be accurately secured or varied as desired, by means of the adjusting device (bolt X), connecting the roll frame to the traveling casting as already described. It is essential to good work and to securing perfection in the outside strands to have the traverse rolls set in the position described, in order that the proper amount of stock or web is delivered upon the space on

the feed table opposite to each ring on the doffer of the finishing card and that said traverse rolls deliver the web and double it at each side of the feed, laying the coupled
5 over parts or ends in a straight line at or nearly at right angles to the face of the carding cylinder of the second machine.

The traverse rolls are provided at their outer ends with gears or friction pulleys b^1 , b^2 , and a driving gear or pulley b^3 , is mounted on a swinging support b^4 , which allows said driving pulley or gear to be tumbled from one traverse pulley or gear to the other, as the reciprocation of the traverse rolls takes place.

15 Secured to the driving pulley or gear and freely revolving with it on a suitable stud attached to the swinging support is a drum or pulley b^4 , around which is wound a band or cord b^5 , which passes around suitable guide
20 spools b^6 , loosely mounted on upright arms secured to the sides of the frame B, in any suitable manner and is provided at one end with a weight or spring b^7 , and fastened at the opposite end in any suitable manner. This cord
25 may be fastened securely at both ends, but it answers the purpose better when one end is weighted, thus keeping it at all times taut. This arrangement of the cord b^5 , and the drum b^4 , serves to throw the driving pulley or
30 gear b^3 , from one traverse pulley or gear to the other at the beginning of each reciprocating movement of the traverse rolls, thus keeping the rotation of the rolls in the proper direction for feeding the web, it being understood, of course, that the traverse pulleys or
35 gears actuate each other.

To insure that the reversing movement of the traverse rolls shall take place immediately upon the change of the reciprocating
40 movement of the traveling casting C, the extending arms c, c' , are loosely secured or jointed upon the upper end of the swinging support b^3 , these arms projecting beyond the spools b^6 , along the cord b^5 . (See Figs. 1, 2, and 3.)
45 c', c' , are stops securely fastened upon the cord at each side of the feed at a point where the arms c , will strike against it, just before the reciprocating movement of the traveling casting C, changes. As a consequence the
50 swinging support b^3 , is positively forced over and the driving gear or pulley b^3 , moved in an opposite direction and engaging with the other one of the gears b^1 .

E, is a chain or belt that carries the traverse rolls back and forth across the machine.
55 This chain or belt is mounted upon sprockets or pulleys e, e' , which are supported upon brackets held by the end posts of the feeding device, and if desired may be longitudinally
60 adjustable therein. It will be seen that the chain may be lengthened or shortened by putting in or taking out a link, the sprockets being moved correspondingly back or forward. The pulley or sprocket e , carries a bevel gear
65 on the opposite end of the stud; this bevel gear meshes with a similar gear in a diagonal arbor which is set in this position in order to

be parallel with the axes of the card cylinder and carries a pulley e^2 , over which a belt passes to a suitable driving pulley on the carding machine to give motion to the driving chain or belt E. The traveling casting carries an upright guide f , which engages with a swivel piece f' , which is swiveled or loosely connected to the driving belt or chain so as to afford easy action, as the swivel piece f' , passes around the sprockets or pulleys upon which the driving chain or belt is mounted. The swivel piece f' , rides up and down on the guide f , and turns on its pivot or swivel to accommodate the movement around the pulleys or sprockets.

In order to increase the distance which the traverse rolls cover in their respective movements to deliver the required amount of web in front of the outside doffer rings, I lengthen or shorten the chain or belt and correspondingly move the brackets on which the sprockets or pulleys are mounted, but this does not give a fine adjustment and requires considerable time to accomplish. I have therefore provided an adjusting device upon the traveling casting, by means of which I can set the lateral movement of the upright guide f , with certainty and precision. To effect this lateral adjustment of the upright guide f the traveling casting is provided with a longitudinal way C' into which fits and slides a stud f^2 on the back of a sliding bracket F, as shown in Fig. 5. This bracket F which slides back and forth in the horizontal way C' in the traveling casting C has ears or projections f^3 at its top and bottom into which is secured the upright guide f upon which slides the swivel piece f' and connects the said upright guide to the carrier chain, and through it the sliding bracket F and the traveling casting C are also connected with the said carrier chain for the purpose of carrying said traveling casting back and forth upon the rods D, as is evident.

g, g , are set screws in the traveling casting at each end of the way C' for limiting the distance of the slide of the bracket F. By means of these set screws it will be apparent that the sliding bracket F can be held rigid at any point in the way C' that may be desired, by sliding it to the desired point and then forcing the screws against either side of it; it can be slid back and forth throughout the whole length of the way C' , or its sliding movement can be limited by adjusting the said screws to any length less than the length of the way C' , and to any portion of the way C' , that is, the sliding of this bracket F can be confined to the middle portion of the way C' , or to either the right or left hand portion of the said way C' , as may be desired. From this construction of the adjusting device it is evident that if the traverse rolls lay the stock too close to the edge of the machine, this can be remedied by increasing the distance of the movement of the sliding bracket F by means of the set screws g, g , which will shorten the

distance traveled by the traveling casting, and consequently that of the rolls carried thereby. If the stock is not laid close enough to the edge of the machine, the length of the movement of the sliding bracket is decreased, by means of the set screws, whereby the length of the movement of the traveling casting will be increased, and consequently the movement of the traverse rolls carried thereby. By this construction I can so adjust the movement of the sliding bracket F that it will regulate the feeding of the stock upon the machine at both, or at either side, or at one side and not at the other as circumstances may require. As the sliding bracket F, is securely attached to the chain E, it must always travel a uniform distance across and back, that distance being the length of a line drawn through the center of the sprocket wheels and extending from the outside of one sprocket wheel to the outside of the other sprocket wheel. When the bracket is held rigidly at any one point in the traveling casting C and not allowed to slide therein, the traveling casting will be carried exactly the same distance that the bracket F is carried. If the bracket F is allowed to slide along in the way C', the distance that the traveling casting C, is carried will be reduced just as much as the bracket F slides in the way C', for the reason that while the bracket F is sliding along in the way C', the traveling casting must necessarily remain stationary, not being affected by the forward movement of the bracket until the said bracket is carried along and strikes against one of the set screws g. The traveling casting C, being moved by the chain E, acting through the bracket F, and causing said bracket to impinge against one of the set screws g, it can move only as fast as the chain moves, and it follows, that if the traveling casting remains stationary at any time while the chain and slide are moving, the distance that the traveling casting C, is carried in a given time would be less than the distance that the chain and slide move in the same time, the difference being the distance that the chain and slide move while the traveling casting remains stationary, i. e., the length of the slide of the bracket F in the way C'.

In Fig. 4 of the drawings the traveling casting C, is shown as being carried by the chain E, from left to right, with the sliding bracket F pressing up against the right hand set screw g. When the chain has moved far enough to carry the swivel piece f' and the attaching link in the chain E, around the sprocket wheel, the movement of the bracket F, will be reversed and it will go from right to left. The movement of the traveling casting C, however, will not be immediately reversed, but it will remain stationary until the sliding bracket F, moves along in the way C' and strikes against the set screws g, on the left hand side of Fig. 4. Any desired mechanism for effecting this result may be employed

without departing from this invention, but I prefer to use that shown and herein described.

In order to retain the web at any particular point on the side of the feed, with more certainty and precision, and to take in any stray or straggling ends, or fibers that may stick out, I place at the sides of the said feed, the adjustable guides L, L, shown in Fig. 6. These guides have flaring ends, l, l, and are loosely mounted on the studs l', being given a reciprocating movement by the rocking shaft L'. The flaring ends of these guides take in all straggling fibers, after which they are gently forced into the required space on the feed table.

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

1. In a feeding device for carding machines the combination with a guide bar or bars placed diagonally to the face of the machine, a carrying chain or belt operated in line therewith, a traveler carried on said bar or bars and connected with the driving chain or belt, of a frame, a pair of horizontally set traverse rolls mounted therein, and mechanism for operating the rolls, said frame being pivotally connected with the traveler whereby the traverse rolls may be set at any desired angle to the face of the carding machine, as set forth.

2. In a feeding device for carding machines, the combination of traverse rolls, a traveler by which they are carried provided with a way or opening, a driving chain or belt with connecting devices between said traveler and belt or chain, said connecting device being adapted to slide in said way or opening so as to have lateral play therein and means for limiting or controlling said lateral play, substantially as and for the purpose set forth.

3. In a feeding device for carding machines, the combination of traverse rolls, a traveler by which they are carried, a slide working transversely in said traveler, set screws or stops secured in the traveler at each end of the way in which the slide moves transversely, a driving chain or belt, and connections between said driving chain or belt and the transverse slide, substantially as set forth.

4. In a feeding device for carding machines, the combination with a driving belt and traveler connected thereto, traverse rolls carried by said traveler, of a transversely sliding connection between said traveler and said belt or chain, and lateral adjustments for said sliding connection, as set forth.

5. In a feeding device for carding machines the combination of the guide rods, traveling casting thereon, an adjustably pivoted roll frame pivoted to said traveling casting, whereby said roll frame may be set at any desired angle to the guide rods, a pair of traverse rolls, gears or pulleys mounted on the ends thereof and engaging each other, an oscillating drum or driving pulley having a gear on the end thereof, a swinging support on which said drum and gear are mounted, with a weighted

or tightly drawn cord surrounding said drum, stops on said cord, and pivoted arms or striking devices mounted on said swinging support for the driving pulley, all constructed and arranged substantially in the manner and for the purpose set forth.

6. In a feeding device for carding machines the combination with the carrier chain and the traveling casting, of an adjustable sliding connection between said carrier chain and traveling casting, as and for the purpose set forth.

7. In a feeding device for carding machines the combination of traverse rolls, a traveler by which they are carried, and a driving chain or belt with a connecting device between said traveler and belt or chain, said connecting device being mounted upon a rod, and having lateral play in the traveler, as set forth.

8. In a feeding device for carding machines the combination with a driving belt and traveler connected thereto and traverse rolls, of a transversely sliding connection between said traveler and said belt or chain, and lat-

eral adjustment for said connection, as set forth.

9. In a feeding device for carding machines the combination of traverse rolls, and a traveler by which they are carried, a slide working transversely in said traveler, a bar or rod over which said slide works, a set nut or stop at one or both ends of said bar, a driving chain or belt and connection between said driving chain or belt and the slide, as set forth.

10. In a feeding device for carding machines, the combination of the guide rods and traveling casting thereon, with an adjustably secured roll frame pivoted to said traveling casting whereby the said roll frame may be set at any desired angle to the guide rods, as set forth.

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

THOMAS KERSHAW.

Witnesses:

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THOS. D. MOWLDS.