

(No Model.)

2 Sheets—Sheet 1.

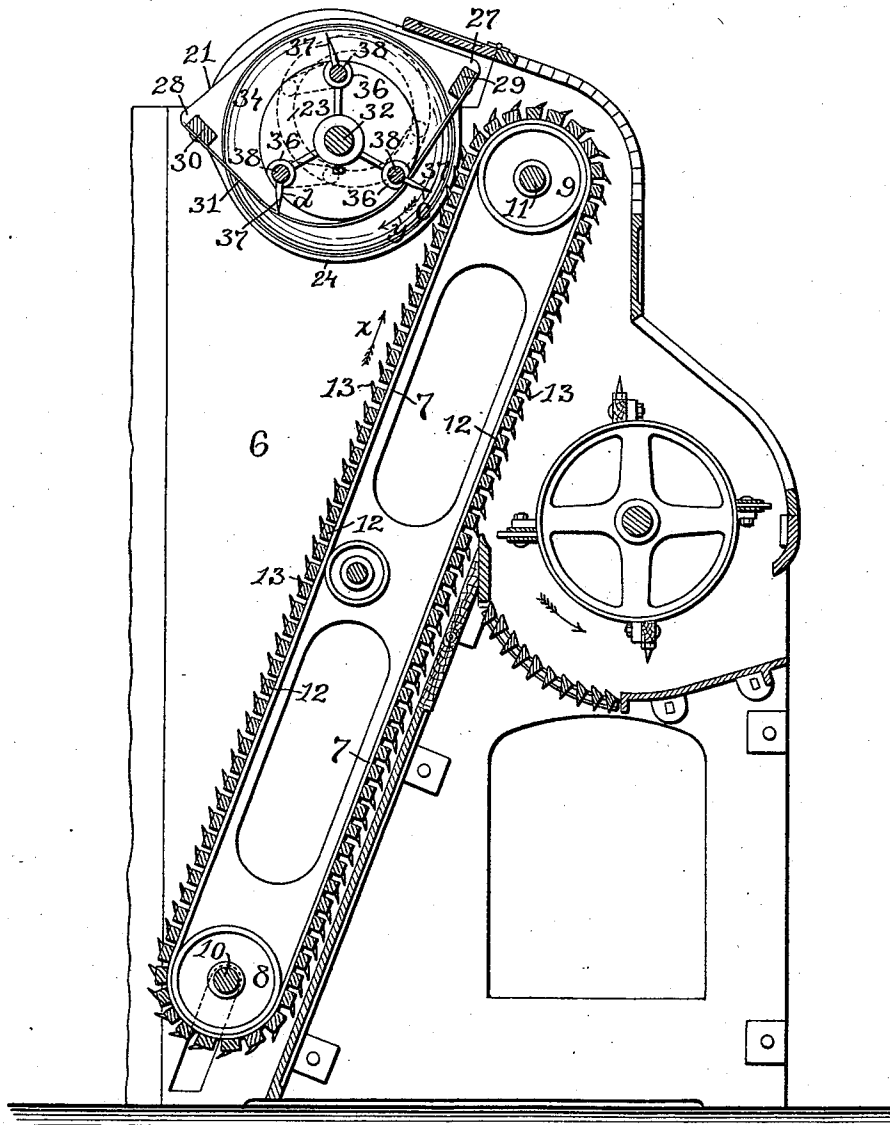
J. C. POTTER.

COMB FOR FIBER FEEDING MACHINES.

No. 539,541.

Patented May 21, 1895.

Fig. 1.



WITNESSES:

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(No Model.)

2 Sheets—Sheet 2.

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Fig. 2.

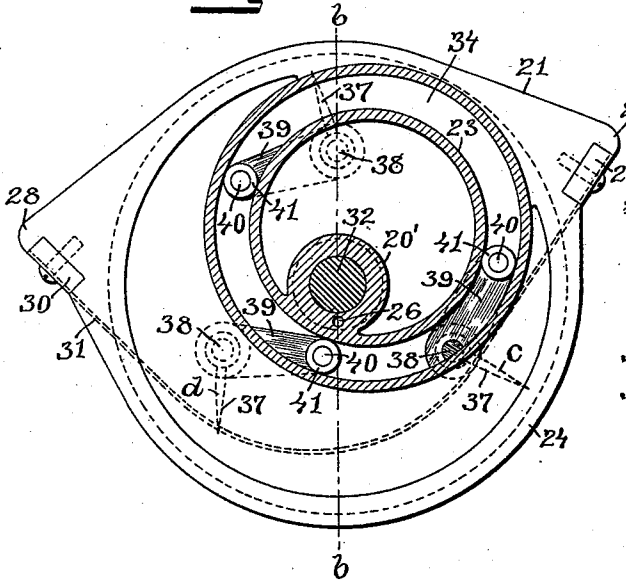


Fig. 3.

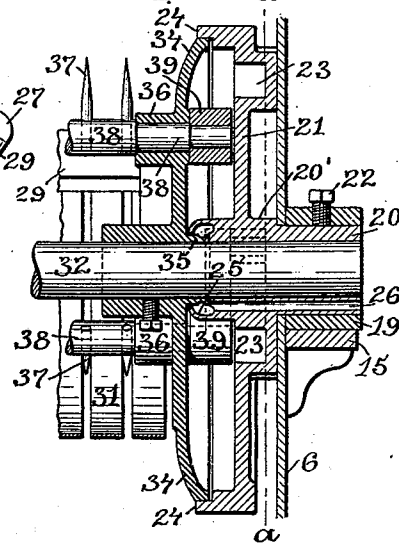


Fig. 4.

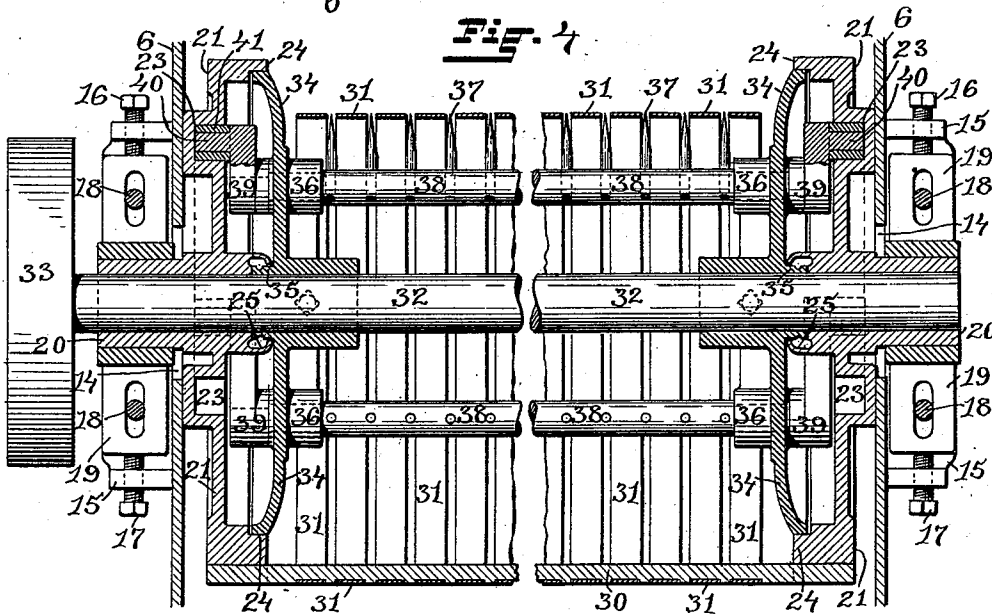
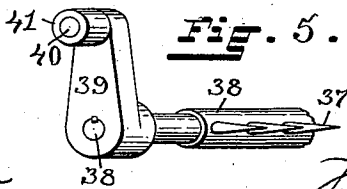


Fig. 5.



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UNITED STATES PATENT OFFICE.

JAMES C. POTTER, OF PAWTUCKET, RHODE ISLAND.

COMB FOR FIBER-FEEDING MACHINES.

SPECIFICATION forming part of Letters Patent No. 539,541, dated May 21, 1895.

Application filed December 6, 1894. Serial No. 531,000. (No model.)

To all whom it may concern:

Be it known that I, JAMES C. POTTER, of Pawtucket, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Combs for Fiber-Feeding Machines; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

The invention relates to improvements in combs for fiber-feeding machines and refers particularly to the construction whereby the comb is made self clearing.

The object of the invention is to so construct a comb of this nature and its actuating mechanism that the angle of extension of the comb teeth from their common axis may be varied in their path of movement.

Another object is to so construct a revolving comb provided with a clearer frame that, after passing the points at which the comb teeth are adapted to engage the fiber in their combing action, the angle of extension may be so changed that the teeth are drawn through the spaces between the bars of the clearer frame at practically right angles thereto, whereby the fiber adhering to the teeth is stripped off the same by the clearer bars in line with the plane assumed by the teeth at this point.

The further object of the invention is to so construct a revolving comb and its clearer frame that the comb teeth and clearer frame will be protected from lubricant applied to the bearings.

The invention consists in the peculiar construction of the clearer frame and the comb teeth mounted on rotatable supports which are revoluble.

The invention also consists in a revolving comb for fiber feeding machines which is provided with comb teeth mounted on rotatable supports, and means for rotating the rotatable supports.

The invention also consists in the clearer frame, the comb shaft rotatable in bearings within the frame, the shafts, carrying the comb teeth, rotatable in bearings mounted on the comb shaft and peculiar means for rotating the tooth shafts.

The invention still further consists in the

rotatable tooth shafts revolubly mounted, and the novel means for causing the rotation of these shafts independent of their revolution.

The invention still further consists in the novel manner of protecting the lubricated parts.

The invention still further consists in such other novel features of construction and combination of parts as may hereinafter be more fully described and pointed out in the claims.

Figure 1 represents a vertical sectional view of a fiber-feeding machine, showing the improved comb in section. Fig. 2 represents a vertical cross-sectional view of the improved combing device, taken on a line *aa*, Fig. 3. Fig. 3 represents a vertical sectional view of one end of the combing device, taken on a line *bb*, Fig. 2. Fig. 4 represents a horizontal sectional view of the combing mechanism, partially broken away in the center. Fig. 5 represents a perspective view of a portion of one of the tooth-shafts with its actuating-crank.

Similar numbers of reference designate corresponding parts throughout.

In carrying my invention into practice it has been my desire to rigidly support the comb teeth and to provide means whereby the action of the teeth on the fiber with reference to the bars of the clearer frame will be similar to that of combs furnished with reciprocating teeth, while the movement is a continuous rotation in the revolution of the comb, so that while the benefits of presenting the teeth to the fiber in a combing or sidewise motion and the withdrawing of the teeth from the fiber in a direction lengthwise of the teeth are maintained, the actuating mechanism requiring lubrication is thoroughly protected at the ends of the combing device, thus preventing damage to the fiber by the lubricant.

In the drawings 6—6 indicate portions of the sides of a fiber feeding machine which is generally furnished with a lifting apron which consists of a continuous belt 7 mounted on rollers 8 and 9 by which it is supported in an inclined position. The rollers 8 and 9 are secured to the shafts 10 and 11 which are journaled in bearings in the sides of the machine, power being applied to a pulley on one shaft to drive the shaft in the direction indicated by the arrow X. To the belt 7 are secured the

transverse bars 12—12 in which are fastened the pins or spikes 13—13, those on the operating portion of the apron extending upward at an outward inclination to engage the fiber and carry it upward as the apron moves.

At the upper portion of the apron, before it passes over the roller 9, the fiber carried along thereby is subjected to the action of a combing mechanism, for the purpose of removing the abnormal thickness of the fiber on the apron, so that the fiber may be delivered in an even layer, the action of the combing being in a direction opposite to that in which the fiber is carried by the apron. This combing mechanism is generally provided with teeth which, to engage the fiber, should exert a raking or sidewise action thereon. When this surplus fiber has been taken up by the teeth it is carried backward by the comb teeth and would be carried entirely around by the same, if the clearing device were omitted, resulting in the clogging of the comb. This clearing device is generally in the nature of a screen through which the comb teeth are extended to engage the fiber and again withdrawn to clear the fiber from the teeth. In this withdrawal it is obvious that, the purpose being to release the fiber, the movement of the teeth should be in a direction which will exert the least drag on the fiber and hence the least tendency to draw the same within the screen.

My invention has particular reference to the means for removing the surplus fiber from the feed apron and for clearing the so removed fiber from the comb teeth so that it may drop back and be again taken up by the apron. For this purpose I provide the upper portion of the sides 6—6 with slots or openings 14—14 and to the outer surfaces of the sides I secure the brackets 15—15 provided with the adjusting pins 16—16 and 17—17 and with the guide pins 18—18. In these brackets 15—15 are mounted the bearing blocks 19—19 having vertical slots into which the guide-pins extend.

In the bearings of the blocks 19 are journaled the outwardly-extending sleeves 20—20 of the end plates 21—21 which are secured in the desired position by the screws 22—22. These end plates have cam grooves 23—23 open on their inner surfaces and inwardly extending annular lips 24—24, the hubs 20'—20' of the plates having inwardly-curving annular lips 25—25, forming receptacles for lubricating material, which are connected by the channels 26—26 with the outer ends of the sleeves 20—20.

The upper portions of the end plates 21 have the projections 27 and 28 the corresponding projections of the plates being connected by the bars 29 and 30 to which the parallel curved strips 31—31 are secured, spaces being left between these strips for the movement of the comb teeth.

Journaled in the sleeves 20—20 of the end plates 21—21 is the comb shaft 32 having at one end the pulley 33 by means of which

power is applied to rotate the shaft and operate the combing mechanism. To this shaft are rigidly secured circular concave plates 34—34 the hubs of which have the sleeves 35—35 projecting within the annular lips 25—25 of the end plates 21, the plates 34 serving as shields to prevent the inward flow of lubricant from these bearings.

At equal distances from the center of the plate 34 are formed bearings 36—36 extending through the plates and the plates are so mounted on the shafts 32 that their circular edges are clearly embraced by the annular lips 24 of the end plates.

The comb teeth 37—37 are rigidly secured in the tooth shafts 38—38 the ends of which extend through and are journaled in the bearings 36—36 of the plates 34.

On the ends of the tooth shafts are mounted crank arms 39—39, extending at right angles to the lines of the comb teeth, movable between the plates 34 and the end plates and having pins 40—40 furnished with anti-friction sleeves 41—41 which engage in the cam grooves 23 of the end-plates.

The end plates 21 are generally so adjusted that the cam grooves 23 will be located mainly above and toward the apron side of the shaft 32. As this shaft is rotated in the direction indicated by the arrow Y in the drawings, the tooth shafts 38 will revolve in a circle about the shaft 32 while these shafts will be rotated by the following of the anti-friction bearings 41 in the cam grooves 23 to bring the comb teeth into position as 37° in Figs. 1 and 2 of the drawings, so that they will exert a combing or sidewise action on the surplus fiber, while, as they leave the point at which the fiber is engaged, their shafts are rotated to swing the teeth backward until, when the teeth are rising between the curved strips of the clearer frame, they move in a direction nearly at right angles thereto and are drawn from the fiber which is held back by these curved strips.

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

1. In a revolving comb, the combination with side frames provided with bearings, a clearer-frame mounted within the side frames and consisting of end plates bars connecting the end plates, parallel curved strips secured to the bars and depending therefrom, and a shaft journaled in the bearings of the side frames, of plates secured to the shaft and having bearings, shafts journaled in these bearings, teeth secured in the shafts and adapted to extend at certain points between the strips of the clearer frame, and means for rotating the last mentioned shafts.

2. In a revolving comb, the combination with side frames, bearings mounted thereon, end plates having sleeves rotatably adjustable in the bearings, said sleeves having inwardly-projecting lips forming reservoirs and channels connecting the outer ends of the

sleeves with the reservoirs, the end plates also having annular lips, and a clearer frame carried by the end plates, of a shaft journaled in the sleeves of the end plates, circular plates secured to said shaft and adapted to be closely embraced by the annular lips of the end plates, sleeves on said plates adapted to be embraced by the inwardly turned lips of the end plate sleeves, and a combing device carried by the shaft.

3. The combination with the side frames 6—6 having the openings 14—14, the brackets 15—15 secured to the side frames, the bearing blocks adjustable in the brackets, the end plates 21—21 having the annular lips 24—24 and the sleeves 20—20 mounted in the bearing blocks and having on the inner sides of the plates the inwardly-turned lips 25—25 connected by channels with the outer ends of the sleeves, and a clearer frame supported by the end plates and consisting of a series of curved strips 31—31 secured to cross bars, of a comb shaft journaled in the sleeves 20—20, a combing device mounted on the shaft and provided with comb teeth adapted to move between the clearer bars, the plates 34 secured to the comb-shaft and having the sleeves 35—35, the circular edges of these plates closely fitting within the lips 24 of the plates 21.

4. The combination with side frames having openings, brackets secured to the frames, bearing blocks adjustable in the brackets, the end plates 21—21 having the lips 24—24, the cam grooves 23—23 and central sleeves 20 journaled in the bearing blocks and having

the inwardly-extending lips 25—25, the cross bars 27 and 28 secured to the end plates and the curved strips 31—31 fastened to these bars, of the shaft 32 journaled in the sleeves 20—20, the circular plates 34 mounted on the shaft and closely embraced by the lips 24 of the end plates and having the bearings 36—36 and the sleeves 35—35 extending within the lips 25 of the end plates, the shafts 38—38 journaled in the bearings 36—36, the arms 39—39 secured to the ends of the shaft, and the bearings, formed by the pins 40 and sleeves 41, secured to the ends of these arms and extending into the cam grooves 23—23, as described.

5. In a revolving comb, the combination with a clearer frame consisting of the end plates 21—21, the cross bars 29 and 30 connecting the end plates and a series of parallel curved strips secured to the cross bars, of a central shaft journaled in bearings, plates secured to the shaft and having bearings near the outer portions, shafts journaled in these bearings, pins secured in the shafts, arms on the ends of the shafts, guides located adjacent to the ends of the shafts, and means intermediate the arms and the guides whereby the arms may be directed in a manner to cause the rotation of the toothed shafts.

In witness whereof I have hereunto set my hand.

JAMES C. POTTER.

Witnesses:

HENRY J. MILLER,
JOSEPH A. MILLER, Jr.