Dec. 13, 1966 MUTSUHIKO KATORI 3,290,731

RECTILINEAR COMBER FOR COTTON

Filed Oct. 21, 1963 5 Sheets-Sheet 1

FIG. 1

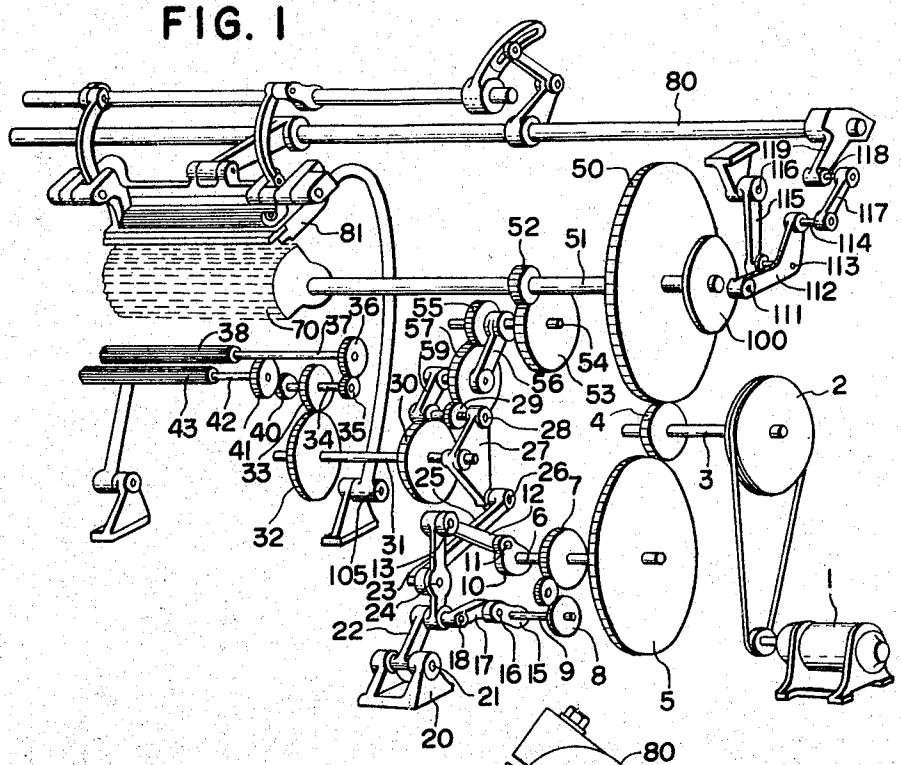


FIG. 2

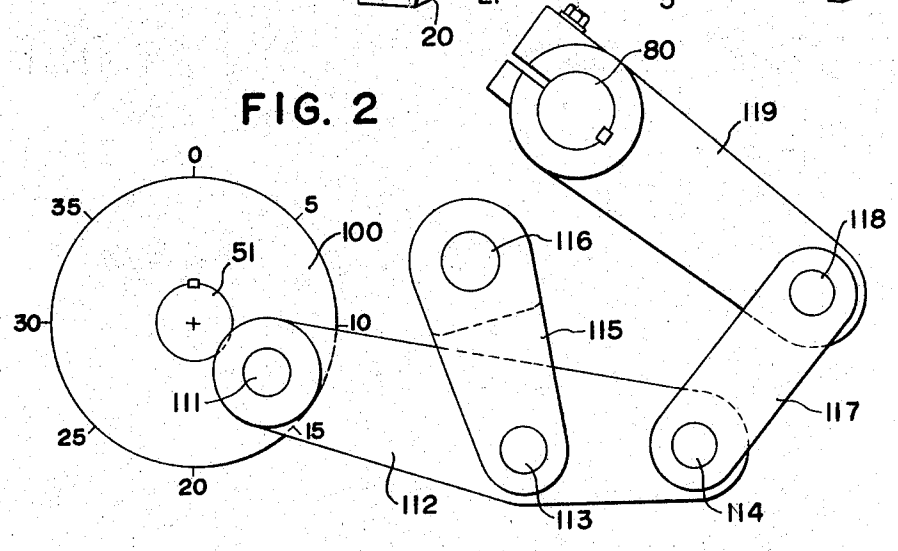


FIG. 3

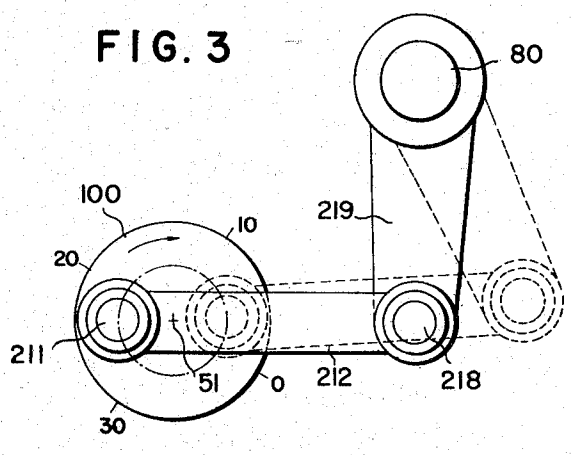


FIG. 4

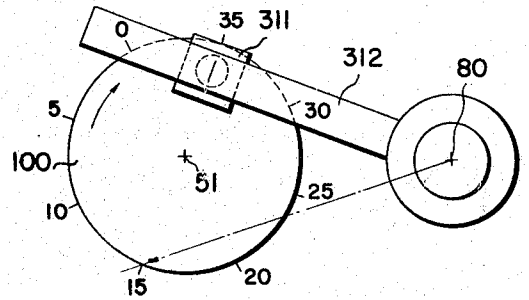


FIG. 7

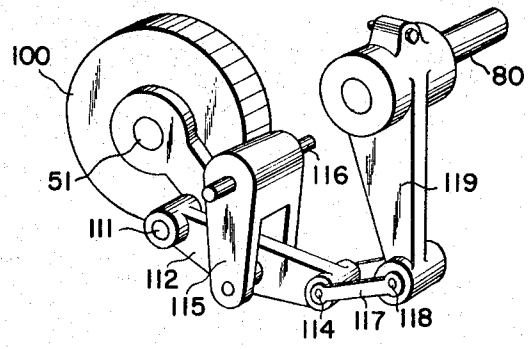


FIG. 5

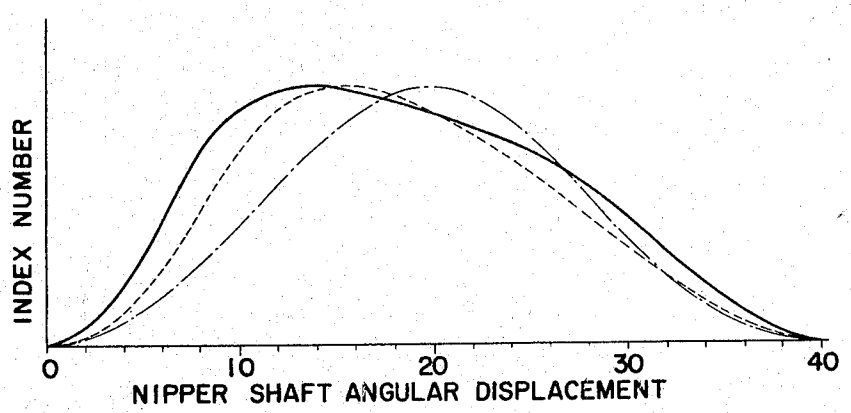

INDEX NUMBER
0
10
20
30
40
NIPPER SHAFT ANGULAR DISPLACEMENT

FIG. 6

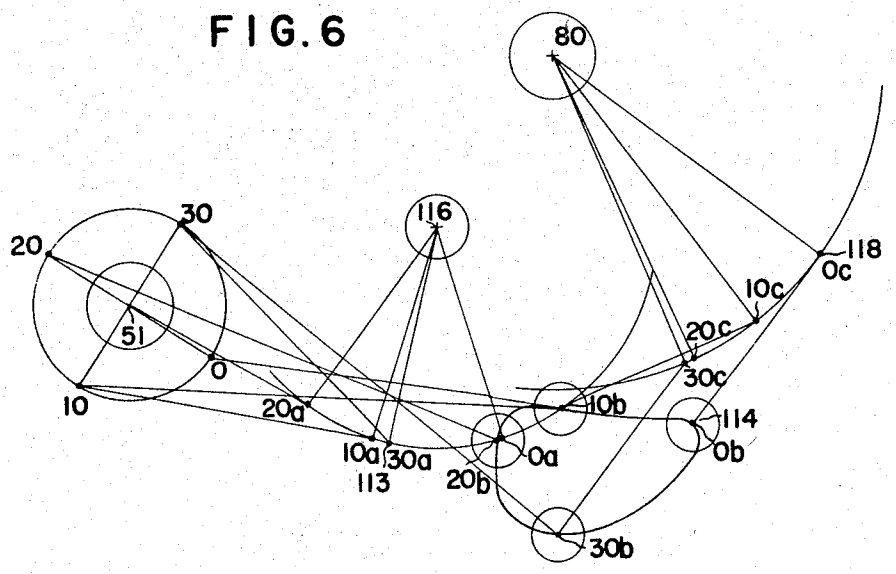

80
116
30
20
51
0
10
20a
10a
30a
113
20b
0a
10b
30b
20c
10c
30c
0c
118
114
0b

FIG. 8

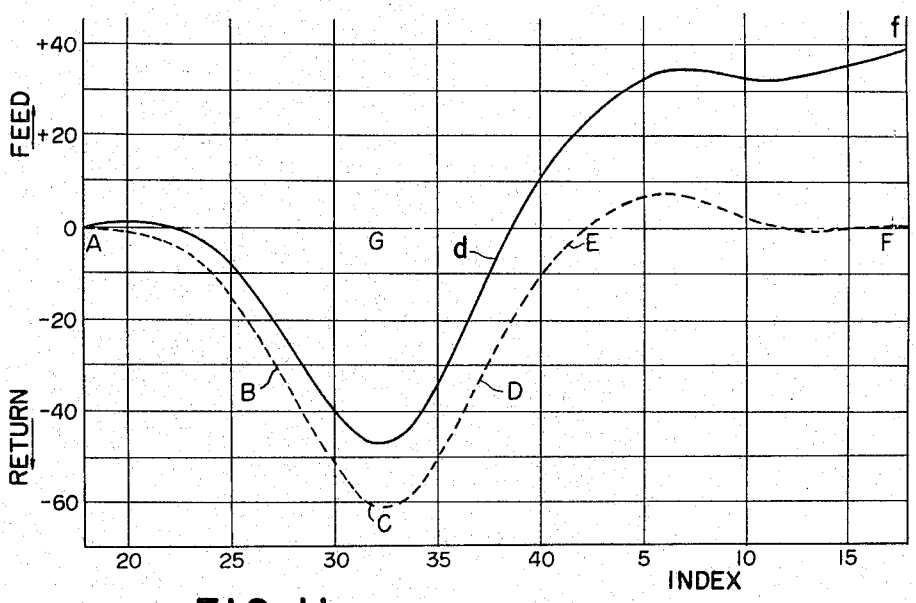

+40
+20
0
-20
-40
-60
FEED
RETURN
A
B
C
D
E
F
G
d
f
20
25
30
35
40
5
10
15
INDEX

FIG. 11

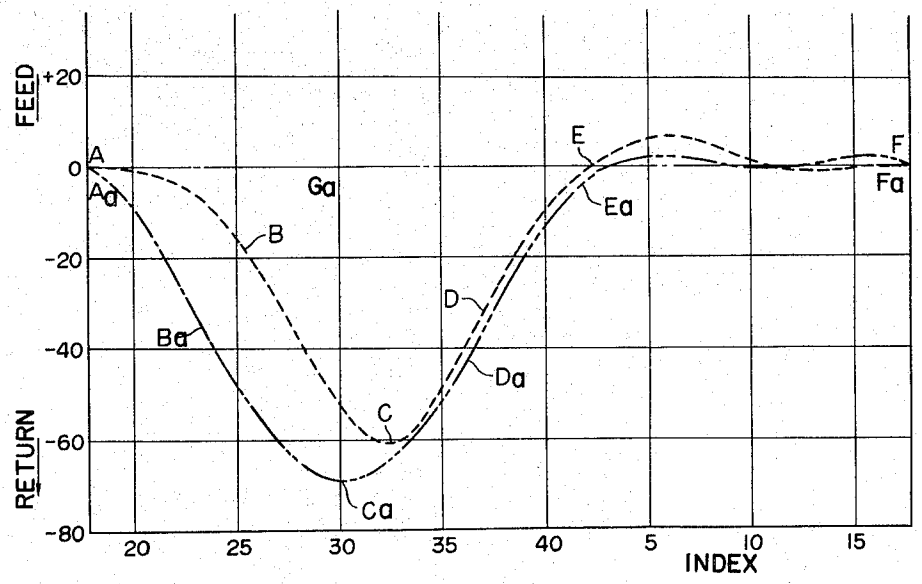

+20
0
-20
-40
-60
-80
FEED
RETURN
A
Aa
B
Ba
C
Ca
D
Da
E
Ea
F
Fa
Ga
20
25
30
35
40
5
10
15
INDEX

FIG. 9

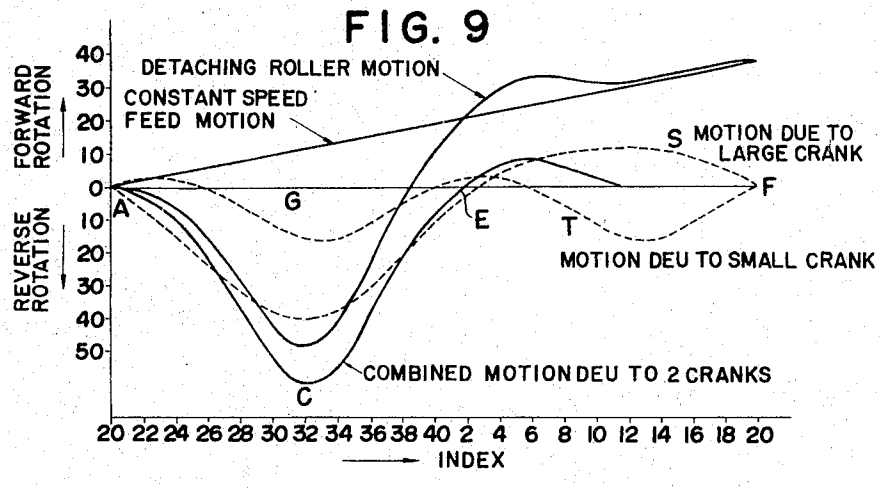
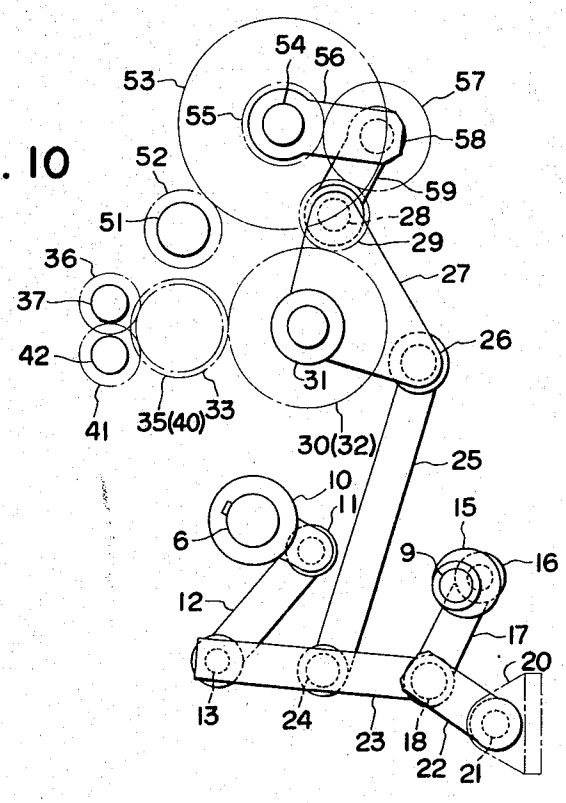

FORWARD ROTATION
REVERSE ROTATION
40
30
20
10
0
10
20
30
40
50
DETACHING ROLLER MOTION
CONSTANT SPEED FEED MOTION
S MOTION DUE TO LARGE CRANK
MOTION DEU TO SMALL CRANK
COMBINED MOTION DEU TO 2 CRANKS
A
G
E
T
F
C
20 22 24 26 28 30 32 34 36 38 40 2 4 6 8 10 12 14 16 18 20
INDEX

FIG. 10


54
56
53
57
55
58
52
59
51
28
29
36
27
37
26
42
31
41
35(40)
33
30(32)
25
10
11
15
6
9
16
12
17
20
13
24
23
18
22
21

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RECTILINEAR COMBER FOR COTTON

Mutsuhiko Katori, Chikusa-ku, Nagoya-shi, Japan, assignor to Howa Kogyo Kabushiki Kaisha, Aichi-ken, Japan, a joint-stock company of Japan

Filed Oct. 21, 1963, Ser. No. 317,656
3 Claims. (Cl. 19—231)

The invention relates to rectilinear combers for cotton and particularly to improved mechanisms for inducing oscillating motion of a nipper shaft and for inducing rotary motion of a detaching roller in a rectilinear comber for cotton. Still more particularly, the invention relates to a mechanism which can maintain the comber mechanism at a proper relationship with respect to the motions of a cylinder and nipper.

The main part of a rectilinear combing machine essentially employed in cotton spinning systems generally consists of a nipper mechanism, a cylinder half-lap mechanism and a detaching roller mechanism. The motions of these three mechanisms are such that the nipper mechanism oscillates back and forth in an arcuate path while the detaching roller mechanism has a particular motion, namely, rotation in the forward direction in one interval and in the rearward direction in another interval. However, the cylinder is driven continuously in one direction by an electric motor.

In such a rectilinear combing mechanism for cotton, there is included large mass moving parts which require discontinuous movement and hence, operation at high speed has been difficult. More specifically, the rotating speed of the order of less than 100 r.p.m. which corresponds to the rotating speed of the cylinder in machines of old design has been increased up to 150 to 180 r.p.m. by the adoption of modern improved mechanisms, but such a low limit to the number of revolutions is imposed by a sliding journal mechanism, cam and ball mechanism, or a gear-in or gear-off mechanism used to induce the above mentioned irregular motions.

Another reason for this limitation is that it has not been possible to change the speed variation curve of the nipper motion in a proper manner during one cycle.

According to this invention, it is possible to increase the speed limit to above 250 r.p.m. or even to 280 r.p.m. by radical improvements in the driving mechanism, and yet attain a combing efficiency, i.e., noil percentage and grade of waste as well as quality of the combed silver, which is comparable to those realized by existing combers.

In the following description, there will be initially described the condition of a variable speed motion of a nipper in which such a higher speed may be attained and a mechanism which can induce such a condition to elevate the limitation of speed and thereafter a mechanism which can impart to the detaching roller the required forward and rearward rotations by means of a link mechanism which is free of any cam and ball mechanism.

The most important functions among the combing actions are: (1) to comb out as thoroughly as possible short fibers or other removable materials contained in the fiber mat which is firmly clamped by a nipper mechanism by the needles of the half-lap of the cylinder; and (2) to overlap skillfully the fleecy fibers which have been sufficiently combed and projected from the nipper knife on the rear end of a fleece held by a detaching roller, and to draw out the fibrous fibers from the above-mentioned fiber mat by the action of the detaching roller. In this case, it is essential to provide a proper form of a lap joint (piecing) so as to prevent the formation of some bent positions of the fibers at their tips and hence to minimize irregularities in the silver formed.

As previously pointed out, there has been a demand for increasing the speed of combing machines from 100 r.p.m. to 160–180 r.p.m. or even to more than 250 r.p.m. In order to assure stable running and produce products of high quality at such high-speed operation, it is impossible to accomplish satisfactory combing action by the mere increase in the speed of an existing combing mechanism. Thus, in a period wherein the needles of the half-lap act upon the fiber mat presented by the nipper mechanism as well as in a period wherein the piecing or lap jointing is effected at the detaching roller, the rate of speed-up should be kept at a minimum, while the speed must be increased between the periods. Thus, the nipper must swing at high speed during its backward movement but move as slowly as possible when it approaches the backward dead point (i.e., when the nipper must closely approach the cylinder). On the other hand, during an interval when the front edge of the nipper is moved toward the detaching roller, the front edge should approach the detaching roller at a speed adapted to piece the fleeces in the best condition.

As a result, when the nipper is moved at a relatively lower speed at a point closest to the cylinder, the full rows of the half-lap needles of the cylinder can most effectively accomplish the combing action, and it is necessary to move the nipper at a relatively higher speed during its backward movement to compensate for the long period of time required for the low speed motion.

The mechanism for attaining such a relatively higher speed operation greatly depends upon the type of the journals of the parts constituting the mechanism. In other words, the employment of sliding journals and cam and ball mechanisms are important, since such defective factors limit high speed operation.

The present unique combination of link mechanisms are utilized not only in the nipper driving mechanism but in the detaching roller driving mechanism whereby the operating speed of the cotton comber has been increased to at least 150–180 r.p.m.

In order to attain the above mentioned object, this invention utilizes a link mechanism wherein an additional axis is provided between the cylinder shaft and the nipper shaft, with one end of an acting arm being connected by a pin and journal coupling, to an index plate secured to the cylinder shaft, the intermediate point of the arm being a similar journal coupled with the end of a vertical link depending from the additional axis, and the other end of the arm being connected by a piece to the free end of the nipper arm which is secured to the nipper shaft, and both ends of the piece being provided with similar journal couplings.

With such a link mechanism, even when the cylinder shaft is driven at a uniform rotary speed, the nipper shaft may be caused to undergo an oscillatory motion between certain angular limits, whereby it is possible to make the average speed in one direction considerably higher than that in the opposite direction and yet slow down the speed at the position near the dead center.

Such a variable speed oscillating motion of the nipper shaft affords a satisfactory combing action as well as a piecing action at the above stated high speed, and by a novel combination of links and journal couplings a mechanism can be provided which affords a suitable combing action at a high speed operation.

As is well known in the art, the principal function of a detaching roller provided for a cotton comber or a rectilinear comber is to overlap properly at a correct time the front end of a newly combed fleece which is presented before a nipper knife upon the rear end of a fleece which has already been drawn by the detaching roller and wound backwardly and then to pull and draw the newly combed fleece (a bundle of fibers) away from the fiber mat to advance the same together in the forward direction over the required distance. It is necessary to hold the fleeces in

such condition in a stationary manner until the backward rotation necessary for the subsequent piecing operation occurs, or, if in some cases where certain further progress is permitted, the fleeces should be reversed to return again to said position.

The above function is one of the most important among the various functions provided by the comber mechanism, and the production of uniformly combed sliver is greatly dependent upon the state of the piecing operation so that with an inadequate function of the comber mechanism, when newly combed and pieced fleece is formed into a sliver, the leading end of the fiber is miss-pieced (in other words, bent fibers are formed). In order to provide the optimum piecing condition, the timing of the detaching roller should be properly correlated to the speed of rotation thereof. To attain this end, the detaching roller mechanism should maintain a proper relationship with respect to the motion of the nipper which is closely related to the combs of the cylinder.

In a rectilinear cotton comber which is satisfactorily used at the present time, the timing required for completion of the forward rotation subsequent to the reverse rotation is such that $9/40$ of one revolution is allocated for the reverse rotation, whereas $11/40$ (in a certain other case, $13/40$) is allocated for the forward rotation on the assumption that one cycle of revolution of the cylinder is divided into forty equal sections. However, during this forward rotation it is usual to allocate only $7/40$ to the piecing and detaching operations, and yet the speed of the forward rotation of the detaching roller must be maintained at a required value during this interval.

In the existing mechanisms, in order to provide such a limited motion and an instantaneous speed, a cam arrangement is utilized having a curved cam slot of a design to attain the object. However, such cam arrangements are not satisfcatory in that their maximum speed is inherently limited to a certain value, 150–180 r.p.m., for example, and some attempts have been made to enable the cam arrangements to operate at a higher speed above such limit.

Accordingly, it is one of the objects of this invention to provide an improved mechanism for inducing the forward or backward rotation of the detaching roller in a required period and at a required speed, and to provide a mechanism for inducing the forward or backward rotation of the detaching roller which utilizes a proper and unique combination of links and gears instead of the prior known cam arrangements.

In order to attain the above objects, the invention includes a crank mechanism, a lever mechanism, a connecting mechanism, and a gear train mechanism moving around a follower gear. However, it has been found that above objects cannot be attained by using only one such mechanism and experience has demonstrated that with such a mechanism, the reverse rotation is only $12/40$ and the forward rotation only $14/40$ of one revolution and it is clear that the motion created by a crank is solely dependent upon a single wavy motion.

A unique feature of this invention resides in providing a novel link mechanism which combines two wavy motions created by a pair of eccentric mechanisms, with one rotating at a speed twice that of the other and the resultant motion is utilized to control the motion of the detaching roller. In one embodiment, the detaching roller in a rectilinear cotton comber is driven by a gear having a pinion arranged to be driven back and forth along the periphery of said gear with the gear being driven through the pinion from a shaft which drives a cylinder cooperating with a nipper. There is provided means for moving said pinion along the periphery of said gear through a lever and such means includes a pair of eccentric mechanisms, one of which rotates at a speed twice that of the other, a first link with its intermediate point connected to said lever, a second link conneced between one end of said first link and one of said eccentric mechanisms, and

a third link connected to the other end of said first link and the other of said eccentric mechanisms. The connection between said other end of said first link and said third link is connected to a fixed point through a fourth link. These links cooperate with each other to move said pinion back and forth along the periphery of said gear according to the resultant of the two wavy motions created by the pair of eccentric mechanisms, thus allocating requisite timings to the forward and reverse rotations for the detaching roller.

As has been described hereinabove, while it is possible to increase to some extent the speed of the existing machines by using one of two mechanisms which enable high speed operation, i.e., a mechanism for oscillating the nipper shaft and a mechanism for driving the detaching roller in the forward and reverse directions, it is feasible to construct a comber machine which can operate at a still higher speed by employing these two mechanisms.

These features of the invention which are believed to be novel are specifically set forth in the claims appended hereto. The invention will, however, be better understood from a consideration of the following description and drawings, in which the like members are designated by like reference characters, and in which:

FIG. 1 is a perspective view of the gearings of a rectilinear cotton comber embodying this invention;

FIG. 2 is a view in elevation diagrammatically illustrating various link gears showing their practical relative positions and proportions;

FIG. 3 is an elevational view of a link mechanism employed in a conventional comber;

FIG. 4 is an elevational view of another conventional mechanism which is usually employed in the Nasmith type comber;

FIG. 5 is a diagrammatic view showing curves of angular oscillation which is induced on the nipper shaft by the mechanisms of FIGS. 3 and 4, and FIG. 2 and FIG. 4;

FIG. 6 is a diagrammatic view disclosing a unique locus of one of the pins of the acting arms during one revolution of a cylinder shaft;

FIG. 7 is a perspective view of the mechanism shown in FIG. 2;

FIG. 8 is a diagrammatic view showing curves of the backward and forward rotations provided by the ideal detaching motion attainable by the mechanism of this invention;

FIG. 9 is a diagrammatic view showing rotation curves which indicate that the object of this invention is attained by utilizing a resultant curve composed of two curves;

FIG. 10 is an elevational view diagrammatically disclosing various gears showing their practical relative positions and proportions; and FIG. 11 is a diagrammatic view illustrating the comparison between an unsatisfactory curve resulting from the use of only one eccentric system and those obtained by using a mechanism of this invention.

A cotton rectilinear comb generally comprises three main parts, namely, a nipper and feed roller mechanism operating upon the feed stock, a combing cylinder which combs out the stock, and a detaching roller adapted to draw out a group of fibers thus combed to convert the same into uniform slivers.

Such a comb can operate satisfactorily only when the above mentioned three main parts are operating in a predetermined relationship, and their timing relationship can be normally determined by an index-reading which indicates the number of indexes of the above mentioned 40 divisions of one cycle of the complete revolution of the cylinder and the detaching roller, and also the number of the complete oscillations of the nipper shaft.

Referring now to the accompanying drawing, there is shown in FIG. 1 one embodiment of this invention in which an electric motor **1** is provided to drive a shaft **3** through a pulley **2** and belt **2***a*. A pinion **4** mounted adjacent the opposite end of the shaft **3** drives a cylinder

shaft **51** through a gear **50** of large diameter to rotate a combing cylinder **70** mounted on the opposite or free end of the shaft **51**. Oscillatory motion is imparted to a nipper shaft **80** from the cylinder shaft **51** via a crank and unique link mechanism to be later described so as to cause a nipper mechanism **81** associated with the combing cylinder **70** to nip the stock or loosen it and send forwardly the stock by feed rollers (not shown).

In connection with the above-mentioned movement, there is a special motion of a detaching roller driven by a gear train, with such special motion including the combination of the return as well as the forward motions of the detaching roller and a proper fraction of uniform forward motion.

In FIG. 1 the combing cylinder **70** is driven at a high speed by the electric motor **1**, while its cylinder shaft **51** imparts to the nipper shaft **80** an oscillating motion through the action of a nipper oscillating mechanism. This oscillation motion is imparted to the nipper **81** to cause the nipper to swing about a supporting pin **105**. At the dead point of its backward motion, the nipper **81** will be in a position closest to the needles of the cylinder **70**, thereby providing an effective combing action at that position. On the other hand, at the dead point of the forward motion, the front edge of the nipper **81** will occupy a position which is closest to a detaching roller **38**, thus effecting lap jointing or piecing of the fibers.

FIG. 3 shows one example of a prior art link mechanism for transmitting power between the cylinder shaft **51** and the nipper shaft **80**. A pin **211** is secured to an index plate **100** fixed to the cylinder shaft **51**, and a nipper arm **119** is fixed to the nipper shaft **80**. The pin **211** and the free end of the arm **219** are interconnected by a connecting link **212**. In this construction, journals shown at **211** and **218** are both a rotary type.

FIG. 4 shows another example of a prior art mechanism for transmitting power between the cylinder shaft **51** and the nipper shaft **80** in which a sliding piece **311** is mounted eccentrically upon the index plate **100** secured to the cylinder shaft **51** slidably receive a crank rod **312** mounted on the nipper shaft **80**.

In contrast to these prior arrangements, in the present invention as shown in FIG. 2, the index plate **100** is fixed to the cylinder shaft **51** and is provided with a pin **111**. A vertical link **115** depends from a fixed shaft **116** and a pin **113** at the free end thereof determines the position of arm **112** one end of which is connected to the index plate by pin **111**, by coupling the free end of the vertical link **115** to the center of the arm **112**. The other end of the arm **112** is coupled to the lower end of a link **117** by a pin **114**, and the upper end of the link **117** is connected to the free end of an arm **119** of the nipper by a pin **118**, and the arm **119** is secured to the nipper shaft **80**.

As will be clear from FIG. 2, all of the coupling points **111**, **113**, **114**, **116** and **118** are of the rotating journal type and not the sliding journal type. This means that all of the journals may be equipped with suitable ball, roller, or needle anti-friction bearings having the proper strength, and which are known to be suitable for operation at high speeds.

In order to explain the fact that this construction is quite suitable for operation at high speeds, it is believed necessary to describe the nature of the angular movement of the nipper shaft and in FIG. 5 the lowest positions of the various curves indicate the dead point at which the nipper assumes its most forward position, while the highest positions indicate the dead positions on backward movement.

The abscissa indicates the angular displacement of the nipper shaft **80**, and the ordinate the index number appearing on the index plate **100**. Where the slope of the curve is flat or small, the displacement speed of the nipper is low, and where the slope is steep, the displacement speed is high.

The position at which the nipper **81** finishes its backward movement corresponds to:

	Index
Mechanism of FIG. 2 (solid line)	14°
Mechanism of FIG. 3 (chain dotted line)	20°
Mechanism of FIG. 4 (dotted line)	16°

The period of the backward movement of the nipper **81** corresponds to:

	Index
Mechanism of FIG. 2 (solid line)	0°→14°
Mechanism of FIG. 3 (chain dotted line)	0°→20°
Mechanism of FIG. 4 (dotted line)	0°→16°

The period of the forward movement of the nipper **81** corresponds to:

	Index
Mechanism of FIG. 2 (solid line)	14°→40°
Mechanism of FIG. 3 (chain dotted line)	20°→40°
Mechanism of FIG. 4 (dotted line)	16°→40°

If it is assumed that the principal operating period, i.e., the actual time of motion during the forward period of the nipper **81** is the same for the mechanisms shown in FIGS. 2 and 3, respectively, the number of revolutions will be

$$\frac{40°-14°}{40°-20°}=\frac{26°}{20°}=1.3$$

This means that a comber utilizing the mechanism shown in FIG. 2 can operate at a speed 30 percent higher than a prior art comber employing the mechanism shown in FIG. 3.

However, with the unique mechanism shown in FIG. 2, this amount of speed-up can be increased to 60% or even to 70% by designing the mechanism to have ideal motion near the dead center in addition to the general features above described.

As a further explanation, there is shown in FIG. 6 a locus of the motion of one particular point, namely **114**, of the present mechanism. In FIG. 2, at the instant of index **0**, pins **113**, **114** and **118** assume the positions shown at 0_a, 0_b and 0_c respectively, and hence the pin **114** will trace a flattened circular locus indicated by a heavy line to induce an ideal oscillating displacement of the nipper **81**.

The detaching roller motion mechanism will now be described hereinbelow.

FIG. 8 shows curves of a detaching motion which is provided by the instant mechanism and the ordinate above the zero line **0** indicates the amount of feed, and beneath the zero line that of return. The abscissa indicates the material appearing on the index plate. The dotted line curve A B C D E F illustrates an ideal curve obtained by the mechanism and the solid line curve A d f the result of the ideal curve and a constant uniform amount of feed. The amount of feed of the detaching roller during one cycle is represented by the distance Ff. Thus, the curve A d f not only represents the curve A B C D E F and the constant amount of feed Ff, but also the actual return and forward motion of the detaching roller.

However, in order to simplify the problem, the constant feed is assumed to be negligible. Then, the curve A C E F shown in FIG. 9, which is also shown in FIG. 8 as the curve A B C D E F can be realized only when two curves are combined, and more particularly by mathematically adding a curve S which alternates once during one cycle and a second curve T which alternates twice during the same period. Thus, the resultant curve A C E F is characterized by a V shape which is markedly different from both of the curves S and T. It will be observed that this resultant curve A C E F has a similar configuration to the curve which has been actually employed in practical rectilinear cotton combers.

A mechanism for inducing such a curve is disclosed in FIGS. 1 and 10 and in FIG. 1 a gear **7** mounted on shaft **6** of a large gear **5** is provided with twice the num-

ber of teeth as present on a pinion 8 driven by the gear 7 through an intermediate gear 7*a* so that shaft 9 on which the pinion 8 is mounted is driven at a speed twice that of the shaft 6. Eccentric mechanisms defined by arms 10 and 15 are secured to the shafts 6 and 9, respectively and connecting links 12 and 17 are respectively connected at one of their ends to the arms 10 and 15 by pins 11 and 16. The other ends of the arms are respectively connected to the opposite ends of a main link 23 by pins 13 and 18 thereby defining in effect a quadrilateral. The pin 18 also serves to connect the upper end of a lower link 22 to the lower end of the main link 23 and the lower end of the link 22 is pivoted to a supporting bracket 20 by a pin 21.

By such an arrangement, a link mechanism is provided wherein the pin 13 completes one cycle of oscillation while the pin 18 completes two cycles of oscillation. Thus, the pin 18 will be forced to move along a circular arc determined by the relative positions of pins 16 and 21 as well as the physical dimensions of the links 17 and 22 and the arm 15. Pin 24 which is connected to the center of the main link 23 will be moved in accordance with the resultant of the motion of the pin 18 and that caused by another set comprising the links 12 and 23 and the arm 10 driven by the shaft 6. This movement of the pin 24 is transmitted to a pinion 29 through a link 25 to cause it to swing along the periphery of a gear 30, thus providing the desired curve of movement of the detaching roller. A triangular bracket 27 is rotatably mounted on shaft 31 of the gear 30 to maintain the pinion 29 at a fixed relationship with respect thereto, the shaft 28 of the pinion 29 being connected to the upper end of the triangular bracket 27. The lower end of the bracket 27 is connected to the outer end of the link 25 through a connecting pin 26.

With this construction, the rotary motion of the shafts 6 and 9 effected by the rotation of shaft 3 (since gear 5 meshes with pinion 4) will create the desired resultant motion at the gear 30. This motion will be transmitted from the shaft 31 to the back detaching roller 38 via gears 32, 33, shaft 34, gears 35, 36, and shaft 37 and at the same time to the front detaching roller 43 via the shaft 34, gears 40 and 41, and shaft 42. This motion is indicated by the curve A B C D E F in FIG. 8.

The reason why the curve A B C D E F which is the resultant of two curves cannot be obtained by using a simple link mechanism will be considered hereinbelow with reference to a specific example.

As an illustrative example, it is assumed that the lower link 22 and the main link 23 are constructed as an integral unit with the eccentric arm 10 being omitted, and the mechanism being so designed that one revolution of the shaft 9 corresponds to one revolution of the cylinder shaft 51. The dot and dash line curve Aa Ba Ca Da Ea Fa in FIG. 11 shows a curve which is obtainable when the mechanism above discussed is designed to have optimum proportions. For comparison with the curve A B C D E F according to this invention, FIG. 8 is also plotted in FIG. 11 along the curve Aa Ba Ca Da Ea Fa and it will be noted that the downwardly sloping portion Aa Ba Ca of the curve Aa Ba Ca Da Ea Fa is closer to the 0 index than the corresponding portion of the curve A B C D E F.

The effect of this is well known to those skilled in the art and when this backward motion is effected at an index which is too early, fibers that have been drawn out by the detaching roller will hang thus causing serious troubles such as the fibers being caught by the needles of the half lap to be drafted and removed as waste. The ideal curve such as A B C D E F necessary to obviate such a serious defect cannot be provided by a single eccentric motion but can be attained only by adding another eccentric motion or eccentric mechanism.

In order to change the curve A B C D E F to the curve Adf in FIG. 8, it is necessary to design the mechanism of FIG. 1 so as to dispose links 56 and 59 in a manner to assure a constraint of power transmission from the cylinder shaft 51 to the gear 30 through a gear train including a gear 52 mounted on the shaft 51, gears 53 and 55 mounted on a common shaft 54, a gear 57 and the pinion 29. It is to be understood, however, that this invention is not limited to the described gear arrangement but may be practiced by using a gear mechanism of different construction.

While the invention has been explained by described particular embodiments thereof, it will be apparent that improvement and modifications may be made therein without departing from the scope of the invention, as defined in the appended claims.

What is claimed is:

1. A mechanism for inducing rotation of a detaching roller in a cotton rectilinear comber comprising a gear rotatable with a definite relationship with respect to the rotation of the detaching roller, a pinion operatively associated with the gear, a lever for moving the pinion back and forth along the periphery of said gear, and means for actuating the lever, said actuating means including a pair of eccentric mechanisms, means for rotating one of the eccentric mechanisms at a speed twice that of the other eccentric mechanism, a first link connected intermediate its ends to the lever, a second link connected between one end of the first link and one of the eccentric mechanisms, a third link connected between the other end of the first link and the other of the eccentric mechanisms, a fixed bracket, and a fourth link between the connection of the first link to the third link and the bracket thereby actuating the pinion through the lever in accordance with the resultant of the motions of the pair of eccentric mechanisms.

2. A mechanism for inducing rotation of a detaching roller in a cotton rectilinear comber in which said comber is provided with a cylinder having a shaft, comprising a gear train operably related to the shaft, a gear for driving said detaching roller through the gear train, said gear train including a pinion meshing with said gear, a lever for moving said pinion back and forth along the periphery of said gear, and means for actuating said lever including a pair of eccentric mechanisms, means to rotate one of said eccentric mechanisms at a speed twice that of the other eccentric mechanism, and a plurality of links interconnecting said pair of eccentric mechanisms and said lever for moving said lever in accordance with the resultant of the motions of said pair of eccentric mechanisms.

3. The mechanism as claimed in claim 2 wherein said pinion is always maintained in meshed relationship with said gear, and said gear train further comprising a second pinion mounted on said cylinder shaft, and a second gear driven by said second pinion with said second gear being in constant meshed relationship with said first mentioned pinion irrespective of its back and forth movement whereby feed rotation is imparted to the detaching roller.

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MERVIN STEIN, *Primary Examiner.*

DONALD W. PARKER, DORSEY NEWTON, *Examiners.*