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MECHANISM ARRANGED ON AN AUTOMATIC LOOM FOR
STRIPPING AND HOLDING THE BUNCH OF A
WEFT-BOBBIN TO BE INSERTED
INTO THE SHUTTLE

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Mechanism arranged on an automatic loom for stripping and holding the bunch of a weft-bobbin to be inserted into the shuttle.
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This is a continuation-in-part of my application Ser. No. 28,550 filed May 11, 1960, now abandoned.

This invention relates generally to automatic looms and more particularly to a mechanism arranged on an automatic loom for stripping and holding the outer thread end or tip bunch of a weft-bobbin about to be transferred to a shuttle.

It is known to strip the tip bunch of filling packages or bobbins with purely mechanical means just prior to a bobbin-change and to hold it during the bobbin-change. But this purely mechanical operation involves drawbacks, more particularly the tip bunch or end of the weft is held unyieldingly, which may result in breaking the weft and there is a risk of soiling the stripper mechanism which may give rise to service troubles.

It has already been proposed to pneumatically strip and hold the outer thread end or tip bunch on the bobbin to be inserted into the shuttle. The tip bunch is released from the wound yarn on the filling package by means of an air current and it is held pneumatically and hence yielding during the bobbin-change or transfer. A disadvantage of pneumatic systems is that the action of the air current is often not sufficient to release the tip bunch from the wound yarn, especially in the case of a rough, hairy surface, or in the case of bobbins in which the tip bunch or yarn end is firmly pressed into the wound yarn or is intentionally secured to preclude an undesired release.

A principal object of the present invention is to insur in a reliable manner that the tip yarn bunch which is subjected to a certain tension at bobbin-change and at first beat-up, is positively stripped and held.

In contradistinction to the prior art, in the present invention the yarn is not stripped pneumatically, but by braking it mechanically during a period of time in which the first weft yarn from the new bobbin is laid down. A braking device is provided which acts upon the yarn between the bobbin tip and the stripper. Other means are provided in order to arbitrarily nullify the braking action at least partially. The stripping device has a mouthpiece which serves as a part of a braking device on the one hand, a second braking part on the other hand preferably comprises a flapped hinged at the mouthpiece opening. The flap is controlled so that the yarn can be released or held between the two braking parts. A vacuum arrangement maintains a suction at the mouthpiece of the stripping device.

Other features of the invention will appear from the claims, the description and the accompanying drawing wherein there are shown, by way of example, various forms of embodiment of the object of the invention.

In the drawing:

FIG. 1 is a perspective view diagrammatically illustrating the portion of an automatic loom provided with a device according to the invention for stripping and holding or braking the outer thread end or tip bunch of a bobbin to be transferred into a shuttle.

FIG. 2 is a fragmentary perspective view on an enlarged scale of a portion of the device according to FIG. 1;

FIG. 3 is a side view of another stripper and braking device and is illustrative of an example of an embodiment of the invention when stripping off the tip bunch and with the brake open;

FIG. 5e is an end elevation view of a stripper in FIG. 3;

FIG. 4 is a fragmentary side view of a device according to FIG. 3 and illustrates the braking device according to FIG. 3, with the brake closed;

FIG. 5 is a fragmentary side view of the braking device according to FIG. 3, with the brake somewhat open;

FIG. 6 is a fragmentary perspective view diagrammatically illustrating another example of an embodiment of a braking device illustrated with the brake open;

FIG. 7 is a fragmentary perspective view of the device according to FIG. 6 with the brake closed; and

FIG. 8 is a fragmentary perspective view of the device according to FIG. 6 illustrated with the brake slightly open.

Referring to the drawing and more particularly to FIGS. 1-5, a stripper and suction device 1 according to the invention and for use on an automatic loom includes a sleeve-shaped mouthpiece 2 which is detachably connected to a tube 3, for example by a bayonet joint, or consists of a one-piece unit with the carrier 3. Within the mouthpiece 2 is mounted a stripper element 4 (see FIG. 5e) comprising a series of pliable tongues 4a which are inclined to the longitudinal axis of the device at an angle of substantially thirty (30°) degrees. The tongues are formed in a hollow frustum-shaped configuration and are separated from each other by spaces 5 extending from the taper end of the hollow frustum configuration inwardly. The outer end of the hollow frustum has a cylindrical extension 6 which embraces a free end of the tubular carrier 3. The stripper element 4 is detachably fixed on the tube 3, for example by screws or may be internally threaded for screwing on to complementary threads. The hollow frustum and accordingly the tongues 4a may be made of any suitable material, for example polyethylene has been found suitable. Other abrasion-proof flexible synthetic materials may be used, for example leather, rubber, and spring-steel, etc.

The end of the tubular carrier 3 has connected thereto a flexible tubing 7 in communication with a thread or yarn container 8 connected to a vacuum pump 9 (FIG. 1) for applying a vacuum thereto.

The tube 3 is carried on a carrier piece 10 supported by two pivoted control arms 11 and 12, shown diagrammatically in FIG. 1. The arms 11, 12 are pivotally or rockably guided on axles or pins 13, 14 which are mounted on a plate 15 attached to the loom, not shown. The rocking of the arms 11, 12—which is explained later in detail—causes a forward and backward movement of the entire stripper device 1. The arms are provided with oblong guide apertures 16, 17 guiding the movement of the arms on pins 13, 14. An axial forward and backward movement is imparted to the device 1 upon rocking of the arms 11, 12. The axial movement or travel of the stripper device in either direction is limited by stops 11a, 12a. The device is advanced forwardly to strip a bobbin 18 which is in readiness to be transferred to a shuttle 41 by a hammer 90 of the bobbin-changer at the next bobbin-change. The bobbin 18 carries on its tip a tip bunch 19 which is intended to be removed by the stripper device 1, to be released and to be drawn into the suction device 7 and container 8 after the end yarn 20a has been cut off the weft 20 by a cutting mechanism 21 as later described.

The stripper device 1 has attached to it a mechanical braking device according to the invention. The edge of the opening of the ring 6 (FIG. 3) at the mouthpiece 2 forms one braking part. A second braking part consists of a flap 22, which is pivoted on an axle 23 on the mouth-
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piece 2 and controls opening the device 1 so stripper element (FIG. 2a) can strip the tip bunch or hold the thread 20a passing through the two braking parts. The pivot 23 has supported thereon a spring 24 which tends to close the flap 22. The flap has attached to it a lever arm 25 which cooperates with a control member in the form of a rod 26 rigidly mounted on plate 15. In the forward position of the device 1, shown in FIG. 1, the flap 22 is held open by the rod 26 depressing the lever arm 25. In the rearward or retracted position of the device 1 the rod 26 releases the lever arm 25 so that the flap 22 closes the mouthpiece opening under control of spring 24.

The flap 22 is further supported by a drawmember comprising a cord 27 attached at its other end to a carrier 23 which—as indicated in FIG. 1—may form part of the carrier piece 10. When the flap is closed, the cord 27 is tensioned.

A second embodiment of the stripper device of the invention is shown in FIGS. 3–5 inclusive. The stripper device 1' comprises a tube 3' connected to a flexible hose 7' and provided with a sleeve-shaped mouthpiece 2' provided with a stripper element 4' of the type heretofore described with respect to the embodiment illustrated in FIG. 1. The stripper device is carried on a carrier 19' supported on rockable arms 11', 12' pivotally supported at 13', 14' respectively on a stationary plate 15'. The arms 11', 12' are rocked to-and-fro, by means not shown, for moving the device 1' longitudinally between a forward position illustrated in FIG. 3 and limited by a stop 20' and a backward or retracted position illustrated in FIG. 3 and limited by a stop 12'.

The device 1' is provided with a flap 22' pivoted on a pivot 23' and provided with an actuating arm 25' depressed by an operating rod 26' secured to the stationary plate 15' when the device 1' is in its forward position. Thereby, opening the flap 22' and releasing the flap so that it can be automatically closed by a spring 24' and brake the yarn between itself and the ring 6 of the stripper element 4'. The flap 22' is actuated by a cord 27' connected to the actuating arm 25' and an extension 28' on the carrier 19'. The cord is engaged by a depressor element 29' for actuating the flap 22' to an open position or releasing it for closing by the spring 24'.

The action of the embodiments described are as follows:

Upon initiation of the bobbin-change, the stripper device 1 or 1' as the case may be, is moved into its forward position shown in FIGS. 1 and 3, in which the lever arm 25 or 25' of the flap 22 or 22' is depressed by the operating rod 26 or 26' thus opening the flap. The tip bunch 19 will be engaged by the tongues 4 of the stripper element 4. In the actuating movement of the stripper device the tip bunch 19 is stripped off the bobbin 18 and loosened into the end thread 21a which will be drawn into the suction hose 7 or 7'. At the same time the lever arm 25 or 25' moves clear of the rod 26 or 26' and the flap closes the ring opening, thereby clamping the yarn 21a.

The yarn is clamped as shown in FIG. 4 by the flap 4 at least as long as the first weft of the bobbin 18 is beaten up, it being understood that a bobbin-change takes place by which the bobbin 18 is transferred to a shuttle as later described. The element 85 and 29' bears down on its respective cords 27 or 27' so as to open the flap 22 or 22' through the respective lever arm so that the yarn 20a when cut by the device 21, can be drawn off. The mechanism, by means of the braking flap, permits, completely or partially, throttling of the required air current due to the vacuum applied.

The action according to either of the example embodiments described is particularly important in the case of thick yarns. In the case of thick yarns, the yarn forming the tip bunch is generally shorter so that, without a brake, the yarn can no longer be held by the suction device. Experiments have shown that in the case of coarse yarns, the tip bunch is about 80–100 cm. long. With this length of yarn, without a mechanical brake, the yarn cannot be reliably held. The braking element, therefore, finds an important application in conjunction with filling packages of coarse yarn.

Another embodiment of the invention is shown in FIGS. 6–8. A feature of this third embodiment is that the cords 27 and 27' of the devices according to FIG. 1–5 are replaced by an actuating arm.

In this embodiment a stripper device is disclosed as comprising a mouthpiece 30 having a stripper element, not shown, internally thereof as heretofore described. The mouthpiece is connected to a tube 31 to which a vacuum suction is applied as heretofore described. The tube 31 projects a longitudinally extending projection 31a to which are pivotally connected a pair of rockable arms 32, 33 for moving the tube 31 longitudinally backwards and forwards for stripping a filling package of its tip bunch as heretofore described.

A flap 36 which controls opening of the mouthpiece 30 of the stripper device is hinged to a lug 30a of the mouthpiece 30 and is controlled by a rod 37 and a cone 38 in cooperation with the axial movement of the stripper. The rod 37 is axially movable with the cone 38 and is connected through a universal joint 37a to a shaft 49. The rod 37 is provided with a sheet-metal stop 39 serving as a horizontal limiting stop for the flap 36 in its open position. A spring, not shown, is mounted on the pivot of the flap 36 which tends to swing the flap down into its closed position.

In the retracted position of the stripper, FIG. 7, the flap 36 is clamped or held between the flap and the front wall of the mouthpiece. As the stripper device advances forwardly, toward the left, a lever arm 36a of the flap 36 strikes against the rod 37 so that the flap is swung and raised about its pivot abutting thereby from below on the guide plates 43 of rod 37 and holding the mouthpiece open, FIG. 6, until the stripper device is retracted by the rockable arms 32, 33.

Rotation of the shaft 49 in the proper direction causes the rod 37 to be displaced from the position according to FIG. 7 and in the direction of the arrow P whereby the cone 38 abuts, FIG. 8, on the lever arm 36a of flap 36, raising the flap somewhat so that braking of the yarn 21a will cease and the scissors 21 cut the yarn 20a so that it can be drawn into the container 8 by the suction due to a vacuum being applied to the tube 31 in the manner heretofore described.

The element on which the cone 38 is formed may be eccentrically arranged on the rod 37 and the rod rotatably supported so that, upon angular displacement of the rod 37, the extent of the partial opening of the flap 36 by the cone 38 may be easily adjusted.

All three embodiments of the invention described differ from known yarn brakes in the following points:

A mechanical yarn brake is disclosed according to the invention, in which, in the interval from the bobbin-change to the first pick of the weft the yarn is braked or held so that the stresses on the yarn occurring in this interval cannot withdraw the yarn from the suction device or tubing. The mechanical yarn brake is directly attached to the stripper device and thus participates in its travel longitudinally, consequently, the action of the mechanical brake can be effected earlier than in the case of stationary brakes which can only be acted upon when the stripper device has completed its travel. That is to say, when the stripper device has returned to its initial backward position.

In known devices there is a danger that the stripper, while stripping the tip bunch, loosens the tip bunch during its backward travel. This is avoided by the thread of the yarn brake according to the invention, by means of the mechanical brake which is mechanically holding the yarn immediately after stripping while the stripper is still moving backwardly. This is not possible with the mechanisms proposed heretofore. Thus the danger of withdrawing the bunch from the suction tube is eliminated.

The actuation of the lever arms rotatably transporting
the stripper and pivotally secured thereon, the functions of the bobbin-change and cutting of the weft yarn and the structure of the related mechanisms and their action will be explained hereinafter with reference to the embodiment of the invention in FIG. 1.

In accordance with FIG. 1 a lay 40 of an automatic loom in which the invention is applied is approximately in its forward dead center position and show 41 is boxed in position for an automatic bobbin-change. The spare fresh bobbins 18, 18' are disposed in a battery feed channel 42 of the loom in which they descend by gravity. The lowestmost bobbin 18 is in readiness for a bobbin-change and is transferred into the shuttle 41 by means of a transfer fork 12 which is secured from falling prematurely by a stop 43. FIG. 1 illustrates the position of the parts at the moment immediately prior to the bobbin 18 being transferred into the shuttle 41. Just prior to a bobbin transfer the stripper device is moved forward so that the stripper element 4 engages the tip bunch 19 in the manner illustrated in FIG. 3.

The rockable arms 11, 12 for transporting the stripper device 1 are pivotally mounted on two links 55, 56 which are firmly connected to two respective arms 57, 58 that are rotatable in bearings 59, 60 mounted on the stationary plate 61. Only the lever 12 is driven, whereas the other lever 11 serves as a guiding link for the stripper device 1. The shaft 58 is fixed to its rear end a lever 61 which is connected with a bent lever 65 through two universal joints 62, 63 and a connecting rod 64. The lever 65 is rockable about a pivot shaft 65 supported on the plate 12. A pin 67 is axially displaceable in the lever 65 and is capable of engaging an arcuate guide-cam 68 in a plate 69 fixed to the lay 40 by screws 70, 71.

A fork 72 is pivotally supported on a portion, FIG. 2, of lever 65 with one of its ends 72a, while its other end 72b engages an annular cam groove 73 in the pin 67. The arm 72a of the fork 72 has a two-armed lever 74 rockably secured thereon. A spring 75 which on the one hand is connected to the lever 74 and on the other hand engages a collar 76 on the fork arm 72b, tends to urge the lever 74 with its arm 74a towards the arm 72a of the fork 72. The end of the other arm 74b of lever 74 is engaged by a connecting rod 77, the engaging end of which is shown in broken lines in FIG. 1. The rod 77 can cause the fork 72 to pivot counterclockwise about its arm 72a. The lever arm 74a abuts on arm 72a of the fork 72, and when the rod 77 is drawn longitudinally rearwardly, the fork leg 72b and hence—through the annular cam groove 73—the pin 67 will be pushed axially outwardly to the right and moved axially into engagement with the guide-cam 68 in the plate 69.

A compression spring 78 ensures that the pin 67 is either displaced wholly to the right or wholly to the left and cannot dwell in an intermediate position. The coiled compression spring 78, FIG. 2, has one end connected to the arm 72b of the fork 72 and the other end to a bolt 79 firmly fixed in the lever 65. The compression spring 78 bears on the fork arm 72b tends to push the pin 67 either wholly into the lever 65 or outwardly therefrom.

A universal joint 80 and a lever 81 connect the connecting rod 77 with the shaft 49. Consequently, incident to counterclockwise rotation of the shaft 49 under control of a chain drive 100, later described, driving in the direction of the arrow B the pin 67 is moved axially into engagement with the guide-cam 68 in the plate 69 via connecting rod 77, the lever 74 and the fork 72.

The fork arm 72a has mounted on it a cam 82 adjusted to cooperate with an end offset portion 83 of a rod 84 which is fixed to the lay 40. As the lay 40 reaches its foremost position, the offset portion 83 of the rod 84 bears against the cam 82 and causes the pin 67 through fork 72 to retract and move out of engagement with the guide-cam 68 in the plate 69. Retraction of the pin is effected when the fork 72 pivots clockwise about its arm 72a, retracting with its arm 72b, through the groove 73.

The action of the mechanism described is as follows:

When a bobbin-change has to take place the bobbin transfer is initiated in exactly the same way as has hitherto been the case with automatic looms. The need for replenishment of an exhausted bobbin in the shuttle is sensed in a known manner by sensor means when the shuttle is on the left-hand side of the loom. The sensor means is not shown. For instance, capable of closing an electrical circuit, not shown, rendering effective the sensor 49 means, for example an electric motor. It is, of course, understood that the actual bobbin change or transfer takes place when the shuttle 41 is on the right-hand side in the boxed end position illustrated in FIG. 1.

When the need for a bobbin change is indicated the shaft 49 is rotated in a counter-clockwise direction as later explained.

The connecting rod 77 is moved from the position (shown in broken lines in FIG. 1) on lever arm 74b (FIG. 2) into the position in which the end of the rod is indicated in solid lines. This movement of the rod 77 causes the lever 74 to rock counterclockwise while the lever arm 74a abuts on fork arm 72a. The fork 72 pivots about its arm 72a causing, with its end 72b, axial displacement of the pin 67 to the right, FIG. 2, into engagement with the guide-cam 68. The movement of the lay 40 having the plate 69 with guide-cam 68 fixed thereto, the shaft 49 and hence the lever 65 will be released at first. The lever 65 pivots about the pivot 66, the rod 64 being raised and the shaft 58 caused to rotate counterclockwise by lever 61. The arms 11 and 12 articulated to the stripping device 1 are pivoted clockwise about their axes 13, 14 on plate 15 through lever 56 thereby causing the stripping device 1 with the mouthpiece 2 to move towards the bobbin 18 and the stripper element 4 (FIGS. 3-5) to sweep over the tip bunch 19 of the bobbin.

As soon as the pin 67 is again lowered by the guide-cam 68, there follows a counter-clockwise movement of the members, 65, 64, 61, 58, 56 and therewith of the arms 11, 12 so that the stripping device will be carried back, FIG. 4, from the forward position according to FIG. 3, removing the tip bunch 19 from the bobbin 18. Because of the backward movement of the stripper, the flap 22, FIGS. 1-5, leaves the range of action of the control member 20 so that it closes the mouthpiece opening while winding the yarn 20a, as illustrated in FIG. 4.

The transfer of fresh filling packages to the shuttle 41 is accomplished by a transferor after the filling package 18 to be transferred had had its tip bunch stripped therefrom as above described. The transferor comprises a hammer 90 that effects the transfer of a full weft bobbin to replace an exhausted bobbin in the shuttle 41. The hammer 90 is attached to a lever arm 96 which is rotatable on shaft 49. When the shaft 49 is rotatively driven in a counterclockwise direction as mentioned above, it is driven from a chain drive 100, fragmentarily shown in FIG. 1, which will rotate a shaft 101 fixed to the lever arm 96. A pawl 105 is fixed on the shaft 101 and is normally disposed in the position 105' illustrated in broken lines in FIG. 1. When driving the chain drive 102 in the direction of the arrow B the pawl is rotated into the upper operative position 105 illustrated in solid lines in FIG. 1. In this upper position the pawl 105 is in readiness for receiving a wedge element 106 mounted to travel with the movement of the lay 40. The wedge 106 is positioned to strike the center of the pawl 105 thereby rotating the arm 96 around the axis 49 and displacing the hammer operating arm 96 downwards, causing the hammer 90 to lower the lowest full weft bobbin 18 into the shuttle. Coupled with the hammer are scissors (not shown).

With the above described rotation of shaft 49 in a counterclockwise direction the scissors have been moved into an operating position to cut the yarn of the (empty) discharged bobbin. With the operation of the hammer 90 there is a simultaneous cutting operation of the scissors,
so that the weft yarn just laid down by the discharged bobbin is cut.

When the lay 40 approaches its foremost position, that is about the same time when the wedge 106 strikes the pawl 105, the rod 84, which is fixed to the lay, will operate, with its offset portion 83, the cam 82. This causes the pin 67 to be withdrawn from the engagement with guide cam 68 in the plate 69 in the manner already described above.

When the lay 40 again starts to move in a backward direction, the rod 49 will also start to rotate in the clockwise direction to return to its starting position. This means that rod 77 will allow the lever 74 to return under the action of the spring 75. The rod 101 will also be rotated in a clockwise direction to bring the pawl fixed to its rest position 105′, where it will not be engaged by wedge 106 attached to the lay. The replenished shuttle is thrown in a known manner by pick 91 through the loom shed illustrated diagrammatically in FIG. 1 as being formed by an upper shed 94 and a lower shed 95 so that the yarn in the shuttle becomes the weft 20 after beating-up. After the shuttle has again reached its rest position on the left-hand side of the loom, with the rotation in a clockwise direction of shaft 49, already mentioned, the rod 77 is moved to the right. This causes the projection 83 to move with it, so that upon retraction of the stripping device 1 to the right-hand side, the chain 27 is engaged by the projection 85 thereby partially opening the flap to permit the yarn in the device to be drawn by vacuum into the container 8 when cut by the cutting or severing mechanism.

Thus after the shuttle completes its flight after a bobbin change and the first beat-up takes place, the free yarn end portion 20a from the full bobbin is in the position illustrated in FIG. 1. The temple scissors, represented by parts 107, 108, 109, 111 and 115, will upon each movement of the lay 40 to its forward position, be actuated by the rod 107 constantly bearing on the lay 40 and connected to a movable blade 108, the blade 108 is pivoted on a pivot 109 on a support 110 which is fixed on the loom.

Thus, the blade 108 jointly with the rod 107 is actuated against the action of the spring 115 to a close position or severing position for severing the yarn 20a in cooperation with a stationary blade 111. The spring 115 bears on the support 110 and urges the blade 108 to a raised position in which the severing mechanism 21 is open and ineffective. After the yarn 20a has been cut during one of the cutting operations succeeding the laying on of the first weft yarn by the full bobbin, it will be sucked through the slightly opened mouthpiece 2 or 2′ and the tube 7 into the container 8.

While the preferred embodiments of the invention have been shown and described, it will be understood that many modifications and changes can be made within the true spirit and scope of the invention.

What I claim and desire to secure by Letters Patent is:

1. On an automatic loom having a shuttle, a lay cyclically operable between a rearward position and a forward position, means for holding full weft bobbins for transfer into said shuttle, said bobbins each having a tip bunched, a mechanical stripper device having a tubular mouthpiece defining an opening and including a pneumatic yarn-holding device for stripping the tip bunch from and holding the outer yarn of a full weft bobbin to be transferred into said shuttle, a mechanical yarn brake for braking and releasing the yarn between the bobbin tip of said full bobbin and said stripper device, said yarn brake comprising, an annular stripper element mounted in said tubular mouthpiece for mechanically stripping said tip bunch of said bobbins and extending radially and axially of said mouthpiece opening defining a radially extending surface around the periphery of said tubular mouthpiece opening, a flap pivotally mounted to pivot into engagement with and disengagement from said radially extending annular surface to close and open said tubular mouthpiece opening, control means for pivotally said flap for clamping and releasing said yarn between said bobbin tip and said stripper device and extending through said opening between said annular surface and said flap, means defined from said lay for selectively reciprocally driving said stripper device including said yarn-holding device for causing said device to move in a direction for said stripper element to engage said tip bunch and to move in an opposite direction for stripping said tip bunch from a respective bobbin, said control means comprising means to pivot said flap for opening said opening and to close it during movement in said opposite direction.

2. On an automatic loom having a shuttle and means for holding full weft bobbins, each having a weft yarn tip bunch thereon, a mechanical stripper device having a mouthpiece comprising an annular surface defining an opening and including a pneumatic yarn holding device positionable in a position for stripping said tip bunch and subsequently holding said stripped yarn of a full weft bobbin to be transferred into said shuttle, a mechanical yarn brake for braking and releasing said stripped yarn, said yarn brake comprising said mouthpiece and a flap pivotally mounted to pivot into engagement with and disengagement from said mouthpiece annular surface to close and open said mouthpiece opening, control means for pivoting said flap and thereby clamping said stripped yarn at least during first pick of said full weft bobbin and releasing said stripped yarn extending through said opening between said annular surface and said flap, pivoting means effective to partly displace said flap from said mouthpiece annular surface after the first beat-up of the weft yarn from each weft bobbin transferred to a shuttle, said pivoting means comprising a draw member connected to said flap and means effective in a rest position to engage said draw member to keep said flap partly disengaged from said annular surface.

3. On an automatic loom having a shuttle, a lay, a mechanical stripper device having a tubular mouthpiece defining an opening and including a pneumatic yarn-holding device for stripping a tip bunch from and holding the outer yarn of a full weft bobbin to be transferred into said shuttle, a mechanical yarn brake for braking and releasing the yarn between the bobbin tip of said full bobbin and said stripper device, said yarn brake comprising an annular member mounted in said tubular mouthpiece and extending radially and axially of said mouthpiece opening to form a radially extending surface around the periphery of said tubular mouthpiece opening, a flap having a projection and pivotally mounted by said projection to pivot into engagement with and disengagement from said radially extending surface of said annular member to close and open said tubular mouthpiece opening, a spring biasing said flap into engagement with said surface, control means for pivoting said flap and thereby respectively clamping and releasing a thread extending through said opening between said annular member and said flap and said control means comprising a member fixed to said stripper device on said flap to control the pivoting of said biased flap in response to reciprocal movement of said stripper device.

4. On an automatic loom having a shuttle, a lay, a mechanical stripper device having a tubular mouthpiece defining an opening and including a pneumatic thread-holding device for stripping a tip bunch from and holding the outer thread of a full weft bobbin to be transferred into said shuttle, a mechanical thread brake for braking and releasing the thread between the thread tip of said full bobbin and said stripper device, said thread brake comprising an annular member mounted in said tubular mouthpiece and extending radially and axially of said
mouthpiece opening to form a radially extending surface around the periphery of said tubular mouthpiece opening, a flap having a projection and pivotally mounted by said projection to pivot into engagement with and disengagement from said radially extending surface of said annular member to close and open said tubular mouthpiece opening, control means for pivoting said flap and thereby respectively clamping and releasing a thread extending through said opening between said annular member and said flap, said control means comprising a flexible draw-member connected at one end to the flap, and the other end being attached to the stripper device, and means comprising a lever mounted to bear on said draw-member to form a sight therein and pivot said flap in a direction for releasing the yarn of said full bobbin after the beat-up of the first weft yarn inserted by said full bobbin.

5. On an automatic loom having a shuttle, a lay, a mechanical stripper device having a tubular mouthpiece defining an opening and including a pneumatic thread-holding device for stripping the tip bunch from and holding the outer thread of a full weft bobbin to be transferred into said shuttle, a mechanical thread brake for braking and releasing the thread between the bobbin tip of said bobbin and said stripper device, said thread brake comprising an annular member mounted in said tubular mouthpiece and extending radially and axially of said mouthpiece opening to form a radially extending surface around the periphery of said tubular mouthpiece opening, a flap having a projection and pivotally mounted by said projection to pivot into engagement with and disengagement from said radially extending surfaces of said annular member to close and open said tubular mouthpiece opening, a spring biasing said flap into engagement with said surface, control means for pivoting said flap and thereby respectively clamping and releasing a thread extending through said opening between said annular member and said flap, means for selectively drawing said stripper device to a forward position for engaging the tip bunch of a full weft bobbin prior to transfer thereof to said shuttle and for returning said stripper device in an opposite direction to a rest position, and said control means comprising a lever-arm of said flap, a member having a control surface stationary with respect to the travel of said stripper device and disposed to impinge on said projection of said flap to pivot it in a direction opposite to the direction said spring biases said flap, and said surface being disposed transversely of the path of travel of said stripper device to thereby pivot said flap.

6. On an automatic loom having a shuttle and means for holding full weft bobbins, each having a weft yarn tip bunch thereon, a reciprocably movable mechanical stripping device having a mouthpiece comprising an annular surface defining an opening and including a pneumatic yarn holding device positionable in a position for stripping said tip bunch and subsequently holding said stripped yarn of a full weft bobbin to be transferred into said shuttle, a mechanical yarn brake for braking and releasing said stripped yarn, said yarn brake comprising said mouthpiece and a flap pivotally mounted on said mouthpiece and adapted to pivot into engagement with and disengagement from said mouthpiece annular surface to close and open said mouthpiece opening, control means for pivoting said flap in response to the reciprocable travel of said stripping device to an open position when advanced toward said position for stripping said tip bunch and allowing said flap to close during return movement of said mouthpiece away from said position, thereby clamping said stripped yarn at least during the first pick of said full weft bobbin and releasing said stripped yarn extending through said opening between said annular surface and said flap, and means for reciprocating said stripping device to said position and away therefrom.

References Cited by the Examiner

UNITED STATES PATENTS

1,666,735 4/28 Colman 139—246
2,769,599 11/56 Furst 242—35.6
2,845,957 8/38 Banks et al. 139—247
2,956,593 10/60 Baumann 139—247
3,067,778 12/62 Merki 139—257

FOREIGN PATENTS

243,004 4/60 Australia.
7,424 3/11 Great Britain.

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