Feb. 20, 1962 E. DAÜSCH ETAL 3,021,574

TEXTILE DRAWING MECHANISM

Filed May 14, 1958

Fig. 1

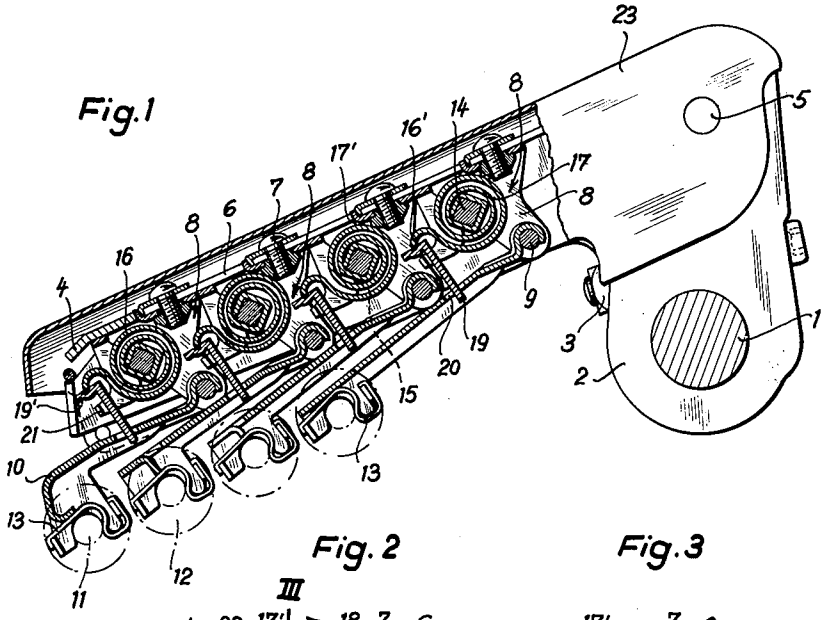


Fig. 2

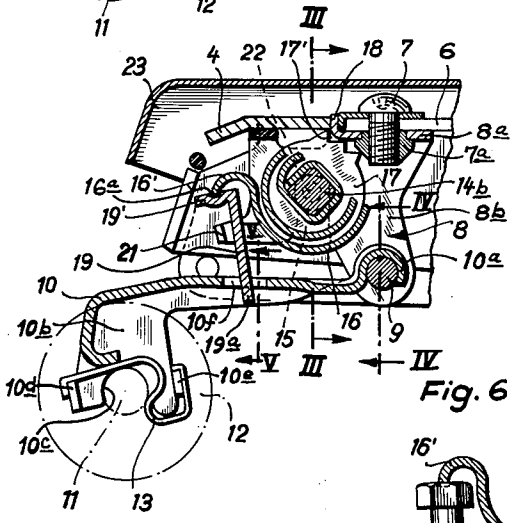


Fig. 3

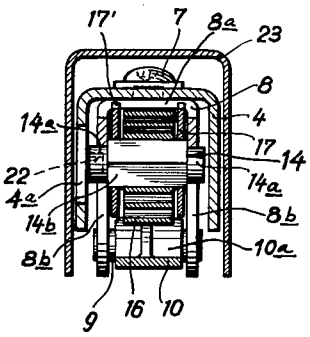


Fig. 6

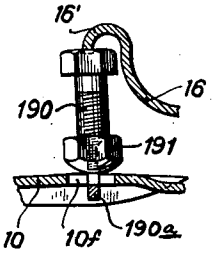


Fig. 4

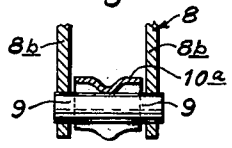
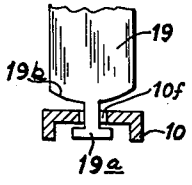


Fig. 5



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TEXTILE DRAWING MECHANISM

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18 Claims. (Cl. 19—135)

This invention relates to drawing mechanisms for textile machinery and, more particularly, is directed to improvements in devices for supporting and weighting the top rolls in such mechanisms.

Drawing mechanisms of the kind to which the present invention relates include a carrier arm which is hingedly mounted on a fixed part of the textile machine, for example, a spinning frame or the like, and which can be releasably locked in an operating position, and individually weighted guide arms pivotally suspended from the carrier arm and rotatably receiving the top rolls. In such drawing mechanisms, the pressure applied by the top rolls against the associated bottom rolls depends mainly on the type of fiber being processed, and the existing drawing mechanisms are generally adapted only for the processing of a specific group of fibers, for example, cotton or rayon staple fibers of various staple lengths. In order to adapt such existing drawing mechanisms for the processing of synthetic fibers rather than cotton or rayon staple fibers, it is necessary to increase the weighting of the top rolls, that is, the pressures exerted by the latter against the associated bottom rolls, and to alter the distances between the top rolls.

In some existing drawing mechanisms of the described character, specifically, those in which cylindrical helical springs are used for weighting the top rolls, it has been proposed to provide each spring with an adjustable abutment so that the effective length of the spring can be varied, thereby to increase the spring pressure when the effective length of the spring is reduced. However, it has been found that the mere provision of an adjustable abutment does not provide a sufficiently large increase in the spring pressure to permit the adaptation of the drawing mechanism for the processing of either synthetic fibers or cotton or rayon staple fibers. It has also been proposed that the substantial increase in the weighting of the top rolls necessary for adapting a drawing mechanism designed for the processing of cotton or rayon staple fibers so that such mechanism may be used for the processing of synthetic fibers may be achieved by installing additional cylindrical helical springs to act upon the pivoted guide arms. While this proposal affords a sufficient increase in pressure or weighting on the top rolls, it involves rebuilding of the drawing mechanism which requires considerable time and labor and, moreover, it cannot be applied to many drawing mechanisms because the space necessary for the installation of the additional springs is not available. Further, the use of cylindrical helical springs for the weighting of the top rolls is not entirely satisfactory because the ends of such springs are apt not to bear evenly on the pivoted guide arms but rather tend to tilt the latter and thereby interfere with the establishment of parallelism between the axes of the top and bottom rolls. This defect or disadvantage is particularly apparent when the guide arms are pivotally mounted in a manner to permit lateral rocking of the axes of the top rolls for facilitating the attainment of parallelism between the axes of the associated top and bottom rolls.

It is an object of the invention to overcome the foregoing disadvantages of existing constructions, and to provide a drawing mechanism for textile machines which, by

means of a simple and rapidly effected conversion, can be used for the processing of fibers requiring substantially different amounts of top rolls weighting, for example, cotton and rayon staple fibers, on the one hand, and synthetic fibers, on the other hand.

Another object is to provide drawing mechanism of the described character wherein the weighting means which are adjustable to vary the pressures of the top rolls against the lower rolls over a wide range are designed to occupy little room and to ensure the rapid and satisfactory settling movement of the top rolls into parallelism with the corresponding bottom rolls.

In accordance with an aspect of the invention, the above objects are achieved by employing a flat spiral spring as the weighting means for the top rolls, with one spring being provided for each guide arm, and with each spring and the associated guide arm being received in a common holder which is positionally adjustable along the hinged carrier arm.

Conveniently, the inner end of the spiral spring is secured to a rotatable supporting bolt, while the outer or free end of the spiral spring acts upon a support carried by the related guide arm, so that the force applied by the spring to the guide arm can be varied by turning the supporting bolt. Since the total length of the spiral spring can be kept relatively small, such spring can be housed in a small space, while permitting variation of the spring force over a wide range. Preferably, provision is made for securing the rotatable supporting bolt in a selected position, for example, by providing safety members in the form of discs which are rotatable with the supporting bolt and are formed with suitably spaced apart detents or notches adapted to cooperate with a stop on the holder.

In accordance with another aspect of the invention, the intermediate or support member interposed between the free end of each spring and the related guide arm is formed to permit tilting of such intermediate member relative to the guide arm so that the latter will be free to assume a position in which the top rolls carried thereby are parallel to the related bottom rolls. Further, the movement of the free end of the spring which acts on the related guide arm may be limited by an abutment provided on the holder for the spring, and such abutment may be engageable by the support or intermediate member interposed between the spring and the pivoted guide arm.

In accordance with still another aspect of the invention, the intermediate or support member interposed between each spiral spring and the related pivoted guide arm is releasably engageable with the latter, so that such intermediate member is easily interchangeable and provides sufficient freedom of movement for the free end of the spring engaged therewith. Further, in one embodiment of the invention, the length of the intermediate or support member interposed between the spring and the associated guide arm is variable, thereby to further permit adjustment of the spring force acting on the guide arm. The intermediate member of variable length may conveniently be in the form of a screw having a nut adjustable thereon and provided with a domed surface resting upon the guide arm.

Preferably, the free end of each spring bears, at a point or line of contact on the intermediate member of the associated guide arm so that, such point or line contact of the spring with the intermediate member and the tilting of the latter relative to the guide arm will ensure freedom of movement for the free end of the spring and also permit the guide arm to assume a position in which the axis of the related top rolls is parallel to the axis of the corresponding bottom rolls.

In accordance with further features of the invention, the supporting bolt of each spiral spring is formed with

a non-cylindrical bore opening at one end thereof to receive a correspondingly shaped key for effecting turning of the supporting bolt and corresponding adjustment of the spring force, and the carrier arm is also provided with a protective cap or cover which can be swung upwardly in relation to the carrier arm, thereby to expose the ends of the supporting bolts so that the latter may be rotated for adjusting the spring forces, and also to expose the means securing the several holders to the carrier arm so that such securing means may be loosened to permit adjustment of the distance between the several top rolls.

The above, and other objects, features and advantages of the invention, will be apparent in the following detailed description of illustrative embodiments thereof which is to be read in connection with the accompanying drawing, forming a part hereof, and wherein:

FIG. 1 is a side elevational view, partly broken away and in longitudinal section, of the upper portion of a drawing mechanism embodying the present invention;

FIG. 2 is an enlarged detail view of a portion of the structure shown in FIG. 1;

FIG. 3 is a sectional view taken along the line III—III of FIG. 2;

FIG. 4 is a detail sectional view taken along the line IV—IV of FIG. 2;

FIG. 5 is another detail sectional view taken along the line V—V of FIG. 2; and

FIG. 6 is a detail view of a modified construction.

Referring to the drawing in detail and initially to FIG. 1 thereof, it will be seen that a drawing mechanism embodying the invention includes a bracket **2** mounted on a carrier bar **1** which extends along the associated textile machine, for example, a spinning frame, with the bracket **2** being secured to the bar **1** at a predetermined location by means of a clamping screw **3**. The bracket **2** supports a laterally extending pivot pin or bolt **5**, and a carrier arm **4** is pivotally mounted, at one end, on the pin or bolt **5** and is adapted to be releasably locked in the illustrated operating position by means of a suitable locking mechanism (not shown) which may be of the kind disclosed in United States Letters Patent No. 2,751,632, issued June 26, 1956 to E. F. Dausch. As shown in FIG. 3, the carrier arm **4** is substantially of inverted U-shaped cross-section and is formed, along its top, with an elongated slot **6**.

A plurality of holders **8** are mounted within the arm **4**, four of such holders being included in the illustrated drawing mechanism. As shown in FIGS. 2 and 3, each holder **8** is generally of inverted U-shaped configuration and includes a top portion **8***a* and side portions **8***b* depending from the opposite side edges of the top portion **8***a*. Each holder **8** is suspended from the top of the arm **4** by a screw **7** which passes downwardly through the longitudinal slot **6** and is threadably received in a nut **7***a* which is non-rotatably mounted in the top portion **8***a* of the holder. A tab **18** (FIG. 2) is bent upwardly from the top portion **8***a* and is slidably received in the slot **6** in order to hold the related holder **8** against turning relative to the carrier arm **4** about the axis of the related securing screw **7**.

Pivot pins **9** extend laterally inward toward each other from arms forming the lower parts of the opposite side portions **8***b* of each holder **8**, and a guide arm **10** is pivotally mounted on the latter by means of a generally semi-cylindrical hinge barrel **10***a* formed at the back end of the guide arm and embracing the pivot pins **9** of the related holder **8**. As seen in FIG. 4, the hinge barrel **10***a* has a downwardly convex central portion, so that the pivoting axis of the guide arm **10** can rock or cant relative to the aligned axes of the pins **9**.

Each guide arm **10** is formed, at its forward end, with depending side members **10***b* having downwardly opening recesses **10***c* (FIG. 2) to receive the journal or bearing housing **11** of a pair of top weighting rollers **12** (shown in broken lines on FIGS. 1 and 2). The top rollers associated with each guide arm **10**, as above, may be of the kind disclosed in United States Letters Patent No. 2,750,164, issued April 3, 1956 to E. F. Schmid and J. Raible. The journal or bearing housing **11** of each pair of top rollers is held in the saddle-shaped seat defined by the recesses **10***c* by means of a resilient clip or spring **13** which is supported by inwardly directed lugs **10***d* and **10***e* extending from the front and back edges of each depending side member **10***b*.

The side portions **8***b* of each holder **8** are provided with downwardly opening slots **15** having semi-circular upper ends and adapted to rotatably receive the opposite, cylindrical end portion **14***a* of a supporting bolt **14**. The portion **14***b* of bolt **14** intermediate the cylindrical end parts **14***a* has an enlarged, non-circular cross section, for example, a square cross-section, as illustrated, and a flat spiral spring **16** extends around the central part **14***b* of supporting bolt **14** and has its innermost turn shaped to closely embrace the non-cylindrical surface of central part **14***b*, as is clearly shown in FIG. 2, so that the inner end of spiral spring **16** is rotatably coupled to the bolt **14**. The bolt **14** is normally held against rotation relative to holder **8** by means of safety discs **17** which are mounted on the non-cylindrical, that is, square part **14***b* of the bolt at the opposite sides of the spiral spring **16**, and which are formed with suitably spaced apart ratchet teeth or detents **17'** over a portion of the peripheries of the safety discs, the bent corner where the tab **18** joins the remainder of the top portion **8***a* of the holder being adapted to engage between successive teeth **17'** of the safety discs **17** when the cylindrical end portion **14***a* of the bolt **14** are disposed against the upper ends of the related slots **15**.

The outer or free end of each spiral spring **16** is bent downwardly, as at **16'** (FIG. 2), and bears downwardly in a suitable recess formed in a support **19'** at the upper end of an intermediate member **19**. As shown in FIGS. 2 and 5, the intermediate member **19** has an inverted, T-shaped extension **19***a* at its lower end with the enlarged part of such extension being directed laterally, while the related guide arm **10** has a longitudinally elongated slot **10***f* through which the enlarged part of the inverted T-shaped extension **19***a* can pass only when the intermediate member **19** is turned to lie generally in the plane of the longitudinal axis of guide arm **10**. Thus, when the intermediate member **19** and guide arm **10** are assembled together as shown in FIGS. 2 and 5, the laterally enlarged part of the inverted T-shaped extension **19***a* is disposed at the underside of the top or web of the guide arm **10** so that the intermediate member **19** cannot be inadvertently removed from engagement with the related guide arm.

The free end edge of the spring **16** bearing upon the support **19'** is pointed, as at **16***a* (FIG. 2), and is preferably downwardly convex when viewed from the front so that the spring **16** has only line contact or point contact with the support **19'**. Further, as shown in FIG. 5, the lower end edge **19***b* of intermediate member **19** which bears on the upper surface of guide arm **10** is downwardly convex while the extension **19***a* of the intermediate member extends loosely through the slot **10***f* of the guide arm so that, while the intermediate member **19** transmits the force of the spiral spring **16** to the pivoted guide arm **10**, such intermediate member is free to rock and swing relative to both the spring and the guide arm, and this feature when considered in connection with the above described inner shape of the hinge barrel **10***a* of the guide arm permits the latter to seek a position relative to the related holder **8** in which the top rollers **12** carried by the guide arm will have their axis parallel to the axis of the corresponding bottom rolls (not shown).

Further, as shown in FIGS. 1 and 2, the side portions **8***b* of each holder **8** are provided, at their forward ends, with inwardly directed lugs **21** disposed below the support **19'** of the related intermediate member **19** so that, when the carrier arm **4** is raised from its illustrated operative position, in which case, the springs **16** are free

to move the related guide arms 10 downwardly about the associated pivot pins 9, the lugs 21 form abutments or stops engageable by the support 19' of each intermediate member for limiting the swinging movement of the related guide arm in the counterclockwise direction, as viewed in FIGS. 1 and 2.

It will be apparent that, since the outer or free end of each spiral spring 16 exerts a downward force upon the support 19' of the related intermediate member 19, a corresponding upward reaction will urge the supporting bolt 14, which is connected to the inner end of the spiral spring, against the upper ends of the slots 15 so that the ratchet teeth or detents 17' will engage the corner of the top portion 8a where tab 18 is joined to the latter, thereby to hold supporting bolt 14 in a rotationally adjusted position.

In order to provide for the adjustment of the force exerted by each spiral spring 16 upon the related guide arm 10, one end portion 14a of each supporting bolt 14 is formed with an axially opening, non-cylindrical socket 22 which is adapted to receive a suitably shaped key (not shown) that can be inserted therein through a longitudinal slot 4a (FIG. 3) formed in a side wall of carrier arm 4. Thus, when the key has been inserted in socket 22, the key can be pressed in the direction toward the open ends of the slots 15 in order to disengage the ratchet teeth 17' from the top portion 8a of the holder, and then the key can be rotated to turn the supporting bolt 14 and thereby either increase or decrease the force exerted by spring 16.

The illustrated drawing mechanism further includes a protective cap or cover 23 which is pivotally mounted on the pivot pin 5 and normally engages over the carrier arm 4. The protective cover 23 can be swung upwardly independently of the carrier arm 4 thereby to expose the screws 7 which secure the individual holders 8 to the carrier arm, and also to expose the slot 4a in the side of the carrier arm so that an adjustment key can be employed for adjusting the spring forces, as described above. If the carrier arm is not provided with the longitudinal slot 4a, then the individual holders 8 must be removed from the carrier arm in order to permit the insertion of a spring adjusting key in the socket 22 of each supporting bolt 14.

It will be apparent that, when the protective cover 23 is raised to provide access to the screws 7, the latter can be removed to permit replacement of the related holder 8 and the spring and guide arm mounted thereon, or the screw 7 may be merely loosened to permit the adjustment of the holder 8 along the carrier arm 4, thereby to vary the distances between the several top rollers 12.

Although the bottom edge 19b of the intermediate member 19 is curved, as shown in FIG. 5, in order to permit rocking of the related guide arm 10 about its longitudinal axis with respect to the pivot pins 9 for facilitating the establishment of parallelism between the axis of the top rolls 12 and the axis of the corresponding bottom rolls, it will be apparent that the same result may be achieved by providing the intermediate member 19 with a straight bottom edge which is engageable with an upwardly convex top surface on the guide arm 10.

Referring now to FIG. 6, it will be seen that, in another embodiment of this invention that is generally similar to the drawing mechanism described above with reference to FIGS. 1 to 5, inclusive, the intermediate member 19 of the first described embodiment is replaced by a bolt 190 having a groove or recess in its head to provide a seat for the downwardly bent end 16' of the related spiral spring 16, and an inverted T-shaped extension 190a at the lower end of bolt 190 corresponding to the extension 19a of the previously described intermediate member 19 and similarly received in a slot 10f of the related guide arm 10. A nut 191 is threaded on the bolt 190 and has a domed lower surface which bears upon the top of guide arm 10. With the modified arrangement disclosed in FIG. 6, the effective length of the intermediate member formed by the bolt 190 and the nut 191 can be adjusted, thereby to provide an additional fine adjustment of the force applied by the spring 16 to the guide arm 10 for weighting the associated top rolls.

It will be apparent that, in each of the above described embodiments of the invention, the force exerted by each spiral spring 16 upon the related guide arm 10 may be adjusted over a wide range so that a single drawing mechanism can be adapted for the processing of synthetic fibers which require a very substantial pressure of the top rolls against the bottom rolls, as well as for the processing of cotton or rayon staple fibers, which require a much lower pressure of the top rolls upon the bottom rolls. Further, by reason of the employment of flat spiral springs for producing the weighting of the top rolls, the desired wide range of variation of the weighting of the top rolls can be achieved with springs of relatively small overall dimensions, and the adjustment of the spring forces can be effected without requiring the dismantling and rebuilding of the drawing mechanism. It will also be seen that, by reason of the described construction of the intermediate members interposed between the spiral springs 16 and the related guide arms 10, the latter are free to rock about their longitudinal axes with respect to the pivoting axes defined by the pins 9 so that the top rolls 12 carried by the guide arms 10 can settle into parallelism with the corresponding bottom rolls and the spring forces do not disturb, or interfere with, this settling action of the top rolls.

Although illustrative embodiments of the invention have been described in detail herein with reference to the accompanying drawing, it is to be noted that the invention is not limited to those precise embodiments, and that various changes and modifications may be effected therein without departing from the scope or spirit of the invention, except as defined in the appended claims.

What is claimed is:

1. Textile drawing mechanism comprising a support bracket, a carrier arm pivoted on said bracket and adapted to be locked in an operative position with respect to the bracket, a plurality of holders carried by said carrier arm, a guide arm pivoted on each of said holders and carrying top rolls, each holder having slots in the opposite sides thereof, a supporting bolt having opposite end portions rotatable in said slots of said holder, a flat spiral spring wound around said supporting bolt and having its inner end secured to said supporting bolt, means connecting the outer free end of said spiral spring to the guide arm pivoted on the related holder to urge said guide arm in the direction for weighting the top rolls carried by the guide arm with a force that is adjustable by rotation of said supporting bolt, said slots of the holder extending generally parallel to the direction of said force applied by the outer end of the spiral spring so that said end portions of the supporting bolt are urged in the direction opposed to said force against ends of said slots of the holder, and locking means for preventing inadvertent rotation of said supporting bolt, said locking means being engaged when said end portions of the supporting bolt engage said ends of said slots and being released upon displacement of said supporting bolt away from said ends of the slots.

2. Textile drawing mechanism comprising a support bracket, a carrier arm pivoted on said bracket and adapted to be locked in an operative position with respect to the bracket, a plurality of holders carried by said carrier arm, a guide arm pivoted on each of said holders and carrying top rolls, each holder having slots in the opposite sides thereof, a supporting bolt having opposite end portions rotatable in said slots of said holder, a flat spiral spring wound around said supporting bolt and having its inner end secured to said supporting bolt, means

connecting the outer free end of said spiral spring to the guide arm pivoted on the related holder to urge said guide arm in the direction for weighting the top rolls carried by the guide arm with a force that is adjustable by rotation of said supporting bolt, said slots of the holder extending generally parallel to the direction of said force applied by the outer end of the spiral spring so that said end portions of the supporting bolt are urged in the direction opposed to said force against ends of said slots of the holder, discs on said supporting bolt rotatable with the latter and having teeth on their peripheries, and means defining a stop on said holder engageable by said teeth when said supporting bolt rests against said ends of the slots to prevent inadvertent rotation of the supporting bolt, said teeth being released from said stop for permitting rotation of said supporting bolt and corresponding adjustment of the force applied by said spiral spring upon displacement of the supporting bolt away from said ends of the slots of said holder.

3. Textile drawing mechanism as in claim 2; wherein each supporting bolt has a non-cylindrical socket opening axially at one end thereof and adapted to receive a correspondingly shaped key by which displacement of the supporting bolt away from said ends of the slots and then rotation of the supporting bolt can be manually effected.

4. Textile drawing mechanism comprising a support bracket, a carrier arm pivoted on said bracket and adapted to be locked in an operative position relative to said bracket, a plurality of holders mounted on said carrier arm, a guide arm pivoted on each of said holders and carrying top rolls, a supporting bolt rotatable in each of said holders, a flat spiral spring on said supporting bolt and connected, at its inner end, to the latter and an intermediate member tiltably connected to said guide arm and defining a seat for the outer free end of said spiral spring so that the latter urges the related guide arm in the direction for weighting the top rolls carried by the latter.

5. In a textile drawing mechanism, in combination, a support; a guide arm pivoted on said support and carrying a drawing roll: supporting bolt means rotatably mounted on said support; a flat spiral spring on said supporting bolt means and having an inner end portion secured to said bolt means and an outer free end portion; and an intermediate member tiltably connected to said guide arm and defining a seat for the outer end portion of said spiral spring so that the latter urges said guide arm in the direction for weighting said drawing roll carried by said guide arm.

6. In a textile drawing mechanism as in claim 5 wherein said outer end portion of the spiral spring has a pointed edge to provide line contact with said seat of the intermediate member.

7. In a textile drawing mechanism as in claim 5 wherein said outer end portion of the spiral spring has a pointed edge which is curved convexly to provide point contact with said seat of the intermediate member.

8. In a textile drawing mechanism as in claim 5 wherein said support has means thereon defining an abutment engageable by said intermediate member to limit the movement of the latter in the direction in which the latter is urged by said spiral spring.

9. In a textile drawing mechanism as in claim 5 wherein said intermediate member has an inverted T-shaped extension, and said guide arm has a slot therein through which said extension can pass when said intermediate member is turned substantially through ninety degrees from its normal position relative to said guide arm so that said extension provides releasable means for connecting said intermediate member to said guide arm.

10. In a textile drawing mechanism as in claim 5 wherein said intermediate member includes a bolt having a head forming said seat for the outer end portion of said spiral spring, and a nut threaded on said bolt and having a domed surface contacting said guide arm so that the length of said intermediate member between said head and said domed surface can be varied by rotation of said nut to provide fine adjustment of the force applied by said spring to said guide arm.

11. In a textile drawing mechanism, in combination, a support; guide arm means carrying drawing roll means; means connecting said support and said guide arm means for pivotal movement of said guide arm means relative to said support, and for tilting movement of said guide arm means transversely of said pivotal movement; supporting bolt means rotatably mounted on said support; a flat spiral spring on said supporting bolt means and having an inner end portion secured to said bolt means and an outer free end portion; and intermediate means connected to said guide arm means and defining a seat engaging the outer free end portion of said spiral spring so that the latter urges said guide arm means in the direction for weighting said drawing roll means carried by said guide arm means.

12. In a textile drawing mechanism, in combination, a support; guide arm means carrying drawing roll means; means connecting said support and said guide arm means for pivotal movement of said guide arm means relative to said support, and for tilting movement of said guide arm means transversely of said pivotal movement; supporting bolt means rotatably mounted on said support; means for securing said bolt means against rotation on said support in a predetermined angular position; a flat spiral spring on said supporting bolt means and having an inner end portion secured to said bolt means and an outer free end portion; and intermediate means connected to said guide arm means and defining a seat for the outer free end portion of said spiral spring so that the latter urges said guide arm means in the direction for weighting said drawing roll means carried by said guide arm means.

13. In a textile drawing mechanism, in combination, a support; guide arm means carrying a drawing roll; pivot means connected to said support and to said guide arm means for pivotal movement of said guide arm means relative to said support, and for tilting movement of said guide arm means transversely of said pivotal movement; supporting bolt means rotatably mounted on said support; means for securing said bolt means against rotation on said support in a plurality of predetermined angular positions; a flat spiral spring on said supporting bolt means and having an inner end portion secured to said bolt means and an outer free end portion; and intermediate means connected to said guide arm means and defining a seat for the outer free end portion of said spiral spring so that the latter urges said guide arm means in the direction for weighting said drawing roll carried by said guide arm means.

14. In a textile drawing mechanism, in combination, a support; guide arm means carrying a drawing roll; pivot means connected to said support and to said guide arm means for pivotal movement of said guide arm means relative to said support, and for tilting movement of said guide arm means transversely of said pivotal movement; supporting bolt means rotatably mounted on said support; a flat spiral spring on said supporting bolt means and having an inner end portion secured to said bolt means and an outer end portion; and an intermediate member tiltably connected to said guide arm means and defining a seat tiltably engaging the outer end portion of said spiral spring so that the latter urges said guide arm means in the direction for weighting said drawing roll carried by said guide arm means.

15. In a textile drawing mechanism, in combination, a support; guide arm means carrying a drawing roll; pivot means connected to said support and to said guide arm means for pivotal movement of said guide arm means relative to said support, and for titling movement of said guide arm means transversely of said pivotal

movement; supporting bolt means rotatably mounted on said support; a flat spiral spring on said supporting bolt means and having an inner end portion secured to said bolt means and an outer free end portion; an intermediate member tiltably connected to said guide arm means and defining a seat engaging the outer free end portion of said spiral spring so that the latter urges said guide arm means in the direction for weighting said drawing roll carried by said guide arm means; and abutment means on said support for limiting movement of said outer end portion of the spiral spring when the same urges said guide arm means in said direction.

16. In a textile drawing mechanism, in combination, a support; guide arm means carrying a drawing roll; pivot means connected to said support and to said guide arm means for pivotal movement of said guide arm means relative to said support, and for tilting movement of said guide arm means transversely of said pivotal movement; supporting bolt means rotatably mounted on said support and having an axially opening non-cyclindrical socket adapted to receive a correspondingly shaped key for rotation of said bolt means; a flat spiral spring on said supporting bolt means and having an inner end portion secured to said bolt means and an outer free end portion; and an intermediate member tiltably connected to said guide arm means and defining a seat engaging the outer free end portion of said spiral spring so that the latter urges said guide arm means in the direction for weighting said drawing roll carried by said guide arm means.

17. In a textile drawing mechanism, in combination, a support; guide arm means carrying a drawing roll; pivot means connected to said support and to said guide

arm means for pivotal movement of said guide arm means relative to said support, and for tilting movement of said guide arm means transversely of said pivotal movement; supporting bolt means rotatably mounted on said support; a flat spiral spring on said supporting bolt means and having an inner end port on secured to said bolt means and an outer free end portion; and an intermediate member tiltably connected to said guide arm means and defining a seat for the outer free end portion of said spiral spring so that the latter urges said guide arm means in the direction for weighting said drawing roll carried by said guide arm means.

18. In a textile drawing mechanism, in combination, a support; at least one guide arm pivoted on said support and carrying a drawing roll; supporting bolt means coordinated with said one guide arm and rotatably mounted on said support; a flat spiral spring on said supporting bolt means and having an inner end portion secured to said bolt means and an outer free end portion; and an intermediate member titlably connected to said one guide arm and defining a seat for the outer free end portion of said spiral spring so that the latter urges said one guide arm in the direction for weighting said drawing roll carried by said one guide arm.

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