Oct. 5, 1971 K. HOHLOCH 3,609,820

DRAWING DEVICE FOR TEXTILE MACHINES

Filed Dec. 9, 1968 2 Sheets-Sheet 1

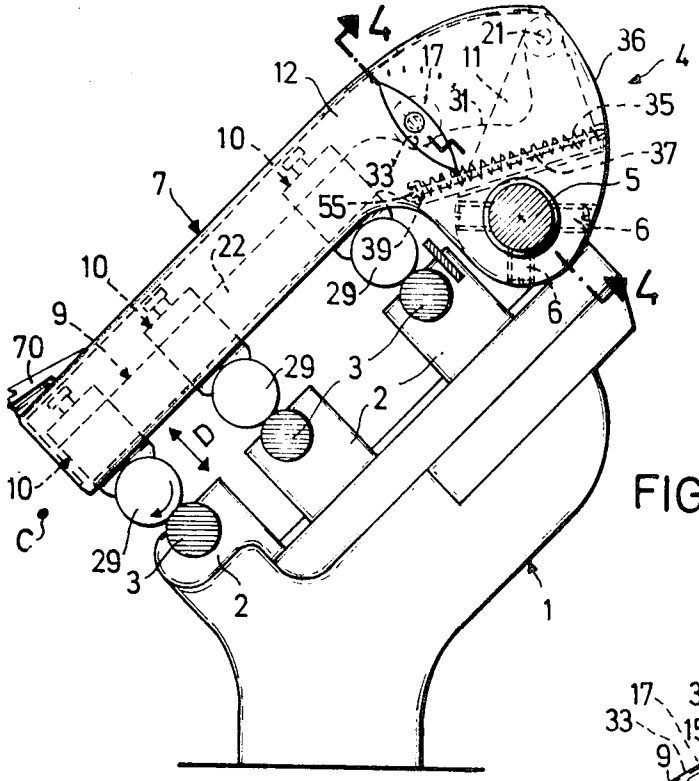

FIG .1

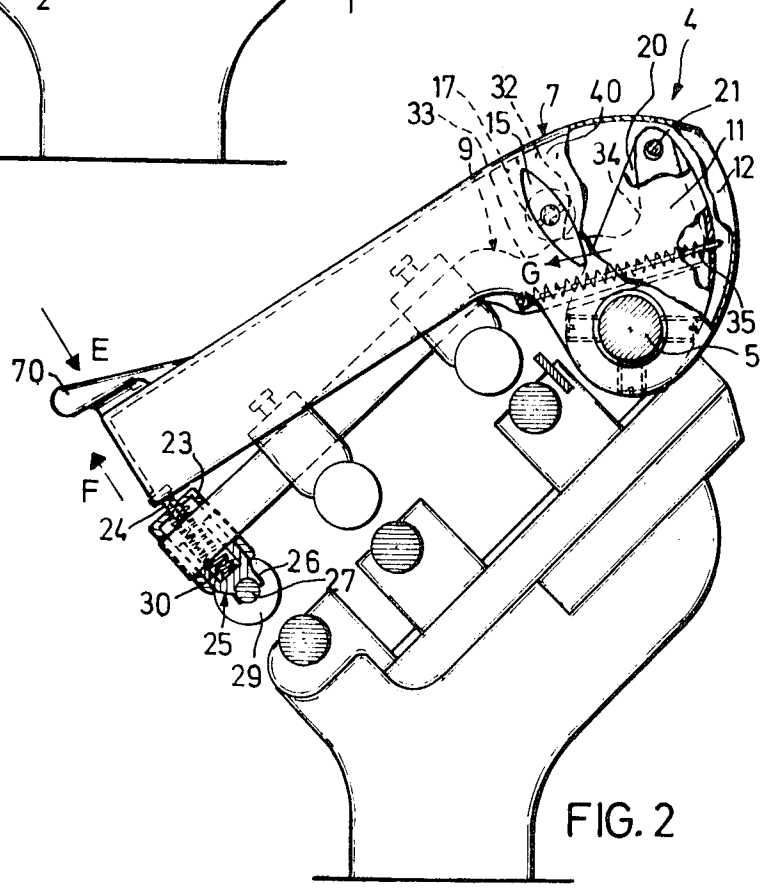

FIG. 2

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DRAWING DEVICE FOR TEXTILE MACHINES

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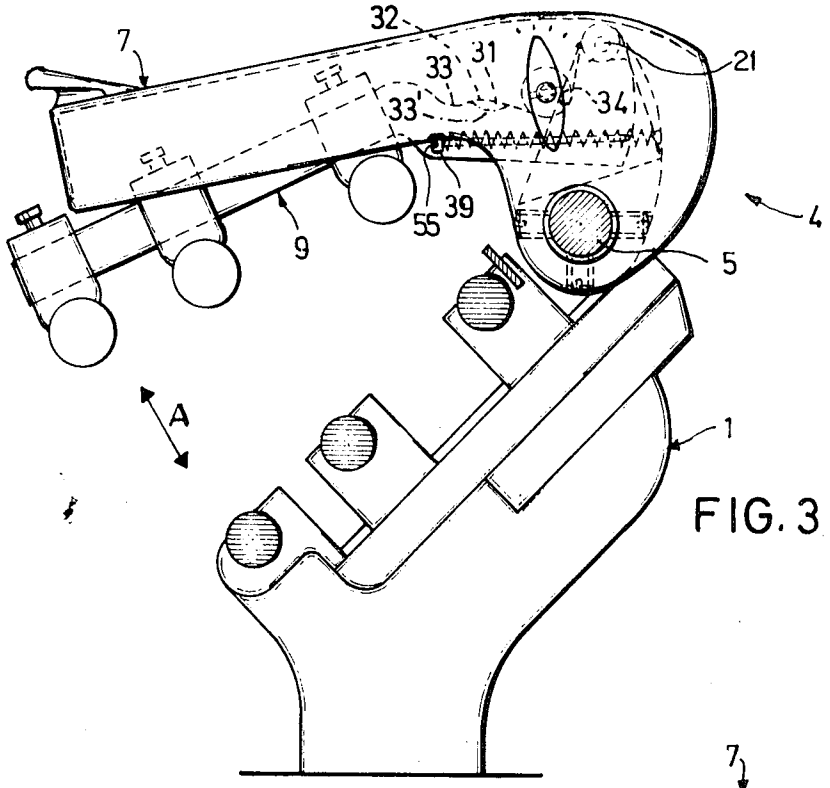

FIG. 3

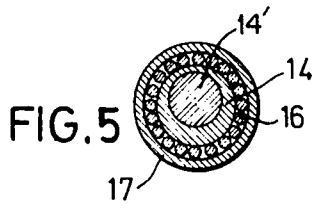

FIG. 5

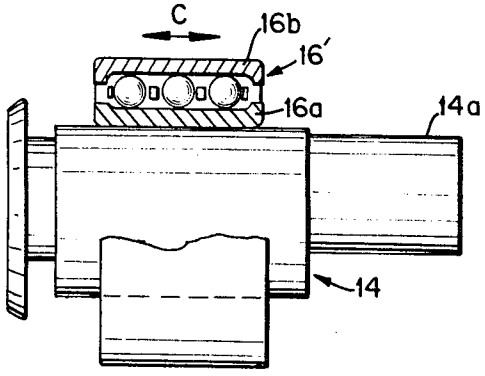

FIG. 5a

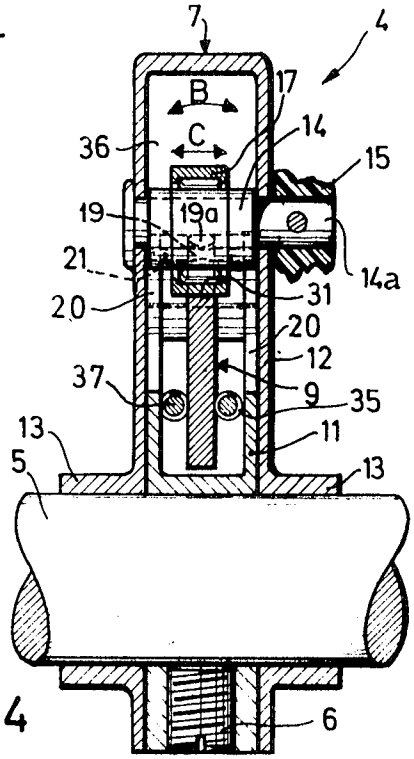

FIG. 4

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DRAWING DEVICE FOR TEXTILE MACHINES

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Int. Cl. D01h 5/46
U.S. Cl. 19—267 29 Claims

ABSTRACT OF THE DISCLOSURE

The housing arm of a drawing device is manually operated so that a pressure member thereon engages a camming surface of a presser arm and moves the same with the top rollers to an operative position in which the presser arm is locked by the pressure member engaging an arresting recess at the end of the camming surface of the presser arm.

BACKGROUND OF THE INVENTION

The present invention relates to drawing devices or drafting devices for textile machines, such as spinning machines or twisting machines of the type in which bottom rollers are mounted on supporting means, and cooperate with top rollers, respectively, mounted on a presser or weighing arm having a housing.

The pressures acting on the top rollers engaging the bottom rollers are frequently very high in drawing devices. Therefore, great force is required to move the presser arm into the operative position. In an apparatus according to the prior art, an actuating lever is provided in addition to the presser arm and to the housing of the same which projects from the top of the housing and, when depressed, moves the presser arm to the operative position. This device is complicated and has the disadvantage that the operating lever projects in the open position of the housing an angle of 50° in upward direction, while the housing is displaced only at an angle of about 38° so that the operating lever projects high above the housing requiring mounting of a grating high above the drawing device so that the operation of the respective spinning machine is rendered difficult, and the height of the machinery increased.

Another arrangement according to the prior art is known in which the presser arm is directly operated and displaced to the operative position, which requires the application of very great force by the operator so that at high top roller pressures, a manual operation becomes impossible.

SUMMARY OF THE INVENTION

It is one object of the invention to provide a drawing device which is free of the disadvantages of the prior art, can be operated by application of a comparatively small manual force, and is of compact construction.

Another object of the invention is to provide a drawing device which can be manually operated with one hand, but nevertheless produces very great pressures between the top and bottom rollers.

With these objects in view, the present invention provides a drawing device in which a pivotally mounted housing arm is used for actuating the presser arm carrying the top rollers. Force transmitting means are provided between the housing arm and the presser arm, and reduce the force required for operating the presser arm with the top rollers. When the housing arm has placed the presser arm in the operative position in which the top rollers cooperate with the bottom rollers, both arms are arrested.

Due to the fact that the housing arm is used for operating the presser arm, the housing arm requires little height when turned upward to the inoperative position, so that a low grating can be provided. A turning of the housing arm between its inoperative and actuating positions requires only an angle ofabout 35°. Due to the omission of an additional operating lever, the apparatus is simple, and the cleaning of the apparatus is facilitated. It is also possible to provide the housing arm with a completely smooth outer surface so that no airborne impurities are deposited thereon. The ratio of the force transmitting means is selected so that comparatively little force is required for moving the housing arm to an actuating position in which the presser arm is in its operative position and the top rollers cooperate with the bottom rollers.

The construction of the invention makes it possible to provide springs causing the presser arm to follow the movement of the housing arm to the inoperative position, so that complicated couplings required in the prior art can be omitted.

The locking of the presser arm in its operative position by the housing arm in its actuating position is not effected by a manually released spring biassed latch, but by the cooperation of apart of the force transmitting means with an arresting recess. In accordance with the invention, the arrangement is such that the turning of the housing arm effects locking of the presser arm in its operative position when the housing arm is moved to the actuating position, while movement of the housing arm out of the actuating position, effects release of the presser arm. The interlocking of the presser arm and housing arm requires the mounting of the presser arm and housing arm for turning movement about spaced pivot axes.

In the preferred embodiment of the invention, the presser arm or housing arm is provided with an arresting recess, and the respective other arm is provided with a member which engages the recess when the presser arm is in the operative position, the arrangement being such that the pressure between the top and bottom rollers holds the member in the arresting recess so that the presser arm must be moved a short distance beyond its operative position for releasing both arms for movement to the inoperative position.

A corresponding movement is required for moving the arresting member into the recess. In this manner, the safety of the arresting and locking of the arms increases with an increased operating pressure between the top and bottom rollers so that the arms cannot accidentally unlock, irrespective of the operating pressure.

When the housing arm is turned upwardly to its inoperative position, little force is required for moving the arresting member out of the arresting recess whereby the arms are unlocked. This type of arresting can be obtained without difficulty by a suitable arrangement and position of the pivot means supporting the presser arm and the housing arm, together with a suitable shape of the arresting recess and arresting member.

The force transmitting means between the housing arm and the presser arm can be constructed in different ways, as long as the manual force is reduced to a desired degree. It would be possible, for example, to provide a force transmitting lever system, and it would also be possible to make the force transmitting means effective only in the region of the operative position of the presser arm, but it is preferred to provide a pressure member on one arm cooperating with a camming surface or edge on the other arm. Preferably, the camming surface has a track located in a plane parallel to the drawing direction and intersecting the drawing plane defined by the rollers at right angles.

Preferably, the pressure member is mounted on the housing arm, and the camming surface provided along an edge of the presser arm. It is advantageous to mount the pressure member for turning movement so that the smooth transmission of force is assured even at high operating pressures. Combined with spring biassed top rollers, the above explained construction of the force transmitting means permits a very easy adjustment or setting of the pressure exerted by the top rollers on the bottom rollers if the position of the pressure member can be adjusted. In the preferred construction of the present invention, the pressure member is annular and mounted on an eccentric adjusting member whose angular position can be manually adjusted.

In drawing devices according to the prior art, each of the top rollers is mounted not only for rotation, but also for tilting movement in order to obtain an automatic alignment of the top rollers with the respective bottom rollers in a position in which the axes of the same are parallel. However, it has been found that an apparatus of the prior art, an alignment of the top and bottom rollers with parallel axes cannot be obtained for the top rollers which are forwardly located, particularly for the top rollers where the roving or sliver enters.

In order to eliminate this disadvantage, the present invention provides a presser arm which is mounted for tilting movement about an axis which is, in the operative position of the presser arm, perpendicular to the drawing plane, and located before the bearings of the top rollers in the drawing direction. As a result, the rapidly rotating top roller of drawing device, which always assumes a position in which its axis is parallel to the axis of the cooperating bottom roller acts on the presser arm to tilt the same to a position in which the other top rollers carried by the presser arm are in operative positions in which the axes thereof are exactly parallel to the respective cooperating bottom rollers. In this manner, the drawing function of the drawing device is improved.

The presser arm is preferably mounted for tilting movement about its longitudinal axis in order to obtain pressing of the top rollers along the length thereof against the respective bottom rollers.

When the force transmitting means include a pressure member and a camming surface, the pressure member is mounted, preferably by means of a needle bearing, movable in a direction parallel to the pivot axis of the housing arm so that a tilting of the presser arm is not obstructed.

In another preferred embodiment of the invention, the pressure member is tiltably mounted on a self-aligning roller bearing so that the pressure member does not obstruct tilting movements of the presser arm. The self-aligning roller bearing is advantageously used for supporting an annular pressure member so that the same rolls on the camming surface.

One embodiment of the invention comprises supporting means including first bearing means for the bottom rollers; a presser arm mounted on the supporting means for movement between an inoperative position and at least one operative position, and including second bearing means in which top rollers are mounted; a manually operated housing arm mounted on the supporting means for movement between an inoperative position and at least one actuating position; and force transmitting means connecting the housing arm with the presser arm so that the latter moves to the operative position when the housing arm is moved to the actuating position.

The force transmitting means preferably include a pressure member mounted on the housing arm, and a camming surface of the presser arm, the camming surface being arranged in such a manner that the manual force applied to the housing arm is less than the force transmitted by the same to the presser arm. In the preferred embodiment, the force transmitting means are also used for locking the presser arm and housing arm in the operative and actuating positions respectively. An arresting recess is provided in the presser arm at the end of the camming surface, and when the presser arm is in the operative position and the housing arm is in the actuating position, the pressure member engages the arresting recess which has such a shape that the housing arm and presser arm are locked to each other and hold the top rollers, which are spring biassed, in a position cooperating with the respective bottom rollers.

The housing arm is preferably mounted on a stationary shaft for angular movement between inoperative and actuating positions, a mounting bracket is fixedly secured to the same shaft and carries a pivot means for mounting the presser arm for angular movement between inoperative and operative positions.

The pressure member is preferably annular and mounted on an eccentric adjusting member which can be manually adjusted to vary the pressure between the top and bottom rollers.

The novel features which are considered as characteristic for the invention are set forth in particular in the appended claims. The invention itself, however, both as to its construction and its method of operation, together with additional objects and advantages thereof, will be best understood from the following description of specific embodiments when read in connection with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a side elevation, partially in section, illustrating a drawing device according to the invention in the operative drawing position;

FIG. 2 is a side elevation, partially in section, illustrating the drawing device in a partly opened position;

FIG. 3 is a side elevation, partially in section, illustrating the drawing device in a fully opened position;

FIG. 4 is a cross-sectional view taken on line 4—4 in FIG. 1;

FIG. 5 is a fragmentary sectional view illustrating the eccentric mounting of a pressure member used in the embodiment of FIGS. 1 to 4; and

FIG. 5*a* is a fragmentary front view illustrating a self-aligning ball bearing used in a modified embodiment.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now to the drawing, the drawing device is mounted on supporting means **1** including bearing means **2** for bottom rollers **3**. A carrier structure **4** for top rollers **29** is mounted on a stationary support shaft **5** whose axis is parallel to the axes of the bottom rollers. Support shaft **5** is mounted on the supporting means of a spinning machine, not illustrated, which may be a ring spinning machine. Supporting means **1** may also be fixed to the supporting means of the spinning machine and forms with the same, support shaft **5** and a bracket **11** a stationary supporting structure.

The carrier **4** comprises a housing arm **7**, and a presser arm **9** with longitudinally adjustable bearing means **10**. The supporting bracket **11** is secured by screws **6** to the stationary support shaft **5**, and located in a U-shaped portion **12** of housing arm **7** which has sleeve portions

13 surrounding support shaft 5 and mounting housing arm 7 for angular movement about the axis of stationary support shaft 5 between the positions illustrated in FIGS. 1 to 3. An eccentric adjusting member 14 has a shaft 14' mounted on a U-shaped housing portion 12 of housing arm 7 for turning movement and having a shaft portion 14*a* projecting from housing portion 12 and carrying a manually operable member 15 by which eccentric adjusting member 14 can be turned between adjusting positions indicated by indicia 40 on the outer surface of housing arm portion 12, as shown in FIG. 2. As best seen in FIG. 5, a needle bearing 16 surrounds the eccentrically mounted but cylindrical eccentric adjusting member 14 and has an outer race constituting an annular pressure member 17 cooperating with a camming surface 31 on the upper edge of presser arm 9 which is mounted for angular movement in the direction of the double arrow A shown in FIG. 3, on a pivot pin 21 fixedly supported in parallel arms 20 of the stationary support bracket 11. The pivotal mounting of presser arm 9 on pivot pin 21 is accomplished in such a manner that presser arm 9 can also perform tilting movements in the direction of the double arrow B, and angular movements in the direction of the double arrow C, shown in FIG. 4. In the illustrated embodiment, pivot pin 21 is fixed to the fork arms 20 of the stationary support bracket 11, and passes with play through a corresponding opening in presser arm 9. The diameter of this bearing opening increases from the center of presser arm to the lateral surfaces of the same. Pivot means 21 has a centrally located circumferential groove 19 engaged by a projection 19*a* on the wall around the bearing opening in presser arm 9. Due to the fact that support bracket 11 with arms 20, and pivot 21 are located within the housing portion 12 of housing arm 7, they are protected from dust and airborne lint. As shown in FIG. 1, the entire presser arm 9 is located within the housing arm in the operative drawing position.

Since presser arm means 9 cannot only turn in the direction of the arrows A, but also tilt in the direction of the arrows B and oscillate in the direction of double-arrow C about an axis perpendicular to the drafting plane of the drawing device, the camming surface 31 moves transversely relative to the pressure member 17 which is mounted on the housing arm 12 which, due to its mounting on support shaft 5, cannot perform lateral or tilting movements. Therefore, the needle bearing 16 is preferably replaced by a self-aligning roller bearing, as shown in FIG. 5*a*, so that presser arm 9 can be tilted and laterally displaced while its camming surface 31 abuts the annular pressure member 17. FIG. 5*a* shows eccentric member 14 surrounded by a self-aligning ball bearing 16' having an inner ring 16*a* secured to eccentric member 14, and an outer ring 16*b* which is mounted for limited movement in the directions indicated by double-arrow C parallel to the axis of eccentric member 14. If necessary, the needles of needle bearing 16 may be barrel-shaped so that the needle bearing functions in the manner of a self-aligning roller bearing, or each needle may be replaced by several balls. In any event, the needle bearing is constructed to permit transverse or lateral oscillating movements of presser arm 9 which are caused by the automatic adjustment of the position of the top rollers 29 which are twin rollers tending to assume a position in which the axis thereof is parallel to the axis of the respective pair of twin bottom rollers 3.

Presser arm 9 has a guide rail portion 22 on which a plurality of bearing means 10 for top rollers 29 is mounted. Each bearing means 10 has a casing 23 which can be secured by a screw 24 to guide rail 22 in a position adjusted along the length of guide rail 22. A slide block 25, see FIG. 2, is mounted in casing 23 for transverse movement in the drection of the double arrow D, see FIG. 1, and each slide block 25 has a bearing seat 26 rollers 29 is mounted. On both sides of guide rail 22, in which the central portion 27 between the twin top springs 30 are provided in casing 23 which abut the end wall of the casing and slide block 25 to urge the latter out of the casing to an end position limited by a stop. Slide block 25 has a guideway for guide rail 22, whose cross section is rectangular, so that the slide block 25 and the bearing seat 26 cannot tilt relative to guide rail 22.

When carrier 4 for the top rollers 29 is in the drawing position shown in FIG. 1, slide blocks 25 are urged into casings 23 against the action of springs 30 so that the top rollers 29 exert pressure on the bottom rollers 3.

As noted above, the camming surface 31 of presser arm 9 cooperates with pressure member 17, and when housing arm 7 is moved from the fully open position of FIG. 3 to the operative drawing position shown in FIG. 1, pressure member 17 moves along a circular path having its center in the axis of shaft 5 about which housing arm 7 turns. Since camming surface 31 deviates from this circular path, force is transmitted from pressure member 17 to presser arm 9, and the same is turned about pivot means 19 toward the bottom rollers. Consequently, pressure member 17 and camming face 31 are force transmitting means, and due to the position of the pivot means 5 and 19 of the housing arm and presser arm, respectively, and due to the direction of the camming surface 31, a greater force is transmitted to presser member 9 than is applied to the handle 70 of housing arm 7 in the direction of the arrow E. During the downward movement of the housing arm 7, pressure member 17 moves in the direction of the arrow G shown in FIG. 2 along the camming surface 31 in the position shown in FIG. 3 in which pressure member 17 abuts a stop face 34 at the end of the camming surface 31 to the position shown in FIG. 1 in which pressure member 17 has passed beyond the end of camming surface 31 and has entered an arresting recess 33 in presser arm 9. The camming surface 31 has such a shape that in the angular sector in the way the top rollers already abut the bottom rollers, a comparatively great angular movement of the housing arm 7 is required for a comparatively small angular movement of presser arm 9.

By this construction of the force transmitting means 17, 31, the same have a great reduction ratio, and the camming surface 31 is further designed so that the ratio of the force transmitting means increases continuously during movement of the pressure member 17 in the direction of the arrow until pressure member 17 arrives at the highest point 32 of the camming surface which precedes arresting recess 33. In the construction of the illustrated embodiment, the pressure member 17, which effects the movement of the presser arm 9 by engaging the camming face 31 of the same, is also used as a locking member for locking housing arm 7 and presser arm 9 in the operative position to each other. In order to obtain such locking engagement, the arresting recess 33 is shaped so that presser arm 9 in the locked position is only slightly upwardly displaced out of the position in which pressure member 17 is located at the point 32 of camming surface 31. As a result, the locking engagement can be easily released, since only a slight pull on handle 70 in the direction of the arrow F is required for moving pressure member 17 from the position of FIG. 1 to the position of FIG. 2. In the fully open position of FIG. 3, pressure member 17 abuts stop face 34 which is a continuation of the camming surface 31.

Two compression springs 35 are disposed on opposite sides of presser arm 9 in the housing arm portion 12 and abut on the rear wall 36 of the housing arm portion 12 and have forward ends with inserted pins 37, see FIG. 4, which abut against a pin 55 extending across and projecting from presser arm 9. When housing arm 7 is raised to the open position, springs 35 urge presser arm 9 to follow this movement while camming face 33 is biassed toward pressure member 17.

The position of the pivot axis of housing arm 7 formed by support shaft 5, and the position of the pivot axis

of presser arm 9 formed by the pivot pin 21, and also the shape of the camming means 31 and of the arresting recess 33, are selected so that little manual force is required for lowering the housing arm 7 to the operative position where it is arrested by engagement of pressure member 17 in arresting recess 33. In order to obtain the desired function, the pivot axis of the presser arm is higher than the pivot axis of the housing arm, considered in relation to the drawing plane defined by the cooperating top and bottom rollers. Furthermore, the pivot axis of the housing arm 7 is substantially located at the level of the bottom rollers 3, and before the bottom rollers, considered in the drawing direction. The pivot axis of presser arm 9 is located higher than the top rollers 29, particularly in the operative drawing position shown in FIG. 1, and before the pivot axis of housing arm 7 in the drawing direction.

In the position illustrated in FIG. 1, the top roller carrier 4 is in the drawing position. Presser arm 9 is in an operative position and locked to housing arm 7 by engagement of pressure member 17 with the arresting recess 33. In this operative position of presser arm 9, the top rollers 29 engage the respective bottom rollers 3, and are pushed together with bearing slide block 25, 26 to a position in which springs 30 in casings 23 are compressed so that pressure is exerted by top rollers 29 on bottom rollers 3.

By turning the handle 15, the angular position of eccentric adjusting member 14 is varied, so that the annular pressure member 17 may urge presser arm 9 farther down which would cause further compression of springs 30 and increased pressure on the bottom rollers. However, when eccentric adjusting member 14 is turned in the opposite direction, presser arm 9 is turned by the action of springs 35 in clockwise direction as viewed in the drawing so that springs 23 expand to hold the top rollers 29 abutting on bottom rollers 3 while the pressure exerted by springs 30 and top rollers 29 on the bottom rollers 3 is reduced.

The angular adjustment of eccentric member 14 does not have to overcome the friction of camming surface 31 since the ball bearing 16 permits turning of eccentric member 14 while friction holds the annular pressure member 17 in the same angular position.

During a drawing operation, when a roving or sliver is stretched by the cooperating top and bottom rollers, presser arm 9, and more particularly guide rail 22 with bearing means 10 thereon, can tilt in the directions of the arrows B when bottom rollers 3 urge the respective top rollers 29 into an aligned position. The bearing seats 26 are constructed to assure parallel axes of the top and bottom rollers when presser arm 9 is tilted. As explained above, tilting and lateral movement of presser arm 9 is possible due to the construction of the pivot means 21 and the play with which presser arm 9 is mounted on the same.

When the drawing device is to be opened, housing arm 7 is moved in the direction of the arrow F. During the movement from the position of FIG. 1 to the position of FIG. 2, pressure member 17 moves along a circular path having its center in the axis of shaft 5 and out of arresting recess 33. Since the high point 32 of the camming face is farther spaced from the pivot axis defined by shaft 5 then the bottom of arresting recess 33, guide rail 21 with bearing means 10 and top rollers 29 is moved a small distance further down so that springs 30 are further compressed. Consequently, a certain force has to be applied to handle 70 to unlock housing arm 7 and presser arm 9. The following portion of the camming surface 31 approaches the pivot axis of shaft 5 so that housing arm 7 is turned in clockwise direction by the expanding springs 30 of bearing means 10. At the same time, springs 35 urge presser arm 9 to turn in clockwise direction. When housing arm 7 has been turned to a position in which pressure member 17 abuts the stop surface 34 of presser arm 9, the same follows the movement of housing arm 7 due to the action of the springs 35.

In the event that it is desired to lock the top roller carrier 4 in a second operative position in which the top rollers 29 are pressed with a lesser force against the bottom rollers 3, a second arresting recess 33' is provided in the camming surface 31, as shown in FIG. 3, so that housing arm 7 can be manually placed in a position in which pressure member 17 is located in the second arresting recess 33' in which position the top rollers abut the bottom rollers, but with a lesser force since guide rail 21 is farther spaced from the same than in the first operative position shown in FIG. 1.

If it is desired to produce greater or lesser pressure between the top rollers 29 and the bottom rollers 3, the handle 15 is turned to a position indicated by the indicia 40 so that eccentric adjusting member 14 is angularly displaced and correspondingly displaces pressure member 17 to increase or decrease the angle between presser arm 9 and housing arm 7.

It will be understood that each of the elements described above, or two or more together, may also find a useful application in other types of drawing devices differing from the types described above.

While the invention has been illustrated and described as embodied in a drawing device in which a housing arm is manually operated and locked with the presser arm carrying the top rollers in a drawing position in which the resiliently mounted top rollers abut the bottom rollers at a predetermined pressure, it is not intended to be limited to the details shown, since various modifications and structural changes may be made without departing in any way from the spirit of the present invention.

What is claimed as new and desired to be protected by Letters Patent is set forth in the appended claims:

1. A drawing device for textile machines, comprising, in combination, supporting means; first bearing means mounted on said supporting means; bottom rollers mounted in said first bearing means; a stationary support shaft fixedly mounted on said supporting means and having an axis parallel to the axes of said bottom rollers; bracket means fixed to said support shaft; pivot means mounted on said bracket means above said support shaft; presser arm means mounted on said pivot means for movement between an inoperative position and at least one operative position, and including second bearing means; top rollers mounted in said second bearing means, said top rollers cooperating, respectively, with said bottom rollers in said operative position of said presser arm means; manually operable housing arm means mounted on said support shaft for pivotal movement about said axis of said support shaft between an inoperative position and at least one actuating position; and force transmitting means connecting said housing arm means with said presser arm means so that the latter moves to said operative position when said housing arm means is moved to said actuating position, said force transmitting means having such a ratio that the manual force applied to said housing arm means is less than the force transmitted by the same to said presser arm means, said force transmitting means including locking means for locking said presser arm means and said housing arm means when the same are in said operative and actuating positions, respectively, and being releasable by manual movement of said housing arm means out of said operative position.

2. Drawing device as claimed in claim 1 wherein the axis of said support shaft is located substantially in a plane defined by the axes of said bottom rollers, and before said bottom rollers in the drawing direction.

3. A drawing device as claimed in claim 1, wherein said presser arm means has lateral surfaces, and an opening between said lateral surfaces widening from the center of said presser arm means toward said lateral surfaces, said opening having a greater diameter than said pivot

means; and wherein said pivot means passes through said opening for mounting said presser arm means for pivotal movement about a pivot axis between said positions thereof, and also for tilting and oscillating movement relative to said pivot axis.

4. Drawing device as claimed in claim 3 wherein said pivot means and opening are positioned to mount said presser arm means for tilting movement about an axis which is perpendicular to a plane passing through the axis of said bottom rollers when said presser arm means is in said operative position, and which is located before said top rollers in the drawing direction.

5. Drawing device as claimed in claim 1 wherein said force transmitting means include a camming surface on said presser arm means.

6. Drawing device as claimed in claim 1 wherein said force transmitting means includes a pressure member mounted on one of said arm means, and a camming surface on the other arm means engaged by said pressure member during movement of said housing arm means toward said actuating position so that said presser arm means moves toward said operative position; wherein said camming surface deviates from a circular line concentric to said support shaft; and wherein said locking means includes an arresting recess in said other arm means at one end of said camming surface and engaged by said pressure member in said actuating position of said housing arm means for locking said presser arm means in said operative position.

7. Drawing device as claimed in claim 6 and including another arresting recess located along said camming surface for engagement by said pressure member so that said presser arm means is locked in another operative position.

8. Drawing device as claimed in claim 6 wherein said arresting recess deviates from said circular line and has such a shape that said housing arm means in said actuating position has to be moved beyond said actuating position for releasing said pressure member from said arresting recess.

9. A drawing device as claimed in claim 1 wherein said force transmitting means includes a pressure member mounted on one of said arm means, and a camming surface on the other arm means cooperating with said pressure member; and wherein said locking means includes a first arresting recess in said other arm means at one end of said camming surface and a second arresting recess located along said camming surface, said first and second arresting recesses being engaged by said pressure member in two different positions, respectively, for locking said presser arm means in two different operative positions.

10. A drawing device for a textile machine comprising a supporting structure including supporting means, first bearing means mounted on said supporting means, and a stationary support shaft fixedly mounted on said supporting means; pivot means mounted on said supporting structure spaced from said support shaft; bottom rollers mounted in said first bearing means; presser arm means mounted on said pivot means for movement between an inoperative position and at least one operative position, and including second bearing means; top rollers mounted in said second bearing means, said top rollers cooperating, respectively, with said bottom rollers in said operative position of said presser arm means; manually operable housing arm means mounted on said support shaft for pivotal movement between an inoperative position and at least one actuating position; and force transmitting means connecting said housing arm means with said presser arm means so that the latter moves to said operative position when said housing arm means is moved to said actuating position, said force transmitting means having such a ratio that the manual force applied to said housing arm means is less than the force transmitted by the same to said presser arm means, said force transmitting means including locking means for locking said presser arm means and said housing arm means when the same are in said operative and actuating positions, respectively, and being releasable by manual movement of said housing arm means out of said operative position, said locking means including a part of said force transmitting means mounted on one of said arm means and an arresting recess formed in the other of said arm means and engaged by said part when said presser arm means and said housing arm means are in said operative and actuating positions.

11. Drawing device as claimed in claim 10 wherein said part is mounted on said housing arm means and said arresting recess is formed in said presser arm means; and wherein said part engages said arresting recess when said housing arm means is moved to said actuating position whereby said arm means are locked to each other and against movement to said inoperative positions.

12. Drawing device as claimed in claim 10 wherein said part is a pressure member, and wherein said other arm means has a camming surface engaged by said pressure member; wherein said camming surface ends in said arresting recess; and wherein the contour of said camming surface is located in a plane perpendicular to the drafting plane defined by said bottom rollers.

13. Drawing device as claimed in claim 12 wherein said pressure member is mounted on said housing arm means; and wherein said presser arm means has said camming surface.

14. Drawing device as claimed in claim 13 wherein said pressure member is mounted on said housing arm means for rotation about an axis.

15. Drawing device as claimed in claim 13 wherein said force transmitting means include mounting means for adjustably mounting said pressure member on said housing arm means.

16. Drawing device as claimed in claim 15 wherein said mounting means include an adjusting member having a circular periphery carrying said pressure member which is annular; said adjusting member being turnable about an axis eccentric to the center of said circular periphery.

17. Drawing device as claimed in claim 16 wherein eccentric adjusting member has a shaft mounted in said housing arm means for turning movement about said axis and projecting out of the same; operating means secured to said shaft outside of said housing arm means for turning said adjusting member; and indicia means on said housing arm means for indicating the position of said operating means and of said eccentric adjusting member, and thereby the position of said pressure member.

18. Drawing device as claimed in claim 17 wherein said operating means is a manually operable member secured to said shaft and having a portion cooperating with said indicia means.

19. Drawing device as claimed in claim 15 wherein said mounting means includes a self aligning roller bearing surrounded by said pressure member so that said pressure member can tilt in said plane.

20. Drawing device as claimed in claim 10 wherein said housing arm means has a U-shaped cross section open downward toward said top rollers; wherein said presser arm means in said operative position is located in said U-shaped cross section of said housing arm means in said actuating position and projects out of said housing arm means and toward said bottom rollers in said inoperative positions.

21. A drawing device for a textile machine comprising a supporting structure including supporting means, first bearing means mounted on said supporting means, and a stationary support shaft fixedly mounted on said supporting means; pivot means mounted on said supporting structure spaced from said support shaft; bottom rollers mounted in said first bearing means; presser arm means mounted on said pivot means for movement between an inoperative position and at least one operative position, and including a straight guide rail, second bearing means mounted on said guide rail for longitudinal movement

between adjusted positions cooperating with said bottom rollers, and means for securing said second bearing means in said adjusted positions to said guide rail; top rollers mounted in said second bearing means, said top rollers cooperating, respectively, with said bottom rollers in said operative position of said presser arm means; manually operable housing arm means mounted on said support shaft for pivotal movement between an inoperative position and at least one actuating position; and force transmitting means connecting said housing arm means with said presser arm means so that the latter moves to said operative position when said housing arm means is moved to said actuating position, said force transmitting means having such a ratio that the manual force applied to said housing arm means is less than the force transmitted by the same to said presser arm means, said force transmitting means including locking means for locking said presser arm means and said housing arm means when the same are in said operative and actuating positions, respectively, and being releasable by manual movement of said housing arm means out of said operative position.

22. Drawing device as claimed in claim 21 wherein each said second bearing means includes a guide way through which said guide rail passes.

23. Drawing device as claimed in claim 21 wherein each said second bearing means comprises a casing mounted on said guide rail, a slide block supported in said casing for movement transverse to said guide rail, and supporting a top roller, and spring means in said casing abutting the same and said slide block and biasing the same and said top roller toward an end position so that in said operative position of said presser arm means, said top rollers resiliently abut said bottom rollers.

24. A drawing device for textile machines, comprising, in combination, a supporting structure including supporting means, first bearing means mounted on said supporting means, and a stationary support shaft fixedly mounted on said supporting means; pivot means mounted on said supporting structure spaced from said support shaft; bottom rollers mounted in said first bearing means; presser arm means mounted on said pivot means for movement between an inoperative position and at least one operative position, and including second bearing means; top rollers mounted in said second bearing means, said top rollers cooperating, respectively, with said bottom rollers in said operative position of said presser arm means; manually operable housing arm means mounted on said support shaft for pivotal movement between an inoperative position and at least one actuating position; and force transmitting means connecting said housing arm means with said presser arm means so that the latter moves to said operative position when said housing arm means is moved to said actuating position, said force transmitting means including a pressure member mounted on one of said arm means, and a camming surface on the other arm means engaged by said pressure member during movement of said housing arm means toward said actuating position so that said presser arm means is moved toward said operative position, said camming surface being located between said second bearing means and said pivot means and deviating from a circular line concentric with said support shaft, said force transmitting means having such a ratio that the manual force applied to said housing arm means is less than the force transmitted by the same to said presser arm means, said force transmitting means including locking means for locking said presser arm means and said housing arm means when the same are in said operative and actuating positions, respectively, and being releasable by manual movement of said housing arm means out of said operative position.

25. Drawing device as claimed in claim 24 wherein said support shaft is located below said camming surface; wherein said pressure member is mounted on said housing arm means, and said camming surface is located on said presser arm means.

26. A drawing device as claimed in claim 24 wherein said camming surface has such a contour that the ratio of force transmission between said housing arm means and said presser arm means continuously increases during movement of said presser member along said camming surface until said pressure arm means and housing arm means are locked by said locking means.

27. A drawing device for a textile machine, comprising a supporting structure including supporting means, first bearing means mounted on said supporting means, and a stationary support shaft fixedly mounted on said supporting means; pivot means mounted on said supporting structure spaced from said support shaft; bottom rollers mounted in said first bearing means; presser arm means mounted on said pivot means for movement between an inoperative position and at least one operative position, and including second bearing means; top rollers mounted in said second bearing means, said top rollers cooperating, respectively, with said bottom rollers in said operative position of said presser arm means; manually operable housing arm means mounted on said support shaft for pivotal movement between an inoperative position and at least one actuating position; biassing means for urging said presser arm means to said inoperative position thereof so that said presser arm means follows said housing arm means when the same is manually moved to said inoperative position thereof; and force transmitting means connecting said housing arm means with said presser arm means so that the latter moves to said operative position when said housing arm means is moved to said actuating position, said force transmitting means having such a ratio that the manual force applied to said housing arm means is less than the force transmitted by the same to said presser arm means, said force transmitting means including locking means for locking said presser arm means and said housing arm means when the same are in said operative and actuating positions, respectively, and being releasable by manual movement of said housing arm means out of said operative position.

28. Drawing device as claimed in claim 27 wherein said biassing means include compression spring means abutting said housing arm means and said presser arm means.

29. A drawing device for a textile machine comprising a supporting structure including supporting means, first bearing means mounted on said supporting means, and a stationary support shaft fixedly mounted on said supporting means; pivot means mounted on said supporting structure above said support shaft; bottom rollers mounted in said first bearing means; presser arm means mounted on said pivot means for movement between an inoperative position and at least one operative position, and including second bearing means; top rollers mounted in said second bearing means, said top rollers cooperating, respectively, with said bottom rollers in said operative position of said pressure arm means; said pivot means being located higher than said bottom rollers and top rollers in said operative position of said pressure arm means, and before said support shaft in said drawing direction; manually operable housing arm means mounted on said support shaft for pivotal movement between an inoperative position and at least one actuating position; and force transmitting means connecting said housing arm means with said presser arm means so that the latter moves to said operative position when said housing arm means is moved to said actuating position, said force transmitting means having such a ratio that the manual force applied to said housing arm means is less than the force transmitted by the same to said presser arm means, said force transmitting means including locking means for locking said presser arm means and said housing arm means when the same are in said operative and actuating positions, respectively, and being releasable by manual

movement of said housing arm means out of said operative position.

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