Aug. 26, 1969 G. SCHULZ ET AL 3,462,934

APPARATUS FOR GRIPPING BOBBINS ON TEXTILE MACHINES

Filed April 9, 1968 2 Sheets-Sheet 1

Fig. 1

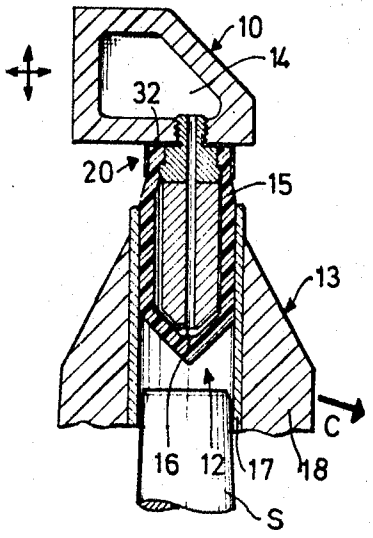


Fig. 2

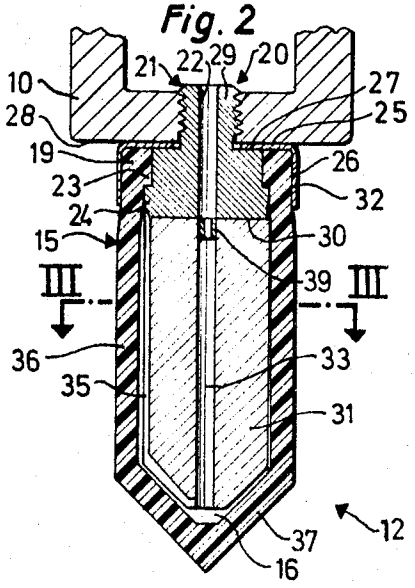


Fig. 6

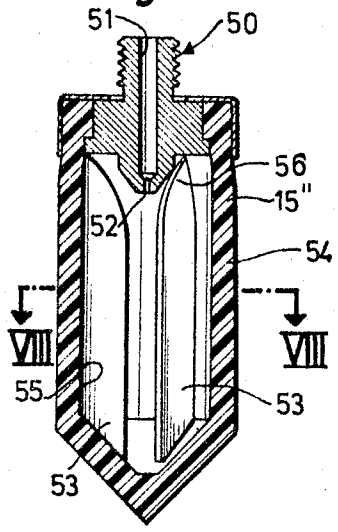


Fig. 7

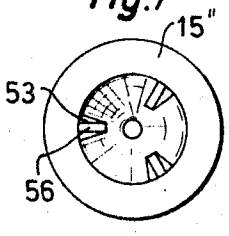


Fig. 3

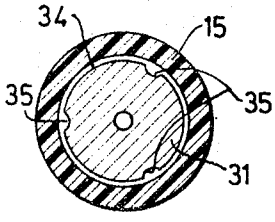


Fig. 8

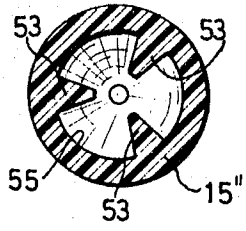
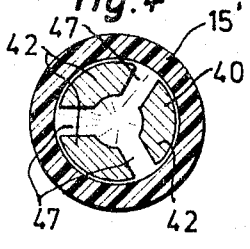


Fig. 4



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Aug. 26, 1969 G. SCHULZ ET AL 3,462,934

APPARATUS FOR GRIPPING BOBBINS ON TEXTILE MACHINES

Filed April 9, 1968 2 Sheets-Sheet 2

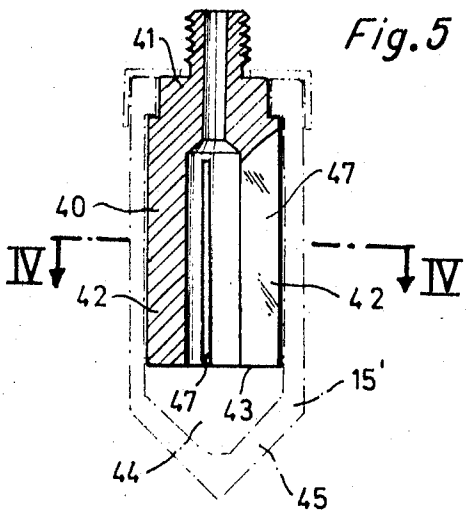


Fig. 5

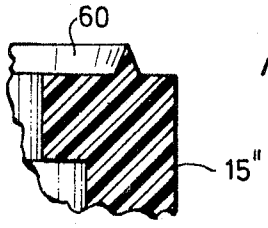


Fig. 9

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APPARATUS FOR GRIPPING BOBBINS ON TEXTILE MACHINES

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U.S. Cl. 57—52 22 Claims

ABSTRACT OF THE DISCLOSURE

A gripping arrangement for gripping insertion into the bobbins of a textile machine consists of an elongated inflatable bag member shaped to fit into the interior of a bobbin and carried by a pressure manifold with which it is connected. A self-supporting support means is provided within the bag member to internally support the circumferential wall of the same over at least a portion of the length of the support member.

Background of the invention

The present invention relates generally to textile machines, and more specifically to textile machines of the type in which bobbins are used. Still more specifically, the invention relates to a gripper device for gripping the bobbins in such machines.

Textile machines of many types, for example spinning or twisting machines, are provided with a great number of bobbin spindles which are mounted on so called "spindle batteries." Usually, one such battery extends along each of two opposite sides of the machine and may comprise as many as two hundred or even more individual spindles. Associated with each of these spindles is a bobbin tube. The term "bobbin tube" is used here to indicate, for the sake of convenience, that the member is of generally tubular configuration with the associated spindle being received in the interior. Obviously, other configurations are possible but will not be further discussed because in the context of the invention they have no relevance.

In operation of such machines, an empty bobbin tube is placed onto each spindle, and yarn or filament wound onto the bobbin tube. This results in a so-called "thread package" which is then removed from the spindle to be replaced by the next empty bobbin tube. Installation of the empty tubes and removal of the full tubes or thread packages is accomplished by an automatic bobbin clamping mechanism which comprises a plurality of gripper devices each of which is associated with one of the spindles. The bobbin tubes placed over the spindles of a given bank are all fully wound with thread at the same time, and the full tubes are therefore all removed, and replaced with empty ones, simultaneously.

The customary construction of the gripper devices comprises an elongated inflatable member of elastomeric material so configurated that it will in its non-inflated state fit inside a bobbin tube. These members are mounted on a pressure manifold with which their interior communicates and the pressure manifold is movable, to a first position in which the respective inflatable members extend into empty bobbin tubes arranged at a pick-up station. Once thus inserted, pressure fluid is introduced from the manifold into the inflatable members inflating the same into frictional engagement with the wall of the respective empty bobbin tubes. Thereafter, the manifold with he empty bobbin tubes which are now releasably secured

thereto, is moved to the textile machine and to a position in which one of the spindles extends into each of the bobbin tubes. Pressure fluid is now withdrawn or allowed to escape from the inflatable members. This results in their withdrawal out of contact with the bobbin tube wall. The manifold is now moved so as to withdraw the inflatable members from the respective empty bobbin tubes.

When the thus installed bobbin tubes are subsequently fully wound with thread, the procedure is reversed and the full bobbin tubes removed from their spindles. Of course, before the manifold can be moved to the pick-up station for new empty tubes, the full ones must be deposited at an unloading station. This is where a problem frequently develops which the invention is intended to overcome.

On removal of the full tubes from their spindles and movement of the manifold with these full tubes laterally to the unloading station, it frequently occurs that one or more loops of the thread on some of the full tubes are caught on the spindles. This of course counteracts movement of the full tube in question, exerting a pull in the direction opposite the movement of the manifold. Inasmuch as the inflatable members are of elastomeric material, those concerned will yield to this pull, whereby the full bobbin tube carried by such an inflatable member will tilt out of its intended predetermined position. In view of the limited space available for the various components in the machines here in question, the position and path of movement of each bobbin tube, whether empty or full, are closely calculated so as not to interfere with or receive interference from other components of the machine. For this reason the tilting just described causes difficulties because it can, and frequently does, result in contact of the thus tilted bobbin tube with other machine components and this may damage the tube and/or the other component, or at the least, result in jamming of the bobbin tube which requires shutting-down of the machine while the problem is being corrected. This tilting problem, incidentally, may occur at times simply as a result of a shifting of the weight of the thread package when the latter is moved angularly with reference to its previous position.

A further problem with gripper devices of the type in question resides in the fact that the elastomeric material from which the inflatable member is constructed will sometimes sustain damage during removal of full bobbin tubes, that is thread packages, as a result of stresses which may develop in certain circumstances during such removal.

Also, simultaneous removal of all full bobbin tubes from the great number of spindles of a spindle battery, and similarly simultaneous engagement of all required empty replacement tubes, obviously necessitates simultaneous inflation of all the inflatable members concerned. For structural, mechanical and economical reasons the inflatable members associated with spindle battery are supplied with pressure fluid from a pressure manifold common to them all. This of course requires significant amounts of fluid which must be under substantial pressure because the entire enterior space of each inflatable member must be filled with pressure fluid. Furthermore, if one or more of the inflatable members should develop pressure leaks, the pressure drop in all of the inflatable members supplied by the same manifold may result in deflation to the extent that any bobbin tubes—whether empty or full—which may be carried by these members at the time, will drop off. It need not be emphasized that this is extremely undesirable.

Finally, there has heretofore existed a problem relating to the connection between the mainfold and the inflatable members associated therewith. For structural and economic reasons the connection must be simple but so reliable as to remain fluid-tight under the most severe

stresses to which the inflatable members are expected to be subjected in operation of the machine. Inasmuch as eventual replacement of the inflatable members is inevitable, due to damage or simply material fatigue, the connection must permit simple and speedy exchange of an old inflatable member for a new one, and in a manner which permits this exchange to be carried out by unskilled personnel. Known constructions do not, however, provide optimum solutions to these problems.

It is therefore a general object of the present invention to overcome the above-enumerated disadvantages.

Summary of the invention

In accordance with one feature of our invention, we provide a pressure conduit communicating with a source of fluid under pressure and being movable between the positions, and gripper means carried by the pressure conduit and adapted for endwise insertion into tubular members present at the respective locations, the gripper means comprising an elongated inflatable bag member of elastomeric material configurated so as to be insertable into the tubular members, connecting means connecting the bag member with the pressure conduit so that the interior of one communicates with the interior of the other, and internal support means located within the bag member extending along at least a portion of an interior wall surface whereby when the bag member is inserted in one of the tubular members and pressure fluid is introduced into the bag member for distending the latter into frictional engagement with the wall of the tubular member, the internal support means will reinforce and support the bag member against flexing forces acting upon the same in direction transversely of its elongation.

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 longitudinal section through an arrangement incorporating a gripper device according to a first embodiment of our invention;

FIG. 2 is a longitudinal section, on an enlarged scale, of the gripper device shown in the arrangement of FIG. 1;

FIG. 3 is a section taken on the line III—III of FIG. 2;

FIG. 4 is a section of another embodiment of the inventive gripper device, taken on the line IV—IV of FIG. 5;

FIG. 5 is a longitudinal section through the gripper device shown in FIG. 4;

FIG. 6 is a longitudinal section through yet a further embodiment of the gripper device according to the invention;

FIG. 7 is a top-plan view of the inflatable member in the gripper device shown in FIG. 6;

FIG. 8 is a section taken on the line VIII—VIII of FIG. 6; and

FIG. 9 illustrates, in partial section, a detail of FIG. 6 on an enlarged scale.

Description of the preferred embodiments

Discussing now the drawing in detail, and firstly FIGS. 1–3 thereof, it should be noted that reference numeral **10** illustrates a combined support member and pressure manifold which is shown in transverse section. Such a manifold, which is customarily provided in textile machines of the type with which the novel gripper device is intended to be used, is elongated and carries a plurality of identical gripper devices, one of which is shown and identified with reference numeral **12**.

It will be understood that the remainder of the textile machine, as well as the source of pressure fluid and the mechanism for moving the pressure conduit—for instance in the directions indicated by the double-headed arrows in FIG. 1—are not shown because they are conventional and well known to those skilled in this art, and also because they are of no importance in the context of the inventive concept.

Reference symbol S indicates one of the spindles of which a great number—as many as two hundred or more—may be provided in a single spindle battery. One of the gripper devices **12** is associated with each of these spindles, but the illustration of a single device **12** and a single spindle S will suffice for an understanding of the invention.

FIG. 1 shows a bobbin tube **17** placed over the spindle S. As illustrated, the bobbin tube is fully wound with thread **18** and constitutes therewith a thread package which in its totality is identified with reference numeral **13**. This thread package is to be removed from the spindle S and replaced with an empty bobbin tube.

For this purpose the gripper device **12** is provided, which communicates with the interior channel **14** of the pressure manifold. As shown most clearly in FIG. 2, the device **12** comprises a holding structure **20** which consists of a nipple **21** on externally screw-threaded portion **29** of which is threaded into an aperture which is provided for this purpose in the wall of the manifold **10**. A cup-shaped holding member **32** has a cylindrical side wall **26** and a planar bottom wall **25**, the latter being provided with an aperture through which the nipple **21** extends. The holding member **21** is thus reliably, simply and readily releasably secured to the manifold **10** and is pressed against the wall thereof by the annular shoulder **27** of the nipple **21**. If desired, a sealing gasket may additionally be inserted between the bottom wall **25** and the conduit **10**.

A hollow inflatable member **15** is secured to and carried by this holding structure. The member **15**, which advantageously consists of an elastomeric synthetic plastic material, comprises in the illustrated embodiment a substantially cylindrical portion **36** and a conically tapering closed end portion **37**. The closed end portion may of course be of other-than-conical configuration, but this shape has been found to be particularly advantageous and is therefore currently preferred by us. The wall thickness of the member **15** is so selected that upon inflation the member **15** can be outwardly distended to the extent required for tight engagement with the wall of the bobbin tube **17**.

In accordance with the invention the member **15** is provided at its open end with a radially inwardly projecting annular bead **23** which, when the nipple **21** is inserted into the open end of member **21**, engages and tightly abuts an outwardly projecting radial bead **24** of the nipple **21**. The holding member **32** is so configurated that the end portion **19** of the member **15** is tightly received within its confines. Further, the axial length of the cup-shaped holding member **32** is such that the holding member extends forwardly beyond the bead **23** of the member **15**. This construction provides a simple connection of the member **15** with the holding structure **20** and permits ready installation and removal of the member **15** without requiring special skills. It furthermore can withstand high pulling forces acting in axial direction on the member **15** in a sense tending to separate the same from the holding structure. Finally, the connection is fluid-tight in a highly reliable manner, it being clear that the member **15** is sealingly pressed against the member **32** by the pressure of pressure fluid introduced into the member **15**, and that this contact is the more intimate and fluid tight, the greater the pressure which prevails in the member **15**.

As shown most clearly in FIG. 2 there is further provided, in accordance with the invention, a rigid elongated insert **31** which may advantageously consist of metallic material. This insert **31**, which is located within the mem-

ber 15 downwardly or forwardly at the end wall 30 of nipple 21. The nipple 21 is provided with a bore communicating with the interior channel 14 of the manifold 10, and the insert 31 is in turn provided with a bore 33 which communicates with and constitutes an extension of the bore 22. It will be appreciated that, while we have shown the insert 31 as a member which is separate from the nipple 21, it could of course also be integral or of one piece with the latter.

In the embodiment of FIGS. 1–3 the insert 31 fills whatever free space remains within the member 15 after connection of the same with the nipple 21 and in non-expanded condition of the member 15. The circumferential wall 34 of insert 31 conforms in outline and configuration to the inner surface of the member 15 but is provided, to assure ready flow the pressure fluid, with three longitudinal grooves or flutes 35 which in the relaxed non-inflated condition of the member 15 forms with the inner surface of the latter three fluid channels. Advantageously, the grooves 35 will be equiangularly spaced about the periphery of the insert 31, although other positioning is possible just as the number of such grooves may be more or less than three. It should also be understood that the grooves may be of different configuration, for instance helical, that they may be provided in the inner surface of the member 15, and that they may be completely omitted.

It will be appreciated that introduction of pressure fluid from the manifold 10 through the bores 22 and 33 into the member 15 will result in outward expanding of the latter, and in engagement thereof with the wall of bobbin 17 (compare FIG. 1). If, now, the thread package 13 is to be removed from spindle S, the manifold 10 with the thread package 13—and all other similar thread packages—will initially be moved upwardly until the bobbin tube 17 is completely withdrawn from the spindle S, whereupon the manifold 10 is moved laterally, to an unloading station at which the thread packages 13 are to be released.

However, if one or more loops of thread from the package 13 are caught on the associated spindle S, a lateral pull will be exerted on the thread package and its gripper device 12, as for example indicated in FIG. 1 by the arrow C. In previous constructions this would result in tilting of the package 13 with the undesirable consequences which have already been described. With the construction according to the invention and as illustrated in FIGS. 1–3, this is largely prevented. It is clear that the insert 31 so internally supports the member 15 that the developing laterally acting forces will act almost exclusively upon the insert 31, rather than the member 15, so that the latter is protected against damage.

Furthermore, the insert 31 within the member 15 significantly reduces the quantity of pressure fluid required for effecting expansion of the member 15. This is of advantage not only in economic respects, but also results in a reduction of the time required for expansion of the member 15. While this reduction will of course be small, it is nevertheless significant when it is considered that machines of the type here in question operate at very high speeds so a saving of even fractions of a second will result in an increase of the overall operating speed.

In accordance with the invention there is also provided a throttling member or a throttling section 39 in the bore 33 which is so configurated that, should the member 15 develop a leak with the resultant loss of pressure fluid, the lost pressure fluid can be constantly replenished in such a manner that the pressure in the channel 14 will not drop significantly and to an extent rendering the remaining gripper devices inoperative.

In FIGS. 4 and 5 we have illustrated a further embodiment of our invention. All components of this embodiment, except for the insert 40 which corresponds functionally to the insert 31, are identical with or similar to those shown in FIGS. 1–3, and are therefore not shown in detail.

FIG. 5 shows that in this embodiment the insert 40 an the nipple 41 are of one-piece construction. Unlike the insert 31, however, the insert 40 of FIGS. 4 and 5 consists of three elongated radial segments 42 (compare FIG. 4) which are separated by longitudinal slots or gaps 47. As seen in FIG. 5 the free end face 43 of the insert 40 is planar, contrary to the tapering configuration of insert 31 in FIGS. 1–3. Inasmuch as the inflatable member, here indicated with reference numeral 15' and shown in phantom lines, has a conically tapering end portion 45 corresponding to the end portion 37 in FIG. 2, the end face 43 and the inner surface bounding the end portion 45 define with one another an empty conical space 44. This makes it possible to so position the member 15' in relaxed state on the free end of the spindle S (see FIG. 1) that downward movement of the manifold collapses the end portion 45. Inflation of the member 15' takes place in the manner already explained, but the collapsed end portion 45 will, when pressure fluid is introduced into the member 15, press against the end portion of the spindle S. It thus serves to expel the spindle S from the bobbin by tending to move the latter axially of the former during its attempt to return to conical configuration, or it will at least assist in such release.

Coming, finally, to FIGS. 6–9 it will be seen that the inflatable member is identified in this embodiment with reference numeral 15''. It is secured to a nipple 50 in the manner discussed earlier with reference to FIGS. 1–3 and FIGS. 4–5. The nipple 50 is provided with a bore 51 and a throttling section 52 is provided in the channel 51 for the purposes discussed with reference to the section 39 of FIG. 2.

Unlike the preceding embodiments, the insert in FIGS. 6–9 is actually of one piece with the member 15''. Specifically the insert, or rather the equivalent thereof, is constituted by three elongated radially inwardly projecting ribs 53 which are integral with the wall 54 of the inflatable member 15'' as shown most clearly in FIG. 8 The length of the ribs 53 is substantially coextensive with the elongation of the inner free wall surface 55 of member 15'' and advantageously they are equi-angularly spaced about the inner circumference of that member. This arrangement assures proper internal support to the member 15'' and the ribs 53 will not hinder expansion of the member. Other arrangements of the ribs, and different members of ribs, may also be used, however. If desired another insert, analogous for instance to the one shown in FIG. 2, may be used in addition to the ribs 53 and be located inwardly of the same so as to support them in turn. It will then be rigid with the nipple, for example.

As indicated in FIG. 8, the ribs 53 taper radially inwardly of the wall surface 55. Advantageously they are rounded at their upper ends adjacent the nipple 50, as shown in FIG. 6.

FIG. 9 shows that, if desired or required to further improve the seal between the cup-shaped holding member and the inflatable member 15'', the upper free end face of the latter may be provided with one or more annular sealing beads or shoulders 60 (one shown) which are of one piece with the member 15'' and abut the bottom wall of the holding member.

Generally speaking it will be appreciated that the construction and/or arrangement of the insert may be chosen differently from what has been shown in the drawing. Thus, while we have found it advantageous for the radially outer surface of the insert to abut the inner wall surface of the peripheral wall of the inflatable member in relaxed condition of the latter, it will frequently also be satisfactory if there is a small clearance between them. Again, FIGS. 6–8 show that the insert may be actually integral with the peripheral wall. Also, as the drawing shows it is not necessary to reinforce the peripheral wall over its entire inner wall surface although this will be the most advantageous construction for some applications.

The construction according to the present invention is particularly advantageous for use with bobbin clamping apparatus in spinning and twisting machines. However, it may also be used to advantage in other textile machines such as flyers and spool machines. In fact, it may be used with machines other than textile machines where a problem of handling components exists analogous to the purposes for which the device according to the present invention is intended.

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 constructions differing from the types described above.

While the invention has been illustrated and described as embodied in a gripper device for use in textile machines, 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.

It is understood that the new gripping device is useful for bobbin changing devices or doffing and donning mechanism of different construction, for example bobbin changing devices are known, which have only one or few grippers for gripping full and/or empty tubular members such as tubes or similar means on which yarns are wound.

Without further analysis, the foregoing will so fully reveal the gist of the present invention that others can by applying current knowledge readily adapt it for various applications without omitting features that, from the standpoint of prior art, fairly constitute essential characteristics of the generic or specific aspects of this invention.

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

1. In a machine of the character described wherein tubular members are to be engaged and moved from one location to another location, the combination comprising a pressure conduit communicating with a source of fluid under pressure; a support movable between said positions; and gripper means carried by said support and adapted for endwise insertion into tubular members present at the respective locations, said gripper means comprising an elongated inflatable bag member of elastomeric configurated so as to be insertable into said tubular members, connecting means connecting said bag member with said pressure conduit so that the interior of one communicates with the interior of the other, and internal support means comprising at least one support member located within said bag member and having an outer wall surface juxtaposed with and abutting against at least a portion of an interior wall surface of said bag member in non-distended condition thereof, at least one of said wall surfaces being provided with at least one fluid-conveying groove extending in longitudinal direction of said bag member and defining in non-distended condition of the latter a fluid channel with the other of said wall surfaces, said internal support means serving to reinforce and support said bag member against flexing forces acting upon the same in direction transversely of its elongation when said bag member is inserted in one of said tubular members and pressure fluid is introduced into said bag member for distending the latter into frictional engagement with the wall of the tubular member.

2. In a machine of the character described wherein tubular members are to be engaged and moved from one location to another location, the combination comprising a pressure conduit communicating with a source of fluid under pressure; a support movable between said positions; and gripper means carried by said support and adapted for endwise insertion into tubular members present at the respective locations, said gripper means comprising an elongated inflatable bag member of elastomeric material configurated so as to be insertable into said tubular members and having a closed end adapted to be inserted into said tubular members and an open end, connecting means fluid-tightly secured to said open end of said bag member and including a portion which extends into the same, said connecting means connecting said bag member with said pressure conduit so that the interior of one communicates with the interior of the other, and internal support means comprising at least one support member connected with said connecting means and located within said bag member extending along at least a portion of an interior wall surface thereof said support member having a free end remote from said connecting means and being provided with longitudinally extending slits extending inwardly from said free end toward said connecting means and subdividing said support member into a plurality of spaced segments, said internal support means serving to reinforce and support said bag member against flexing forces acting upon the same in direction transversely of its elongation when said bag member is inserted in one of said tubular members and pressure fluid is introduced into said bag member for distending the latter into frictional engagement with the wall of the tubular member.

3. In a machine of the character described wherein tubular members are to be engaged and moved from one location to another location, the combination comprising a pressure conduit communicating with a source of fluid under pressure; a support movable between said positions; and gripper means carried by said support and adapted for endwise insertion into tubular members present at the respective locations, said gripper means comprising an elongated inflatable bag member of elastomeric material configurated so as to be insertable into said tubular members, connecting means connecting said bag member with said pressure conduit so that the interior of one communicates with the interior of the other, and internal support means comprising at least one support member located within said bag member extending along and connected with at least a portion of an interior wall surface thereof whereby, when said bag member is inserted in one of said tubular members and pressure fluid is introduced into said bag member for distending the latter into frictional engagement with the wall of the tubular member, said internal support means will reinforce and support said bag member against flexing forces acting upon the same in direction transversely of its elongation.

4. In a machine of the character described wherein tubular members are to be engaged and moved from one location to another location, the combination comprising a pressure conduit communicating with a source of fluid under pressure; a support movable between said positions; and gripper means carried by said support and adapted for endwise insertion into tubular members present at the respective locations, said gripper means comprising an elongated inflatable bag member of elastomeric material configurated so as to be insertable into said tubular members; connecting means connecting said bag member with said pressure conduit so that the interior of one communicates with interior of the other, said connecting means comprising a fluid-conveying bore communicating with the interior of said conduit and with the interior of said bag member; throttling means provided in said bore and being constructed and arranged to so throttle the flow of pressure fluid from said conduit into said bag member as to prevent a significant drop in the pressure of fluid in said conduit in the event of uncontrolled escape of fluid from said bag member due to development of a leak in the latter; and internal support means located within said bag member extending along at least a portion of an interior wall surface thereof whereby, when said bag member is inserted in one of said tubular members and pressure fluid is introduced into said bag member for distending the latter into frictional engagement with the wall of the tubular member, said internal support means will reinforce and support said bag member

against flexing forces acting upon the same in direction transversely of its elongation.

5. Gripping device for the acquisition and release of tubular members, such as bobbin tubes or the same, mounted on spindles of a textile machine, such as spinning or twisting machines, said gripping device having at least one inflatable bag member of elastomeric material configurated so as to be insertable into said tubular member and being supported by means capable of effecting insertion thereof into an end of said tubular member, supply means for selectively supplying pressure fluid into said bag member for effecting expansion thereof to grip said tubular member, and internal support means located within said bag member extending along at least a portion of an interior wall surface thereof and comprising at least one support member rigid with said interior wall surface whereby, when said bag member is inserted in a tubular member and pressure fluid is introduced into said bag member for distending the latter into frictional engagement with the wall of the tubular member, said internal support means will reinforce and support said member against flexing forces acting upon the same in direction transversely of its elongation.

6. Gripping device as defined in claim 5, wherein said support member is of one piece with said interior wall surface.

7. In a machine as defined in claim 3, wherein said support member is rigid.

8. In a machine as defined in claim 3, wherein said bag member has a closed end adapted to be inserted into said tubular members, and an open end fluid-tightly secured to said connecting means so that the latter partly extends into said bag member, and wherein said support member is a discrete member located in said bag member and abutting against said connecting means extending means extending into the same.

9. In a machine as defined in claim 3, wherein said connecting means comprises a nipple projecting from said conduit and having a bore communicating with the interior of said conduit, said bag means having an open end into which said nipple extends fluid-tightly connected thereto; and wherein support means comprises a substantially rod-shaped member extending from said nipple into said bag means.

10. In a machine as defined in claim 9, wherein said rod-shaped member includes a substantially centrally located longitudinally extending passage communicating with said bore and having an open end remote therefrom for escape of fluid into said bag member.

11. In a machine as defined in claim 2, wherein said slits extend from said free end to said connecting means.

12. In a machine as defined in claim 3, wherein said support member is of one piece with said bag member.

13. In a machine as defined in claim 12, wherein said support member comprises at least a rib extending in longitudinal direction of said bag member and projecting radially inwardly from said interior wall surface.

14. In a machine as defined in claim 13, wherein said support member comprises two additional ribs similar to said one rib, all of said ribs being equi-angularly spaced from one another.

15. In a machine as defined in claim 3, wherein said bag member comprises a main body portion extending away from said conduit and a free end portion, said main body portion being substantially cylindrical and said free end portion being of substantially conical configuration.

16. In a machine as defined in claim 3, wherein said internal support means is substantially coextensive with the length of said bag member at the interior of the latter.

17. In a machine as defined in claim 3, wherein said conduit has a wall provided with a tapped bore; said connecting means comprising a cup-shaped member having a bottom wall provided with an aperture registering with said tapped bore and an open side facing away from said tapped bore, and an externally screw-threaded nipple extending through said aperture and threaded into said tapped bore, said nipple having an abutment shoulder engaging said bottom wall within said cup-shaped member and pressing the latter against said wall of said conduit.

18. In a machine as defined in claim 17, said nipple having an annular circumferential bead and said bag member having an open end portion tightly mounting said bead and being confined between the same and the sidewall of said cup-shaped member.

19. In a machine as defined in claim 3, wherein said support means substantially fills the interior of said bag member.

20. In a machine as defined in claim 3, wherein said bag member has an open end fluid-tightly secured to said connecting means and including an axial end face provided with at least one annular sealing bead.

21. In a machine as defined in claim 1, wherein said one wall surface is said outer wall surface.

22. Gripping device as defined in claim 2, wherein said support member is rigid.

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294—93