United States Patent [19]

Franzen

[11] **3,731,478**

[45] **May 8, 1973**

[54] **AIR OPERATED YARN THREADING MECHANISMS IN A TEXTILE YARN PROCESSING MACHINE**

[75] Inventor: **Gustav Franzen,** Neersen, Germany

[73] Assignee: **Palitex Project Company,** Krefeld, Germany

[22] Filed: **July 7, 1971**

[21] Appl. No.: **160,358**

[30] **Foreign Application Priority Data**

July 15, 1970 Germany.....P 20 25 025.8

[52] **U.S. Cl.**.....**57/58.7,** 57/34 R, 57/58.83, 57/106

[51] **Int. Cl.**.....**D01h 7/86,** D01h 1/10

[58] **Field of Search**.....57/34.5, 34 R, 58.49:58.7, 57/58.83, 106, 58.86

[56] **References Cited**

UNITED STATES PATENTS

2,715,308	8/1955	Soussloff et al.	57/58.7 X
3,552,111	1/1971	Treuss et al.	57/58.49
3,319,410	5/1967	Frauzen	57/34 R
3,360,915	1/1968	Franzen	57/58.49
3,563,019	2/1971	Greive et al.	57/58.49 X
3,636,698	1/1972	Nakahara et al.	57/58.83 X

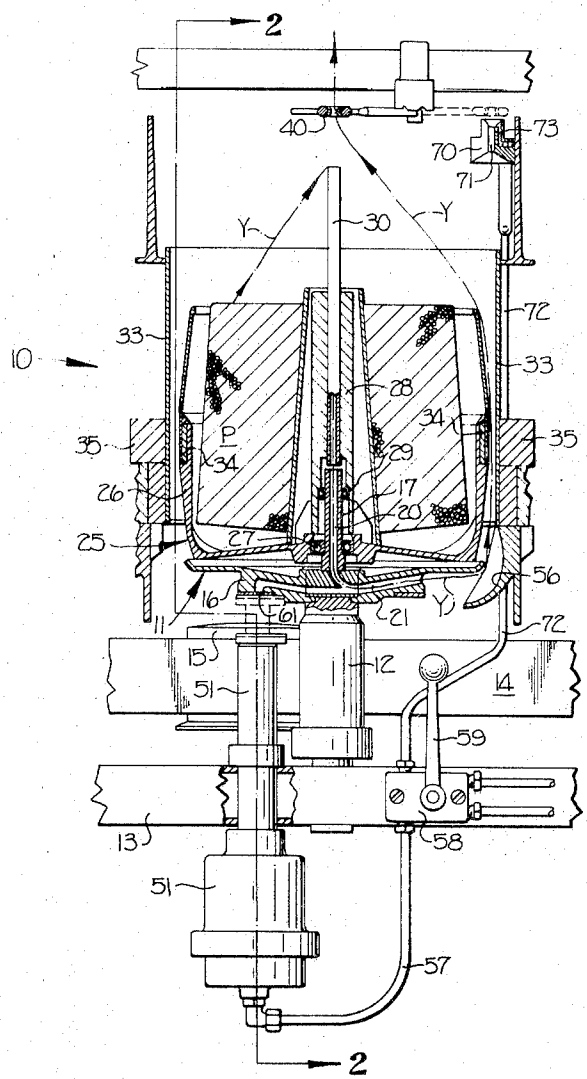
Primary Examiner—John Petrakes

Attorney—Warley L. Parrott et al.

[57] **ABSTRACT**

The combination in textile yarn processing machines, such as twisters or the like, of automatic yarn threading mechanisms including air operated aspirating nozzles forming a part of the rotor mechanism of the machine and positioned in other locations for pulling the yarn in and pushing the yarn out of the nozzle mechanisms and deflection means positioned at various locations for deflecting the air streams and the yarn from the nozzle mechanisms in the proper paths of travel through the machine for threading of the machine.

11 Claims, 9 Drawing Figures



6 Sheets-Sheet 1

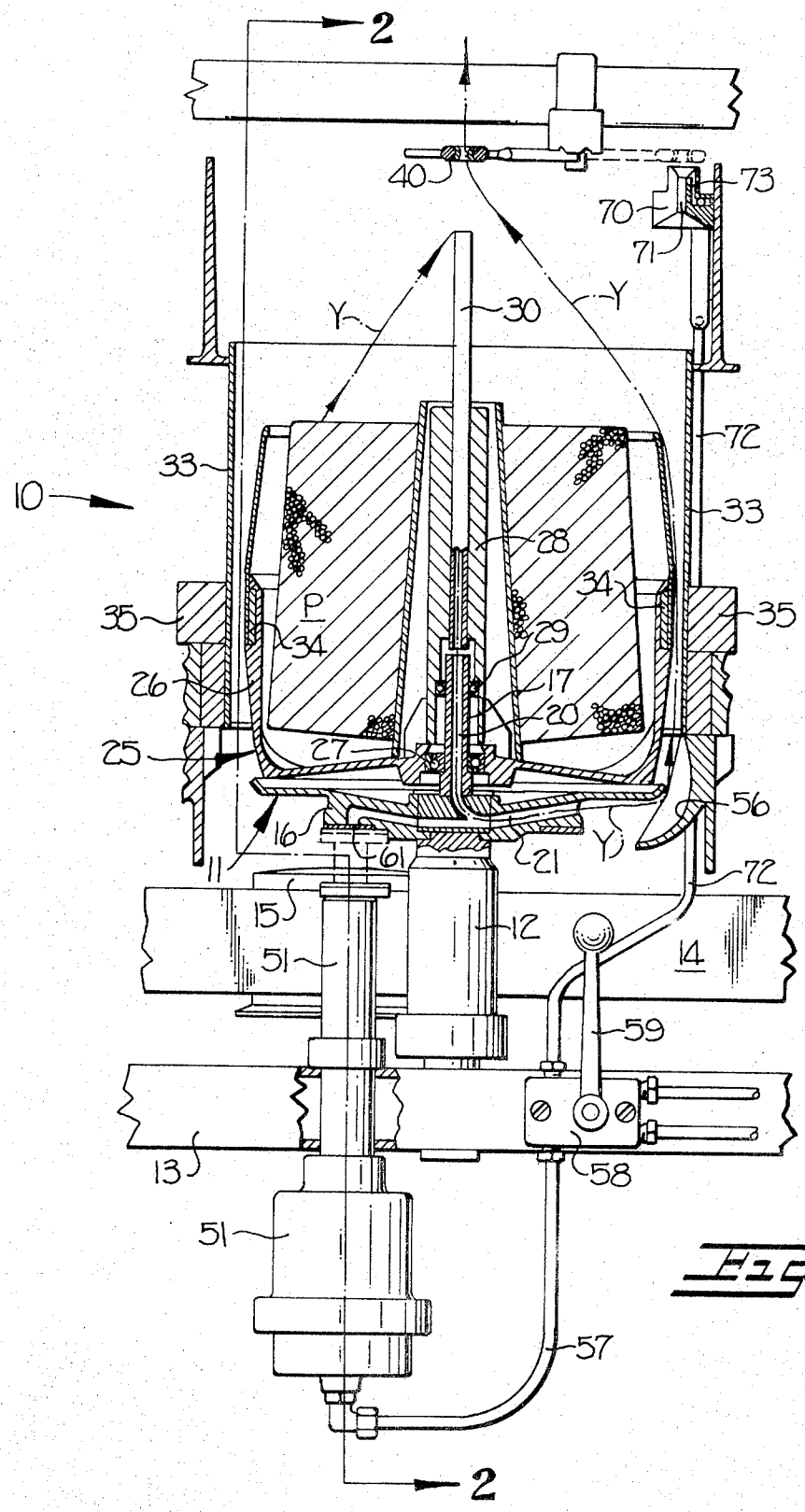


Fig-1

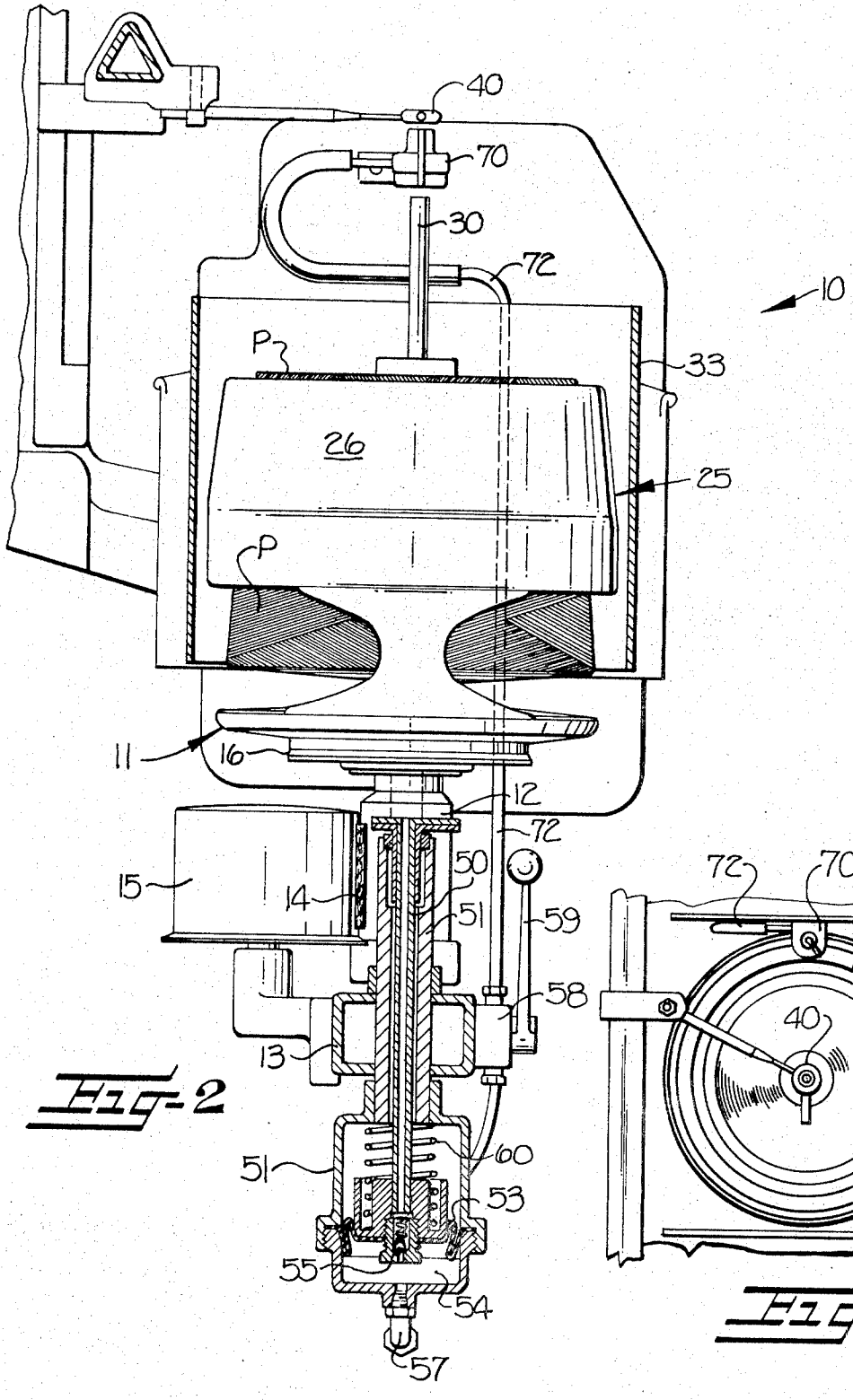

40
70
30
72
10
P
33
26
25
P
11
16
12
72
15
14
50
51
59
58
13
60
51
53
55
54
57

Fig-2

72
70
25
26
P
40
33

Fig-3

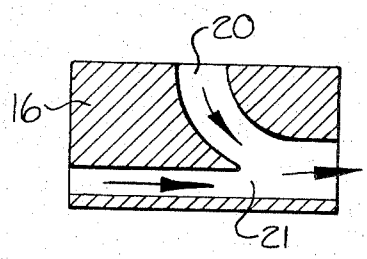


Fig. 4

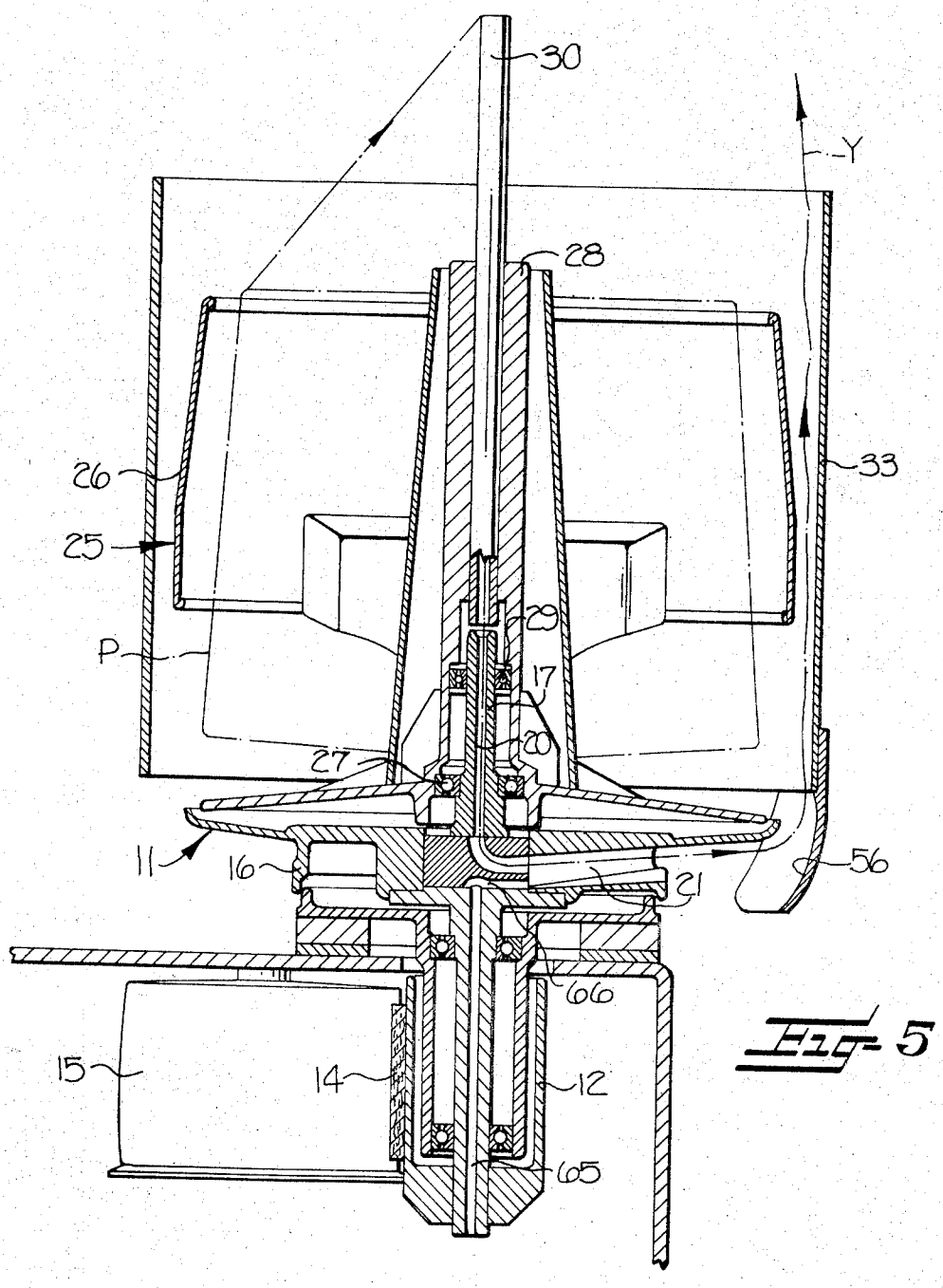


Fig. 5

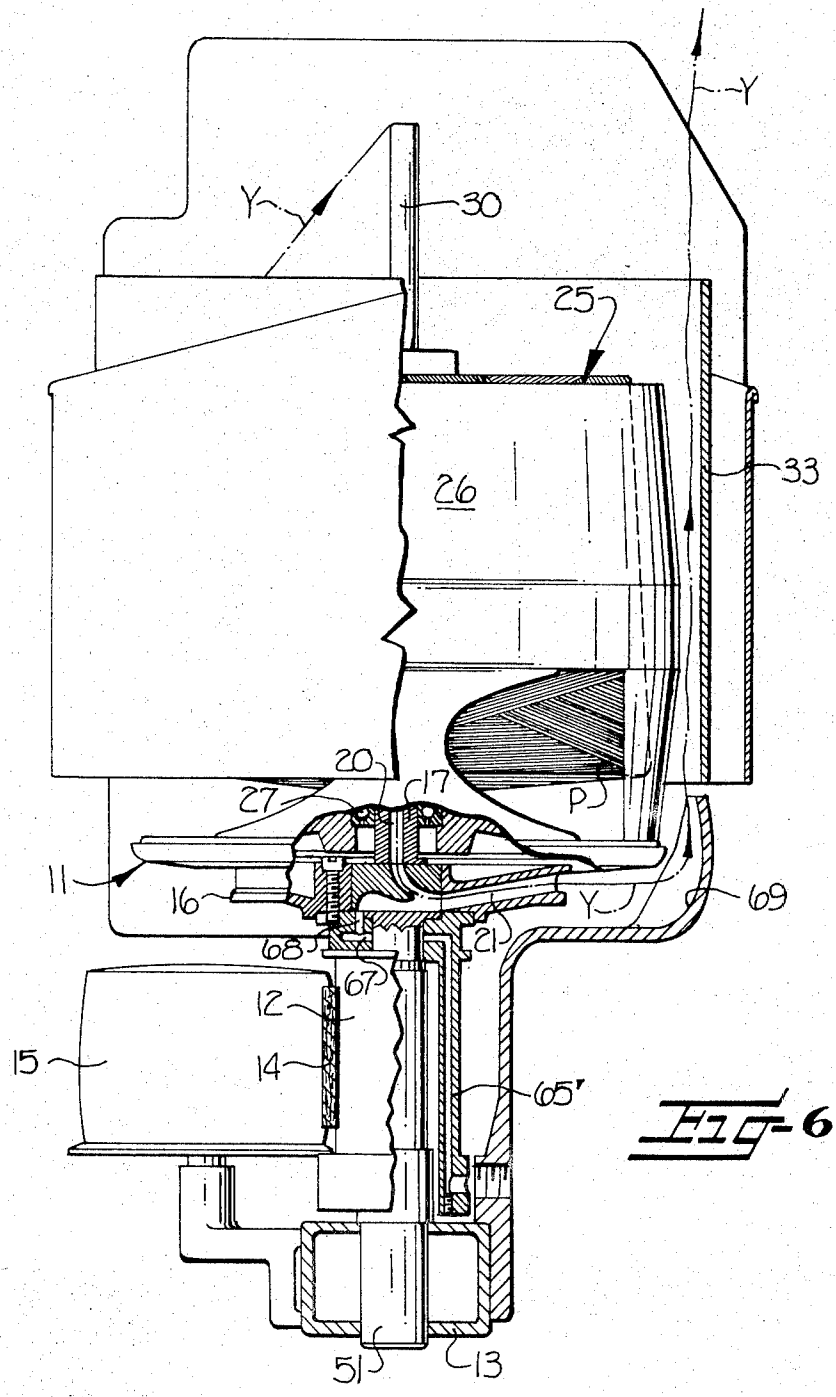


Fig-6

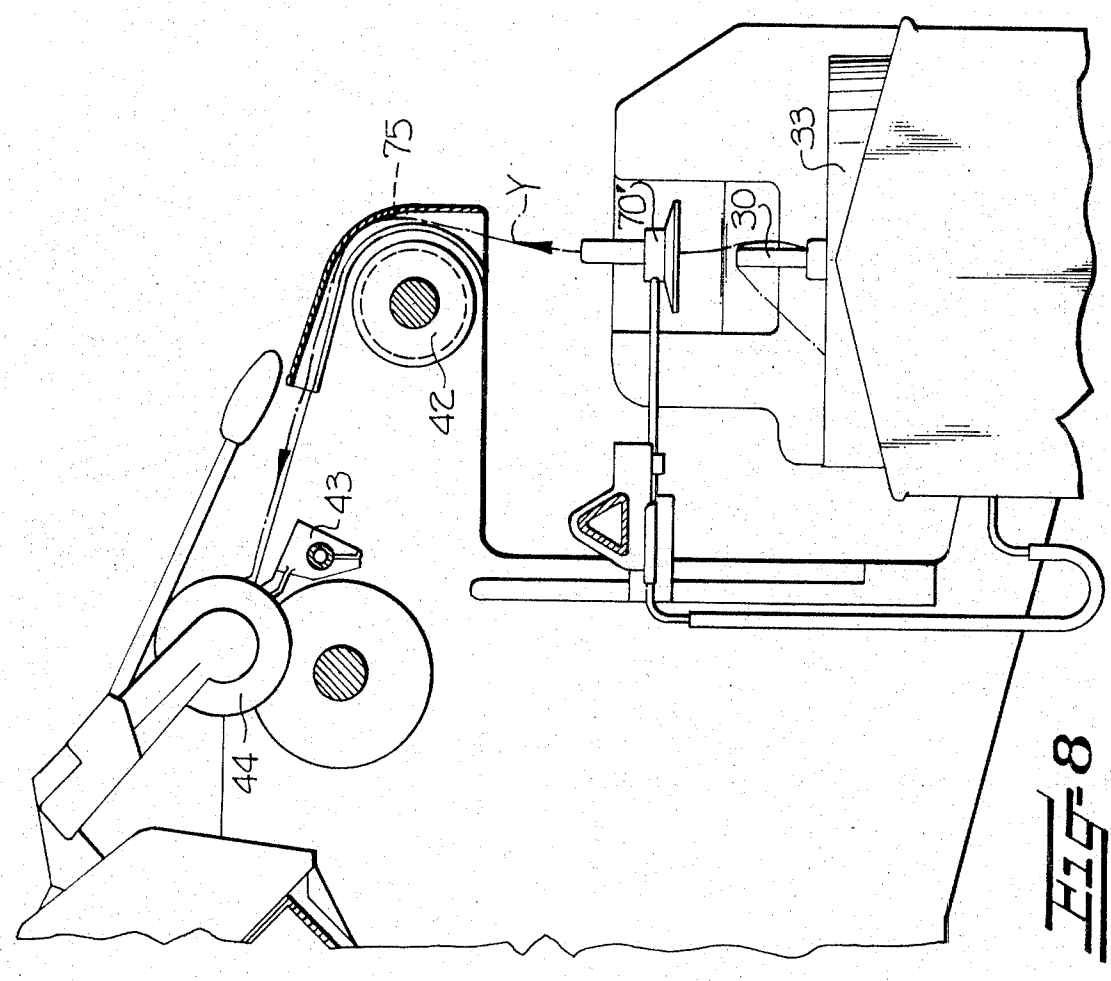


Fig-8

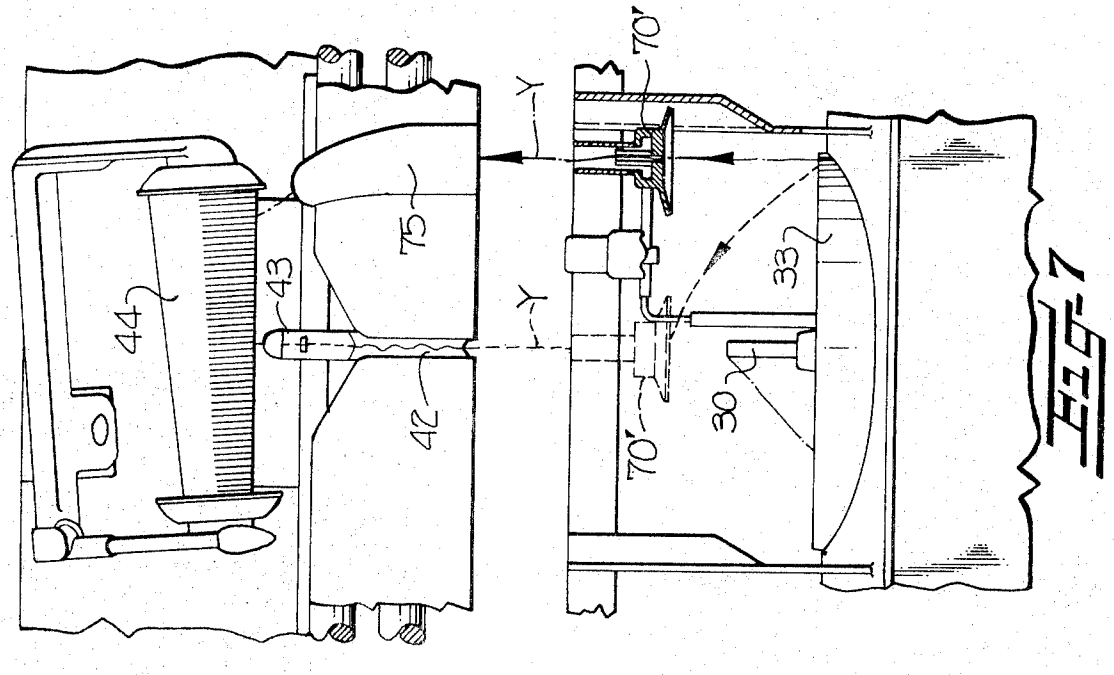


Fig-7

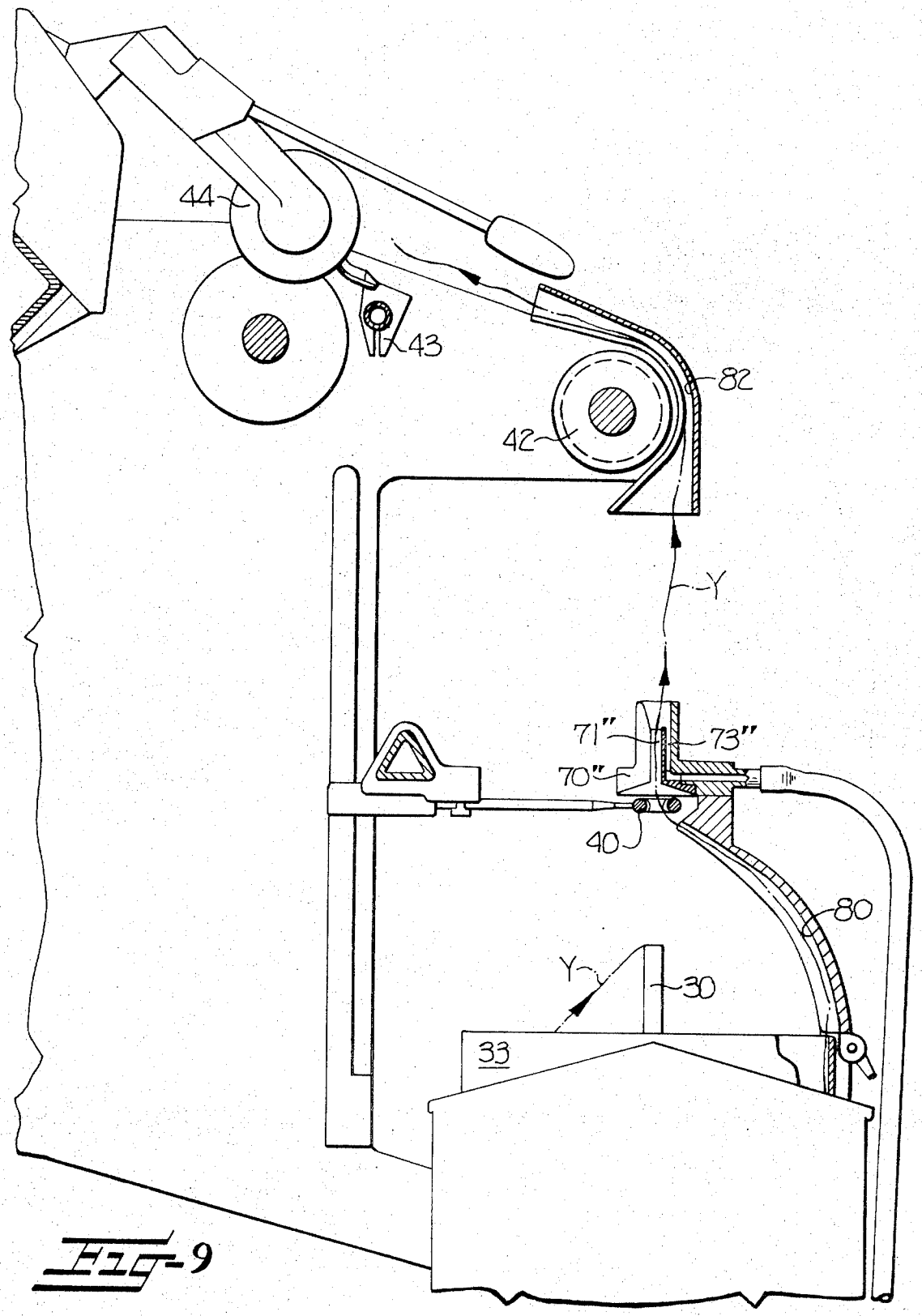


Fig-9

AIR OPERATED YARN THREADING MECHANISMS IN A TEXTILE YARN PROCESSING MACHINE

This invention relates to automatic air operated yarn threading mechanisms for use in textile yarn processing machines, such as twisters or the like.

In textile yarn processing machines, particularly two-for-one twisters, yarn is pulled from hollow packages mounted on carrier mechanisms in a plurality of spindle assemblies and passed through a yarn guide tube or the like in the hollow center of each yarn package and into a vertically-extending yarn passageway in a rotor mechanism and out of a horizontally, radially-extending passageway in the rotor mechanism. The yarn then passes upwardly in a vertical direction between a basket device and a balloon limitor device, through a yarn guide above the yarn package and generally in axial alignment therewith, to a traversing mechanism and a winding roll. As a rule, threading of the yarn through the above-described mechanisms of each spindle assembly of a two-for-one twister has been done manually.

In order to facilitate this manual threading operation, there have been previously proposed air-operated threading aids for two-for-one twisters, such as disclosed in German pat. no. 1,289,470, issued Feb. 13, 1969, and assigned to the assignee of the present application, and U.S. pat. No. 3,552,111, issued Jan. 5, 1971. In each of these patents, an air nozzle (separate and apart from any portion of the spindle assemblies of the machine) is provided for creating a positive air stream through the space between the basket device and the balloon limitor device of the machine and causing a negative air flow or suction through the hollow axle and through the reserve disk of the spindle assembly.

These mechanisms, while they aided manual threading of the machines, did not provide a completely satisfactory threading mechanism nor did they provide complete automatic threading of the entire machine. Obvious limitations on the threading ability are inherent by the use of suction or negative air flow throughout the rotor mechanism of the machine including both the hollow axle and the reserve disk and by the use of air nozzles which are separate from the rotor mechanism of the spindle assemblies of the machine.

Accordingly, it is the object of this invention to provide satisfactory, air-operated threading mechanisms in textile yarn processing machines, such as two-for-one twisters, in which the air-operated mechanisms are, as near as possible, formed as integral parts of the spindle assemblies of the machine and in which one of the air-operated nozzles forms a part of the rotor mechanism of the spindle assemblies of the machine.

It is a further object of this invention to provide automatic air-operated threading devices for textile yarn processing machines, such as two-for-one twisters, in which the various steps of threading of the individual spindle assemblies of the machine are accomplished completely automatically by the air-operated threading mechanisms.

By this invention, it has been found that the above objects may be accomplished by providing automatic air-operated threading mechanisms in a textile yarn processing machine, such as a twister or the like having

a spindle assembly including a driven rotor mechanism defining a vertically-extending passageway and a horizontally-extending yarn passageway mating with said vertically-extending passageway, a carrier means for carrying a hollow package of yarn and rotatably mounted on said rotor mechanism so that said rotor mechanism may rotate relative thereto. The air-operated threading mechanisms comprise means for supplying air under pressure through the horizontally-extending thread passageway for creating a positive air stream therethrough and a negative air stream through the vertically-extending passageway so that the yarn passageways form an aspirating nozzle directly in said rotor mechanism so that yarn pulled from the package and placed at the upper end of the vertically-extending passageway will be pulled downwardly therethrough by the negative air stream and will be pushed outwardly through the horizontally-extending passageway by the positive air stream for threading thereof.

Preferably, the threading mechanisms include a deflector means so positioned for deflecting the positive air stream and yarn carried thereby emerging from the horizontally-extending passageway of the rotor mechanism from a horizontal path of travel to a vertical path of travel upwardly between a basket device surrounding the hollow package of yarn carried by the carrier mechanism and a balloon limitor device surrounding the basket device for further automatic yarn threading.

Due to the fact that the aspirating nozzle of the threading mechanisms forms an integral part of the spindle assembly rotor mechanism, the machine construction is much more compact so that the space previously required for the threader mechanisms attached from the outside in accordance with the above German patent and U. S. patent are left free. Preferably, the deflector means for rerouting or directing the positive air stream and the yarn carried thereby is an integral part of the machine and not an additional aggregate so that attending the machine is facilitated.

In accordance with one embodiment of the invention, the means for supplying air under pressure comprises means for moving into and out of mating engagement with the horizontally-extending passageway of the rotor mechanism for providing air under pressure through the horizontally-extending passageway when a threading operation is desired. In accordance with another embodiment of the invention, the means for supplying air under pressure comprises means extending directly through the rotor mechanism and valve means for allowing the flow of air under pressure when a threading operation is desired.

Since, with the above described embodiments, the yarn may be pushed beyond the basket device and the balloon limiting device where it would normally be manually threaded through the remaining mechanisms of the machine, a preferred embodiment of the threading means may comprise a second aspirating nozzle positioned above the basket device and the balloon limitor device and having a generally vertically-extending yarn passageway therethrough and means for supplying air under pressure to the passageway to create a negative air flow in the lower portion and a positive air flow in the upper portion of the passageway so that yarn deflected upwardly between the basket device and

the balloon limitor device will be pulled into and pushed out of the yarn passageway of the second aspirating nozzle means. In this embodiment, it is preferable to have a yarn guide pivotally mounted for being positioned directly above the second aspirating nozzle means so that the second aspirating nozzle means will push the yarn therethrough for threading and for being moved to a second position away from the second nozzle means and in axial alignment with the spindle assembly for guiding the yarn in its further path through the machine. The second aspirating nozzle means preferably includes a longitudinal slot for removal of yarn from the second aspirating nozzle.

In a further embodiment of this invention, the second aspirating nozzle means may be pivotally mounted for moving from the position in which the yarn is received from its path between the basket device and the balloon limitor device to a second position in axial alignment with the spindle assembly for acting as a guide for the yarn in its further path through the machine.

For further automatic threading of the yarn processing machine, the threading means may further include a second deflection surface for deflecting the air stream and yarn emerging from the second aspirating nozzle means in the first position thereof into engagement with a winding roll for completion of the threading of the yarn through the machine.

In a further embodiment of this invention, the second aspirating nozzle means may be positioned above and generally in axial alignment with the spindle assembly and a second deflection surface is provided for deflecting the air stream and the yarn emerging from between the basket device and the balloon limitor device for reception by the second aspirating nozzle means so that the yarn will be pulled into and pushed out of the second aspirating nozzle means. In this embodiment, the threading means further comprises a third deflection surface for deflecting the air stream and yarn emerging from the second aspirating nozzle means into engagement with the winding roll of the machine for completion of the threading of the yarn through the machine.

Some of the objects of this invention having been stated, other objects will appear as the description proceeds when taken in conjunction with the accompanying drawings, in which:

FIG. 1 is a partial, cross-sectional, elevational view of a spindle assembly of a two-for-one twister having threading mechanisms in accordance with this invention;

FIG. 2 is a cross-sectional view taken generally along the line 2—2 of FIG. 1;

FIG. 3 is a top plan view of the spindle assembly of FIGS. 1 and 2;

FIG. 4 is an enlarged sectional view of portions of the yarn passageways formed in the rotor mechanism of the spindle assembly of FIG. 1 and which form an aspirating nozzle means;

FIG. 5 is a partial, cross-sectional, elevational view of a spindle assembly of a two-for-one twister utilizing a modified embodiment of threading mechanisms;

FIG. 6 is a partial, cross-sectional, elevational view of a spindle assembly of a two-for-one twister utilizing a further modified form of threading mechanisms;

FIG. 7 is a partial, cross-sectional, elevational view of the upper portion of a spindle assembly of a two-for-one twister and illustrating the winding roll and further embodiments of threading mechanisms in accordance with this invention;

FIG. 8 is a schematic, side elevational view, partially in cross-section, of the mechanism according to FIG. 7; and

FIG. 9 is a partial, cross-sectional, elevational view of the upper portion of a spindle assembly of a two-for-one twister and illustrating the winding roll and further modified forms of threading mechanisms according to this invention.

Referring now to the drawings, the threading mechanisms of this invention are illustrated specifically therein as utilized in a two-for-one textile yarn twister. Although various embodiments and modifications of threading mechanisms are illustrated in the drawings, the same parts are designated by the same reference numerals in the various figures of the drawings. The two-for-one twister, illustrated in the drawings, comprises basically a plurality of spindle assemblies, generally indicated by the reference numeral **10**. Only one spindle assembly **10** of the two-for-one textile yarn twister is illustrated in the various figures of the drawings and it is to be understood that each of the plurality of spindle assemblies in the twister are constructed similar to the one illustrated.

The spindle assembly **10** includes a rotatably driven rotor mechanism, generally indicated at **11**. The rotor mechanism **11** comprises a whorl **12** suitably rotatably mounted on the twister frame **13** and rotated by a continuous belt drive **14** including pivotally mounted roll mechanism **15** in a manner well-known to those with ordinary skill in the art. The rotor mechanism **11** further includes a horizontally-extending reserve disk **16** secured to the whorl **12** for being driven thereby and a generally vertically-extending hollow axle **17**. The reserve disk **16** and hollow axle **17** define a vertically-extending yarn passageway **20** extending through the hollow axle **17** and partly through the reserve disk **16** and a horizontally-extending yarn passageway **21** extending through at least a portion of and out of the reserve disk **16** and mating with the vertically-extending yarn passageway **20**.

The spindle assembly **10** further includes a carrier mechanism **25** for carrying a hollow package P of yarn Y and being rotatably mounted on the rotor mechanism **11** so that the rotor mechanism may rotate relative thereto. The carrier means **25** comprises generally a basket device **26** which surrounds the package P of yarn Y and is rotatably mounted by bearings **27** so that the hollow axle **17** may rotate relative thereto. The carrier means may further comprise a hollow yarn package carrier **28** rotatably mounted by bearings **29**, so that the hollow axle **17** may rotate relative thereto, and supported on the basket device **26**. The hollow yarn carrier **28** may include a yarn entry tube **30**.

The spindle assembly **10** further includes a balloon limitor device **33** surrounding the basket device **26** for purposes to be described below. In order to maintain the textile yarn package carrier means **25** at rest during rotation of the rotor mechanism **11**, there may be provided magnets **34** carried by the basket device **26** and

cooperating with magnets 35 carried by the balloon limitor device 33.

A typical spindle assembly of a two-for-one twister further includes a yarn guide eyelet 40 positioned above and in axial alignment with the hollow axle 17 and the yarn entry tube 30. There is further provided (see FIGS. 7 – 9) a pre-takeup 42, a traversing mechanism 43 and a package roll 44 upon which the yarn Y is wound after being processed or twisted by the machine. These mechanisms are all suitably mounted on the machine frame and operate in a manner well understood by those with ordinary skill in the art.

With the above described conventional spindle assembly 10 of a two-for-one twister and when the roll mechanism 15 and belt 14 are moved out of engagement with the whorl 12 to stop rotation of the rotor mechanism 11, the yarn Y is pulled from the package P and threaded through the yarn entry tube 30, through the yarn passageway 20 of the hollow axle 17 and the reserve disk 16, and out of the reserve disk 16 through the yarn passageway 21. The yarn Y is then threaded upwardly between the basket device 26 and the balloon limitor 33 to form a balloon of yarn. The yarn Y is then threaded through yarn guide outlet eyelet 40, over pre-takeup 42 and onto the winding roll 44 to complete the threading of the spindle assembly 10.

In accordance with this invention, air operated threading mechanisms are provided to automatically perform portions of the above described threading operation.

Referring to FIGS. 1 – 4, the threading mechanisms comprise generally a means for supplying air under pressure through the horizontally-extending yarn passageway 21 for crating a positive air stream therethrough and a negative air stream through the vertically-extending yarn passageway 20 so that the passageways 20 and 21 form an aspirating nozzle.

For this purpose, the air supply means may comprise an air conduit 50 which is generally vertically-extending and is mounted for vertical movement in a housing 51 suitably carried by the machine frame 13. In the lower portion of the housing 51 (see FIG. 2) the air conduit 50 is connected to a flexible rubber or other suitable diaphragm 53 which forms an expansion chamber 54 in the lower portion of the housing 51. Also, a ball check valve 55 is connected to the lower portion of the conduit 50. Air is supplied to the chamber 54 by a conduit 57 which leads from a manually operated valve 58 controlled by a handle 59. Air is supplied to and through the valve 58 under pressure from any suitable source of supply.

Thus, when the handle 59 is moved to the position in which the valve 58 is open through the conduit 57, air under pressure will be supplied to the chamber 54 in the housing 51 causing the diaphragm 53 to expand upwardly and move the conduit 50 against the bias of a spring 60 such that the conduit 50 will be moved into engagement with the lower portion of the reserve disk 16. The reserve disk 16 includes a port 61 which mates with the conduit 50 allowing air under pressure to flow into and through the horizontally-extending yarn passageway 21. This causes a positive air stream to flow through the conduit 21 and creates a suction on negative air stream through the yarn passageway 20 converting these passageways 20 and 21 into an aspirating nozzle, as may be seen by the arrows in FIG. 4.

Thus, with the yarn passageways 20 and 21 converted into an aspirating nozzle, yarn Y may be placed at the upper end of yarn entry tube 30 and will be sucked or pulled through the yarn entry tube 30 and the vertically-extending passageway 20 by the negative airstream and forced out of the horizontally-extending passageway 21 by the positive air stream, thus effecting threading of the yarn Y through these portions of the spindle assembly 10.

For further threading of the yarn Y, a deflection surface 56 may be formed as an integral portion of the balloon limitor device 33, in the manner shown in FIG. 1, so that the positive air stream and yarn Y emerging from the horizontally-extending passageway 21 in the reserve disk 16 will be deflected by the deflector surface 56 upwardly between the basket device 26 and the balloon limitor device 33 for effecting this portion of the threading of the spindle assembly 10. When threading is completed, the lever 59 of the valve 58 may be moved to a position closing the supply of air to the conduit 57 and allowing the conduit 50 to move under the bias of the spring 60 away from the port 61 in the reserve disk 16. This will stop the flow of air through the yarn passageway 21 and allow the spindle assembly to operate in a conventional manner.

Referring now to FIG. 5, a modified form of a means for supplying air to the yarn passageway 21 and the reserve disk 16 is illustrated. In this embodiment, an air supply conduit is mounted directly in the whorl 12 and extends upwardly therethrough in axial alignment with the hollow axle 17. The conduit 65 mates with an air passageway 66 in the reserve disk 16 which extends horizontally to the right and merges into horizontally-extending yarn passageway 21 so as to create a positive air stream through yarn passageway 21 and a negative air stream through yarn passageway 20 to form an aspirating nozzle, in the same manner as described above with respect to the embodiment of FIGS. 1 – 4. Air is supplied to the conduit 65 by means of a conduit 57 and valve 58 (not shown) in the manner described above so that when the rotor mechanism 11 is stopped in the manner described above, the handle 59 of valve 58 may be moved to a position allowing the flow of air under pressure through the conduit 57 and into the conduit 65, into the air passageway 66 and into the yarn passageway 21. The threading operation of this embodiment is the same as described above.

Referring now to the embodiment of FIG. 6, there is shown a slightly modified form of the embodiment of FIG. 5 wherein an air supply conduit 65′ extends through the whorl 12 of the rotor mechanism 11 but extends parallel to the axis thereof and slightly offset. The conduit 65′ connects with a conduit 67 which in turn connects with a conduit 68 extending into and mating with the horizontally-extending yarn passageway 21 in the reserve disk 16 to create a positive air flow therethrough and a negative air stream through the vertically-extending yarn passageway 20. The embodiment of FIG. 6 operates in the same manner as described above and will not be repeated herein. Additionally, the embodiment of FIG. 6 includes a slightly modified form of deflector means which comprises a deflector surface 69 formed separately from the balloon limitor device 33 and suitable secured to the machine frame. The threading operation of the embodiment of FIG. 6 operates in the same manner as described above.

For further threading of the yarn Y as it emerges from the space between the basket device **26** and the balloon limitor device **33**, the threading mechanisms of this invention may further include a second aspirating nozzle mechanism **70**, as illustrated in FIGS. **1** and **2**. This second aspirating nozzle mechanism **70** includes a generally vertically-extending yarn passageway **71** and a means for supplying air under pressure to the passageway **71** to create a negative air stream in the lower portion thereof and a positive air stream in the upper portion thereof so that yarn deflected upwardly between the basket device **26** and the balloon limitor device **33** will be pulled into and pushed out of the yarn passageway **71** of the second aspirating nozzle mechanism **70**.

The means for supplying air under pressure to the yarn passageway **71** of the second aspirating nozzle mechanism **70** may include an air conduit **72** extending from the valve mechanism **58** and connecting with an air passageway **73** in the second aspirating nozzle mechanism **70** which merges with the yarn passageway **71** to create the above described air flow. Air under pressure will be supplied through the conduit **72** and the conduit **73** into the second aspirating nozzle mechanism **70** when the manually actuated handle **59** of the valve **58** is moved into position for activating the first aspirating nozzle mechanism.

For cooperation with the second aspirating nozzle mechanism **70**, the yarn guide eyelet **40** may be pivotally mounted, as shown in FIGS. **1** and **2** so that it may be placed in a first position in axial alignment above the second aspirating nozzle mechanism **70**, as indicated in dotted lines in FIG. **1**, so that as the yarn Y emerges from the space between the basket device **26** and the balloon limitor device **33** and is pulled into and pushed out of the second aspirating nozzle mechanism **70**, the yarn will be pushed through the yarn guide eyelet **40**. The yarn guide eyelet **40** may then be pivotally moved to its second operating position, as indicated in solid lines in FIG. **1**, which is in axial alignment with the yarn entry tube **30** and the hollow axle mechanism **17** for further passage of the yarn Y through the machine to the package roll **44**.

In another embodiment of threading mechanisms in accordance with this invention, a second aspirating nozzle mechanism **70'** (see FIGS. **7** and **8**) may be utilized which is pivotally mounted for moving from a first position above the space between the basket device **26** and the balloon limitor device **33** where it will receive the yarn Y emerging therefrom in the manner described above with respect to the second aspirating nozzle **70**, to a second position above and in axial alignment with the yarn package P, the entry tube **30** and the hollow axle device **17**. In this embodiment, the second aspirating nozzle **70'** may be utilized in lieu of the yarn guide eyelet **40** when positioned in its second position.

With respect to the embodiment of FIGS. **7** and **8**, the threading mechanisms of this invention may include a third deflection surface **75** so that as the yarn is pulled into and pushed out of the second aspirating nozzle mechanism **70'**, the air stream and yarn Y will be deflected by the deflection surface **75** into contact with one end of the package roll **44** for completing threading of the yarn Y through the machine. After the yarn Y is received on the package yarn **44**, the second aspirating nozzle **71** will be pivoted to its second position in axial alignment with the yarn package P for acting as a guide for leading the yarn Y through the traversing mechanism **43**.

In the last illustrated embodiment in accordance with this invention in FIG. **9**, a second aspirating nozzle mechanism **70''**, which is constructed in the same manner as the second aspirating nozzle **70** and **70'**, is positioned in axial alignment with the yarn package P, the yarn entry tube **30** and the hollow axle **17**. For purposes of guiding the yarn Y to the second aspirating nozzle mechanism **70''** so positioned, there is provided a third deflection surface **80** so positioned for deflecting the positive air stream and the yarn Y emerging from the space between the basket device **26** and the balloon limitor device **33** into position for pulling in and pushing out of the yarn Y by the second aspirating nozzle mechanism **70''**. In this embodiment, a fourth deflection surface **82** is provided above and in axial alignment with the second aspirating nozzle mechanism **70''** for receiving and deflecting the positive air stream and the yarn Y emerging from the second aspirating nozzle mechanism **70''** into engagement with the package roll **44**, thus completing threading of the yarn Y through the machine.

Accordingly, it may be seen that the air operated threading mechanisms according to this invention may be utilized in various embodiments for providing a portion of all of the threading operations required in a conventional spindle assembly of a two-for-one twister. These mechanisms for the most part are integrally formed with portions of the spindle assembly to conserve space and to provide the proper positive and negative air streams to assure automatic threading of the machine.

In the drawings and specification there have been set forth preferred embodiments of the invention and, although specific terms are employed, they are used in a generic and descriptive sense only and not for purposes of limitation.

That which is claimed is:

1. In a textile yarn processing machine, such as a twister or the like, having a spindle assembly including a driven rotor mechanism defining a vertically-extending yarn passageway and a horizontally-extending yarn passageway mating with said vertically-extending passageway, a carrier means for carrying a hollow package of yarn and rotatably mounted on said rotor mechanism so that said rotor mechanism may rotate relative thereto, said carried means including a basket device surrounding the package of yarn carried thereby so that yarn withdrawn from the package can form a balloon over said basket device as it passes from said rotor mechanism, a balloon limitor device surrounding said basket device so that the yarn balloon will pass between said basket device and said balloon limitor device in a generally upward vertical path of travel; the improvement of air-operated threading mechanisms for automatically threading yarn pulled from the package through said passageways of said rotor mechanism, said threading mechanisms comprising means for supplying air under pressure through said horizontally-extending yarn passageway for creating a positive air stream therethrough and a negative air stream through said

vertically-extending passageway so that said passageways form an aspirating nozzle and so that yarn pulled from the package and placed at the upper end of said vertically-extending passageway will be pulled downwardly therethrough by the negative air stream and will be pushed outwardly through the horizontally-extending passageway by the positive air stream for threading thereof, and a deflector means positioned for deflecting the positive air stream and yarn carried thereby emerging from said horizontally-extending passageway of said rotor mechanism from a horizontal path of travel to a vertical path of travel upwardly between said basket device and said balloon limitor device for threading thereof.

2. In a textile yarn processing machine, as set forth in claim 1, in which said means for supplying air under pressure comprises means for moving into and out of mating engagement with said horizontally-extending passageway of said rotor mechanism for providing air under pressure through said horizontally-extending passageway when a threading operation is desired.

3. In a textile yarn processing machine, as set forth in claim 1, in which said threading mechanisms further comprise a second aspirating nozzle means positioned above said basket device and said balloon limitor device and having a generally vertically-extending yarn passageway therethrough and means for supplying air under pressure to said passageway to create a negative air flow in the lower portion and a positive air flow in the upper portion of said passageway so that yarn deflected upwardly between said basket device and said balloon limitor device will be pulled into and pushed out of said yarn passageway of said second aspirating nozzle means.

4. In a textile yarn processing machine, as set forth in claim 3, in which said machine includes a yarn guide pivotally mounted for being positioned directly above said second aspirating nozzle means so that said second nozzle means will push the yarn therethrough for threading and for being moved to a second position away from said second aspirating nozzle means and in axial alignment with said spindle assembly for guiding the yarn in its further path through said machine, and said passageway in said second aspirating nozzle means including a longitudinal slot therein for allowing removal of the yarn from said second aspirating nozzle means when said yarn guide is moved to its second position.

5. In a textile yarn processing machine, as set forth in claim 3, in which said second aspirating nozzle means is pivotally mounted for moving from the position in which the yarn is received from its path between said basket device and said balloon limitor device to a second position in axial alignment with said spindle assembly for guiding the yarn in its further path through said machine.

6. In a textile yarn processing machine, as set forth in claim 5, in which said machine further includes a winding roll for winding of the yarn processed by said machine, and in which said threading mechanisms further include a second deflection surface for deflecting the air stream and yarn emerging from said second aspirating nozzle means in the first position thereof into engagement with said winding roll for completion of the threading of the yarn through said machine.

7. In a textile yarn processing machine, as set forth in claim 1, in which said threading mechanisms further comprise a second aspirating nozzle means positioned above and generally in axial alignment with said spindle assembly and having a generally vertically-extending yarn passageway therethrough and means for supplying air under pressure to said passageway to create a negative air flow in the lower portion and a positive air flow in the upper portion of said passageway, and a second deflection means for deflecting the air stream and yarn emerging from between said basket device and said balloon limitor device for reception by said second aspirating nozzle means so that the yarn will be pulled into and pushed out of the yarn passageway of said second aspirating nozzle means.

8. In a textile yarn processing machine, as set forth in claim 7, in which said machine further includes a winding roll for winding of the yarn processed by said machine, and in which said threading mechanisms further include a third deflection surface for deflecting the air stream and yarn emerging from said second aspirating nozzle means into engagement with said winding roll for completion of the threading of the yarn through said machine.

9. In a textile yarn twister, such as a two-for-one twister, having a spindle assembly including a rotatably driven rotor mechanism comprising a whorl, a horizontally-extending reserve disk secured to said whorl for being driven thereby and a generally vertically-extending hollow axle secured to said reserve disk and driven thereby, said reserve disk and said hollow axle defining a vertically-extending yarn passageway extending through said hollow axle and partly through said reserve disk and a horizontally-extending yarn passageway through at least a portion of and out of said reserve disk and mating with said vertically-extending passageway, a carrier means for carrying a hollow package of yarn and rotatably mounted on said rotor mechanism so that said rotor mechanism may rotate relative thereto; the improvement of air-operated threading mechanisms for automatically threading yarn pulled from the package through said passageway in said hollow axle and said reserve disk of said rotor mechanism, the threading mechanism comprising means for supplying air under pressure through said horizontally extending thread passageway for creating a positive air stream therethrough and a negative air stream through said vertically-extending passageway so that said passageways form an aspirating nozzle integrally within said rotor mechanism and so that yarn pulled from the package and placed at the upper end of said vertically-extending passageway will be pulled downwardly therethrough by the negative air stream and will be pushed outwardly through the horizontally-extending passageway by the positive air stream for threading thereof, said means for supplying air under pressure comprising a port formed in said reserve disk and mating with said horizontally-extending yarn passageway therein, an air conduit means extending generally parallel with the axis of said rotor mechanism and including an air actuated diaphragm means for moving said conduit into and out of mating engagement with said port, and manually operated valve means for selectively supplying air to said diaphragm means and to said conduit means for selectively moving said con-

duit means into mating engagement with said port for providing air under pressure through said horizontally-extending passageway when a threading operation is desired.

10. In a textile yarn twister, as set forth in claim 9, in which said means for supplying air under pressure comprises a port formed in said reserve disk and mating with said horizontally-extending yarn passageway therein, an air conduit means extending generally parallel with the axis of said rotor mechanism and including an air actuated diaphragm means for moving said conduit into and out of mating engagement with said port, and manually operated valve means for selectively supplying air to said diaphragm means and to said conduit means for selectively moving said conduit means into mating engagement with said port for providing air under pressure through said horizontally-extending passageway when a threading operation is desired.

11. In a textile yarn twister, as set forth in claim 1, in which said means for supplying air under pressure comprises an air conduit means extending directly through said whorl mechanism and mating with said horizontally-extending yarn passageway in said reserve disk, and manually operated valve means for selectively allowing the flow of air under pressure through said conduit means and into said horizontally-extending yarn passageway when a threading operation is desired.

* * * * *